

START

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to:

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1200 O.G. 98, on July 29, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was decreased, effective July 1, 1997, and was announced in the *Official Gazette* at 1200 O.G. 97, on July 29, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1996, and were announced in the *Official Gazette* at 1189 O.G. 62, on August 20, 1996.

The schedule of PCT fees (in U.S. dollars), effective July 1, 1997, is as follows:

International Application (PCT Chapter I) fees:	
Transmittal fee.....	230.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
— No corresponding prior U.S. national application filed.....	680.00
— Corresponding prior U.S. national application filed.....	440.00
— Supplemental search fee, per additional invention (payable only upon invitation)	200.00
European Patent Office as ISA.....	1310.00
International fees	
Basic fee	530.00
Basic supplemental fee (for each page over 30).....	10.00
Designation fee per country or region	
— For the first 11 national or regional offices designated.....	128.00
— For each designation in excess of 11 offices	No Charge
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)	
— Designation fee.....	128.00
— Confirmation fee	64.00
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:	
Handling fee	162.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
— USPTO was ISA in PCT Chapter I	480.00
— Additional examination fee, per additional invention (payable only upon invitation).....	140.00

— USPTO was not ISA in PCT Chapter I	730.00
— Additional examination fee, per additional invention (payable only upon invitation)	260.00

U.S. National Stage Fees	Small Entity	Regular
Basic National fee		
USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4).....	48.00	96.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	350.00	700.00
USPTO was ISA but not IPEA.....	385.00	770.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	520.00	1040.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	455.00	910.00
Other National fees		
— For each independent claim in excess of 3.....	40.00	80.00
— For each claim in excess of 20.....	11.00	22.00
— For each application containing a multiple dependent claim.....	130.00	260.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1).....	130.00	130.00

July 7, 1997

BRUCE A. LEHMAN
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on September 20, 1994 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,347,655 through 5,349,701
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on September 18, 1990 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,956,878 through 4,958,382
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on September 16, 1986 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,611,353 through 4,612,671
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1996, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f))\$510.00
By other than a small entity\$1,020.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f))\$1,025.00
By other than a small entity\$2,050.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f))\$1,540.00
By other than a small entity\$3,080.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f))\$65.00
By other than a small entity\$130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable\$680.00
(2) unintentional\$1,600.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED July 16, 1997 DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 33,919	07/442,729	05/12/92
(4,846,122)	(07/167,402)	(07/11/89)
Re. 34,138	07/071,738	12/08/92
(4,528,953)	(06/524,532)	(07/16/85)
Re. 34,212	07/689,670	04/06/93
(4,846,458)	(07/082,347)	(07/11/89)
Re. 34,243	07/728,537	05/04/93
(4,846,810)	(07/072,534)	(07/11/89)
4,528,699	06/639,680	07/16/85
4,528,704	06/612,836	07/16/85
4,528,710	06/452,963	07/16/85
4,528,716	06/564,251	07/16/85
4,528,720	06/461,615	07/16/85
4,528,721	06/581,782	07/16/85
4,528,729	06/527,312	07/16/85
4,528,730	06/548,687	07/16/85
4,528,731	06/430,827	07/16/85
4,528,739	06/481,346	07/16/85
4,528,743	06/455,884	07/16/85
4,528,745	06/511,193	07/16/85
4,528,753	06/540,613	07/16/85
4,528,763	06/571,494	07/16/85
4,528,764	06/587,150	07/16/85
4,528,769	06/578,296	07/16/85
4,528,771	06/612,719	07/16/85
4,528,783	06/671,070	07/16/85
4,528,784	06/494,858	07/16/85
4,528,787	06/593,405	07/16/85
4,528,791	06/466,338	07/16/85
4,528,794	06/498,959	07/16/85
4,528,798	06/580,210	07/16/85
4,528,801	06/492,149	07/16/85
4,528,810	06/553,132	07/16/85
4,528,812	06/513,861	07/16/85
4,528,819	06/608,058	07/16/85
4,528,822	06/648,230	07/16/85
4,528,834	06/600,282	07/16/85
4,528,837	06/578,425	07/16/85
4,528,840	06/577,150	07/16/85
4,528,858	06/608,585	07/16/85
4,528,864	06/485,035	07/16/85
4,528,868	06/391,579	07/16/85
4,528,870	06/374,891	07/16/85
4,528,877	06/462,311	07/16/85
4,528,888	06/505,071	07/16/85
4,528,892	06/469,403	07/16/85
4,528,899	06/615,747	07/16/85
4,528,900	06/540,982	07/16/85
4,528,913	06/433,331	07/16/85
4,528,918	06/601,613	07/16/85
4,528,927	06/526,111	07/16/85
4,528,931	06/523,094	07/16/85
4,528,942	06/599,834	07/16/85
4,528,955	06/458,324	07/16/85
4,528,964	06/543,983	07/16/85
4,528,968	06/623,313	07/16/85
4,528,970	06/452,015	07/16/85
4,528,971	06/436,626	07/16/85
4,528,973	06/512,556	07/16/85
4,528,975	06/538,327	07/16/85
4,528,984	06/488,124	07/16/85

Patent Number	Serial Number	Issue Date			
4,528,985	06/332,925	07/16/85	4,529,382	06/369,932	07/16/85
4,528,986	06/401,392	07/16/85	4,529,383	06/608,503	07/16/85
4,528,990	06/508,033	07/16/85	4,529,387	06/531,614	07/16/85
4,528,996	06/564,264	07/16/85	4,529,392	06/473,109	07/16/85
4,528,999	06/579,839	07/16/85	4,529,398	06/397,471	07/16/85
4,529,001	06/505,797	07/16/85	4,529,411	06/605,716	07/16/85
4,529,006	06/633,668	07/16/85	4,529,412	06/552,895	07/16/85
4,529,007	06/580,830	07/16/85	4,529,416	06/465,845	07/16/85
4,529,009	06/520,040	07/16/85	4,529,425	06/516,840	07/16/85
4,529,010	06/554,348	07/16/85	4,529,428	06/555,244	07/16/85
4,529,019	06/523,900	07/16/85	4,529,429	06/492,099	07/16/85
4,529,024	06/566,834	07/16/85	4,529,435	06/369,681	07/16/85
4,529,026	06/453,093	07/16/85	4,529,442	06/604,097	07/16/85
4,529,037	06/600,631	07/16/85	4,529,443	06/604,099	07/16/85
4,529,038	06/409,455	07/16/85	4,529,446	06/566,854	07/16/85
4,529,040	06/558,550	07/16/85	4,529,453	06/439,883	07/16/85
4,529,042	06/433,715	07/16/85	4,529,457	06/399,397	07/16/85
4,529,053	06/452,841	07/16/85	4,529,458	06/399,398	07/16/85
4,529,055	06/576,804	07/16/85	4,529,471	06/635,159	07/16/85
4,529,063	06/515,385	07/16/85	4,529,473	06/505,931	07/16/85
4,529,066	06/372,613	07/16/85	4,529,478	06/532,156	07/16/85
4,529,078	06/331,927	07/16/85	4,529,479	06/493,162	07/16/85
4,529,080	06/524,725	07/16/85	4,529,485	06/496,784	07/16/85
4,529,090	06/623,887	07/16/85	4,529,487	06/537,335	07/16/85
4,529,093	06/506,528	07/16/85	4,529,491	06/431,526	07/16/85
4,529,105	06/477,133	07/16/85	4,529,497	06/593,712	07/16/85
4,529,112	06/578,788	07/16/85	4,529,498	06/507,584	07/16/85
4,529,121	06/610,161	07/16/85	4,529,499	06/507,586	07/16/85
4,529,130	06/372,017	07/16/85	4,529,502	06/584,024	07/16/85
4,529,144	06/494,696	07/16/85	4,529,506	06/520,894	07/16/85
4,529,146	06/591,574	07/16/85	4,529,508	06/573,056	07/16/85
4,529,163	06/602,546	07/16/85	4,529,517	06/552,124	07/16/85
4,529,175	06/478,238	07/16/85	4,529,519	06/488,672	07/16/85
4,529,176	06/544,753	07/16/85	4,529,522	06/589,917	07/16/85
4,529,184	06/456,577	07/16/85	4,529,525	06/412,690	07/16/85
4,529,185	06/513,965	07/16/85	4,529,527	06/610,128	07/16/85
4,529,186	06/642,378	07/16/85	4,529,529	06/576,227	07/16/85
4,529,214	06/590,784	07/16/85	4,529,531	06/582,352	07/16/85
4,529,218	06/369,649	07/16/85	4,529,537	06/627,983	07/16/85
4,529,221	06/489,551	07/16/85	4,529,544	06/527,379	07/16/85
4,529,222	06/498,433	07/16/85	4,529,547	06/622,508	07/16/85
4,529,223	06/513,028	07/16/85	4,529,548	06/607,920	07/16/85
4,529,227	06/501,647	07/16/85	4,529,551	06/501,732	07/16/85
4,529,233	06/409,867	07/16/85	4,529,552	06/463,880	07/16/85
4,529,237	06/447,546	07/16/85	4,529,558	06/459,946	07/16/85
4,529,242	06/424,288	07/16/85	4,529,574	06/575,638	07/16/85
4,529,244	06/442,861	07/16/85	4,529,577	06/629,652	07/16/85
4,529,246	06/248,852	07/16/85	4,529,578	06/532,138	07/16/85
4,529,250	06/464,856	07/16/85	4,529,584	06/564,966	07/16/85
4,529,251	06/463,318	07/16/85	4,529,585	06/564,967	07/16/85
4,529,265	06/363,842	07/16/85	4,529,588	06/584,012	07/16/85
4,529,266	06/436,416	07/16/85	4,529,599	06/559,700	07/16/85
4,529,273	06/451,849	07/16/85	4,529,603	06/604,965	07/16/85
4,529,274	06/400,710	07/16/85	4,529,605	06/457,432	07/16/85
4,529,285	06/582,635	07/16/85	4,529,607	06/625,384	07/16/85
4,529,294	06/590,248	07/16/85	4,529,609	06/380,143	07/16/85
4,529,295	06/510,074	07/16/85	4,529,615	06/535,309	07/16/85
4,529,300	06/525,880	07/16/85	4,529,619	06/631,414	07/16/85
4,529,306	06/503,493	07/16/85	4,529,620	06/574,928	07/16/85
4,529,307	06/482,066	07/16/85	4,529,649	06/543,185	07/16/85
4,529,308	06/383,295	07/16/85	4,529,650	06/317,445	07/16/85
4,529,315	06/461,798	07/16/85	4,529,651	06/458,059	07/16/85
4,529,320	06/532,166	07/16/85	4,529,657	06/355,275	07/16/85
4,529,323	06/549,715	07/16/85	4,529,669	06/532,521	07/16/85
4,529,335	06/477,613	07/16/85	4,529,671	06/414,394	07/16/85
4,529,339	06/479,134	07/16/85	4,529,672	06/480,619	07/16/85
4,529,341	06/427,658	07/16/85	4,529,689	06/547,472	07/16/85
4,529,345	06/545,627	07/16/85	4,529,693	06/560,030	07/16/85
4,529,353	06/461,531	07/16/85	4,529,705	06/501,028	07/16/85
4,529,354	06/501,390	07/16/85	4,529,706	06/476,148	07/16/85
4,529,357	06/561,147	07/16/85	4,529,710	06/492,926	07/16/85
4,529,359	06/490,843	07/16/85	4,529,711	06/505,674	07/16/85
4,529,361	06/600,149	07/16/85	4,529,712	06/303,704	07/16/85
4,529,365	06/555,436	07/16/85	4,529,713	06/390,938	07/16/85
4,529,371	06/617,869	07/16/85	4,529,717	06/608,342	07/16/85
4,529,372	06/418,757	07/16/85	4,529,721	06/534,147	07/16/85
4,529,378	06/563,299	07/16/85	4,529,727	06/576,291	07/16/85
			4,529,728	06/569,908	07/16/85
			4,529,740	06/652,400	07/16/85

Patent Number	Serial Number	Issue Date			
4,529,741	06/664,914	07/16/85	4,845,786	07/066,755	07/11/89
4,529,745	06/490,219	07/16/85	4,845,791	07/181,831	07/11/89
4,529,747	06/573,316	07/16/85	4,845,792	07/186,950	07/11/89
4,529,750	06/591,992	07/16/85	4,845,806	07/120,119	07/11/89
4,529,753	06/598,977	07/16/85	4,845,812	07/115,752	07/11/89
4,529,755	06/544,242	07/16/85	4,845,813	07/133,477	07/11/89
4,529,757	06/530,838	07/16/85	4,845,817	07/212,906	07/11/89
4,529,760	06/547,814	07/16/85	4,845,819	07/008,898	07/11/89
4,529,762	06/662,473	07/16/85	4,845,827	07/206,020	07/11/89
4,529,765	06/598,477	07/16/85	4,845,832	07/199,274	07/11/89
4,529,778	06/534,835	07/16/85	4,845,843	07/129,825	07/11/89
4,529,780	06/322,940	07/16/85	4,845,845	07/248,268	07/11/89
4,529,782	06/552,735	07/16/85	4,845,858	07/067,485	07/11/89
4,529,783	06/502,790	07/16/85	4,845,859	07/145,572	07/11/89
4,529,794	06/594,539	07/16/85	4,845,867	07/167,706	07/11/89
4,529,802	06/486,813	07/16/85	4,845,869	07/097,684	07/11/89
4,529,803	06/227,830	07/16/85	4,845,876	07/219,252	07/11/89
4,529,808	06/576,513	07/16/85	4,845,878	07/231,996	07/11/89
4,529,812	06/558,471	07/16/85	4,845,888	07/071,366	07/11/89
4,529,817	06/472,410	07/16/85	4,845,891	07/130,025	07/11/89
4,529,819	06/622,911	07/16/85	4,845,897	07/140,821	07/11/89
4,529,822	06/543,532	07/16/85	4,845,899	07/129,722	07/11/89
4,529,833	06/560,213	07/16/85	4,845,902	07/235,778	07/11/89
4,529,841	06/621,896	07/16/85	4,845,903	07/144,492	07/11/89
4,529,843	06/526,230	07/16/85	4,845,904	07/202,629	07/11/89
4,529,845	06/596,174	07/16/85	4,845,908	06/790,239	07/11/89
4,529,850	06/631,096	07/16/85	4,845,911	07/108,108	07/11/89
4,529,851	06/509,314	07/16/85	4,845,919	07/138,087	07/11/89
4,529,853	06/319,284	07/16/85	4,845,921	07/116,484	07/11/89
4,529,858	06/530,218	07/16/85	4,845,923	07/082,440	07/11/89
4,529,862	06/522,517	07/16/85	4,845,927	07/143,538	07/11/89
4,529,866	06/474,390	07/16/85	4,845,930	07/189,259	07/11/89
4,529,882	06/406,332	07/16/85	4,845,935	07/000,450	07/11/89
4,529,885	06/445,732	07/16/85	4,845,937	07/190,636	07/11/89
4,529,896	06/448,135	07/16/85	4,845,939	07/079,030	07/11/89
4,529,909	06/471,613	07/16/85	4,845,942	07/037,618	07/11/89
4,529,912	06/478,748	07/16/85	4,845,944	07/050,866	07/11/89
4,529,915	06/576,239	07/16/85	4,845,946	07/059,773	07/11/89
4,529,921	06/560,012	07/16/85	4,845,950	07/058,809	07/11/89
4,529,923	06/531,763	07/16/85	4,845,955	07/150,617	07/11/89
4,529,925	06/562,213	07/16/85	4,845,970	07/150,617	07/11/89
4,529,926	06/452,903	07/16/85	4,845,977	06/893,683	07/11/89
4,529,930	06/291,202	07/16/85	4,845,980	07/206,760	07/11/89
4,529,934	06/458,030	07/16/85	4,845,982	07/238,482	07/11/89
4,529,936	06/465,058	07/16/85	4,845,983	07/087,280	07/11/89
4,529,949	06/465,190	07/16/85	4,845,986	07/116,783	07/11/89
4,529,956	06/641,227	07/16/85	4,845,988	06/894,919	07/11/89
4,529,967	06/398,704	07/16/85	4,845,990	07/152,876	07/11/89
4,529,969	06/446,517	07/16/85	4,845,994	07/181,532	07/11/89
4,529,977	06/500,847	07/16/85	4,845,997	07/229,841	07/11/89
4,529,979	06/397,972	07/16/85	4,846,004	07/157,328	07/11/89
4,529,991	06/380,318	07/16/85	4,846,014	07/222,566	07/11/89
4,529,994	06/331,515	07/16/85	4,846,015	07/064,611	07/11/89
4,529,995	06/397,283	07/16/85	4,846,017	07/068,801	07/11/89
4,529,996	06/484,762	07/16/85	4,846,025	07/150,045	07/11/89
4,529,999	06/396,534	07/16/85	4,846,034	07/255,950	07/11/89
4,530,000	06/310,581	07/16/85	4,846,054	07/059,547	07/11/89
4,530,001	06/302,331	07/16/85	4,846,056	07/159,075	07/11/89
4,530,014	06/466,065	07/16/85	4,846,059	07/134,380	07/11/89
4,530,031	06/588,742	07/16/85	4,846,060	07/144,571	07/11/89
4,530,045	06/473,689	07/16/85	4,846,068	07/223,790	07/11/89
4,530,046	06/476,142	07/16/85	4,846,072	07/068,955	07/11/89
4,530,060	06/306,396	07/16/85	4,846,080	07/217,675	07/11/89
4,530,066	06/410,972	07/16/85	4,846,081	07/199,139	07/11/89
4,530,067	06/392,436	07/16/85	4,846,083	07/153,741	07/11/89
4,530,075	06/530,979	07/16/85	4,846,084	07/196,995	07/11/89
4,530,077	06/496,138	07/16/85	4,846,087	07/158,691	07/11/89
4,530,082	06/392,861	07/16/85	4,846,088	07/227,233	07/11/89
4,530,084	06/424,929	07/16/85	4,846,094	07/242,223	07/11/89
4,530,090	06/518,777	07/16/85	4,846,099	07/156,775	07/11/89
4,530,094	06/425,357	07/16/85	4,846,101	07/214,244	07/11/89
4,530,097	06/426,885	07/16/85	4,846,106	06/917,704	07/11/89
4,530,106	06/482,619	07/16/85	4,846,108	07/074,588	07/11/89
4,845,778	07/249,308	07/11/89	4,846,109	07/082,854	07/11/89
4,845,780	07/181,009	07/11/89	4,846,110	07/122,016	07/11/89
4,845,781	07/148,954	07/11/89	4,846,114	07/096,782	07/11/89
4,845,783	07/128,415	07/11/89	4,846,130	07/215,002	07/11/89
			4,846,132	07/133,939	07/11/89
			4,846,135	07/225,931	07/11/89
			4,846,142	07/162,095	07/11/89

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4,846,151	06/918,643	07/11/89	4,846,489	06/946,877	07/11/89
4,846,157	07/227,075	07/11/89	4,846,490	07/248,800	07/11/89
4,846,162	07/095,887	07/11/89	4,846,493	07/112,516	07/11/89
4,846,165	06/944,476	07/11/89	4,846,495	07/153,581	07/11/89
4,846,171	07/194,142	07/11/89	4,846,519	07/204,353	07/11/89
4,846,175	07/133,955	07/11/89	4,846,533	07/287,467	07/11/89
4,846,176	07/018,115	07/11/89	4,846,534	07/220,806	07/11/89
4,846,187	07/127,230	07/11/89	4,846,536	07/067,889	07/11/89
4,846,189	07/068,107	07/11/89	4,846,541	07/112,944	07/11/89
4,846,194	06/661,161	07/11/89	4,846,542	07/254,690	07/11/89
4,846,196	07/007,026	07/11/89	4,846,543	07/134,634	07/11/89
4,846,197	07/174,201	07/11/89	4,846,549	07/075,606	07/11/89
4,846,208	07/174,221	07/11/89	4,846,550	07/001,267	07/11/89
4,846,209	07/120,434	07/11/89	4,846,552	07/157,087	07/11/89
4,846,212	07/246,316	07/11/89	4,846,553	07/072,887	07/11/89
4,846,215	07/203,670	07/11/89	4,846,554	07/220,633	07/11/89
4,846,216	07/214,760	07/11/89	4,846,555	06/753,054	07/11/89
4,846,218	07/202,215	07/11/89	4,846,564	07/214,999	07/11/89
4,846,219	07/144,460	07/11/89	4,846,565	07/204,801	07/11/89
4,846,224	07/228,065	07/11/89	4,846,566	07/019,011	07/11/89
4,846,225	07/246,258	07/11/89	4,846,571	06/929,572	07/11/89
4,846,233	07/149,948	07/11/89	4,846,574	06/507,618	07/11/89
4,846,237	07/174,353	07/11/89	4,846,575	07/108,254	07/11/89
4,846,240	07/095,320	07/11/89	4,846,578	07/076,715	07/11/89
4,846,241	07/153,119	07/11/89	4,846,579	07/241,306	07/11/89
4,846,243	07/233,729	07/11/89	4,846,584	07/134,392	07/11/89
4,846,248	07/197,469	07/11/89	4,846,586	06/904,936	07/11/89
4,846,250	07/258,645	07/11/89	4,846,602	07/177,781	07/11/89
4,846,258	07/202,753	07/11/89	4,846,604	07/162,668	07/11/89
4,846,274	07/225,911	07/11/89	4,846,605	07/085,393	07/11/89
4,846,276	07/240,781	07/11/89	4,846,613	07/203,938	07/11/89
4,846,280	07/179,163	07/11/89	4,846,617	06/718,827	07/11/89
4,846,282	07/049,030	07/11/89	4,846,620	07/106,874	07/11/89
4,846,284	07/150,640	07/11/89	4,846,631	07/093,134	07/11/89
4,846,285	07/119,806	07/11/89	4,846,636	07/168,806	07/11/89
4,846,288	07/041,517	07/11/89	4,846,637	07/218,963	07/11/89
4,846,302	06/894,634	07/11/89	4,846,638	07/148,012	07/11/89
4,846,303	07/274,470	07/11/89	4,846,644	07/212,637	07/11/89
4,846,304	07/251,144	07/11/89	4,846,646	07/102,139	07/11/89
4,846,306	07/090,525	07/11/89	4,846,647	07/226,893	07/11/89
4,846,313	07/055,067	07/11/89	4,846,650	07/086,212	07/11/89
4,846,316	07/180,955	07/11/89	4,846,652	07/258,713	07/11/89
4,846,317	07/089,320	07/11/89	4,846,655	07/203,002	07/11/89
4,846,318	07/105,404	07/11/89	4,846,658	07/208,647	07/11/89
4,846,322	07/140,439	07/11/89	4,846,659	07/178,378	07/11/89
4,846,332	07/162,190	07/11/89	4,846,668	07/160,123	07/11/89
4,846,334	07/162,218	07/11/89	4,846,674	07/154,281	07/11/89
4,846,336	07/131,977	07/11/89	4,846,675	07/057,360	07/11/89
4,846,346	07/261,559	07/11/89	4,846,679	07/222,062	07/11/89
4,846,351	07/213,775	07/11/89	4,846,680	07/161,476	07/11/89
4,846,353	07/125,942	07/11/89	4,846,688	07/225,050	07/11/89
4,846,354	07/168,919	07/11/89	4,846,689	07/157,956	07/11/89
4,846,357	07/241,587	07/11/89	4,846,695	07/262,307	07/11/89
4,846,358	07/014,660	07/11/89	4,846,699	07/127,992	07/11/89
4,846,367	07/068,396	07/11/89	4,846,700	07/233,740	07/11/89
4,846,370	06/693,773	07/11/89	4,846,702	07/141,597	07/11/89
4,846,374	07/194,036	07/11/89	4,846,714	07/194,439	07/11/89
4,846,390	07/201,901	07/11/89	4,846,719	07/168,051	07/11/89
4,846,392	07/208,112	07/11/89	4,846,722	07/242,463	07/11/89
4,846,394	07/124,292	07/11/89	4,846,723	07/225,843	07/11/89
4,846,396	07/202,136	07/11/89	4,846,730	07/091,418	07/11/89
4,846,398	07/245,310	07/11/89	4,846,731	07/227,285	07/11/89
4,846,401	07/176,684	07/11/89	4,846,733	07/233,800	07/11/89
4,846,405	07/226,309	07/11/89	4,846,738	07/223,508	07/11/89
4,846,416	07/154,348	07/11/89	4,846,741	07/230,798	07/11/89
4,846,427	07/148,367	07/11/89	4,846,743	07/118,230	07/11/89
4,846,435	07/199,442	07/11/89	4,846,745	07/146,612	07/11/89
4,846,440	07/103,008	07/11/89	4,846,746	07/125,243	07/11/89
4,846,453	07/114,304	07/11/89	4,846,753	07/159,245	07/11/89
4,846,461	07/181,767	07/11/89	4,846,756	07/148,213	07/11/89
4,846,462	07/187,574	07/11/89	4,846,757	07/136,780	07/11/89
4,846,464	07/279,313	07/11/89	4,846,758	07/148,365	07/11/89
4,846,467	07/124,195	07/11/89	4,846,760	07/172,835	07/11/89
4,846,470	07/113,214	07/11/89	4,846,761	07/128,553	07/11/89
4,846,474	07/085,767	07/11/89	4,846,762	07/174,252	07/11/89
4,846,476	07/208,741	07/11/89	4,846,764	07/095,840	07/11/89
4,846,478	07/140,235	07/11/89	4,846,769	07/154,737	07/11/89
			4,846,770	07/115,200	07/11/89
			4,846,772	07/248,238	07/11/89

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4,846,777	07/096,194	07/11/89	4,847,090	06/929,132	07/11/89
4,846,785	07/145,997	07/11/89	4,847,091	07/094,673	07/11/89
4,846,788	07/195,875	07/11/89	4,847,092	07/233,721	07/11/89
4,846,789	06/399,813	07/11/89	4,847,097	07/049,934	07/11/89
4,846,791	07/241,070	07/11/89	4,847,107	07/061,789	07/11/89
4,846,795	07/283,007	07/11/89	4,847,109	07/193,181	07/11/89
4,846,800	07/108,397	07/11/89	4,847,114	07/200,861	07/11/89
4,846,805	07/128,740	07/11/89	4,847,117	07/231,057	07/11/89
4,846,807	07/163,173	07/11/89	4,847,122	07/054,542	07/11/89
4,846,808	07/156,531	07/11/89	4,847,124	07/206,762	07/11/89
4,846,809	07/161,486	07/11/89	4,847,126	07/001,628	07/11/89
4,846,817	07/073,757	07/11/89	4,847,138	07/105,263	07/11/89
4,846,818	07/194,849	07/11/89	4,847,153	07/173,838	07/11/89
4,846,835	07/061,952	07/11/89	4,847,160	07/162,100	07/11/89
4,846,841	06/856,054	07/11/89	4,847,163	07/109,887	07/11/89
4,846,851	07/113,787	07/11/89	4,847,167	07/218,979	07/11/89
4,846,852	07/096,675	07/11/89	4,847,181	07/082,481	07/11/89
4,846,853	07/023,345	07/11/89	4,847,183	07/095,389	07/11/89
4,846,858	07/297,097	07/11/89	4,847,187	07/090,504	07/11/89
4,846,860	07/232,052	07/11/89	4,847,188	07/150,777	07/11/89
4,846,866	07/132,366	07/11/89	4,847,190	07/277,412	07/11/89
4,846,868	07/092,654	07/11/89	4,847,199	07/019,850	07/11/89
4,846,872	07/082,043	07/11/89	4,847,206	07/099,342	07/11/89
4,846,878	07/159,288	07/11/89	4,847,224	07/064,321	07/11/89
4,846,884	06/904,757	07/11/89	4,847,225	07/165,697	07/11/89
4,846,886	07/190,742	07/11/89	4,847,235	07/143,502	07/11/89
4,846,887	06/909,749	07/11/89	4,847,247	06/922,312	07/11/89
4,846,889	07/151,340	07/11/89	4,847,252	07/262,556	07/11/89
4,846,894	06/811,418	07/11/89	4,847,262	07/136,311	07/11/89
4,846,898	07/190,321	07/11/89	4,847,264	06/945,669	07/11/89
4,846,901	07/129,272	07/11/89	4,847,266	07/051,686	07/11/89
4,846,903	07/159,448	07/11/89	4,847,268	07/062,883	07/11/89
4,846,907	07/208,539	07/11/89	4,847,270	07/119,117	07/11/89
4,846,908	07/034,313	07/11/89	4,847,271	07/021,848	07/11/89
4,846,913	06/790,403	07/11/89	4,847,274	07/099,485	07/11/89
4,846,925	07/000,163	07/11/89	4,847,276	07/241,160	07/11/89
4,846,929	07/218,384	07/11/89	4,847,283	07/060,937	07/11/89
4,846,930	07/080,564	07/11/89	4,847,284	07/172,164	07/11/89
4,846,932	06/943,645	07/11/89	4,847,289	07/059,084	07/11/89
4,846,937	07/245,368	07/11/89	4,847,294	07/056,631	07/11/89
4,846,939	07/300,143	07/11/89	4,847,297	07/170,638	07/11/89
4,846,945	07/092,352	07/11/89	4,847,309	07/171,179	07/11/89
4,846,948	07/117,584	07/11/89	4,847,310	07/244,231	07/11/89
4,846,952	07/219,951	07/11/89	4,847,314	07/192,768	07/11/89
4,846,964	07/095,696	07/11/89	4,847,315	07/056,920	07/11/89
4,846,965	07/096,004	07/11/89	4,847,321	07/229,895	07/11/89
4,846,969	07/257,993	07/11/89	4,847,322	07/111,469	07/11/89
4,846,977	06/921,940	07/11/89	4,847,323	07/140,702	07/11/89
4,846,979	07/084,454	07/11/89	4,847,326	06/810,488	07/11/89
4,846,982	07/251,285	07/11/89	4,847,332	07/129,613	07/11/89
4,846,987	07/207,641	07/11/89	4,847,334	07/281,610	07/11/89
4,846,992	07/063,199	07/11/89	4,847,339	07/010,243	07/11/89
4,846,993	07/217,378	07/11/89	4,847,342	07/135,829	07/11/89
4,846,998	07/005,191	07/11/89	4,847,346	07/223,449	07/11/89
4,847,004	07/238,984	07/11/89	4,847,347	07/149,292	07/11/89
4,847,007	07/016,497	07/11/89	4,847,356	07/093,106	07/11/89
4,847,008	06/870,296	07/11/89	4,847,359	07/063,881	07/11/89
4,847,013	07/210,817	07/11/89	4,847,362	07/122,372	07/11/89
4,847,018	07/185,286	07/11/89	4,847,363	07/192,173	07/11/89
4,847,019	07/198,786	07/11/89	4,847,372	07/045,752	07/11/89
4,847,030	07/022,044	07/11/89	4,847,377	07/106,699	07/11/89
4,847,035	06/932,889	07/11/89	4,847,378	07/188,807	07/11/89
4,847,039	07/131,693	07/11/89	4,847,380	07/078,313	07/11/89
4,847,040	07/146,706	07/11/89	4,847,382	07/161,539	07/11/89
4,847,043	07/147,386	07/11/89	4,847,384	07/024,959	07/11/89
4,847,044	07/182,676	07/11/89	4,847,397	07/194,746	07/11/89
4,847,054	07/128,018	07/11/89	4,847,404	07/233,024	07/11/89
4,847,055	07/124,652	07/11/89	4,847,406	07/002,522	07/11/89
4,847,060	07/007,271	07/11/89	4,847,413	06/879,694	07/11/89
4,847,069	07/112,588	07/11/89	4,847,415	07/201,655	07/11/89
4,847,070	07/106,198	07/11/89	4,847,417	07/262,755	07/11/89
4,847,073	07/212,824	07/11/89	4,847,425	07/200,460	07/11/89
4,847,076	07/090,782	07/11/89	4,847,428	07/121,973	07/11/89
4,847,084	07/083,360	07/11/89	4,847,441	07/269,220	07/11/89
4,847,086	07/149,897	07/11/89	4,847,445	06/697,099	07/11/89
4,847,087	06/858,053	07/11/89	4,847,446	07/203,603	07/11/89
4,847,089	07/086,876	07/11/89	4,847,461	07/119,517	07/11/89
			4,847,463	07/154,668	07/11/89
			4,847,464	06/899,872	07/11/89

Patent Number	Serial Number	Issue Date	4,847,789	06/882,315	07/11/89
4,847,467	07/233,739	07/11/89	4,847,791	06/408,259	07/11/89
4,847,472	07/144,154	07/11/89	4,847,794	06/900,691	07/11/89
4,847,473	07/218,970	07/11/89	4,847,800	07/112,968	07/11/89
4,847,477	07/107,590	07/11/89	4,847,801	07/112,335	07/11/89
4,847,483	07/137,616	07/11/89	4,847,813	07/121,459	07/11/89
4,847,485	07/177,523	07/11/89	4,847,817	07/140,189	07/11/89
4,847,487	07/126,595	07/11/89	4,847,819	07/177,341	07/11/89
4,847,488	07/137,465	07/11/89	4,847,825	07/084,978	07/11/89
4,847,489	07/175,107	07/11/89	4,847,828	07/231,074	07/11/89
4,847,490	07/111,639	07/11/89	4,847,833	07/105,296	07/11/89
4,847,493	07/107,283	07/11/89	4,847,835	06/820,254	07/11/89
4,847,494	07/114,088	07/11/89	4,847,836	07/132,382	07/11/89
4,847,496	07/046,467	07/11/89	4,847,837	06/927,987	07/11/89
4,847,502	07/084,062	07/11/89	4,847,840	07/096,760	07/11/89
4,847,503	07/184,758	07/11/89	4,847,844	07/148,475	07/11/89
4,847,508	07/284,070	07/11/89	4,847,853	07/272,726	07/11/89
4,847,515	07/220,974	07/11/89	4,847,858	07/062,588	07/11/89
4,847,521	07/136,756	07/11/89	4,847,859	07/248,655	07/11/89
4,847,522	07/204,215	07/11/89	4,847,863	06/783,783	07/11/89
4,847,524	07/021,840	07/11/89	4,847,865	07/051,874	07/11/89
4,847,526	06/883,547	07/11/89	4,847,876	06/948,276	07/11/89
4,847,530	07/112,646	07/11/89	4,847,877	06/935,898	07/11/89
4,847,532	07/199,639	07/11/89	4,847,882	07/019,815	07/11/89
4,847,535	06/566,944	07/11/89	4,847,883	07/007,093	07/11/89
4,847,537	07/186,665	07/11/89	4,847,892	07/171,481	07/11/89
4,847,540	07/131,394	07/11/89	4,847,901	07/232,455	07/11/89
4,847,541	07/114,848	07/11/89	4,847,905	06/843,487	07/11/89
4,847,543	07/179,560	07/11/89	4,847,907	07/175,789	07/11/89
4,847,547	07/222,009	07/11/89	5,226,179	07/913,808	07/13/93
4,847,555	07/129,055	07/11/89	5,226,184	07/987,596	07/13/93
4,847,564	07/134,207	07/11/89	5,226,185	07/918,756	07/13/93
4,847,569	07/016,926	07/11/89	5,226,190	07/777,744	07/13/93
4,847,570	07/114,935	07/11/89	5,226,191	07/746,069	07/13/93
4,847,571	07/169,460	07/11/89	5,226,194	07/821,491	07/13/93
4,847,577	07/121,675	07/11/89	5,226,195	07/647,641	07/13/93
4,847,578	07/244,726	07/11/89	5,226,196	07/795,393	07/13/93
4,847,579	07/109,741	07/11/89	5,226,201	07/803,982	07/13/93
4,847,582	07/073,538	07/11/89	5,226,206	07/957,856	07/13/93
4,847,592	07/155,435	07/11/89	5,226,220	07/811,158	07/13/93
4,847,596	07/094,321	07/11/89	5,226,223	07/979,674	07/13/93
4,847,601	07/177,655	07/11/89	5,226,231	07/928,991	07/13/93
4,847,602	06/789,244	07/11/89	5,226,236	07/895,944	07/13/93
4,847,603	06/859,120	07/11/89	5,226,238	07/901,958	07/13/93
4,847,605	07/043,019	07/11/89	5,226,239	07/744,887	07/13/93
4,847,606	07/089,138	07/11/89	5,226,246	07/761,329	07/13/93
4,847,607	07/096,960	07/11/89	5,226,247	07/673,934	07/13/93
4,847,611	07/086,821	07/11/89	5,226,249	07/890,814	07/13/93
4,847,614	07/101,635	07/11/89	5,226,251	07/705,414	07/13/93
4,847,624	07/139,512	07/11/89	5,226,255	07/618,293	07/13/93
4,847,628	07/216,056	07/11/89	5,226,256	07/850,007	07/13/93
4,847,633	07/121,328	07/11/89	5,226,262	07/954,947	07/13/93
4,847,636	07/287,578	07/11/89	5,226,264	07/637,543	07/13/93
4,847,645	07/152,070	07/11/89	5,226,266	07/788,274	07/13/93
4,847,656	07/182,236	07/11/89	5,226,269	07/887,708	07/13/93
4,847,660	07/194,815	07/11/89	5,226,273	07/745,693	07/13/93
4,847,661	07/165,971	07/11/89	5,226,275	07/713,144	07/13/93
4,847,663	07/190,534	07/11/89	5,226,277	07/855,971	07/13/93
4,847,664	07/154,953	07/11/89	5,226,282	07/808,419	07/13/93
4,847,666	07/135,052	07/11/89	5,226,283	07/824,374	07/13/93
4,847,669	06/942,702	07/11/89	5,226,288	07/719,255	07/13/93
4,847,670	07/048,346	07/11/89	5,226,293	07/899,709	07/13/93
4,847,687	07/182,631	07/11/89	5,226,296	07/885,664	07/13/93
4,847,693	07/042,169	07/11/89	5,226,297	07/826,847	07/13/93
4,847,710	06/935,485	07/11/89	5,226,299	07/623,887	07/13/93
4,847,713	07/162,106	07/11/89	5,226,300	07/931,709	07/13/93
4,847,721	07/086,190	07/11/89	5,226,303	07/901,225	07/13/93
4,847,722	07/097,680	07/11/89	5,226,308	07/813,628	07/13/93
4,847,727	06/941,384	07/11/89	5,226,310	07/577,326	07/13/93
4,847,735	07/186,256	07/11/89	5,226,314	07/775,757	07/13/93
4,847,736	07/233,147	07/11/89	5,226,326	07/709,589	07/13/93
4,847,737	07/185,854	07/11/89	5,226,337	07/828,045	07/13/93
4,847,743	07/195,801	07/11/89	5,226,341	07/889,507	07/13/93
4,847,746	07/171,178	07/11/89	5,226,343	07/862,718	07/13/93
4,847,749	06/873,909	07/11/89	5,226,346	07/889,265	07/13/93
4,847,750	06/829,408	07/11/89	5,226,354	08/006,047	07/13/93
4,847,778	07/091,960	07/11/89	5,226,355	07/922,233	07/13/93
4,847,783	07/054,865	07/11/89	5,226,357	07/747,620	07/13/93
		07/11/89	5,226,359	07/848,923	07/13/93

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5,226,360	07/904,999	07/13/93	07/843,056		07/13/93
5,226,362	07/819,083	07/13/93	07/683,993		07/13/93
5,226,373	07/596,035	07/13/93	07/753,318		07/13/93
5,226,376	07/782,656	07/13/93	07/708,685		07/13/93
5,226,377	07/883,124	07/13/93	07/989,634		07/13/93
5,226,379	07/569,443	07/13/93	07/813,527		07/13/93
5,226,381	07/940,151	07/13/93	07/838,562		07/13/93
5,226,384	07/867,097	07/13/93	07/913,225		07/13/93
5,226,386	07/920,652	07/13/93	07/866,143		07/13/93
5,226,387	07/832,736	07/13/93	07/888,965		07/13/93
5,226,405	07/846,645	07/13/93	07/717,557		07/13/93
5,226,412	07/921,671	07/13/93	07/565,011		07/13/93
5,226,424	07/701,799	07/13/93	07/792,372		07/13/93
5,226,428	07/923,624	07/13/93	07/786,610		07/13/93
5,226,431	07/717,076	07/13/93	07/782,169		07/13/93
5,226,433	07/894,051	07/13/93	07/888,875		07/13/93
5,226,436	07/891,223	07/13/93	07/742,914		07/13/93
5,226,448	07/905,672	07/13/93	07/886,355		07/13/93
5,226,450	07/883,291	07/13/93	07/881,209		07/13/93
5,226,453	07/951,496	07/13/93	07/767,388		07/13/93
5,226,456	07/803,989	07/13/93	07/889,217		07/13/93
5,226,463	07/824,350	07/13/93	07/661,193		07/13/93
5,226,467	07/898,153	07/13/93	07/936,575		07/13/93
5,226,471	07/763,570	07/13/93	07/944,284		07/13/93
5,226,476	07/917,595	07/13/93	07/693,451		07/13/93
5,226,486	07/859,949	07/13/93	07/890,807		07/13/93
5,226,487	07/830,756	07/13/93	07/867,438		07/13/93
5,226,495	07/884,582	07/13/93	07/926,855		07/13/93
5,226,498	07/807,316	07/13/93	07/724,074		07/13/93
5,226,499	07/819,632	07/13/93	07/928,554		07/13/93
5,226,502	07/672,463	07/13/93	07/917,594		07/13/93
5,226,503	07/716,282	07/13/93	07/519,932		07/13/93
5,226,518	07/817,243	07/13/93	07/785,367		07/13/93
5,226,532	07/895,630	07/13/93	07/666,767		07/13/93
5,226,533	07/831,109	07/13/93	07/967,499		07/13/93
5,226,536	07/869,169	07/13/93	07/910,234		07/13/93
5,226,537	07/630,251	07/13/93	07/974,329		07/13/93
5,226,539	07/905,389	07/13/93	07/922,012		07/13/93
5,226,541	07/846,573	07/13/93	07/835,710		07/13/93
5,226,545	07/963,225	07/13/93	07/949,906		07/13/93
5,226,548	07/806,713	07/13/93	07/906,547		07/13/93
5,226,549	07/831,418	07/13/93	07/876,294		07/13/93
5,226,553	07/901,151	07/13/93	07/943,921		07/13/93
5,226,554	07/794,566	07/13/93	07/830,820		07/13/93
5,226,556	07/970,791	07/13/93	07/856,366		07/13/93
5,226,558	07/877,563	07/13/93	07/795,844		07/13/93
5,226,559	07/736,602	07/13/93	07/848,414		07/13/93
5,226,562	07/758,890	07/13/93	07/903,722		07/13/93
5,226,565	07/742,138	07/13/93	07/888,489		07/13/93
5,226,568	07/820,220	07/13/93	07/801,851		07/13/93
5,226,573	07/861,546	07/13/93	07/818,889		07/13/93
5,226,574	07/745,717	07/13/93	07/659,283		07/13/93
5,226,575	07/795,747	07/13/93	07/821,936		07/13/93
5,226,576	07/789,742	07/13/93	07/748,835		07/13/93
5,226,579	07/837,177	07/13/93	07/663,918		07/13/93
5,226,580	07/858,381	07/13/93	07/912,728		07/13/93
5,226,586	07/690,728	07/13/93	07/916,475		07/13/93
5,226,589	07/821,743	07/13/93	07/793,361		07/13/93
5,226,592	07/881,176	07/13/93	07/859,227		07/13/93
5,226,593	07/819,401	07/13/93	07/95,429		07/13/93
5,226,603	07/881,261	07/13/93	07/20,860		07/13/93
5,226,605	07/953,236	07/13/93	07/754,348		07/13/93
5,226,607	07/725,831	07/13/93	07/736,496		07/13/93
5,226,608	07/806,656	07/13/93	07/666,027		07/13/93
5,226,610	07/742,011	07/13/93	07/685,355		07/13/93
5,226,617	07/857,611	07/13/93	07/507,854		07/13/93
5,226,618	07/830,206	07/13/93	07/863,810		07/13/93
5,226,619	07/775,842	07/13/93	07/883,734		07/13/93
5,226,624	07/757,241	07/13/93	07/786,683		07/13/93
5,226,626	07/783,525	07/13/93	07/904,190		07/13/93
5,226,627	07/965,223	07/13/93	07/495,562		07/13/93
5,226,638	07/891,810	07/13/93	07/891,928		07/13/93
5,226,649	07/874,119	07/13/93	07/684,816		07/13/93
5,226,656	07/907,390	07/13/93	07/789,400		07/13/93
5,226,657	07/726,772	07/13/93	07/788,969		07/13/93
5,226,659	07/998,811	07/13/93	07/686,641		07/13/93
5,226,664	07/902,380	07/13/93	07/27,426		07/13/93
			07/42,116		07/13/93
			07/800,438		07/13/93

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5,227,058	07/962,065	07/13/93	5,227,583	07/747,729	07/13/93
5,227,067	07/782,437	07/13/93	5,227,584	07/874,976	07/13/93
5,227,069	07/851,708	07/13/93	5,227,591	07/678,982	07/13/93
5,227,073	07/775,764	07/13/93	5,227,598	07/811,637	07/13/93
5,227,078	07/886,557	07/13/93	5,227,601	07/774,831	07/13/93
5,227,082	07/812,784	07/13/93	5,227,605	07/634,609	07/13/93
5,227,088	07/798,337	07/13/93	5,227,611	07/842,680	07/13/93
5,227,091	07/784,831	07/13/93	5,227,624	07/798,712	07/13/93
5,227,110	07/707,258	07/13/93	5,227,630	07/570,278	07/13/93
5,227,112	07/865,210	07/13/93	5,227,635	07/798,285	07/13/93
5,227,113	07/365,610	07/13/93	5,227,637	07/863,225	07/13/93
5,227,115	07/664,861	07/13/93	5,227,658	07/781,429	07/13/93
5,227,117	07/889,897	07/13/93	5,227,659	07/815,834	07/13/93
5,227,118	07/803,167	07/13/93	5,227,685	07/760,425	07/13/93
5,227,123	07/788,962	07/13/93	5,227,690	07/797,853	07/13/93
5,227,126	07/932,565	07/13/93	5,227,694	07/794,382	07/13/93
5,227,128	07/935,325	07/13/93	5,227,695	07/860,555	07/13/93
5,227,129	07/960,268	07/13/93	5,227,702	07/756,569	07/13/93
5,227,136	07/612,585	07/13/93	5,227,706	07/678,957	07/13/93
5,227,139	07/724,222	07/13/93	5,227,710	07/635,295	07/13/93
5,227,144	07/867,132	07/13/93	5,227,720	07/862,148	07/13/93
5,227,149	07/772,784	07/13/93	5,227,726	07/796,523	07/13/93
5,227,151	07/792,573	07/13/93	5,227,731	07/705,474	07/13/93
5,227,159	07/898,246	07/13/93	5,227,738	07/981,945	07/13/93
5,227,160	07/219,401	07/13/93	5,227,749	07/527,903	07/13/93
5,227,163	07/902,415	07/13/93	5,227,752	07/813,114	07/13/93
5,227,168	07/887,357	07/13/93	5,227,756	07/746,922	07/13/93
5,227,171	07/623,422	07/13/93	5,227,760	07/767,389	07/13/93
5,227,172	07/699,930	07/13/93	5,227,776	07/592,692	07/13/93
5,227,176	07/803,933	07/13/93	5,227,785	07/806,020	07/13/93
5,227,178	07/872,048	07/13/93	5,227,791	07/804,582	07/13/93
5,227,208	07/896,776	07/13/93	5,227,801	07/904,927	07/13/93
5,227,209	07/780,074	07/13/93	5,227,808	07/708,541	07/13/93
5,227,215	07/807,095	07/13/93	5,227,820	07/890,862	07/13/93
5,227,220	07/781,121	07/13/93	5,227,842	07/855,092	07/13/93
5,227,233	07/773,561	07/13/93	5,227,847	07/749,328	07/13/93
5,227,234	07/741,607	07/13/93	5,227,864	07/715,379	07/13/93
5,227,239	07/620,123	07/13/93	5,227,908	07/729,754	07/13/93
5,227,250	07/763,237	07/13/93	5,227,912	07/784,220	07/13/93
5,227,259	07/736,073	07/13/93	5,227,922	07/930,786	07/13/93
5,227,278	07/841,353	07/13/93	5,227,936	07/945,992	07/13/93
5,227,288	07/590,988	07/13/93	5,227,942	07/702,560	07/13/93
5,227,289	07/524,551	07/13/93	5,227,948	07/664,162	07/13/93
5,227,300	07/966,652	07/13/93	5,227,950	07/662,643	07/13/93
5,227,365	07/840,195	07/13/93	5,227,955	07/780,193	07/13/93
5,227,368	07/486,311	07/13/93	5,227,966	07/534,432	07/13/93
5,227,382	07/804,667	07/13/93	5,227,967	07/326,224	07/13/93
5,227,387	07/753,507	07/13/93	5,227,970	07/549,386	07/13/93
5,227,394	07/919,806	07/13/93	5,227,972	07/408,590	07/13/93
5,227,398	07/798,202	07/13/93	5,227,974	07/661,198	07/13/93
5,227,399	07/966,213	07/13/93	5,227,993	07/664,518	07/13/93
5,227,402	07/399,218	07/13/93	5,228,008	07/767,277	07/13/93
5,227,407	07/848,882	07/13/93	5,228,011	07/698,800	07/13/93
5,227,424	07/837,100	07/13/93	5,228,015	07/925,518	07/13/93
5,227,426	07/634,847	07/13/93	5,228,022	07/948,245	07/13/93
5,227,438	07/764,843	07/13/93	5,228,023	07/362,190	07/13/93
5,227,444	07/780,214	07/13/93	5,228,065	07/776,152	07/13/93
5,227,450	07/903,433	07/13/93	5,228,073	07/733,305	07/13/93
5,227,467	07/693,783	07/13/93	5,228,082	07/788,679	07/13/93
5,227,476	07/570,941	07/13/93	5,228,091	07/871,808	07/13/93
5,227,484	06/800,920	07/13/93	5,228,108	07/810,516	07/13/93
5,227,492	07/906,735	07/13/93	5,228,115	07/835,010	07/13/93
5,227,496	07/864,688	07/13/93	5,228,123	07/827,932	07/13/93
5,227,500	07/733,352	07/13/93	5,228,133	07/591,068	07/13/93
5,227,509	07/520,042	07/13/93			
5,227,511	07/669,600	07/13/93			
5,227,521	07/683,439	07/13/93			
5,227,529	07/944,798	07/13/93			
5,227,530	07/856,483	07/13/93			
5,227,531	07/711,365	07/13/93			
5,227,534	07/817,187	07/13/93			
5,227,537	07/818,040	07/13/93			
5,227,542	07/938,511	07/13/93			
5,227,548	07/641,862	07/13/93			
5,227,552	07/873,842	07/13/93			
5,227,562	07/833,277	07/13/93			
5,227,564	07/804,002	07/13/93			

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

5,330,884, Re. S.N. 08/847,094, May 1, 1997, Cl. 430/522, PHOTOGRAPHIC ELEMENT WITH NEAR-INFRARED ANTIHALATION LAYER, Dietrich M. Fabricius, et. al.

Owner of Record: *Sterling Diagnostic Imaging, Inc., Glasgow, Del.*, Attorney or Agent: Bruce M. Monroe, Ex. Gp.: 1113

5,390,627, Re. S.N. 08/837,179, April 14, 1997, Cl. 119/14.08, METHOD OF CLEANING TEAT CUPS AND/OR AFTER-TREATING THE TEAT OF A MILKED ANIMAL. AN IMPLEMENT FOR MILKING ANIMALS APPLYING SAID METHODS AND A CLEANING DEVICE APPLIED IN SUCH AN IMPLEMENT, Karel Van Den Berg, et. al., Owner of Record: *C. Vander Leij, N.V., Maasland, NLX*, Attorney or Agent: Penrose Lucas Albright, Ex. Gp.: 3303

5,405,161, Re. S.N. 08/833,591, April 7, 1997, Cl. 280/609, ALPINE SKI WITH EXAGGERATED TIP AND TAIL, Ivan Petkov, Owner of Record: *Delmar Systems, Inc., Broussard, La.*, Attorney or Agent: John L. Cline, Ex. Gp.: 3106

5,408,470, Re. S.N. 08/844,281, April 18, 1997, Cl. 370/62, DEFERRED SYNCHRONIZATION OF DISTRIBUTED OBJECTS, Lewis V. Rothrock, et. al., Owner of Record: *Intel Corp., Santa Clara, Calif.*, Attorney or Agent: Aloysius T. C. Auyeung, Ex. Gp.: 2603

5,408,686, Re. S.N. 08/844,061, April 18, 1997, Cl. 455/66, APPARATUS AND METHODS FOR MUSIC AND LYRICS BROADCASTING, Roy J. Mankovitz, Owner of Record: *Inventor*, Attorney or Agent: Steven P. Skabrat, Ex. Gp.: 2611

5,487,671, Re. S.N. 08/854,251, May 9, 1997, Cl. 434/185, COMPUTERIZED SYSTEM FOR TEACHING SPEECH, Zeev Shpiro, et. al., Owner of Record: *DSP Solutions International, Hamilton, BMX*, Attorney or Agent: Julian Cohen, Ex. Gp.: 3302

5,494,481, Re. S.N. 08/838,415, April 7, 1997, Cl. 452/176, RECTAL PLUG AND METHOD OF INTRODUCING SAME INTO A SLAUGHTERED ANIMAL, Steven L. Anderberg, Owner of Record: *Mentor Corp., Santa Barbara, Calif.*, Attorney or Agent: Thomas J. Niklai, Ex. Gp.: 3203

5,505,193, Re. S.N. 08/833,017, April 3, 1997, Cl. 128/200.15, MICRONIZED SPRAY DEVICE, Faustine Ballini, et. al., Owner of Record: *Inventors*, Attorney or Agent: Guido Modiano, Ex. Gp.: 3312

5,517,925, Re. S.N. 08/855,293, May 13, 1997, Cl. 105/377.070, RAILROAD CAR HATCH COVER SYSTEM, Stephen R. Early, Owner of Record: *Aero Transportation Products, Inc., Independence, Mo.*, Attorney or Agent: D. A. N. Chase, Ex. Gp.: 2013

5,560,208, Re. S.N. 08/888,223, July 3, 1997, Cl. 60/608, MOTOR-ASSISTED VARIABLE GEOMETRY TURBOCHARGING SYSTEM, Edward M. Halimi, et. al., Owner of Record: *Turbodyne Systems, Inc., Carpinteria, Calif.*, Attorney or Agent: Marshall E. Rosenberg, Ex. Gp.: 3403

Requests for Reexamination Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

5,566,947, Reexam. No. 90/004,704, June 30, 1997, Cl. 473/513, LACROSSE STICK HAVING OPEN SIDEWALL STRUCTURE, Richard B. C. Tucker, et. al., Owner of Record: *STX, Inc., Baltimore, Md.*, Attorney or Agent: Connolly and Hutz, Wilmington, Del., Ex. Gp.: 3304, Requester: Brian M. Dingman, Nields, Lemack & Dingman, Westborough, Mass.

Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED JUNE 30, 1997 DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
112,823	71/074,373	09/26/1916
112,831	71/095,133	09/26/1916
338,916	71/379,398	09/22/1936
338,927	71/378,198	09/22/1936
338,928	71/378,199	09/22/1936
338,934	71/376,236	09/22/1936
338,937	71/376,262	09/22/1936
338,943	71/379,119	09/22/1936
338,994	71/377,630	09/22/1936
339,017	71/373,912	09/22/1936
339,032	71/371,240	09/22/1936
339,052	71/343,447	09/22/1936
339,058	71/378,875	09/22/1936
339,060	71/378,883	09/22/1936
339,065	71/378,162	09/22/1936
339,081	71/378,611	09/22/1936
339,083	71/378,639	09/22/1936
339,093	71/375,262	09/22/1936
339,102	71/378,774	09/22/1936
339,107	71/376,967	09/22/1936
634,704	71/699,011	09/25/1956
634,707	71/699,033	09/25/1956
634,716	71/683,758	09/25/1956
634,720	71/689,625	09/25/1956
634,729	71/692,900	09/25/1956
634,737	71/673,399	09/25/1956
634,742	72/004,513	09/25/1956
634,745	72/001,892	09/25/1956
634,748	72/002,207	09/25/1956
634,753	71/681,509	09/25/1956
634,755	71/686,243	09/25/1956
634,757	71/692,449	09/25/1956
634,772	71/675,864	09/25/1956
634,781	71/690,575	09/25/1956
634,792	72/001,385	09/25/1956
634,799	71/694,421	09/25/1956
634,817	71/698,846	09/25/1956
634,818	71/699,570	09/25/1956
634,819	71/699,571	09/25/1956
634,870	71/690,429	09/25/1956
634,873	71/699,979	09/25/1956
634,874	71/700,036	09/25/1956
634,876	71/700,301	09/25/1956
634,880	71/700,517	09/25/1956
634,881	71/700,557	09/25/1956
634,886	72/000,811	09/25/1956
634,893	72/001,518	09/25/1956
634,895	72/002,851	09/25/1956
634,907	71/700,490	09/25/1956
634,910	72/000,501	09/25/1956
634,936	71/693,866	09/25/1956
634,939	71/694,692	09/25/1956
634,941	71/696,060	09/25/1956
634,944	71/696,373	09/25/1956
634,955	71/698,799	09/25/1956
634,962	71/694,977	09/25/1956
634,967	72/001,955	09/25/1956
634,975	72/000,997	09/25/1956

Reg. Number	Serial Number	Reg. Date			
			1,048,539	73/079,287	09/21/1976
634,976	72/001,386	09/25/1956	1,048,543	73/081,607	09/21/1976
634,982	71/697,350	09/25/1956	1,048,545	73/082,054	09/21/1976
634,987	71/699,820	09/25/1956	1,048,546	73/047,744	09/21/1976
1,048,347	73/030,891	09/21/1976	1,048,552	73/078,254	09/21/1976
1,048,348	73/043,193	09/21/1976	1,048,553	73/075,472	09/21/1976
1,048,350	73/049,179	09/21/1976	1,048,555	73/052,881	09/21/1976
1,048,351	73/077,440	09/21/1976	1,048,558	73/058,988	09/21/1976
1,048,352	73/077,444	09/21/1976	1,048,563	73/078,656	09/21/1976
1,048,359	73/079,042	09/21/1976	1,048,567	73/059,589	09/21/1976
1,048,360	73/080,427	09/21/1976	1,048,568	73/075,440	09/21/1976
1,048,362	73/080,868	09/21/1976	1,048,571	73/076,678	09/21/1976
1,048,363	73/081,072	09/21/1976	1,048,572	73/077,018	09/21/1976
1,048,364	73/081,686	09/21/1976	1,048,573	73/077,113	09/21/1976
1,048,365	73/081,713	09/21/1976	1,048,575	73/077,422	09/21/1976
1,048,367	73/072,633	09/21/1976	1,048,576	73/077,822	09/21/1976
1,048,368	73/078,546	09/21/1976	1,048,577	73/078,636	09/21/1976
1,048,369	73/079,656	09/21/1976	1,048,580	73/080,357	09/21/1976
1,048,370	73/079,849	09/21/1976	1,048,582	73/059,951	09/21/1976
1,048,377	73/081,220	09/21/1976	1,048,583	73/066,390	09/21/1976
1,048,382	73/074,162	09/21/1976	1,048,596	73/058,903	09/21/1976
1,048,385	73/079,404	09/21/1976	1,048,597	73/061,570	09/21/1976
1,048,386	73/080,723	09/21/1976	1,048,603	73/078,043	09/21/1976
1,048,388	73/080,830	09/21/1976	1,048,604	73/078,044	09/21/1976
1,048,389	73/080,866	09/21/1976	1,048,606	73/078,428	09/21/1976
1,048,390	73/080,935	09/21/1976	1,048,607	73/078,429	09/21/1976
1,048,391	73/081,009	09/21/1976	1,048,610	73/079,093	09/21/1976
1,048,400	73/078,450	09/21/1976	1,048,614	73/079,613	09/21/1976
1,048,401	73/080,300	09/21/1976	1,048,615	73/079,641	09/21/1976
1,048,409	73/081,904	09/21/1976	1,048,618	73/080,776	09/21/1976
1,048,412	73/054,633	09/21/1976	1,048,619	73/080,913	09/21/1976
1,048,416	73/075,654	09/21/1976	1,048,628	73/070,732	09/21/1976
1,048,418	73/080,664	09/21/1976	1,048,629	73/078,692	09/21/1976
1,048,422	73/045,942	09/21/1976	1,048,630	73/079,709	09/21/1976
1,048,426	73/080,221	09/21/1976	1,048,631	73/080,074	09/21/1976
1,048,428	73/080,506	09/21/1976	1,048,632	73/080,908	09/21/1976
1,048,430	73/067,992	09/21/1976	1,048,635	73/081,326	09/21/1976
1,048,432	73/000,719	09/21/1976	1,048,636	73/081,352	09/21/1976
1,048,433	73/002,538	09/21/1976	1,048,637	73/081,355	09/21/1976
1,048,434	73/007,433	09/21/1976	1,048,639	73/081,360	09/21/1976
1,048,435	73/017,340	09/21/1976	1,048,642	73/081,368	09/21/1976
1,048,438	73/032,598	09/21/1976	1,048,643	73/081,373	09/21/1976
1,048,441	73/050,980	09/21/1976	1,048,644	73/081,374	09/21/1976
1,048,442	73/055,047	09/21/1976	1,048,645	73/081,377	09/21/1976
1,048,449	73/080,034	09/21/1976	1,048,646	73/081,378	09/21/1976
1,048,450	73/080,108	09/21/1976	1,048,647	73/081,381	09/21/1976
1,048,451	73/080,274	09/21/1976	1,048,648	73/081,382	09/21/1976
1,048,458	73/081,043	09/21/1976	1,048,649	73/081,383	09/21/1976
1,048,462	73/082,010	09/21/1976	1,048,650	73/081,384	09/21/1976
1,048,464	73/034,905	09/21/1976	1,048,651	73/081,385	09/21/1976
1,048,465	73/056,201	09/21/1976	1,048,652	73/081,386	09/21/1976
1,048,467	73/073,044	09/21/1976	1,048,653	73/081,387	09/21/1976
1,048,468	73/078,810	09/21/1976	1,048,654	73/081,388	09/21/1976
1,048,472	73/081,070	09/21/1976	1,048,658	73/065,673	09/21/1976
1,048,474	73/081,446	09/21/1976	1,048,660	73/072,008	09/21/1976
1,048,480	73/081,440	09/21/1976	1,048,662	73/077,325	09/21/1976
1,048,481	73/081,441	09/21/1976	1,048,663	73/080,503	09/21/1976
1,048,483	73/082,183	09/21/1976	1,048,665	73/081,323	09/21/1976
1,048,485	73/082,572	09/21/1976	1,048,666	73/081,488	09/21/1976
1,048,489	73/081,238	09/21/1976	1,048,668	73/082,079	09/21/1976
1,048,491	73/021,385	09/21/1976	1,048,669	73/053,208	09/21/1976
1,048,493	73/030,100	09/21/1976	1,048,670	73/059,424	09/21/1976
1,048,494	73/037,161	09/21/1976	1,048,671	73/060,364	09/21/1976
1,048,495	73/037,162	09/21/1976	1,048,673	73/071,414	09/21/1976
1,048,497	73/063,773	09/21/1976	1,048,680	73/083,086	09/21/1976
1,048,499	73/076,261	09/21/1976	1,048,681	73/083,088	09/21/1976
1,048,500	73/076,428	09/21/1976	1,048,684	73/035,804	09/21/1976
1,048,501	73/077,031	09/21/1976	1,048,685	73/064,454	09/21/1976
1,048,502	73/077,032	09/21/1976	1,048,688	73/066,398	09/21/1976
1,048,506	73/055,348	09/21/1976	1,048,694	73/075,559	09/21/1976
1,048,512	73/080,029	09/21/1976	1,048,699	73/048,835	09/21/1976
1,048,517	73/081,073	09/21/1976	1,048,700	73/075,848	09/21/1976
1,048,523	73/078,025	09/21/1976	1,048,701	73/075,849	09/21/1976
1,048,524	73/078,624	09/21/1976	1,048,702	73/077,386	09/21/1976
1,048,525	73/079,546	09/21/1976	1,048,705	73/042,856	09/21/1976
1,048,526	73/030,250	09/21/1976	1,048,714	73/063,307	09/21/1976
1,048,529	73/053,477	09/21/1976	1,048,716	73/075,175	09/21/1976
1,048,535	73/078,424	09/21/1976	1,048,723	73/044,953	09/21/1976
			1,048,726	73/059,377	09/21/1976

Reg. Number	Serial Number	Reg. Date	mail to registrants at their last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed hereon, their assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.
1,048,727	73/065,089	09/21/1976	
1,048,729	73/071,300	09/21/1976	
1,048,730	73/076,025	09/21/1976	
1,048,731	73/076,026	09/21/1976	
1,048,735	73/079,238	09/21/1976	
1,048,736	73/079,711	09/21/1976	
1,048,737	73/079,797	09/21/1976	Automasters Systems, Inc., Gainesville, Fla., Reg. No. 1,163,070, for the mark "AUTOMASTER", Canc. No. 26,052.
1,048,738	73/080,076	09/21/1976	
1,048,740	73/081,678	09/21/1976	
1,048,742	72/382,373	09/21/1976	Game Face, Inc., Dallas, Tex., Reg. No. 1,772,402, for the mark "GAME FACE", Canc. No. 26,402.
1,048,746	72/383,022	09/21/1976	
1,048,749	72/456,602	09/21/1976	
1,048,750	73/015,161	09/21/1976	
1,048,753	73/078,050	09/21/1976	Pretty Please, Inc., New York, N.Y., Reg. No. 772,387, for the mark "PRETTY PLEASE", Canc. No. 26,255.
1,048,755	73/058,456	09/21/1976	
1,048,757	73/065,790	09/21/1976	
1,048,759	73/044,877	09/21/1976	
1,052,374	73/070,853	11/09/1976	

Service by Publication

A petition to cancel the registrations identified below having been filed, and the notice of such proceedings sent by certified

JEAN BROWN
Technical Program Manager
Trademark Trial
and Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

Reclassification Alert Report

This report is a summary of classification changes which became effective by issuance of Classification Orders from July through September 1997. Information includes:

- subclasses established or abolished (major changes)
- subclass title, indent, or position change
- changes to existing classes and subclass definitions (minor changes)

This Reclassification Alert Report may appear from time to time in the Official Gazette and is intended to provide an interim notice of classification changes pending publication of the Manual of Classification and revisions thereto.

The general public may purchase copies of Classification Orders or Classification Definitions by contacting the Editorial Division at 703-305-6101 or 703-305-5099. Payment can be made through a Deposit Account, or by check made payable to "Commissioner of Patents and Trademarks" and sent to:

Chief, Editorial Division
Office of Classification Support
U.S. Patent and Trademark Office
Crystal Mall 2, Room 303
Washington, D.C. 20231

September 2, 1997

FREDERICK R. SCHMIDT
Administrator for Search and
Information Resources

RECLASSIFICATION ALERT REPORT
July—September 1997

Class	First Subclass	Last Subclass	Action	Order Number
2			DEFN. CHANGE	1662
16			DEFN. CHANGE	1657
28			DEFN. CHANGE	1657
33			DEFN. CHANGE	1656
34			DEFN. CHANGE	1657
37			DEFN. CHANGE	1660
40			DEFN. CHANGE	1657
40			DEFN. CHANGE	1662
43			DEFN. CHANGE	1657
57			DEFN. CHANGE	1657
60			DEFN. CHANGE	1660
65			DEFN. CHANGE	1657
72			DEFN. CHANGE	1657
73			DEFN. CHANGE	1660
83			DEFN. CHANGE	1657

Class	First Subclass	Last Subclass	Action	Order Number
84			DEFN. CHANGE	1658
84			DEFN. CHANGE	1661
89			DEFN. CHANGE	1660
100			DEFN. CHANGE	1656
101	349	352	ABOLISH	1655
101	349.1		ESTABLISH	1655
101	350.1	350.6	ESTABLISH	1639
101	351.1	351.8	ESTABLISH	1655
101	352.01	352.09	ESTABLISH	1655
101	352.1		ESTABLISH	1655
101	352.11	352.13	ESTABLISH	1655
108	50		ABOLISH	1656
108	51.1		ABOLISH	1656
108	144		ABOLISH	1656
108	153		ABOLISH	1656
108	157		ABOLISH	1656
108	50.01		ESTABLISH	1656
108	50.02		ESTABLISH	1656
108	50.11	50.18	ESTABLISH	1656
108	51.11		ESTABLISH	1656
108	57.12	57.19	ESTABLISH	1656
108	57.2		ESTABLISH	1656
108	57.21	57.29	ESTABLISH	1656
108	57.3		ESTABLISH	1656
108	57.31	57.34	ESTABLISH	1656
108	144.11		ESTABLISH	1656
108	147.11	147.19	ESTABLISH	1656
108	147.2		ESTABLISH	1656
108	147.21		ESTABLISH	1656
108	147.22		ESTABLISH	1656
108	153.1		ESTABLISH	1656
108	157.1		ESTABLISH	1656
108	157.11	157.18	ESTABLISH	1656
108	158.11	158.13	ESTABLISH	1656
108	159.11		ESTABLISH	1656
108	159.12		ESTABLISH	1656
108	159		POSITION CHANGE	1656
112			DEFN. CHANGE	1657
123			DEFN. CHANGE	1660
135			DEFN. CHANGE	1656
139			DEFN. CHANGE	1657
160			DEFN. CHANGE	1656
177			DEFN. CHANGE	1659
178			DEFN. CHANGE	1662
182			DEFN. CHANGE	1656
186			DEFN. CHANGE	1659
187			DEFN. CHANGE	1656
187			DEFN. CHANGE	1660
188	279		ABOLISH	1654
188	282		ABOLISH	1654
188	299		ABOLISH	1654
188	311		ABOLISH	1654
188	319		ABOLISH	1654
188	322.11		ABOLISH	1654
188	266.1	266.8	ESTABLISH	1654
188	267.1		ESTABLISH	1654
188	267.2		ESTABLISH	1654
188	282.1	282.9	ESTABLISH	1654
188	283.1		ESTABLISH	1654
188	299.1		ESTABLISH	1654
188	319.1		ESTABLISH	1654
188	319.2		ESTABLISH	1654
188	322.2		ESTABLISH	1654
188	275	278	TITLE CHANGE	1654
188	281		TITLE CHANGE	1654
188	283		TITLE CHANGE	1654
188	284	287	TITLE CHANGE	1654
188	290	292	TITLE CHANGE	1654
188	297		TITLE CHANGE	1654
188	302		TITLE CHANGE	1654
188	304		TITLE CHANGE	1654
188	313		TITLE CHANGE	1654
188	317		TITLE CHANGE	1654
188	318		TITLE CHANGE	1654
188	322.13		TITLE CHANGE	1654
188	322.15		TITLE CHANGE	1654

Class	First Subclass	Last Subclass	Action	Order Number
188	322.22		TITLE CHANGE	1654
188	300		POSITION CHANGE	1654
188	321.11		POSITION CHANGE	1654
188	322.12		POSITION CHANGE	1654
188	283		INDENT CHANGE	1654
188	284	289	INDENT CHANGE	1654
188	300		INDENT CHANGE	1654
188	312	320	INDENT CHANGE	1654
188	321.11		INDENT CHANGE	1654
188	322.12		INDENT CHANGE	1654
188	322.21		INDENT CHANGE	1654
188	322.22		INDENT CHANGE	1654
193			DEFN. CHANGE	1657
200			DEFN. CHANGE	1662
206			DEFN. CHANGE	1656
211			DEFN. CHANGE	1656
219			DEFN. CHANGE	1658
226	97		ABOLISH	1657
226	118		ABOLISH	1657
226	119		ABOLISH	1657
226	196	199	ABOLISH	1657
226	97.1	97.4	ESTABLISH	1657
226	118.1	118.5	ESTABLISH	1657
226	196.1		ESTABLISH	1657
227			DEFN. CHANGE	1657
235			DEFN. CHANGE	1659
235			DEFN. CHANGE	1660
242	615.11		ESTABLISH	1657
242	615.12		ESTABLISH	1657
242	615.21		ESTABLISH	1657
244			DEFN. CHANGE	1660
246			DEFN. CHANGE	1660
248			DEFN. CHANGE	1656
248			DEFN. CHANGE	1662
250			DEFN. CHANGE	1662
252			DEFN. CHANGE	1662
254			DEFN. CHANGE	1657
257			DEFN. CHANGE	1662
261			DEFN. CHANGE	1657
273			DEFN. CHANGE	1662
280			DEFN. CHANGE	1656
280			DEFN. CHANGE	1660
296			DEFN. CHANGE	1656
297			DEFN. CHANGE	1656
303			ESTABLISH	1654
303	DIG. 10		ESTABLISH	1654
303	DIG. 11		ESTABLISH	1654
305			DEFN. CHANGE	1660
313			DEFN. CHANGE	1654
315			DEFN. CHANGE	1662
318			DEFN. CHANGE	1662
324			DEFN. CHANGE	1660
324			DEFN. CHANGE	1658
327			DEFN. CHANGE	1662
333			DEFN. CHANGE	1658
340			DEFN. CHANGE	1658
340			DEFN. CHANGE	1659
340			DEFN. CHANGE	1660
340			DEFN. CHANGE	1661
340			DEFN. CHANGE	1662
341			DEFN. CHANGE	1658
341			DEFN. CHANGE	1662
342			DEFN. CHANGE	1660
342			DEFN. CHANGE	1662
343			DEFN. CHANGE	1660
343			DEFN. CHANGE	1662
345			DEFN. CHANGE	1658
345			DEFN. CHANGE	1661
345	119		ABOLISH	1662
345	120		ABOLISH	1662
345	122		ABOLISH	1662
345	143		ABOLISH	1662
345	185		ABOLISH	1662
345	187		ABOLISH	1662
345	189		ABOLISH	1662

Class	First Subclass	Last Subclass	Action	Order Number
345	190		ABOLISH	1662
345	200		ABOLISH	1662
345	201		ABOLISH	1662
345	302		ESTABLISH	1662
345	418	443	ESTABLISH	1662
345	467	475	ESTABLISH	1662
345	326	358	ESTABLISH	1662
345	501	526	ESTABLISH	1662
345	947	978	ESTABLISH	1662
345	112	184	POSITION CHANGE	1662
345	202	215	POSITION CHANGE	1662
348			DEFN. CHANGE	1658
348			DEFN. CHANGE	1660
348			DEFN. CHANGE	1662
355			DEFN. CHANGE	1662
356			DEFN. CHANGE	1662
358			DEFN. CHANGE	1658
358			DEFN. CHANGE	1662
359			DEFN. CHANGE	1656
359			DEFN. CHANGE	1662
360			DEFN. CHANGE	1658
360			DEFN. CHANGE	1661
361			DEFN. CHANGE	1662
364	464.1	464.28	ABOLISH	1659
364	423.098		ABOLISH	1660
364	423.099		ABOLISH	1660
364	424.012	424.019	ABOLISH	1660
364	424.021	424.029	ABOLISH	1660
364	424.031	424.039	ABOLISH	1660
364	424.04		ABOLISH	1660
364	424.045	424.049	ABOLISH	1660
364	424.051	424.059	ABOLISH	1660
364	424.06		ABOLISH	1660
364	424.07		ABOLISH	1660
364	424.08		ABOLISH	1660
364	424.081	424.089	ABOLISH	1660
364	424.09		ABOLISH	1660
364	424.091	424.098	ABOLISH	1660
364	425		ABOLISH	1660
364	426.01		ABOLISH	1660
364	426.015	426.019	ABOLISH	1660
364	426.021	426.029	ABOLISH	1660
364	426.031	426.038	ABOLISH	1660
364	426.041	426.046	ABOLISH	1660
364	426.05		ABOLISH	1660
364	427	430	ABOLISH	1660
364	431.01	431.04	ABOLISH	1660
364	431.051	431.055	ABOLISH	1660
364	431.061		ABOLISH	1660
364	431.062		ABOLISH	1660
364	431.07	431.09	ABOLISH	1660
364	431.1		ABOLISH	1660
364	431.11		ABOLISH	1660
364	431.12		ABOLISH	1660
364	432		ABOLISH	1660
364	436	443	ABOLISH	1660
364	444.1	444.2	ABOLISH	1660
364	445		ABOLISH	1660
364	449.1	449.9	ABOLISH	1660
364	449.95		ABOLISH	1660
364	450	463	ABOLISH	1660
364			DEFN. CHANGE	1661
364			DEFN. CHANGE	1662
365			DEFN. CHANGE	1661
365			DEFN. CHANGE	1662
368			DEFN. CHANGE	1659
368			DEFN. CHANGE	1662
369			DEFN. CHANGE	1661
370			DEFN. CHANGE	16621
375			DEFN. CHANGE	1658
377			DEFN. CHANGE	1659
377			DEFN. CHANGE	1662
378			DEFN. CHANGE	1662
379			DEFN. CHANGE	1658
379			DEFN. CHANGE	1661

Class	First Subclass	Last Subclass	Action	Order Number
380			DEFN. CHANGE	1658
380			DEFN. CHANGE	1659
380			DEFN. CHANGE	1661
381			DEFN. CHANGE	1658
382			DEFN. CHANGE	1658
382			DEFN. CHANGE	1659
382			DEFN. CHANGE	1662
385			DEFN. CHANGE	1662
386			DEFN. CHANGE	1662
395	2.09	2.95	ABOLISH	1658
395	751	760	ABOLISH	1658
395	201	245	ABOLISH	1659
395			DEFN. CHANGE	1660
395	401	405	ABOLISH	1661
395	410	420	ABOLISH	1661
395	421.01	421.09	ABOLISH	1661
395	421.1		ABOLISH	1661
395	421.11		ABOLISH	1661
395	427	496	ABOLISH	1661
395	497.01	497.04	ABOLISH	1661
395	118	143	ABOLISH	1662
395	167	175	ABOLISH	1662
395	326	358	ABOLISH	1662
395	501	526	ABOLISH	1662
395	947	978	ABOLISH	1662
396			DEFN. CHANGE	1657
396			DEFN. CHANGE	1662
400			DEFN. CHANGE	1659
400			DEFN. CHANGE	1662
406			DEFN. CHANGE	1657
410			DEFN. CHANGE	1656
414			DEFN. CHANGE	1656
434			DEFN. CHANGE	1658
434			DEFN. CHANGE	1659
434			DEFN. CHANGE	1660
434			DEFN. CHANGE	1662
453			DEFN. CHANGE	1659
455			DEFN. CHANGE	1662
463			DEFN. CHANGE	1662
473			DEFN. CHANGE	1662
474			DEFN. CHANGE	1657
475			DEFN. CHANGE	1660
477			DEFN. CHANGE	1660
482			DEFN. CHANGE	1662
701	1	124	ESTABLISH	1660
701	200	226	ESTABLISH	1660
701	300	302	ESTABLISH	1660
704	1	10	ESTABLISH	1658
704	200	278	ESTABLISH	1658
704	500	504	ESTABLISH	1658
705	1	45	ESTABLISH	1659
705	400	418	ESTABLISH	1659
705	500		ESTABLISH	1659
711	1	6	ESTABLISH	1661
711	100	173	ESTABLISH	1661
711	200	221	ESTABLISH	1661
902			DEFN. CHANGE	1658
902			DEFN. CHANGE	1659
902			DEFN. CHANGE	1662

Certificates of Correction
For the Week of September 23, 1997

D. 342,808	D. 374,414	5,276,854	5,388,217	5,467,488	5,516,549	5,545,450	5,558,975
D. 370,434	D. 374,639	5,286,970	5,390,776	5,468,753	5,517,487	5,547,401	5,562,646
D. 370,644	D. 374,640	5,288,996	5,403,188	5,468,953	5,520,655	5,549,889	5,563,199
D. 371,090	D. 374,844	5,288,997	5,408,803	5,470,323	5,521,283	5,550,695	5,563,243
D. 371,324	D. 375,094	5,288,998	5,412,640	5,487,073	5,521,773	5,551,563	5,563,262
D. 371,520	D. 379,869	5,288,999	5,419,324	5,492,308	5,523,053	5,552,177	5,567,612
D. 371,522	P. 9,907	5,314,438	5,436,636	5,498,979	5,524,262	5,552,523	5,568,086
D. 371,825	5,130,520	5,314,513	5,443,636	5,499,237	5,529,995	5,553,236	5,569,263
D. 371,897	5,195,098	5,334,757	5,452,289	5,504,670	5,532,509	5,553,579	5,569,590
D. 372,439	5,212,769	5,336,385	5,462,929	5,508,174	5,535,398	5,555,148	5,570,408
D. 374,204	5,270,004	5,337,877	5,466,595	5,512,291	5,538,601	5,555,529	5,571,831
				5,512,535	5,541,865	5,556,292	5,573,478
				5,514,814	5,542,332	5,556,541	5,573,654
				5,515,079	5,543,354	5,556,854	5,574,133

5,574,874	5,590,986	5,609,699	5,616,615	5,626,378	5,632,214	5,637,973	5,642,723
5,575,786	5,591,014	5,609,838	5,616,815	5,626,869	5,632,238	5,638,263	5,642,749
5,578,505	5,593,418	5,609,871	5,616,872	5,627,328	5,632,245	5,638,469	5,642,809
5,578,605	5,593,515	5,610,540	5,617,071	5,627,482	5,632,540	5,638,621	5,643,811
5,578,624	5,595,005	5,610,681	5,617,201	5,627,563	5,632,541	5,639,299	5,644,122
5,579,488	5,595,394	5,610,686	5,617,576	5,627,688	5,632,776	5,639,461	5,644,402
5,580,748	5,595,521	5,610,791	5,617,879	5,627,862	5,633,136	5,639,924	5,645,121
5,581,364	5,600,260	5,610,845	5,618,471	5,627,997	5,633,340	5,639,959	5,645,308
5,581,618	5,600,661	5,611,040	5,618,975	5,628,613	5,634,117	5,640,155	5,645,903
5,582,437	5,600,787	5,611,784	5,619,241	5,628,876	5,634,143	5,640,509	5,646,202
5,582,816	5,601,392	5,611,885	5,619,468	5,628,958	5,634,296	5,640,512	5,646,620
5,582,903	5,602,974	5,611,975	5,619,487	5,629,014	5,634,500	5,640,520	5,646,904
5,582,927	5,603,018	5,612,473	5,619,706	5,629,296	5,634,768	5,640,529	5,647,512
5,583,094	5,603,610	5,612,670	5,619,770	5,629,453	5,634,866	5,640,582	5,647,680
5,583,768	5,603,703	5,613,079	5,620,276	5,629,576	5,634,989	5,640,712	5,647,712
5,584,847	5,604,061	5,613,167	5,620,480	5,629,907	5,635,020	5,640,724	5,647,871
5,585,152	5,605,034	5,614,198	5,620,544	5,630,075	5,635,253	5,640,731	5,647,948
5,585,854	5,605,189	5,614,243	5,620,847	5,630,270	5,635,834	5,641,059	5,648,345
5,586,259	5,605,390	5,614,391	5,621,239	5,630,891	5,636,485	5,641,161	5,648,555
5,587,141	5,606,352	5,614,410	5,621,499	5,631,193	5,636,632	5,641,232	5,649,346
5,588,375	5,607,307	5,614,478	5,623,556	5,631,246	5,636,721	5,641,560	5,649,394
5,588,522	5,607,733	5,615,214	5,623,574	5,631,702	5,636,739	5,641,582	5,650,018
5,589,344	5,608,663	5,615,399	5,623,644	5,631,808	5,636,780	5,641,703	5,650,792
5,589,348	5,608,773	5,615,510	5,624,468	5,631,923	5,636,850	5,641,849	5,651,751
5,589,862	5,608,894	5,615,899	5,625,443	5,632,063	5,636,874	5,641,926	5,652,880
5,589,945	5,609,204	5,616,040	5,625,494	5,632,137	5,637,301	5,642,039	5,654,310
5,590,434	5,609,410	5,616,232	5,625,664	5,632,167	5,637,399	5,642,360	

Summary of Final Decisions
Issued by the
Trademark Trial and Appeal Board
August 4-9, 1997

Date Issued	Type of Case ⁽¹⁾	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's Petitioner's Mark and Goods/Services	Applicant's Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
8-5	CANC	21,800	Pennington Enterprises, Inc. v. Montanto Co.	2(d) [priority]	Opposition Sustained	"COLOR YOUR GARDEN" [flower seeds]	"COLOR YOUR GARDEN" [flower seeds]		No
8-5	EX	74/596,434	Creativity, Inc.	2(d); 2(e)(1)	Refusal Affirmed (on both grounds)		"IN PLAIN ENGLISH" [books concerning computers and technology]	"PLAIN ENGLISH" [computer programs]	No
8-5	OPP	96,152	U.S. Surgical Corp. v. Acuderm, Inc.	2(d)	Opposition Dismissed	"AUTO SUTURE" [surgical stapling instruments and staples therefor]	"ACU-SUTURE" [surgical devices, namely, disposable devices for sewing or stitching surgical sites]		No
8-5	CANC	23,859	Texas Turkeys, Inc. v. William Terry Albee	2(d); fraud; laches defense	Petition to Cancel Granted (on 2(d) ground only)	"ARMADILLO WILLY'S" and "ARMADILLO WILLY'S BARBECUE EST. 1983" [restaurant and catering services]	"ARMADILLO WILLY'S CAFE" (and fanciful armadillo design) [restaurant and catering services]		No
8-6	CANC	23,919	Lucresia v. Physicians Aesthetic Research, Inc.	abandonment	Petition to Cancel Denied		"LUCRECE" [and design] [skin care products]		No
8-6	EX	74/633,855	Superconductor Technologies, Inc.	2(e)(1)	Refusal Reversed		"SUPERFILTER" [filters, namely, cryogenic electronic filters and cooled electronic filters formed from superconductive materials]		No

(1) EX = EX PARTE APPEAL; OPP = OPPOSITION; CANC = CANCELLATION; CU = CONCURRENT USE; (SI) = SUMMARY JUDGMENT; (R) = REQ. FOR RECONSIDERATION; (MR) = MOTION TO REOPEN

Date Issued	Type of Case ⁽¹⁾	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's Petitioner's Mark and Goods/Services	Applicant's Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
8-6	EX	74/433,460	Fun Factory, Inc.	2(e)(1)	Refusal Affirmed		"CAROUSEL PARK" [indoor amusement center]		No
8-6	EX	74/235,761	Lamit Industries	2(d) [two registrations cited]	Refusal Reversed (as to both cited registrations)		"BENCHMARK" [architectural wall panel systems for exterior use]	"BENCHMARK" [doors for buildings]; "BENCHMARK SERIES I" [movable wall partitions]	No
8-7	OPP	98,639	Ethyl Corp. v. Ethaco Corp.	2(d)	Opposition Sustained	"ETHYL" [fuels and combustion catalysts for fuels, including diesel fuels]	"ETHACO" [combustion catalyst for diesel fuel]		No
8-7	EX	74/432,960	Health Care and Retirement Corp. of America	2(d) [six registrations cited]	Refusal Affirmed (but only on basis of registration of "INTERMED" for short term major medical insurance services)		"INTERMED" [subacute and rehabilitative health care services]	"INTERMED" [short term major medical insurance services]; "INTERMED" [DOOLEY/INTERMED]; "DR. INTERMED," and "DR. INTERMED" (and design) [all five registrations for arranging for the provision of aid and comfort, including maintenance, medical attention and education to people in foreign lands];	No

(1) EX = EX PARTE APPEAL; OPP = OPPOSITION; CANC = CANCELLATION; CU = CONCURRENT USE; (SI) = SUMMARY JUDGMENT; (R) = REQ. FOR RECONSIDERATION; (MR) = MOTION TO REOPEN

Date Issued	Type of Case ⁽¹⁾	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's Mark and Goods/Services	Applicant's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
8-7	EX	74/497,483 74/461,491	Advanced Central Systems, Inc.	2(c)(1)	Refusal Affirmed		TELEAPPLASTIC CORNEAPLASTIC and "REFRACTIVE CORNEAPLASTIC" (both marks for pharmaceutical preparations for the treatment of damaged or diseased eyes and medical services, namely, repair of the eye)		No
8-7	EX	74/618,290	Physicians' Online, Inc.	2(c)(1)	Refusal Affirmed		"BY PHYSICIANS" FOR PHYSICIANS (computer services, namely, leasing access time to computer databases in the field of drugs and health treatment in printed and electronic form, and providing health maintenance and diagnostic and treatment information)		No
8-8	EX	74/578,489	Michigan Discount Jewelers, Ltd.	2(d)	Refusal Affirmed		"GREENS KEEPER" (sporting goods, namely, a divot repair tool for golfers)	"GREENS KEEPER" (spikes for golf shoes)	No

(1) EX = EX PARTE APPEAL; OPP = OPPOSITION; CANCELLATION; CU = CONCURRENT USE; (SI) = SUMMARY JUDGMENT; (R) = REQ. FOR RECONSIDERATION; (MR) = MOTION TO REOPEN

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Special box designations should be used to allow forwarding of particular types of mail to the appropriate areas as quickly as possible. Such mail is forwarded to the appropriate area without being opened. Only the specified type of document should be placed in an envelope addressed to one of these special boxes. If any documents other than the specified type identified for each special box are addressed to that box, they will be significantly delayed in reaching the appropriate area for which they are intended.

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Washington, D.C. 20231

Box Designations	Explanation
Box 7	Reissue applications for patents involved in litigation and subsequently filed related papers.
Box 12	Contributions to the Examiner Education Program.
Box 313b	Petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee and any papers associated with the petition, including papers necessary for filing a continuing application.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box Comments Patents	Public comments regarding patent related regulations and procedures.
Box DAC	Petitions decided by the Office of Petitions including petitions to revive and petitions to accept late payment of issue fees or maintenance fees.
Box DD	Disclosure Documents or materials related to the Disclosure Document Program.
Box Design	The filing of all design patent applications and any communications relating thereto.
Box FWC	Requests for File Wrapper Continuation Applications (under 37 CFR 1.62).
Box Issue Fee	All communications following the receipt of a PTOL-85, "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments are the exception. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box Missing Parts	Response to the Notice to File Missing Parts of Application and associated papers and fees.
Box MPEP	Submissions concerning the Manual of Patent Examining Procedures.
Box Non-Fee Amendment	Non-fee amendments to patent applications.
Box PATENT APPLICATION	(Use Box AF for responses after final rejection).
Box Patent Ext.	New patent applications and associated papers and fees.
Box PCT	Applications for patent term extension and any communications relating thereto.
Box Provisional Patent Application	Mail related to applications filed under the Patent Cooperation Treaty.
Box Reconstruction	The filing of all provisional patent applications and any communications relating thereto.
Box Reexam	Correspondence pertaining to the reconstruction of lost patent files.
Box Sequence	Requests for Reexamination for <i>original</i> request papers <i>only</i> .
Box SN	Submission of diskette for biotechnical application.
	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications <i>prior</i> to the Office's standard notification (return post card or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

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Arlington, Virginia 22202-3513

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Box NEW APP FEE	New trademark applications and fees.
Box ITU FEE	Statements of Use (SOU) and extension requests.
Box TTAB FEE	Oppositions, cancellation petitions, and ex parte appeals.
Box TTAB NO FEE	Interferences, motions, and extension requests.
Box STATUS NO FEE	Written status inquiries.
Box POST REG FEE	Affidavits, renewals, corrections and amendments.
Box RESPONSES NO FEE	Responses to Examining Attorneys' Office actions and Post Registration actions.

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Box Designations	Explanation
Box 3	Mail for the Office of Personnel from NFC.
Box 4	Mail for the Deputy Assistant Secretary of Commerce and Deputy Commissioner of Patents and Trademarks; Office of Legislative and International Affairs.
Box 6	Mail for the Office of Procurement.
Box 8	All papers for the Office of the Solicitor <i>except</i> communications relating to <i>pending litigation and disciplinary proceedings</i> ; papers relating to pending litigation in court cases shall be mailed only to Office of the Solicitor, P.O. Box 15667, Arlington, Virginia 22215 and papers relating to pending disciplinary proceedings before the Administrative Law Judge or the Commissioner shall be mailed only to the Office of the Solicitor, P.O. Box 16116, Arlington, Virginia 22215.
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Box 10	Orders for certified copies of PTO documents.
Box 11	Electronic Ordering Service (EOS).
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
Box EEO	Mail for the Office of Civil Rights.
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box M Fee	Correspondence regarding patent maintenance fees and related matter.
Box OED	Mail for the Office of Enrollment and Discipline.

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	San Diego Public Library	(619) 236-5813
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	Sunnyvale Center for Innovation, Invention and Ideas	(408) 730-7290
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	Lubbock: Texas Tech University.....	(806) 742-2282
Utah	Salt Lake City: Marriott Library, University of Utah.....	(801) 581-8394
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West Virginia	Morgantown: Evansdale Library, West Virginia University.....	(304) 293-2510 Ext. 113
Wisconsin	Madison: Kurt P. Wendt Library, University of Wisconsin.....	(608) 262-6845
	Milwaukee Public Library.....	(414) 286-3051
Wyoming	Casper: Natrona County Public Library.....	(307) 237-4935

PATENT EXAMINING CORPS

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LAWRENCE J. GOFFNEY Jr., Assistant Commissioner for Patents

EDWARD R. KAZENSKY, Deputy Assistant Commissioner for Patents

STEPHEN G. KUNIN, Deputy Assistant Commissioner for Patent Policy

PATENT EXAMINING GROUPS

Phone number
Area Code 703 New Case
Date*

CHEMICAL EXAMINING GROUPS

GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100— THEODORE MORRIS, Director.....	308-0661	12/22/95
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director.....	308-1235	03/08/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director.....	308-0651	01/04/96
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director.....	308-2351	02/14/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director.....	308-0196	04/27/95

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director.....	308-1782	08/22/95
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COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300— JOSEPH J. ROLLA, Director.....	305-3900	09/29/95
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director.....	305-3900	10/04/95
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SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director.....	308-0861	11/06/95
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director.....	308-2168	04/02/96

*A communication from the examiner should have been received in most applications filed prior to this date.

Patents will Expire as Follows:

- (1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimer. 35 U.S.C. 154(c)(1).
 - (2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
 - (3) All design patents are granted for a term of 14 years from the date of the grant.
- However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
 Philip G. Hampton, II, Assistant Commissioner
 Robert M. Anderson, Deputy Assistant Commissioner
 David E. Bucher, Director, Trademark Examining Office
 Condition of Trademark Applications as of August 1, 1997

Office	Oldest Date	
	New*	Amendment Filed
Office 101—Ron Williams, Managing Attorney, (703) 308-9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	02/13/97	06/05/97
Law Office 102—Myra Kurzbar, Managing Attorney, (703) 308-9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/19/96	04/30/97
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308-9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/16/96	07/03/97
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308-9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/09/96	03/24/97
Law Office 105—Thomas Howell, Managing Attorney, (703) 308-9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	01/21/96	05/29/97
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308-9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	01/06/97	02/09/97
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308-9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	03/06/97	04/14/97
Law Office 108—David Shallant, Managing Attorney, (703) 308-9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/18/96	05/19/97
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308-9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	12/30/97	05/30/97
**Collective Marks—Class 200		
**Certification Marks—Classes A & B		
Office of Trademark Services—Terror Simms, Director, (703) 308-9100 Trademark Assistance Center—(703) 308-9000 Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188 Intent-To-Use—(ITU)—(703) 308-9500 Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126 Affidavits Under Sections 8 & 15 (All Classes) Renewals (All Classes) Section 12(c) Publications (All Classes)	06/19/97 06/19/97 06/15/97	—0— —0— —0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305-8747 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

REEXAMINATIONS

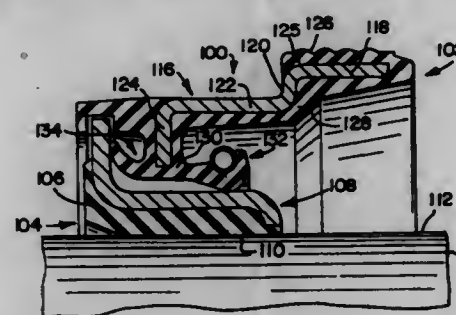
SEPTEMBER 23, 1997

Matter enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,448,426 (3332nd)
 UNITIZED OIL SEALS

Ronald A. Jackowski, Algonquin, and Glenn W. Peisker, Barrington, both of Ill., assignors to SKF USA Inc., Elgin, Ill.
 Reexamination Request No. 90/003,436, May 17, 1994.
 Reexamination Certificate for Patent 4,448,426, issued May 15, 1984, Ser. No. 280,888, Jul. 6, 1981.
 Int. Cl.⁶ F16J 15/34

U.S. Cl. 277—37



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1, 2, 11 and 12 are determined to be patentable as amended.

Claims 3-10 and 13, dependent on an amended claim, are determined to be patentable.

New claims 14-23 are added and determined to be patentable.

1. A unitized oil seal assembly comprising, in combination, first and second components adapted to cooperate with each other in use to form said unitized assembly, said first component being a lip-containing assembly and said second component being a companion flange assembly, said first component comprising [an] a one-piece annular casing made from a rigid material and having at least one axial flange and one radial flange, a rubber element bonded to and surrounding a portion of said first component casing, said rubber element including an annular portion covering at least a portion of the exterior of said axial flange on said first component casing so as to form a rubber covered, outer diameter, secondary seal-forming exposed exterior surface for said first component, and a seal body portion bonded to said first component radial flange, said seal body portion including a primary lip-forming part extending generally axially inwardly from said first component radial flange, said lip forming part comprising oil and air side frustoconical surfaces joined at their inner margins to form a primary lip seal band, and an auxiliary lip forming part extending at least partially axially outwardly of said first component radial flange and being defined by [an] annular surfaces which cooperate to define [the] a flexible body [of] forming said auxiliary lip, said second component including a single rigid casing portion with axial and radial companion flanges, a radially outwardly directed surface of said axial companion flange being sized so as to engage said seal band of said primary lip in fluid-tight relation, with one of said axial and radial surfaces of said companion flange being also sized and positioned to engage said auxiliary lip to form an excluder seal, an annular body of seal-forming material bonded to a radially inwardly directed surface of said axial companion flange and adapted for engagement with an associated machine element, said axial companion flange having a radially inward flange thereon [and] forming the axially innermost end thereof, said innermost and being free from radially outwardly extending portions and having a reduced diameter relative to said radially outwardly directed axial flange surface, and unitizing means extending axially outwardly from at least one of said flanges of said first component, said unitizing means having at least one [radially extending] surface [adapted to cooperate with another

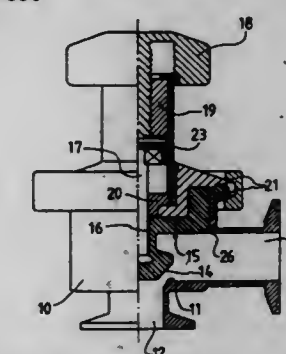
radially extending portion of said first component to assist in axial positioning of said second component by limiting] lying axially outwardly of a part of said radial companion flange and extending radially inwardly so as to radially overlap a part of said radial companion flange, and, in cooperation with said first component radial flange, to enclose an outer margin of said radial companion flange and thereby limit relative axial movement of said first and second components and to insure mutual engagement of said primary and auxiliary seal lips with sealing surfaces on said companion flange.

B1 4,819,691 (3333rd)
 VALVE DEVICE

Peter Löfgren, Hovås, and Nils I. Aarhø, Partille, both of Sweden, assignors to Steridose Systems AB, Askim, Sweden
 Reexamination Request No. 90/003,060, May 14, 1993.
 Reexamination Certificate for Patent 4,819,691, issued Apr. 11, 1989, Ser. No. 161,378, Feb. 22, 1988.

Continuation of Ser. No. 921,238, Oct. 21, 1986, abandoned.
 Int. Cl.⁶ F16K 7/12

U.S. Cl. 137—556



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim 1 is determined to be patentable as amended.

Claims 2-6, dependent on an amended claim, are determined to be patentable.

New claims 7-12 are added and determined to be patentable.

1. A valve device for controlling flow of a fluid, comprising:
 a valve housing, said valve housing having an inwardly extending circumferential rim;
 a valve body located within said housing for abutment against and displacement from a valve seat, said valve body including an integrally formed membrane of a resilient material;
 a first portion of said membrane forming inner and outer concentric permanent seals spaced a predetermined distance apart and formed in cooperation with said valve housing, said first portion being substantially L-shaped with a vertical leg and a horizontally extending outer flange, said inner seal formed between said rim of said housing and said vertical leg and said outer seal formed between said housing and one end of said horizontally extending outer flange;
 a second portion of said membrane acting as an adjustable flow-controlling seal which cooperates with said valve seat, said first and second portions and said housing being substantially smooth so as to not trap contaminants;
 a third portion of said membrane defining a well having a bottom in [the] that side of said membrane that faces away from the fluid;

a maneuvering pin which has an enlarged head gripped by the bottom of the well of said third portion, the remainder of the well generating no friction with the maneuvering pin; wherein, when no membrane deforming forces are acting on said membrane, said membrane forms a flow opening between said valve seat and said valve body.

B1 4,856,787 (3334th)

CONCURRENT GAME NETWORK

Boris Itkis, Arcadia, Calif., assignor to Fortunet Inc., Las Vegas, Nev.

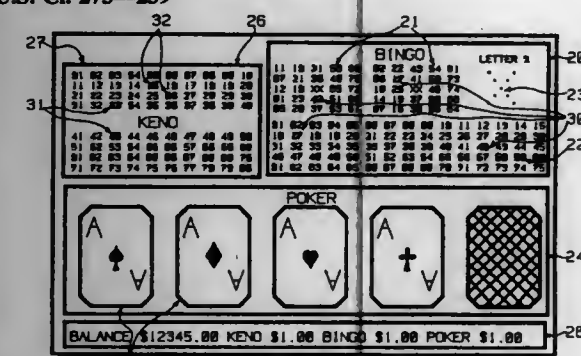
Reexamination Request No. 90/004,128, Feb. 5, 1996.

Reexamination Certificate for Patent 4,856,787, issued Aug. 15, 1989, Ser. No. 198,593, May 3, 1988.

Continuation of Ser. No. 826,269, Feb. 5, 1986, abandoned.

Int. Cl.⁶ A63F 1/06

U.S. Cl. 273-239



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-7 is confirmed.

1. Game network comprising at least one master game device interconnected with at least one slave game device; said slave game device executing concurrently at least two different distinct and independent games; each of said different distinct and independent games comprising its own unique rules of play and unique random factors; said different distinct and independent games including bingo, keno, poker, blackjack, roulette, slots, gih, and sports book; said master game device providing data for playing said games; and at least one of said two different distinct and independent games being at least partially responsive to said data from said master game device.

B1 4,975,874 (3335th)

METRIX INTERCONNECTION SYSTEM WITH DIFFERENT WIDTH CONDUCTORS

Jimmie D. Childers, Missouri City, and Hugh P. McAdams, Houston, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Reexamination Request No. 90/004,600, Apr. 9, 1997.

Reexamination Certificate for Patent 4,975,874, issued Dec. 4, 1990, Ser. No. 265,750, Nov. 1, 1988.

Int. Cl.⁶ G11C 5/06

U.S. Cl. 365-63

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

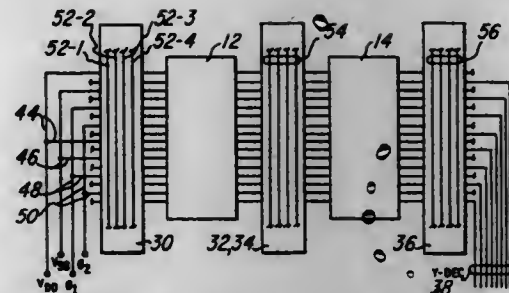
Claims 1, 5 and 9 are determined to be patentable as amended.

Claims 2-4, 6-8 and 10-12, dependent on an amended claim, are determined to be patentable.

New claims 13-18 are added and determined to be patentable.

1. An electronic array comprising:

[at least] more than one group of electronic devices disposed in a linear manner;



a plurality of parallel connected electrical conductors disposed perpendicular to the direction of linear disposition of said groups of electronic devices and extending across more than one of said groups of electronic devices, each of said conductors having a predetermined height and a predetermined width dimension, said conductors connected to a common electrical signal source; and

a plurality of bus leads having a height dimension substantially the same as said height dimension of said conductors and a width dimension which is greater than the width dimension of any of said conductors disposed parallel to said direction of linear disposition of said electronic devices, each of said electrical conductors electrically connected to one of said bus leads.

B1 5,272,930 (3336th)

MECHANICAL ELEMENT HAVING A SHAFT PRESSURE-FITTED INTO AN ENGAGING MEMBER AND ITS MANUFACTURING METHOD

Yoshikatsu Nakamura; Yasukichi Egami; Shunsuke Takeguchi, and Ken Akimoto, all of Nogi, Japan, assignors to Nippon Piston Ring Co., Ltd., Tokyo, Japan

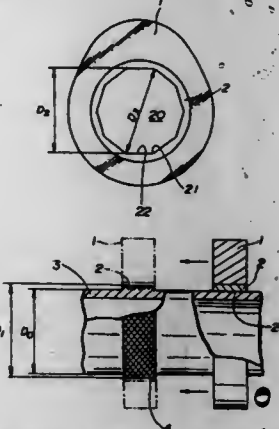
Reexamination Request No. 90/004,319, Jul. 30, 1996.

Reexamination Certificate for Patent 5,272,930, issued Dec. 28, 1993, Ser. No. 894,568, Jun. 5, 1992.

Claims priority, application Japan, Jun. 7, 1991, 3-136031; Oct. 19, 1991, 3-271568

Int. Cl.⁶ F01L 1/04

U.S. Cl. 74-434



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-16 is confirmed.

New claims 17-20 are added and determined to be patentable.

1. A mechanical element having a shaft pressure-fitted into at least one composite engaging member comprising:

said shaft having at least one engaging region disposed thereon, the shaft having at least one swollen portion formed radially outwardly around said engaging portion;

said composite engaging member including an engaging body made of sintered alloy, said engaging body having a recess disposed therein and having a minimum radial width;

said engaging body having a ring-shaped steel inner piece secured to the inside circumference of said recess of said engaging body by a securing method, the inner piece having a maximum radial width, said inner piece having a hardness not greater than said swollen portion, the minimum radial width of the engaging body being greater than the maximum radial width of the inner piece such that the inner piece is markedly smaller in radial width than said engaging body, the inner piece being generally circular around an outer circumference thereof, said inner piece having a shaft hole formed axially therein, said shaft hole having a plurality of larger inside diameter portions and a plurality of smaller inside diameter portions, said smaller inside diameters being smaller than an outside diameter of said swollen portion;

said composite engaging member being fitted on said shaft by being pressure-fitted onto said shaft and having at least plastic deformation between said swollen portion and said shaft hole.

B2 5,305,244 (3337th)

HANDS-FREE, USER-SUPPORTED PORTABLE COMPUTER

Edward G. Newman, Fairfax; Gili S. Christian, Stephens City, and Michael D. Jenkins, Manassas, all of Va., assignors to Computer Products & Services Inc. (CPSI), Fairfax, Va.

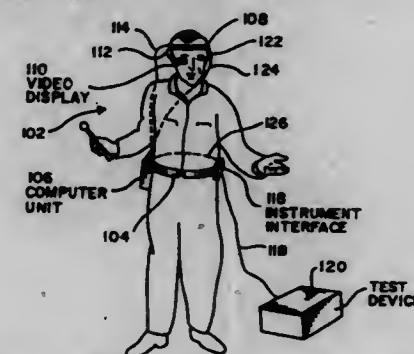
Reexamination Request No. 90/004,222, Apr. 16, 1996.

Reexamination Certificate for Patent 5,305,244, issued Apr. 19, 1994, Ser. No. 863,619, Apr. 6, 1992.

Reexamination Certificate B1 5,305,244, issued Jul. 2, 1996.

Int. Cl.⁶ G06F 1/16; 3/00

U.S. Cl. 364-708.1



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1-13 are cancelled.

New claims 14-26 are added and determined to be patentable.

14. A compact, self-contained portable computing apparatus for being completely supported by a user for hand-free retrieval and display of information for the user comprising:

a general-purpose computer contained in a housing, the general-purpose computer having storage means and a single central processing unit, the single central processing unit including means for recognizing an audio command, the housing having securing means for removably mounting the housing on a user for being carried without hands by the user, the storage means storing previously entered information including an electronic technical manual and a preprogrammed vocabulary model of a plurality of words and phrases,

the single central processing unit communicating with the storage means for receiving, retrieving and processing information and user commands in accordance with a stored program,

the means for recognizing an audio command causing said single central processing unit to recognize the audio command in the form of converted electrical signals and responding to the recognized audio command by retrieving and outputting corresponding information from the electronic technical manual stored in the storage means,

said recognizing means including means for defining a subset of the plurality of words and phrases in the preprogrammed vocabulary model according to a current context of the stored program and for matching the converted electrical signals against the defined subset to recognize the command;

audio transducer and converter means in communication with the single central processing unit for receiving the audio commands from the user, for converting the received audio commands into the electrical signals, and for sending the converted electrical signals to the single central processing unit, the audio transducer and converter means being supported hands-free by the user;

computer display means in communication with the single central processing unit for receiving the outputted information from the single central processing unit and for displaying the received information for the user; and

means for mounting the computer display means on the user such that the computer display means is carried hands-free in a portion of the view of the user whereby the computing apparatus is capable of being operated to display the received information in a hands-free manner utilizing only the audio commands.

B1 5,368,107 (3338th)

VIBRATION PREVENTIVE COIL SPRING MOUNTING STRUCTURE

Toshio Taomo, Nishitama, Japan, assignor to Kioritz Corporation, Ohme, Japan

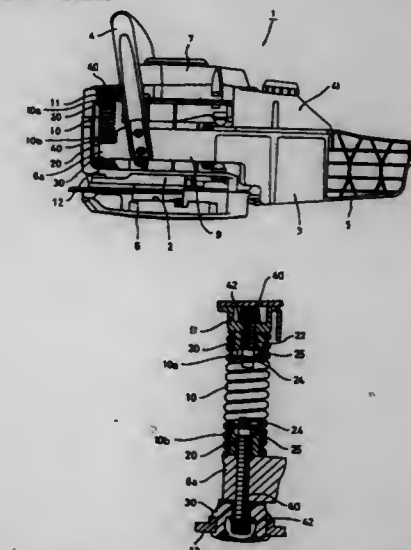
Reexamination Request No. 90/004,420, Oct. 22, 1996.

Reexamination Certificate for Patent 5,368,107, issued Nov. 29, 1994, Ser. No. 135,629, Oct. 14, 1993.

Claims priority, application Japan, Oct. 14, 1992, 4-71694 U

Int. Cl.⁶ B25D 17/24; F16F 1/38

U.S. Cl. 173-162.2



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1, 3 and 4 is confirmed.

Claim 2 is determined to be patentable as amended.

New claims 5, 6, 7 and 8 are added and determined to be patentable.

2. A mounting structure according to claim 1 wherein an inner surface wall (20b) of the recess at the inner end portions of said resilient fixing members (20, 20) has a hexagonal cross-section of a larger inner diameter than that of [said] an inner surface wall (20a) at the outer end portions, and a hexagonal nut (25) with flange (24) is fitted in and fixed to abut against the periphery of said inner surface wall (20b) to prevent rotation.

REISSUES

SEPTEMBER 23, 1997

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 35,611

LIQUID JET REMOVAL OF PLASMA SPRAYED AND SINTERED COATINGS

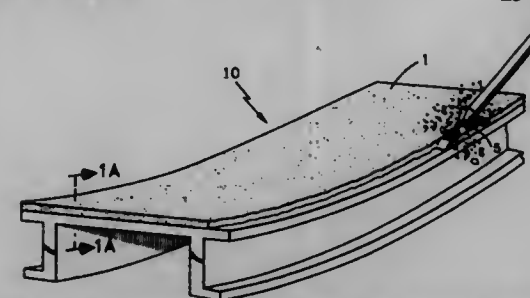
Charles C. McComas, Palm City; John W. Appleby, Jr., Palm Beach Gardens; Gerard A. Sileo, Jupiter, all of Fla.; Herbert R. Barringer, Midwest City, and Michael J. Patry, Oklahoma City, both of Okla., assignors to Waterjet Systems, Inc., Huntsville, Ala.

Original No. 5,167,721, dated Dec. 1, 1992, Ser. No. 784,625, Dec. 5, 1991. Continuation of Ser. No. 189,860, Feb. 1, 1994, abandoned, which is a continuation of Ser. No. 441,666, Nov. 27, 1989, abandoned. Application for reissue Nov. 16, 1995, Ser. No. 558,342

Int. Cl.⁶ B08B 3/02

U.S. Cl. 134—32

23 Claims



1. A method for removing a top coat from a bond [coating] coat adhered to a substrate, utilizing a liquid jet, said liquid jet having means for directing the liquid jet, means for creating sufficient pressure to remove the [coating] top coat, means to provide the relative motion between the [coating] top coat and the liquid jet, and means for supplying the liquid, which comprises:

- creating sufficient pressure to remove the [coating] top coat;
- providing relative motion between the [coating] top coat and the liquid jet;
- supplying the liquid;
- causing the liquid to strike the top coat, wherein the liquid striking the top coat causes top coat erosion until the bond coat is exposed;

whereby the bond coat and the substrate suffer essentially no damage and can be reused.

Re. 35,612

Patent Not Issued For This Number

Re. 35,613

DYNAMIC RANDOM ACCESS MEMORY WITH ISOLATED WELL STRUCTURE

Kenichi Yasuda; Makoto Suwa, and Shigeru Mori, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Original No. 5,281,842, dated Jan. 25, 1994, Ser. No. 722,164, Jun. 27, 1991. Application for reissue Jun. 29, 1995, Ser. No. 496,569

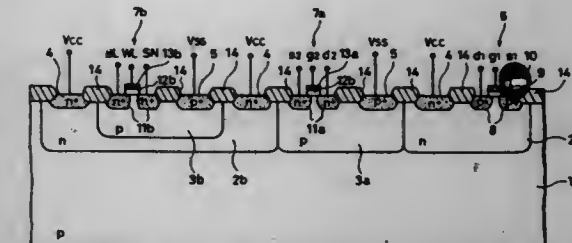
Claims priority, application Japan, Jun. 28, 1990, 2-172407; Oct. 22, 1990, 2-284959

Int. Cl.⁶ H01L 27/02

U.S. Cl. 257—371

16 Claims

1. A semiconductor memory device comprising: a first conductivity type semiconductor substrate having a surface; a first well of a first conductivity type disposed in said semiconductor substrate at the surface;



- a second well of a second conductivity type and a third well of the second conductivity type, said second and third wells being disposed in said semiconductor substrate at the surface [adjacent], on opposite sides of, and contacting said first well;
- a fourth well of the first conductivity type disposed in said semiconductor substrate at the surface within and surrounded by said third well;
- a memory cell disposed on the surface of said semiconductor substrate within said fourth well;
- a first transistor disposed on the surface of said semiconductor substrate within said first well; and
- a second transistor disposed on the surface of said semiconductor substrate within said second well, said first and second transistors connected for writing data into said memory cell and reading data out of said memory cell, said second and third wells for connection to a power supply voltage, and said first well and said semiconductor substrate for connection to ground.

Re. 35,614

PROCESS FOR IMPROVED QUALITY OF CVD COPPER FILMS

John A. T. Norman, Encinitas; Arthur K. Hochberg, Solana Beach, and David A. Roberts, Escondido, all of Calif., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

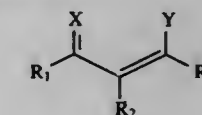
Original No. 5,322,712, dated Jun. 21, 1994, Ser. No. 64,185, May 18, 1993. Application for reissue Jun. 20, 1996, Ser. No. 667,254

Int. Cl.⁶ C23C 16/00

U.S. Cl. 427—250

7 Claims

1. A method for chemical vapor deposition or copper films on a substrate comprising the steps of: introducing vapors of a copper (I) organometallic precursor compound into a chemical vapor deposition (CVD) reactor; and simultaneously introducing into the reactor [copper complex] vapor or a volatile ligand or [ligand] hydrate of a ligand having the general formula,



wherein R₁, and R₃, are selected from the group consisting of alkyl, aryl, fluoroalkyl or fluoroaryl, R₂ is a hydrogen, halogen, fluoroalkyl or fluoroaryl, X and Y are selected so that when X=[O], Y is OH, NH₂, or N(R₄)H, when X=NH, Y is NH₂, or N(R₄)H, when X=NR₅, Y is N(R₄)H, and R₄ and R₅ are selected from the group consisting of alkyl, aryl, fluoroalkyl and fluoroaryl.

2641

Re. 35,615
**PROCESS FOR REMOVING IODIDE COMPOUNDS
 FROM CARBOXYLIC ACIDS AND CARBOXYLIC ACID
 ANHYDRIDES**

Michael David Jones, North Humberston; Derrick John Watson, East Yorkshire, and Bruce Leo Williams, North Humberston, all of England, assignors to BP Chemicals Limited, and The British Petroleum Company, P.L.C.
 Original No. 5,344,976, dated Sep. 6, 1994, Ser. No. 72,365, Jun. 3, 1993. Continuation of Ser. No. 959,149, Oct. 9, 1992, abandoned. Application for reissue Jun. 19, 1995, Ser. No. 492,287

Claims priority, application United Kingdom, Oct. 18, 1991, 9122168

Int. Cl.⁶ C07C 51/47; 51/573; 53/08
 U.S. Cl. 562—608

8 Claims

1. A process for removing iodide compounds from a liquid

composition comprising a carboxylic acid having 2 to 6 carbon atoms or an anhydride thereof, and metal ion contaminants selected from the group consisting of iron, potassium, sodium and manganese, which process comprises first contacting said liquid composition with a cation exchanger in the acid form to remove at least a portion of said metal ion contaminants, and then contacting the resulting product with a metal-exchanged ion exchange resin having strong acid cation exchange sites at least 1% of which are occupied by at least one metal selected from the group consisting of silver, mercury, palladium and rhodium [wherein prior to contacting with said metal-exchanged resin, said liquid composition is contacted with a cation exchanger in the acid form to remove at least a portion of said metal ion contaminants].

PLANT PATENTS

GRANTED SEPTEMBER 23, 1997

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

10,035

BLUEBERRY—'OZARKBLUE'

James Norman Moore, and John Reuben Clark, both of Fayetteville, Ark., assignors to University of Arkansas, Fayetteville, Ark.

Filed Feb. 26, 1996, Ser. No. 607,904

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—33.1

1 Claim

1. A new and distinct variety of blueberry plant, substantially as illustrated and described, characterized by its high productivity, large fruit size, late ripening, long ripening period, small pedicel scar, and good fruit color and firmness.

10,040

CHRYSANTHEMUM PLANT NAMED 'SANDY DAVIS'

Susan M. Polys, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 22, 1996, Ser. No. 605,612

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—82.3

1 Claim

1. A new and distinct Chrysanthemum plant named Sandy Davis, as described and illustrated.

10,036

PETUNIA PLANT NAMED SUNSNOW

Reinhard W. Rother, 56 Emerald Monbulk Road, Emerald, Victoria 3782, Australia

Filed Jul. 15, 1996, Ser. No. 680,166

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—68.1

1 Claim

1. A new and distinct cultivar of Petunia plant named 'Sun-snow', as illustrated and described.

10,041

CHRYSANTHEMUM PLANT NAMED 'GENTLE KIMBERLY'

Leon Glicenstein, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 22, 1996, Ser. No. 605,812

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—82.3

1 Claim

1. A new and distinct Chrysanthemum plant named Gentle Kimberly, as described and illustrated.

10,037

CHRYSANTHEMUM PLANT NAMED 'GOLDEN EL PASO'

Susan M. Polys, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 22, 1996, Ser. No. 605,817

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—78

1 Claim

1. A new and distinct Chrysanthemum plant named Golden El Paso, as described and illustrated.

10,042

CHRYSANTHEMUM PLANT NAMED 'AUTUMN KIMBERLY'

Leon Glicenstein, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 22, 1996, Ser. No. 605,819

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—82.4

1 Claim

1. A new and distinct Chrysanthemum plant named Autumn Kimberly, as described and illustrated.

10,038

CHRYSANTHEMUM PLANT NAMED 'GLOWING LYNN'

Leon Glicenstein, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 22, 1996, Ser. No. 605,813

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—79

1 Claim

1. A new and distinct Chrysanthemum plant named Glowing Lynn, as described and illustrated.

10,043

ANTHURIUM PLANT NAMED GEMINI

Ann E. Lamb, Sebring, and Robert D. Hartman, Lake Placid, both of Fla., assignors to Twyford International, Inc., Santa Paula, Calif.

Filed Apr. 9, 1996, Ser. No. 629,636

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—88.1

1 Claim

1. A new and distinct cultivar of Anthurium plant named 'Gemini', as illustrated and described.

10,039

CHRYSANTHEMUM PLANT NAMED 'CREAM BLUSH'

Susan M. Polys, Salinas, Calif., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 22, 1996, Ser. No. 605,818

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—82.2

1 Claim

1. A new and distinct Chrysanthemum plant named Cream Blush, as described and illustrated.

PATENTS

GRANTED September 23, 1997

ERRATA

For CLASS	See PATENT NO.
428-402	5,669,381
137-625	5,669,422
436-501	5,669,819
606-184	5,669,885
600-200	5,669,933
426-074	5,670,344
568-771	5,670,465
239-379	5,670,768
359-687	5,671,062
360-008	5,671,095
359-216	5,671,193
395-115	5,671,246
556-055	5,671,448
392-132	5,671,449

PATENTS

GRANTED SEPTEMBER 23, 1997

GENERAL AND MECHANICAL

5,669,070

EYE PROTECTION FOR WELDING

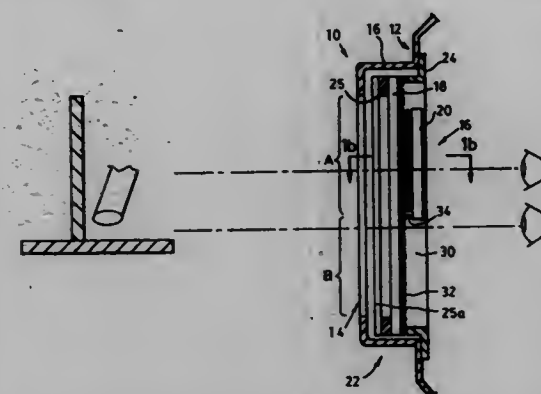
Jonathan Bennett, 690 Joseph St., R.R. #1 Peterborough, Ontario, Canada, K9J 6X2, and Reagh Mann, Post Office Fraserville, Ontario, Canada, K0L 1V0

Filed Oct. 26, 1995, Ser. No. 548,521

Int. Cl.⁶ A61F 9/06

U.S. Cl. 2—8

3 Claims



1. A welding helmet, comprising a face-protecting shroud, said shroud having an aperture, said shroud including filter means for protecting an operator from potentially damaging radiant energy being emitted from a workpiece, said filter means providing a first viewing region through which said operator may safely view said workpiece during activities generating potentially damaging radiant energy, and a second viewing region adjacent said first viewing region for viewing said workpiece during activities not generating potentially damaging radiant energy, thereby allowing said operator to view said workpiece through either one of said viewing areas without the need to remove said welding helmet, wherein said filter means includes a first filter plate portion to provide said first viewing area, said first filter plate portion being substantially equally sized with said aperture, said helmet further comprising a second filter plate portion positioned adjacent said first filter plate portion and corresponding with said first viewing region, said first filter plate portion further extending into a region corresponding to said second viewing region, whereby said first and second filter plate portions together have a sufficient filtering index to provide said protection, said first filter plate portion being fixed to said helmet, said helmet further comprising positioning means for releasably positioning said second filter plate portion relative to said first filter plate portion, wherein said positioning means positions said second filter plate portion on said first filter plate portion, said positioning means providing a gap to be formed between said first and second filter plates, to minimize build up of dirt between said first and second filter plates, said positioning means further comprising a tape fastener arrangement, comprising a first tape fastener attached to said first filter plate portion and a second tape fastener complementary to said first tape fastener and attached to said second filter plate portion.

5,669,071

FOLDABLE VISOR FOR CAP

Thien C. Vu, 28 Alpine Way, Asheville, N.C. 28805

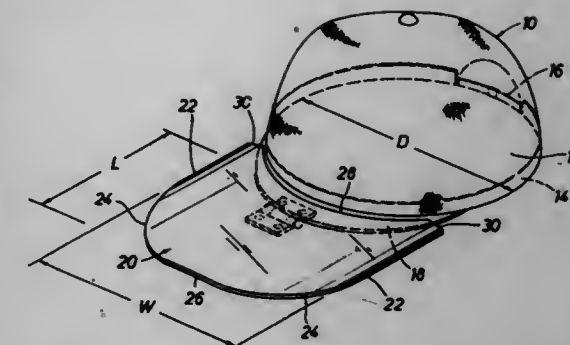
Filed Oct. 11, 1995, Ser. No. 540,654

Int. Cl.⁶ A42B 1/06

U.S. Cl. 2—10

9 Claims

1. A cap for the head of a wearer comprising:
a crown portion for fitting about the head of a wearer;
a relatively narrow and stiff brim extending from said crown portion and having opposed upper and lower surfaces;



a visor extending from said brim and having a lower surface covering a substantial portion of said brim when in a raised position; and
a hinge having a pair of leaves, one leaf secured to the lower surface of the brim and the other leaf secured to the lower surface of the visor whereby said visor is mounted for manual pivotal movement relative to said brim to lower said visor to a desired angular relation forwardly of said brim and crown portion to form a sun shield.

5,669,072

COAT CONSTRUCTION

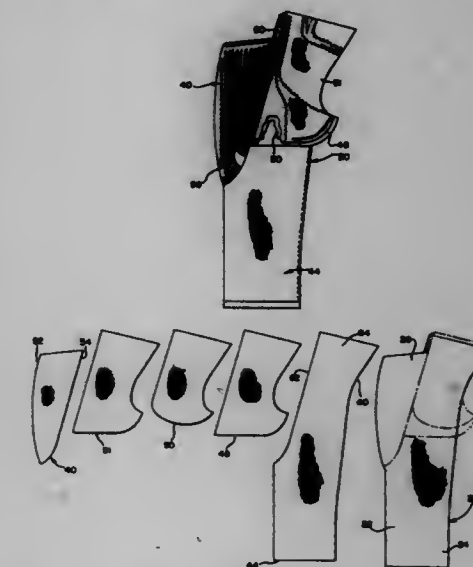
B. Lennart Bjorklund, Vernon Hills, Ill., assignor to Hart Schaffner & Marx, Chicago, Ill.

Filed Jul. 23, 1996, Ser. No. 685,868

Int. Cl.⁶ A41D 3/02

U.S. Cl. 2—93

29 Claims



21. A coat construction comprising:
a shell piece having a body portion and a lapel portion, the body portion having a curved upper edge for attachment to a sleeve;
an interlining attached to the shell piece at the body portion thereof, the interlining being formed from a fusible material;
a lapel support component attached to the shell piece at the lapel portion thereof, the lapel support component being formed from a first material; and
a chest support component separate from the lapel support component, the chest support component attached to the interlining, and formed from a second material having an average weight different from that of the first material.

5,669,071

GOLF GLOVE WITH GRIP POSITIONING MEANS

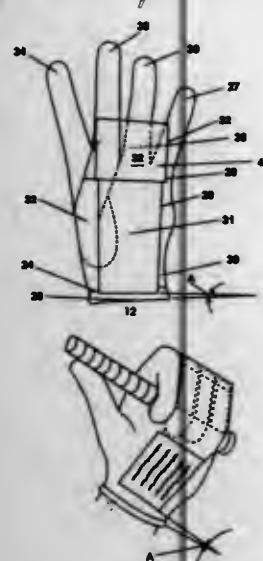
Mark E. Pellington, 506 10th Ave. S., No. Myrtle Beach, S.C. 29582

Continuation-in-part of Ser. No. 387,480, Feb. 13, 1995, abandoned. This application Feb. 20, 1996, Ser. No. 603,709

Int. Cl.⁶ A41D 19/00

U.S. Cl. 2—161.2

10 Claims



1. A golf glove for assisting a golfer to grip the club properly, for placing the wrist in the maximum desirable un-cocked position as the ball is addressed, for promoting arm extension, and for maximizing the chance of returning the club face to the proper position at impact during a swing comprising

- a five-fingered golf glove; and
- an elastic strap; and
- a first means for attaching said elastic strap near a proximal palm side edge of said five-fingered golf glove so that a proximal end of said elastic strap is at an angle to a proximal palm side edge of said five-fingered golf glove, and substantially parallel to a line formed by a base of a middle finger portion, ring finger portion, and little finger portion of said five-fingered golf glove; and
- a second means for attaching a distal end of said elastic strap to a back of the middle finger portion, ring finger portion, and little finger portion of said five-fingered golf glove.

5,669,074

REMOVABLE NECK SUNSHADE FOR A CAP

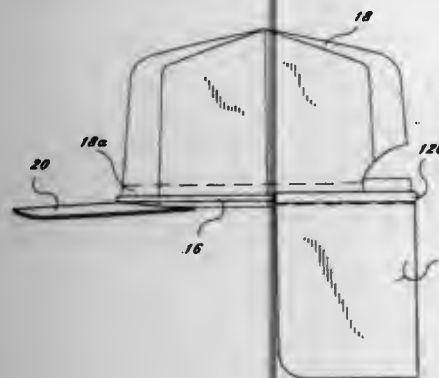
Harry L. Newman, Jr., 3500 Mystic Pointe Dr., No. 1206, North Miami Beach, Fla. 33180

Filed Aug. 10, 1995, Ser. No. 513,357

Int. Cl.⁶ A42B 1/06

U.S. Cl. 2—172

4 Claims



1. A sunshade and baseball cap combination, comprising:

a fabric body, substantially rectangular in shape, having a length equal in distance to approximately one-half a diameter of an exterior of a baseball cap and sized in length to cover the neck of a wearer; and

a stretchable ringlet having a diameter slightly less than the diameter of the exterior of said baseball cap, said stretchable ringlet being permanently connected to the sunshade body, said sunshade body having an upper edge portion, said ringlet being attached to said upper edge of said sunshade fabric body;

said stretchable ringlet is made from a tube, said tube constructed of a stretchable vinyl having a stretch ratio of two to one, such that in an unstretched state, the length of the tubular segment can be stretched to almost twice its length without breaking

whereby said sunshade can be readily mounted over the exterior of said baseball cap such that said ringlet is disposed along a top surface of the bill portion of the cap in a front portion and the sunshade is disposed along a rear portion of the cap, protecting the rear neck of a wearer when in place.

5,669,075

HAT PROVIDING ULTRA VIOLET RADIATION PROTECTION

David J. Weeks, 121 Rosedale Avenue, Halifax, Nova Scotia, Canada, B3N 2J6

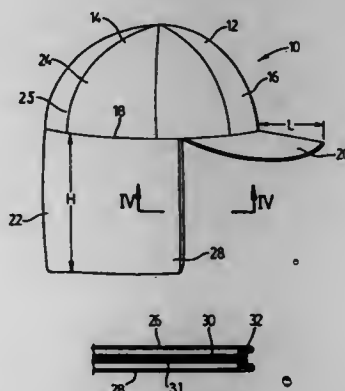
Filed Feb. 16, 1996, Ser. No. 602,196

Claims priority, application Canada, Jan. 19, 1996, 2167619

Int. Cl.⁶ A42B 1/06

U.S. Cl. 2—172

18 Claims



1. A cloth hat for warm weather use comprising:

a main section capable of covering the top of a user's head and having a top with a side wall extending down from the top to a peripheral edge;

a visor section connected to said peripheral edge at a front side of said main section, said visor section during use of the hat extending generally forwardly from the main section and having a width approximating the width of the hat; and

a flap section connected to said peripheral edge at a rear side of said main section, said flap section during use of the hat extending generally downwardly from the sidewall of the main section a substantial distance which is sufficient to protect a user's neck from sun rays,

wherein at least said main section and said flap section comprise first and second outer layers of tightly woven, thin, flexible cloth material and two thin inner layers of flexible cloth material sandwiched between said outer layers, said layers being secured together by stitching, both said visor section and said four layers of material in combination being sufficiently dense and opaque to prevent all ultraviolet sun rays from passing through the visor section and the layers to a user's head or neck.

5,669,076

ADJUSTABLE SIZE SELECTABLE PIE HAT

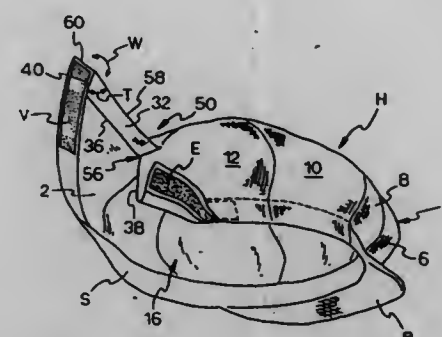
Sharon L. Steffy, Reinhold, Pa., assignor to Bollman Hat Company, Lancaster, Pa.

Filed Feb. 28, 1996, Ser. No. 608,064

Int. Cl.⁶ A42B 1/22

U.S. Cl. 2—195.2

22 Claims



22. An adjustable size selectable hat having:

a) a crown having a front, a back, left and right sides, a center, and inside and outside surfaces;

b) said crown back including a slit extending upwardly a substantial distance toward said center of said crown and positioned between said left and right sides and formed by adjacent left and right side edges;

c) said back at said slit including left and right bases;

d) each of said left and right side edges having on their adjacent side edges tuck forming means including a tuck;

e) said adjacent left and right side edges being disconnected from said tuck to said left and right bases;

f) means for adjustably securing said left and right bases together to provide an overlap by said one of said left and right sides with the other of said left and right sides from said tuck to said left and right bases; and,

g) whereby when said bases are secured together for selected size by said means for adjustably securing, said tuck will cause said overlap to lie flat and neat without bulge for said selected size regardless of size selected.

5,669,077

APPAREL WITH ONBOARD GROWTH CHART

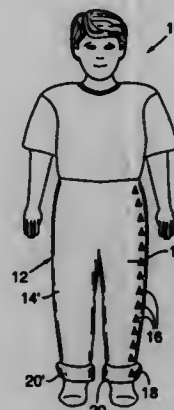
Franklin L. Stewart, 1329 SW. 14th St., Apt. 308, Portland, Oreg. 97201

Filed May 23, 1996, Ser. No. 652,161

Int. Cl.⁶ A41D 1/06

U.S. Cl. 2—227

19 Claims



1. A growth indication system for use on a garment with an interior and an exterior, the system comprising:

a first series of markings formed along the exterior of the garment at regularly spaced intervals and in a first predetermined orientation; and

a second series of markings formed along the interior of the garment at regularly spaced intervals and in a second predetermined orientation which is inverted relative to the first predetermined orientation;

said first and second series of markings being configured such that when the garment is cuffed, the second series aligns with the first series and a predetermined portion of the second series of markings face exteriorly to provide a selectively adjustable continuation of the first series of markings.

5,669,078

SECURITY POCKET ASSEMBLY

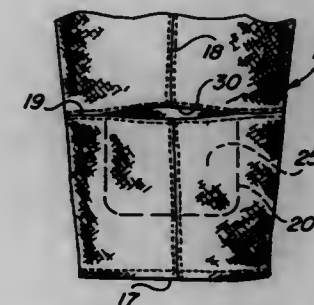
Anthony J. Scremin, 12651 SW. 20 Ter., Miami, Fla. 33175, and Tomiko Erickson, 10100 E. Calusa Club Dr., Miami, Fla. 33186

Continuation-in-part of Ser. No. 206,967, Mar. 7, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 488,155

Int. Cl.⁶ A41D 1/06; 27/20

U.S. Cl. 2—247

20 Claims



1. In combination with a garment of the type including a first leg portion and a second leg portion, each of the leg portions terminating in an open lower end and having an inboard vertical seamline; a security pocket assembly comprising:

at least one material panel having a first top edge, a second bottom edge and at least two generally opposite side edges, said material panel being folded to define a compartment wherein said first top edge generally corresponds with said second bottom edge,

said compartment being secured in an interior of at least one of the leg portions near the open lower end of said leg portion; a slit in said at least one leg portion, said slit having a first and a second opposing lip, said slit being disposed to correspond said corresponded top and bottom edges of said material panel so as to provide access to an interior of said compartment from an exterior of the leg portion, and

said material panel being secured in said at least one leg portion by a generally T shaped pattern, said T shaped pattern securing said first top edge of said panel to said first opposing lip of said slit and securing said second bottom edge of said panel to said second opposing lip of said slit, and further securing a main face of said panel adjacent the inboard vertical seamline to the inboard vertical seamline of said at least one leg portion of the garment.

5,669,079

SAFETY ENHANCED MOTORCYCLE HELMET

Don E. Morgan, 33 Kingsley Parade, Yeronga, Queensland, Australia, 4104

Filed Apr. 19, 1996, Ser. No. 634,764

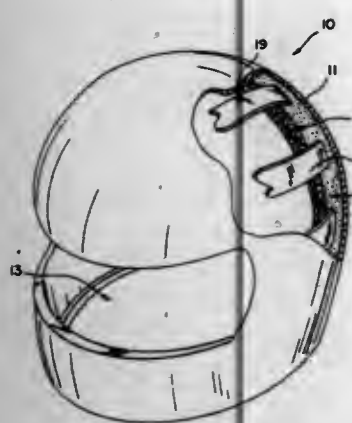
Int. Cl.⁶ A42B 3/00

U.S. Cl. 2—414

20 Claims

1. A safety enhanced helmet, comprising:

a) an outer hard shell;



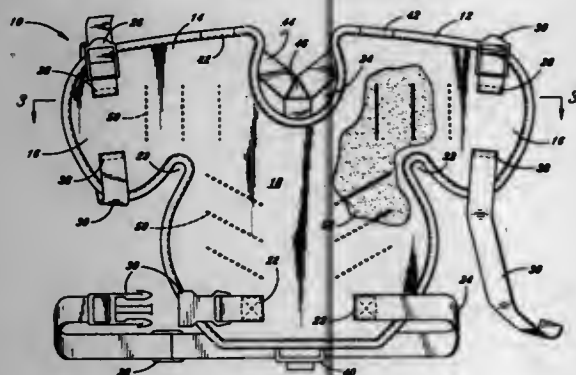
- b) an inner cushioning padding including:
- i) an outer layer consisting of a relatively high density foam layer extending inwardly from within said shell;
 - ii) an inner layer consisting of a flexible pad embedded with air bubbles; and
 - iii) a plurality of relatively low density foam members embedded within said outer layer and spaced from said inner layer.

5,669,080
PROTECTIVE APPARATUS AGAINST BASEBALL PITCHING INJURY

Dale M. Culton, 341 Barrett Rd., Emmaus, Pa. 18049
Continuation of Ser. No. 309,052, Sep. 20, 1994, abandoned.
This application Aug. 20, 1996, Ser. No. 700,128
Int. Cl.⁶ A41D 13/00

U.S. Cl. 2-455

20 Claims



1. An apparatus for protection of an athlete by cushioning and absorbing the shock of impact to the body from a projectile comprising:

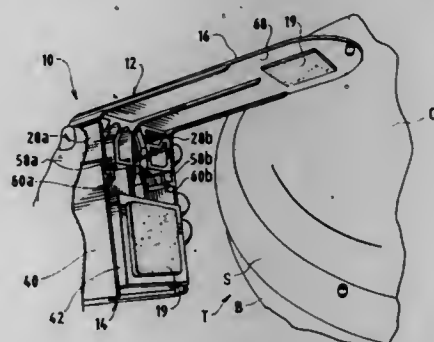
- a one-piece, continuous protective vest formed from a single piece of a protective material for protecting the torso, shoulder, upper arm areas of a human body extending from the diaphragm, continuing over the shoulder, and stopping at the top of the shoulder blades;
- means for attaching and for positioning said protective vest over the torso, shoulder and upper arm areas of the human body for optimal form, fit and protection, said attaching means comprising a primary fastening means and a secondary fastening means for retaining the protective vest in position covering the torso, shoulder and upper arm areas of the human body and said secondary fastening means comprising a strap and adjustment means;
- said protective vest further comprising a chest portion, a shoulder portion and an upper arm portion of said protective vest formed by a pair of arm yokes cutouts in the single piece of protection to permit full movement of both arms of the human

body while continuing to protect the torso, shoulder and upper arm areas of the human body.

5,669,081
SELF-LOCKING TOILET SEAT COVER
Craig S. Scherer, Wilmette; David C. Brown, Chicago, and Michael C. Thuma, Des Plaines, all of Ill., assignors to BRK Brands, Inc., Aurora, Ill.
Filed Jun. 28, 1996, Ser. No. 672,446
Int. Cl.⁶ A47K 13/00

U.S. Cl. 4-253

9 Claims



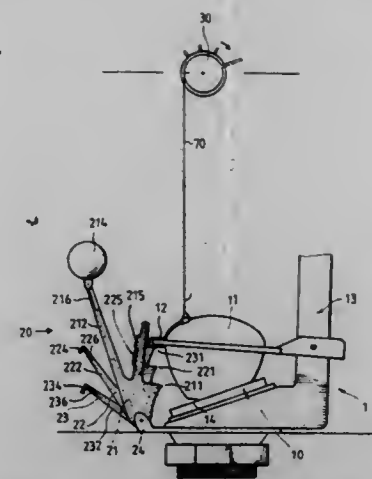
1. A lock attachable to a toilet bowl and an associated seat cover for locking the seat cover to the bowl, the lock comprising:
- a first housing and a separate second housing wherein each of the housings is substantially rigid and carries a latching portion, and wherein each of the housings carries an attachment element adapted to attach the respective housing to one of a portion of the bowl and a surface of an adjacent portion of the seat cover whereby the latching portions of the two housings are located adjacent to one another when the seat cover is moved to a position adjacent to and effective to close the bowl;
- first and second releasably engagable latch elements wherein the first latch element is carried by the first housing at the respective latching portion and the second latch element is carried by the second housing at the respective latching portion with the two latch elements adapted to lockingly engage one another when the housings are located adjacent to one another thereby holding the seat cover closed against the bowl; and
- a two-part release mechanism carried by one of the housings and coupled by at least one unlatching member to the respective latch element wherein the two parts of the release mechanism are both movable toward one another and in response to relative movement of both parts toward one another the at least one unlatching member disengages the latch elements from one another enabling the seat cover to be opened.

5,669,082
FLUSH CONTROL DEVICE FOR TOILET
Feng-Chi Sun, 5F, No. 3, Alley 3, Lane 60 Chao-Chow Street, Ta-An District, Taipei City, Taiwan
Filed Jun. 6, 1996, Ser. No. 659,298
Int. Cl.⁶ E03D 1/14

U.S. Cl. 4-325

8 Claims

1. A control device for discharging selective flush water comprising:
- a water discharging member, a control member and a stepped check member, wherein:
- said water discharging member comprising a water outlet adapted to be positioned in a bottom of a water tank and an outlet valve positioned on the top of said water outlet and adapted to be pivotally engaged with an overflow pipe;
- said control member adapted to be pivotally secured to an upper portion of said water tank and in alignment with said water

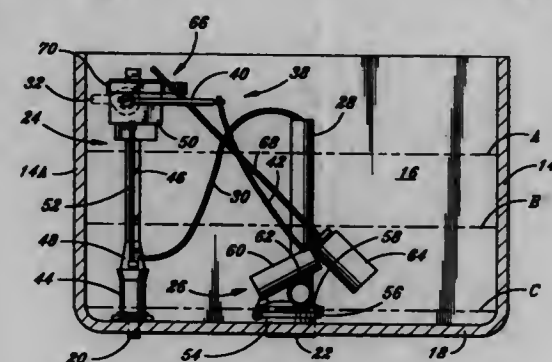


- discharging member and comprising a shaft, a plurality of positioning rods on said shaft and a stopping means spacedly extended outward from a circumferential edge of said shaft, and a connecting means having at one end attached to said shaft and the other end connected to said outlet valve;
- said stepped check member comprising a plurality of damper plates of different sizes, each plate having a first shoulder wherein said shoulders are of differing heights and located at a front side thereof and facing toward said water discharging member and an axial hole laterally formed adjacent a lower end thereof for co-axially and pivotally engaging said damper plates onto a lug means adjacent said outlet valve; said damper plates each having an elongate tail wherein said tails are of differing heights and including an extension thereof corresponding to different water levels in said water tank, a float ball pivoted to a free end of the elongate tail of one of said damper plates, a transverse portion formed at a free end of the elongate tail of another said damper plates, and a second shoulder formed on a rear side of said one of said damper plates.

5,669,083
WATER SAVER FOR FLUSH TANKS
Roland J. Leombruni, Sr., 319 Twelfth St., Scranton, Pa. 18504
Continuation-in-part of Ser. No. 410,044, Mar. 24, 1995, abandoned. This application Dec. 9, 1996, Ser. No. 763,164
Int. Cl.⁶ E03D 1/33

U.S. Cl. 4-415

6 Claims



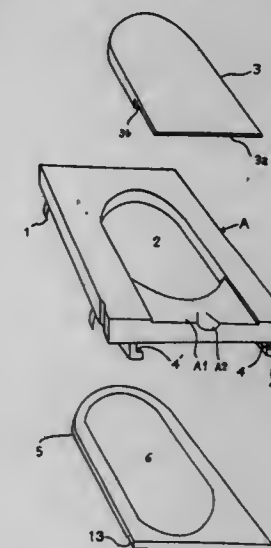
1. A flush tank for holding and releasing water comprising:
- a. a handle having means for being rotatably mounted to the flush tank;
 - b. an actuation member having first and second ends with said first end being connected to said handle;
 - c. means for controlling the entry of water into said flush tank, said means comprising:
 - i. a valve means connected to a water supply and responsive to a valve actuation mechanism for permitting water to enter said flush tank;

- ii. said actuation mechanism controlling the state of said valve respectively allowing and preventing the entry of water into said flush tank; and
- iii. a primary float means attached to said valve actuation mechanism being vertically disposed for movement, said primary float means tracking the level of water in said flush tank causing said valve to be placed in its closed state when said water has reached a first pre-determined level preventing the entry of water into said flush tank;
- d. means for draining the water from said flush tank, said draining means being connected to said second end of said actuation member and responsive to the movement of said handle to initiate said draining; and
- e. a secondary float having means for coupling said primary float to said secondary float, said coupling means comprising:
 - i. a band having a pre-determined length so as to encompass said primary float and leave first and second overlapping edges each having first and second openings; and
 - ii. fastening means dimensioned to be insertable into said openings in said band and tightened to sufficiently engage the primary float and to retain the secondary float at a pre-determined downward angular position so as to capture said primary float and retain said primary float in its uppermost position until said water has reached a second pre-determined level which is less than said first pre-determined level.

5,669,084
SIMPLE TOILET
Yoshikuni Sakimura, 7-16, Goeku 1-Chome, Okinawa-Si, Okinawa, 904, Japan
Filed Apr. 12, 1996, Ser. No. 631,269
Claims priority, application Japan, Nov. 1, 1995; 7-306403
Int. Cl.⁶ A47K 11/06

U.S. Cl. 4-480

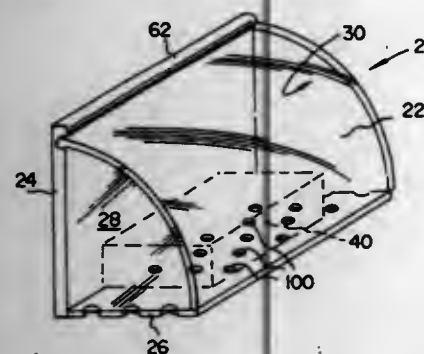
4 Claims



1. A toilet comprising:
- a stool plate defining an evacuation opening in a center of said stool plate, said stool plate including a first and second side;
- a plurality of hook means mounted on said stool plate and for engaging a seat surface sheet fixing pipe of a wheelchair;
- a cover positionable in said evacuation opening, said stool plate including a plurality of convex portions for supporting said cover in said evacuation opening at a position below said first side of said stool plate;
- a pair of engaging grooves positioned on said second side of said stool plate and at opposite sides of said evacuation opening, said engaging grooves being centrally and laterally opened;

a mounting plate slidably mounted in said pair of engaging grooves, and slidably removable from one end of said stool plate, said mounting plate defining a cut opening having a size substantially similar to a size of said evacuation opening; an evacuation bag suspended from said cut hole in said mounting plate, said evacuation bag having an opening sandwiched between said stool plate and said mounting plate.

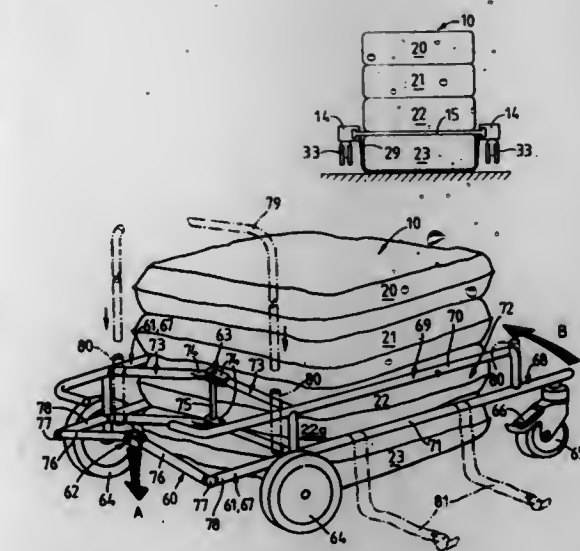
5,669,083
WATER-RESISTANT MULTIFUNCTIONAL BATHROOM FIXTURE
David W. Wilson, 340 Long Meadow Way, Arnold, Md. 21012
Filed Jun. 19, 1996, Ser. No. 666,826
Int. Cl.⁶ A47K 5/02
U.S. Cl. 4—605
18 Claims



1. A multifunctional bathroom device comprising:
 - (a) a wall attachment mounting frame for mounting to a wall;
 - (b) a shelf extending substantially perpendicular from said wall attachment mounting frame;
 - (c) a sloping cover for covering said wall attachment mounting frame and said shelf;
 - (d) means for the pivotal attachment of said sloping cover to said wall attachment mounting frame;
 - (e) a spring-actuated bar and detente combination for periodically maintaining said pivotal sloping cover in an open position; and
 - (f) a water-resistant closure means formed between said sloping cover and said wall attachment frame.

5,669,086
INFLATABLE MEDICAL LIFTING DEVICES
David Edmund Talbot Garman, Llandrindod Wells, United Kingdom, assignor to Mangar International Limited, United Kingdom
Filed Jul. 6, 1995, Ser. No. 498,982
Claims priority, application United Kingdom, Jul. 9, 1994, 9413882; Feb. 17, 1995, 9503129
Int. Cl.⁶ A61G 7/10; 7/14
U.S. Cl. 5—86.1
20 Claims

1. Mobile medical apparatus for lifting a disabled person in a confined space, said apparatus comprising:
 - a) means for mounting a lifting device on mobile support means;
 - b) the lifting device having a plan area and including a stack of inflatable bags secured together, in which the fully inflated thickness of each bag is less than the width and breadth of each bag, at least one of the bags below the uppermost bag of the stack containing internal flexible links to limit the inflated thickness thereof;
 - c) the mobile support means including wheel means disposed on the mobile support means outside the plan area of the lifting device;
 - d) at least a portion of the mobile support means being removable from the lifting device to permit clear access to the lifting device when the latter is deflated; and



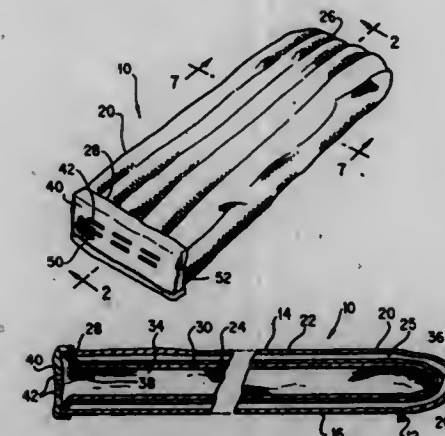
- e) said lifting device further including an inflatable base lifting bag means to support the lifting device while said removable support means is refitted;
- f) said base lifting bag means being deflatable to rise clear above a bottom level of the wheel means.

5,669,087
LACING WIRE ZONED MATTRESS
Thomas J. Wells, Carthage, Mo., and William L. Ayers, IV, Duluth, Ga., assignors to L&P Property Management Company, Chicago, Ill.
Filed Apr. 10, 1996, Ser. No. 631,841
Int. Cl.⁶ B25H 23/02
U.S. Cl. 5—269
21 Claims



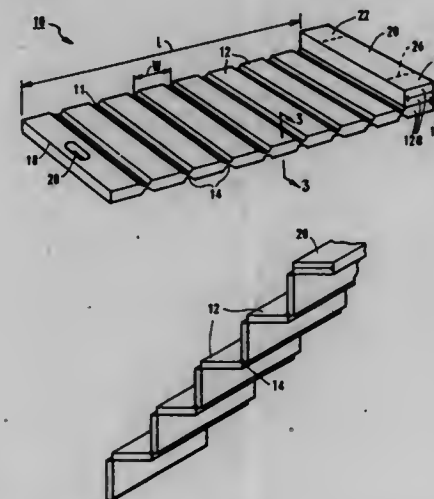
8. A bedding mattress spring core comprising a plurality of springs, each spring having an upper face in an upper plane, a lower face in a lower plane and a plurality of helical revolutions therebetween, said springs being arranged in side by side rows and columns, a plurality of helical lacing connectors lying generally in said planes, each of said helical lacing connectors extending generally parallel said rows and encircling adjacent portions of adjacent faces of adjacent rows of springs, said spring core being separated into regions of differing firmnesses, each of said regions having therein multiple spaced helical lacing connectors, said differing firmnesses being attributable to said helical lacing connectors being of a heavier gauge wire in selected regions than the helical lacing connectors in other regions.

5,669,088
INFLATABLE SLEEPING ENCLOSURE
Brian J. McNamee, P.O. Box 676, Severna Park, Md. 21146
Filed Jun. 12, 1996, Ser. No. 661,957
Int. Cl.⁶ A47G 9/08
U.S. Cl. 5—413 AM
19 Claims



1. A sleeping bag enclosure, comprising:
 - a longitudinally extended outer envelope open on one end and having an upper side and a lower side, said upper side having an inner wall and an outer wall formed of an air impervious material and joined together to form a plurality of air passages therebetween for maintaining said outer envelope in an open condition, said lower side being formed by a second outer wall;
 - an insulating inner envelope open on one end and concentrically disposed within said outer envelope, said inner envelope having an upper side secured to said inner wall and a lower side secured to said second outer wall; and
 - a vented cover member coupled to said outer wall on a perimeter of said open end for forming a closure therefor.

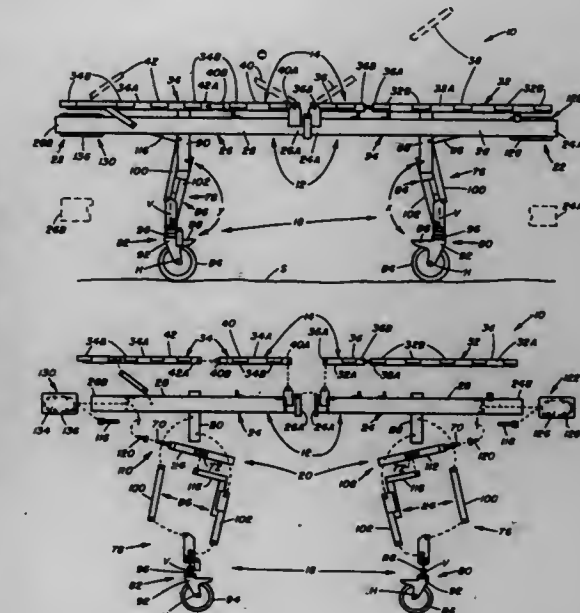
5,669,089
PLEATED WORK MAT WITH INTEGRAL HEADREST
Kent L. Dees, 8385 Lake Ben Ave., San Diego, Calif. 92119
Filed Oct. 6, 1995, Ser. No. 550,250
Int. Cl.⁶ B25H 5/00
U.S. Cl. 5—419
5 Claims



1. A work mat, comprising:
 - a pad having a plurality of panels manually movable between an unfolded configuration, wherein the pad is substantially flat such that a person can lie supine on the pad beneath a vehicle, and a pleated configuration, wherein the pad is pleated to

facilitate storage of the pad, wherein one of the panels is a head rest defining a first flat surface and another of the panels is an end panel defining a second flat surface, wherein the first flat surface is substantially permanently bonded flush against the second flat surface to support the head of a person when the person lies supine thereon.

5,669,090
REHABILITATION BED TRANSFORMABLE TO MULTIPLE POSITIONS FOR ACCOMMODATING AN OBESE PERSON
Dale G. Basgall, 3124 B Iolani St., Pukalani, HI. 96768
Filed Feb. 12, 1996, Ser. No. 599,797
Int. Cl.⁶ A61G 7/00
U.S. Cl. 5—620
19 Claims



18. A rehabilitation bed for accommodating an obese person, said bed comprising:
 - (a) a main frame with separate forward and rearward frame structures fastened together end-to-end and constituting mirror images of one another;
 - (b) forward and rearward deck structures for supporting a mattress thereon being mounted to and resting upon said forward and rearward frame structures;
 - (c) head and foot actuator mechanisms respectively pivotally mounted to said forward and rearward frame structures and pivotally coupled to said forward and rearward deck structures;
 - (d) separate forward and rearward carriages underlying and supporting said respective forward and rearward frame structure;
 - (e) front and rear actuator mechanisms pivotally coupled to respective front and rear linkage assemblies of said forward and rearward carriages and operable between retracted and extended conditions to pivotally move said front and rear linkage assemblies independent of one another reciprocally along arcuate paths provided as mirror images of one another to cause said forward and rear frame structures to raise and lower relative to a floor and to the forward and rearward carriages without undergoing any substantial horizontal movement relative to the floor; and
 - (f) head and foot drive modules having respective pairs of electric bi-directional motors coupled to the respective head and foot actuator mechanisms to pivotally move said deck structures independent of one another and relative to said main frame to transform the bed between multiple positions.

5,669,091

STRUCTURE OF WATER BED

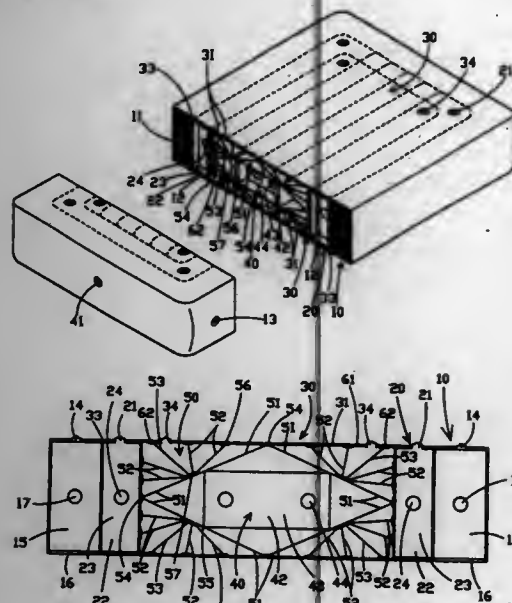
Ming-Chun Chung, 7F, No. 22, Alley 3, Lane 227, Nung An Street, Taipei, Taiwan

Filed Mar. 15, 1996, Ser. No. 616,189

Int. Cl.⁶ A47C 27/10

U.S. Cl. 5—687

5 Claims



1. A bed comprising:

- a soft frame;
- a peripheral air bag mounted within said soft frame;
- a water bag mounted within said soft frame and surrounded by said peripheral air bag, said water bag including at least one water valve for permitting water flow into and out of said water bag, and said water bag being defined in part by a top plastic lining wall and a bottom plastic lining wall, said top and said bottom plastic lining walls of said water bag being sealably connected at two opposite sides to outer side edges of said peripheral air bag;
- an intermediate air bag mounted within said water bag, said intermediate air bag including at least one air valve extending out of said water bag and said soft frame, and a plurality of air bag partition stretchers, each of said air bag partition stretchers having at least one air hole defined therein, said air bag partition stretchers defining a plurality of air chambers in communication with one another through said air holes of said partition stretchers;
- a plurality of stretcher sheets respectively mounted inside said water bag and sealably connected between said water bag and said internal air bag; and
- a water-tight outer layer covering said soft frame, said peripheral air bag, and said water bag.

5,669,092

AIR MATTRESS STRUCTURE

Ping-Ting Lin, Taichung Hsien, Taiwan, assignor to Feng Yi Outdoor Leisure Equipment Enterprise Co., Ltd., Taichung Hsien, Taiwan

Filed Mar. 6, 1996, Ser. No. 611,795

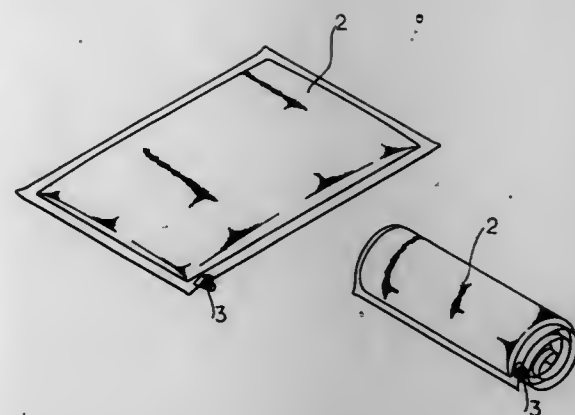
Int. Cl.⁶ A97C 27/08

U.S. Cl. 5—706

3 Claims

- 1. A water-tight and heat-insulating air mattress comprising an air valve for inflating the mattress and a laminated mattress body including:

- (a) an upper layer, a first line low density polyethylene layer, a first aluminum foil layer, a nylon layer, a second aluminum foil layer, a second line low density polyethylene layer and a lower layer; and



- (b) wherein the first low line density polyethylene layer is laminated between the upper layer and the first aluminum layer, the nylon layer is laminated between the first and second aluminum foil layers, and the second line low density polyethylene layer is laminated between the second aluminum foil layer and the lower layer.

5,669,093

POCKETED COIL SPRING ASSEMBLY

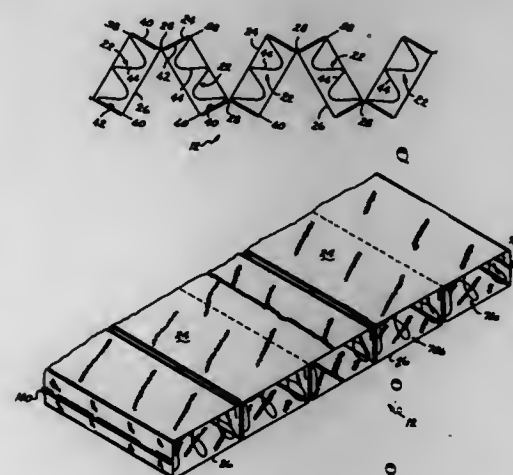
Steven E. Ogle, and Thomas J. Wells, both of Carthage, Mo., assignors to L & P Property Management Company, Chicago, Ill.

Filed Jul. 17, 1996, Ser. No. 682,104

Int. Cl.⁶ A47C 27/04; 27/06

U.S. Cl. 5—720

36 Claims



1. A mattress comprising:

- a pocketed spring assembly having an upper and lower planar surface in top and bottom planes respectively, said assembly comprising a plurality of transversely extending integrally connected fabric blocks, each block containing a plurality of coil springs, each coil spring having a first and second end turn and a plurality of central convolutions defining an axis, wherein said blocks are defined between two sheets of fabric by spaced transversely extending lines of attachment of the sheets to each other, said lines of attachment being located in the upper and lower planar surfaces of said assembly, and successive lines of attachment being alternatively located in said top and bottom surfaces of said assembly;
- a mattress pad covering a surface of said assembly,
- a fabric covering encasing said pad and said assembly.

5,669,094

MATTRESS WITH VISCO-ELASTIC, TEMPERATURE SENSITIVE TOP LAYER

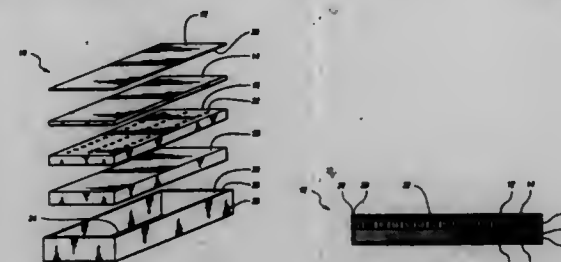
Larry Sven Swanson, 2166 Sandy Shore Dr. SE., Kentwood, Mich. 49508

Filed Feb. 27, 1996, Ser. No. 607,832

Int. Cl.⁶ A47C 27/15

U.S. Cl. 5—740

7 Claims



1. A mattress comprising:

- a top layer of visco-elastic polyurethane foam having a low rebound property and which is temperature sensitive and having a thickness of approximately 1/2 of 1 1/2 inches;
- a second layer of latex foam having vertical bores and a thickness of approximately 2 to 4 inches; and
- a third layer of resilient material having a thickness of approximately 3 to 7 inches.

5,669,095

ADAPTIVE WATER LEVEL CONTROLLER FOR WASHING MACHINE

Mark Edward Dausch, Latham; Vivek Venugopal Badami, Niskayuna; Walter Whipple, III, Amsterdam, all of N.Y., and Cynthia Fanning Forester, Louisville, Ky., assignors to General Electric Company, Schenectady, N.Y.

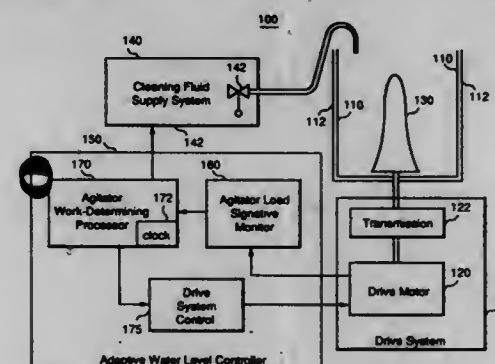
Continuation of Ser. No. 496,114, Jun. 28, 1995, abandoned.

This application Sep. 23, 1996, Ser. No. 717,592

Int. Cl.⁶ D06F 33/02; 39/08

U.S. Cl. 8—158

31 Claims



1. A washing machine for cleansing articles with a cleansing fluid, the washing machine comprising:

- a cleansing fluid supply system;
- a washer basket disposed in said washing machine and adapted to receive articles to be cleansed, said washer basket being disposed to receive cleansing fluid from said cleansing fluid supply system, said basket further having an agitator device disposed therein and that is coupled to a drive system, said agitator being disposed in said basket so as to displace cleansing fluid and articles to be cleansed in response to motion of said agitator; and
- a closed loop adaptive water level controller coupled to said cleansing fluid supply system and to said drive system, said adaptive water level controller further comprising an agitator load signature monitor and an agitator work-determining processor, said processor being coupled to said agitator load

signature monitor and said cleansing fluid supply system and adapted to generate a fluid supply control signal in correspondence with an agitator work signal, said agitator work signal being generated by said work-determining processor in response to signals from said agitator load signature monitor.

- 14. A method of determining with an adaptive water level controller an optimal fill level for cleansing fluid in a washing machine, the washing machine having a washer basket for receiving articles to be cleansed, comprising the steps of:

operating an agitator disposed in said washer basket, said agitator being coupled to a drive system to operate said agitator in agitation cycles,

determining a plurality of respective agitator load signature values representing operation of said agitator in said agitation cycles;

processing said plurality of respective agitator load signature values to determine an agitator minimal work point signal; and

generating a cleansing fluid supply system control signal to in correspondence with said agitator minimal work point signal to provide said cleansing fluid optimal fill level in said washing machine.

5,669,096

BALL CLEANING SYSTEM

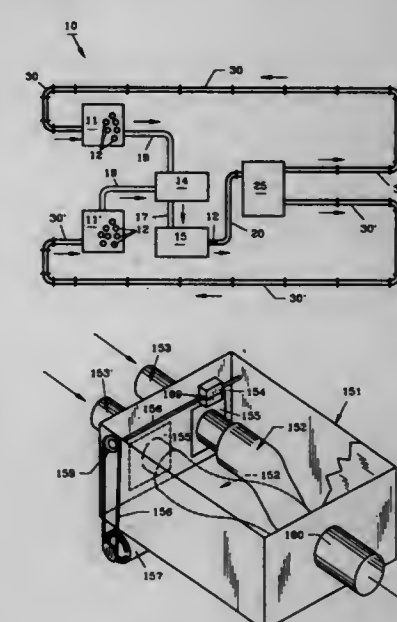
Jack W. Worsham, Greensboro, N.C., assignor to Intertech Corporation, Greensboro, N.C.

Filed Apr. 8, 1996, Ser. No. 630,000

Int. Cl.⁶ A63B 47/04

U.S. Cl. 15—21.2

13 Claims



- 1. A ball cleaning system comprising: a source of balls, a converger, said converger in communication with said ball source, a ball washer, said ball washer in vacuum communication with said converger whereby balls can be delivered from said ball source to said ball washer.

5,669,097

STRADDLE-TYPE TOOTH BRUSHING DEVICE

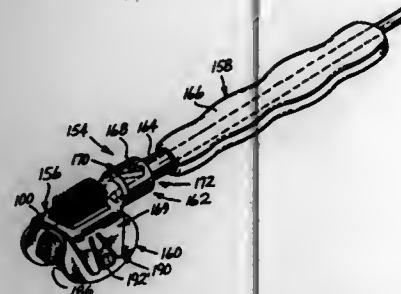
Ronald W. Klinkhammer, Seattle, Wash., assignor to Oral Logic, Inc., Minot, N. Dak.

Continuation of Ser. No. 329,273, Oct. 26, 1994, abandoned, which is a continuation of Ser. No. 191,968, Feb. 4, 1994, Pat. No. 5,360,026, which is a continuation of Ser. No. 924,096, Aug. 3, 1992, Pat. No. 5,284,168, which is a continuation of Ser. No. 664,487, Aug. 4, 1991, Pat. No. 5,137,039, which is a continuation of Ser. No. 145,771, Jan. 19, 1988, abandoned, which is a continuation-in-part of Ser. No. 937,554, Dec. 4, 1986, abandoned. This application Jun. 5, 1995, Ser. No. 460,831

Int. Cl.⁶ A45D 44/18

U.S. Cl. 15—167.1

25 Claims



1. A straddle-type tooth brushing device comprising: means including a pair of elongated, spaced, generally parallel first and second arms and an elongated third arm relatively interposed therebetween, all of which have distal end portions with tooth brushing means thereon to form a head for straddling about a row of teeth to be cleaned, elongated support means including a handle for supporting the head adjacent the row of teeth, and biasing means acting on the distal end portions of the first and second arms from within the head to yieldably bias the tooth brushing means thereon into engagement with the inside and outside faces of the teeth when the head is straddled about the row thereof, said support means having a distal end and a longitudinally extending axis, said third arm being rigidly interconnected with the support means at the distal end thereof so as to form a relatively rigid longitudinal extension of the support means which projects from the distal end of the support means substantially in a plane coinciding with the longitudinal axis thereof, said first and second arms being relatively rigidly interconnected with the third arm adjacent the distal end of the support means, and projecting relatively away from the distal end of the support means on opposite sides of the aforesaid axial plane of the support means, so as to form an elongated slot in the space therebetween which opposes the distal end portion of the third arm in said axial plane of the support means at the space between the distal end portions of said first and second arms, the distal end portions of the first and second arms having laterally inwardly directed surfaces thereon which are relatively opposed to one another across the axial plane of the support means so that when in an operational mode of the device using the slot to accommodate the teeth, the head is straddled about the row of teeth so that the axial plane of the support means is aligned with the row of teeth and the first, second and third arms are generally parallel to the row, the surfaces on the distal end portions of the first and second arms are generally opposed to the inside and outside faces of the teeth in the row, and the distal end portion of the third arm is supported opposite the tops of the teeth in the row so as to engage the tooth brushing means thereon with the tops of the teeth in the row, the tooth brushing means on the distal end portions of the first and second arms being supported on the surfaces thereof to

engage the faces of the teeth when the head of the device is straddled about the row of teeth in the operational mode of the device, the first and second arms being constructed of a stiff but resiliently flexible material terminating at the laterally inwardly directed surfaces on the distal end portions thereof so that the respective first and second arms are independent of one another transverse the axial plane of the support means, the distal end portions of the first and second arms being so closely spaced apart from one another at the laterally inwardly directed surfaces thereon, and so yieldably biased relatively toward one another by the biasing means, transverse the axial plane of the support means, in the relaxed state of the first and second arms, that the user must forcibly wedge the teeth between the laterally inwardly directed surfaces on the distal end portions of the first and second arms when straddling the head about a row of teeth in the slot in the operational mode of the device, and the support means having socket defining means at the distal end thereof and the third arm having a proximal end portion secured in the socket defining means.

5,669,098

FLOOR CLEANING MACHINE WITH AN ADDITIONAL FLUID NOZZLE WITH CONNECTOR AND SUCTION BY-PASS

Gianni Tono, 11 Via Locchi, Padova, Italy, 35124

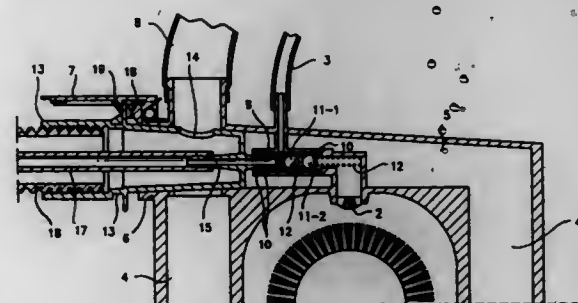
Filed Jun. 29, 1995, Ser. No. 496,670

Claims priority, application Italy, Jul. 15, 1994, PD94A0134; Oct. 5, 1994, PD94A0169; Oct. 13, 1994, PD94A0175; Oct. 25, 1994, PD94A0186

Int. Cl.⁶ A47L 11/30

U.S. Cl. 15—321

4 Claims



1. In a floor-cleaning machine having a brush, an inlet duct for introducing cleansing fluid, a supply valve means for controlled dispensing of said cleansing fluid, a sprayer for discharging the cleansing liquid relative to the brush, and dirty liquid suction ducts which are oriented on opposite sides of the brush and which are in open communication with a connecting duct which communicates with a suction outlet for dirty liquid, the improvement comprising: an additional suction nozzle including a suction conduit having a by-pass connector manifold joined at one end of said conduit which is selectively insertable within the connecting duct, said connector manifold having an opening therein for communicating said suction conduit of said additional suction nozzle with the suction outlet, a pipe element extending from said connector manifold and insertable within the supply valve means so as to direct cleansing fluid therethrough when said connector manifold is inserted within the connecting duct, and a fluid cleansing duct connected to said pipe element and extending within said suction conduit of said additional suction nozzle, whereby upon insertion of said by-pass connector manifold within the connecting duct, suction is established through said suction conduit of said additional suction nozzle and said cleansing fluid is provided through said pipe element and said fluid cleansing duct.

5,669,099

SYSTEM FOR USE IN CLEARING CLOGGED DRAINS

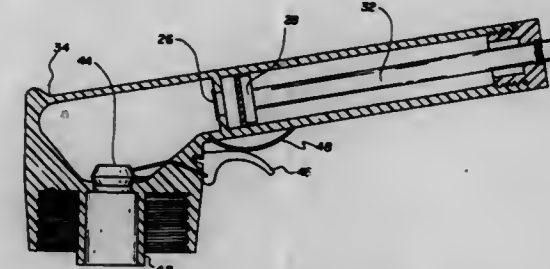
Joe Porcasi, 123 W. Main Cross, Taylorville, Ill. 62568

Filed Feb. 5, 1996, Ser. No. 596,602

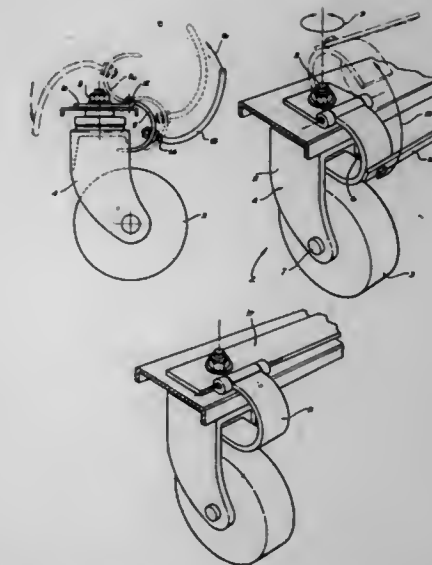
Int. Cl.⁶ E03D 9/00

U.S. Cl. 15—341

4 Claims



1. A new and improved hand-held drain cleaning system employing pressurized air, the system comprising, in combination: a handle component having a first end, a second end, an exterior surface, an interior surface, an interior area, an aperture formed within the second end, a one-way valve positioned over the aperture for allowing air to flow from the interior area of the handle component, a piston positioned within the interior area of the handle, a rod coupled to the piston and extending through the first end of the handle component; a housing component having a first end, a second end, an interior area, and an exterior surface, the first end of the housing component being integral with the second end of the handle component, a cylindrical passage having a first end and a second end, the first end of the cylindrical passage in communication with the interior area of the housing, the second end of the housing being internally threaded, a stopper adapted to be positioned over the first end of the cylindrical passage, the stopper being pivotally secured to the interior area of the housing component; a trigger pivotally secured to the exterior surface of the housing, the trigger having a first orientation and a second orientation, the second orientation of the trigger effecting the pivotal movement of the stopper away from the first end of the cylindrical passage, a spring secured to the exterior surface of the handle component, the spring urging the trigger from its second to its first orientation; an extension member having a first end, a second end and an interior passage, the first end being externally threaded and adapted to engage the internal threads of the second end of the housing component such that the cylindrical passage comes into fluid communication with the interior passage of the extension member; and a plurality of drain closures, each of the drain closures having a first end of a uniform cross-section and a second end, the second end of each of the closures adapted to be positioned within the drain opening, each of the second ends having a different diameter.



5,669,100

CASTOR LOCKING DEVICE WITH FREELY PIVOTABLE CURVED TONGUE ENGAGEMENT

Graham Scott Carpenter, 26 Murray St., Goulburn, Australia

Continuation of Ser. No. 274,972, Jul. 14, 1994, abandoned.

This application Feb. 26, 1996, Ser. No. 606,677

Claims priority, application Australia, Jul. 15, 1994, PL9977

Int. Cl.⁶ B60B 33/02

U.S. Cl. 16—35 R

22 Claims

1. A device for arresting the swivelling movement of a castor, said castor having a fork-type attachment means with a pair of depending arms, an upper end of said attachment means being rotatable relative to a base portion of a trolley so that said castor is capable of swivelling about a vertical castor rotation axis, and a

5,669,101

CONTROL HANDLE FOR CUTTING MACHINE

Fumihiko Aiyama, and Yoshikazu Iida, both of Tokyo, Japan, assignors to Kioritz Corporation, Tokyo, Japan

Continuation of Ser. No. 166,648, Dec. 13, 1993, abandoned.

This application Aug. 24, 1995, Ser. No. 524,121

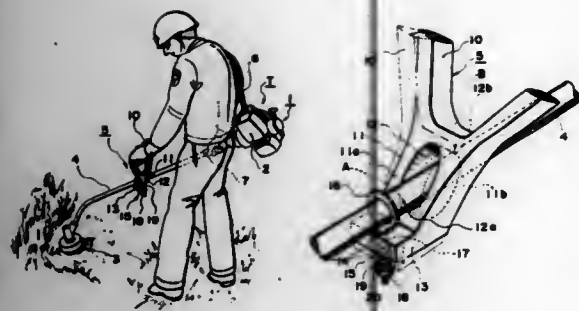
Claims priority, application Japan, Jan. 29, 1993, 5-006721

Int. Cl.⁶ A01D 34/68; G05G 5/00; B25G 3/00

U.S. Cl. 16—111 A

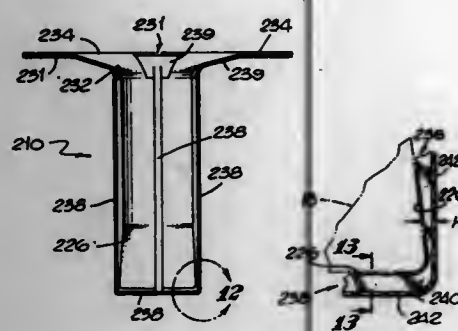
1 Claim

1. In a portable power tool having an elongated operating shaft supporting a tool at one end, a drive motor at its other end, and transmission means extending through said shaft to drive said tool, an adjustably positioned control handle for holding and guiding the position and orientation of said tool during use, said control handle comprising a unitary body having a handgrip section and an



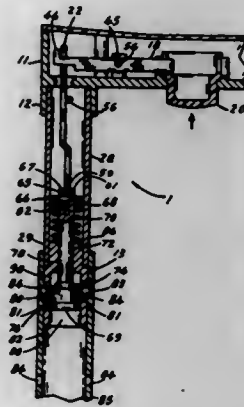
attachment section, said attachment section having a hole into which said supporting shaft is freely inserted, said hole being elliptical in section and having a long axis extending in a plane generally parallel to the longitudinal axis of the shaft and which is formed with sufficient clearance to permit said handle body to be rocked to and fro along the length of said shaft, said body being formed with a bracket having a bolt mounted thereon, said bolt having an eye protruding forwardly of said handle means, said support shaft passing through the eye of said bolt, and compression spring means held by a stem of said bolt interposed between said bracket and said supporting shaft continually acting against said shaft for biasing the body of said control handle in an inclined position with respect to the axis of said shaft so that said shaft is contacted by the body of said control handle at two opposed points lying along the long axis of said hole in the body of said control handle, thereby to normally lock said handle body in said inclined position, and when said handle is rocked to alternately engage said shaft to move said handle along said shaft.

5,669,102
DISPOSABLE COVER FOR CONTOURED SURGICAL LIGHT HANDLE
Dan Sandel, Tarzana, Calif., assignor to Devon Industries, Inc., Chatsworth, Calif.
Continuation of Ser. No. 165,980, Dec. 13, 1993, Pat. No. 5,469,600, which is a continuation-in-part of Ser. No. 902,942, Jun. 23, 1992, abandoned. This application Sep. 25, 1995, Ser. No. 533,336
Int. Cl. B25G 1/02; F11L 15/12
U.S. Cl. 16—114 R 9 Claims



1. A cover for use with a handle, comprising:
a substantially liquid impervious hollow elongate grip portion defining first and second longitudinal ends and an interior;
a substantially planar end wall closing the first longitudinal end and defining an end wall mid-point;
a first channel formed in the grip portion and in communication with the interior of the grip portion; and
a second channel formed in and extending across a substantial portion of the end wall and across the mid-point, operably connected to the first channel and in communication with the interior of the grip portion.

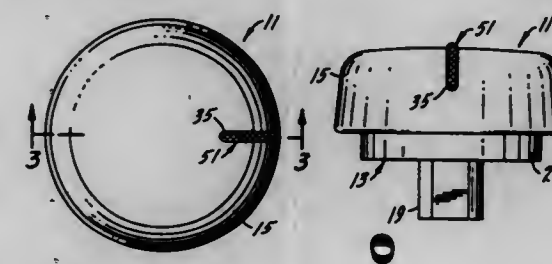
5,669,103
INTEGRATED HANDLE FOR TELESCOPING TUBES
Jiang Hen Hui, Shenzhen, China, assignor to Clipper Products, Cincinnati, Ohio
Filed Jun. 26, 1996, Ser. No. 670,292
Int. Cl. B25G 1/04
U.S. Cl. 16—115 5 Claims



1. An integrated handle for telescoping tubes which facilitates easy height adjustment of a luggage carrier comprising:
a handle having a length, a bottom surface, a top surface, a first end, and a second end, said bottom surface having an opening disposed substantially in the center thereof, said bottom surface having a first bore disposed at one end, said bottom surface having a second bore disposed at the end opposite said first bore, a first concentric hole being formed in said first bore, a second concentric hole being formed in said second bore;
a button which slidably fits inside said opening of said handle;
at least one lever having a tab at a first end, said lever being pivotally connected to said top surface of said handle, said lever being in contact with said button, wherein when said button is depressed, said lever swings toward said top surface;
at least one ball;
at least one lower telescoping tube, having a plurality of locking holes formed at different heights;
at least one upper telescoping tube, having a concentric hole formed in one end thereof;
a connecting rod having a first end and a second end;
a cam rod having a length, a first end, a second end, and a lower cam surface, said cam rod having a slot cut into said first end thereof, a spring being placed over said first end of said cam rod, said first end of said cam rod supporting an inner diameter of said spring, said connecting rod being inserted into said slot of said cam rod, a hole being formed through said second end of said connecting rod, a pair of concentric holes being formed in said first end of said cam rod to firmly receive a dowel, said dowel retaining said cam rod and said spring, said dowel being axially retained by said inner wall of said upper telescoping tube;
a ball housing having a length, a first end, and a second end, and a bore extending from said first end to said second end, at least one radial hole which communicates with said bore, at least one said ball fitting inside at least one said radial hole, said ball housing being pressed into said upper telescoping tube; and
said connecting rod having a slot at said first end, said tab of said lever being inserted into said slot, said connecting rod being inserted into said upper telescoping tube and into said first bore, a dowel being inserted into said first bore and said telescoping tube such that said connecting rod is securely constrained between said dowel and said tab of said lever, said connecting rod connecting said first end of said lever to said first end of said cam rod, wherein depressing said button forces said cam rod downward through said connecting rod, at least one said ball mating with said lower cam surface, at least

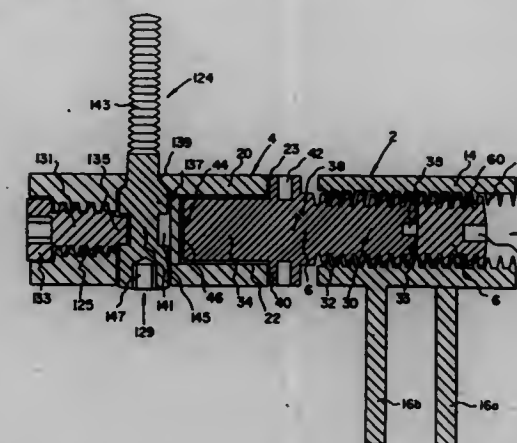
one said ball escaping said radial hole into said lower cam surface on said cam rod, said telescoping tube becoming unlocked.

5,669,104
COMPOSITE KNOB WITH AN INSERTABLE POSITION INDICATOR
Robert K. Howie, Jr., Decatur, Ill., assignor to The Grigolet Company, Decatur, Ill.
Continuation of Ser. No. 177,600, Jan. 5, 1994, Pat. No. 5,450,653. This application Jul. 6, 1995, Ser. No. 498,631
Int. Cl. G05G 1/10
U.S. Cl. 16—121 2 Claims



1. A knob, including:
a core of plastic,
said core having a longitudinally extending hub, a front wall, a bridge and an edge facing longitudinally away from said front wall positioned laterally outwardly of said hub,
a narrow passage formed through said front wall to define an opening into said core outwardly of said hub and providing access to said bridge and said edge,
a position indicator formed of a flat, thin, elongated piece of plastic,
said position indicator having a crown portion, a detent and a notch,
said position indicator being inserted in said narrow passage of said core with said detent engaging said edge, said notch resting on said bridge and said crown portion positioned adjacent said front wall.

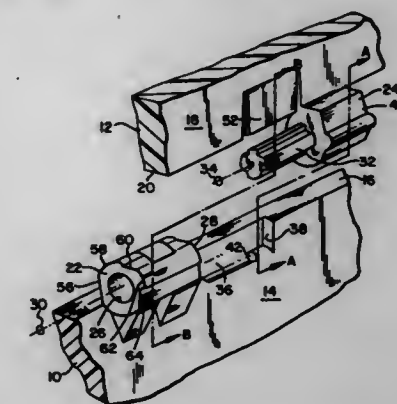
5,669,105
ADJUSTABLE DOOR HINGE
Hartmut Depke, Schmiedestr. 13, D-30900 Wedemark/Elze, Germany
Filed Sep. 16, 1996, Ser. No. 710,290
Int. Cl. E05D 7/04
U.S. Cl. 16—245 15 Claims



1. Door hinge for adjustably mounting a door in a corresponding door frame, comprising a first support element formed with an

axially extending, internally threaded through-hole and having a first attachment device for fixedly connecting said first support element to the door frame, and a second support element formed with an axially extending hole and a radially extending through-hole and having a substantially bolt-shaped second attachment device rotatably received in said radially extending through-hole, said second attachment device having a threaded portion threadably receivable in a respective internally threaded hole formed in the door, and being formed with an engagement device engageable by a tool for rotating said second attachment device, said second support element being formed with an internally threaded axial hole wherein a securing element for securing said second attachment device is rotatably disposed, a bolt element extending into said axially extending through-hole formed in said first support element and into said axially extending hole formed in said second support element for rotatably connecting said first and said second support elements, said bolt element having a first externally threaded end portion rotatably engaging in said internal thread of said axial through-hole formed in said first support element, a second end portion rotatably mounted in said second support element, and a third portion located between said first and said second end portions and having a diameter at least equal to the diameter of said first and said second end portions, said third portion being formed with recesses wherein a tool is receivable for rotating said bolt element when the door is mounted in the corresponding door frame; and an externally threaded securing device received in said axial through-hole formed in said first support element for securing said bolt element therein against rotation relative to said first support element.

5,669,106
HINGE MECHANISM
Bassel Hage Daoud, Parsippany, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.
Filed Jun. 21, 1996, Ser. No. 668,195
Int. Cl. E05D 7/10
U.S. Cl. 16—266 12 Claims



1. A hinge mechanism for separably and pivotably interconnecting a base member with a cover member, said base member having a generally planar hinge wall portion terminated by a straight edge portion, said cover member having a generally planar hinge wall portion terminated by a straight edge portion, the base member hinge wall portion and the cover member hinge wall portion being generally co-planar with the base member straight edge portion and the cover member straight edge portion being closely adjacent each other when the cover member is in an overlying (closed) position relative to the base member, the hinge mechanism comprising:
a first hinge body secured to said base member hinge wall portion, said first hinge body having a generally cylindrical cavity defining a longitudinal axis and extending into said first hinge body from a first side thereof, said longitudinal axis being parallel to said base member straight edge portion and defining a pivot axis for said hinge mechanism;

a second hinge body secured to said cover member hinge wall portion;

a pivot pin having a longitudinal axis parallel to said cover member straight edge portion, said pivot pin being secured to said second hinge body and adapted to be received within said first hinge body cavity with clearance to allow said pivot pin to rotate about said pivot axis;

said base member hinge wall portion being formed with a blocking wall parallel to and spaced from said first hinge body first side, said blocking wall and said first hinge body first side being planar and orthogonal to said pivot axis, the distance between said first hinge body first side and said blocking wall being greater than the length of said second hinge body and less than the length of said second hinge body together with the length of said pivot pin so that said second hinge body can rotate in the space between said first hinge body and said blocking wall when said pivot pin is received within said first hinge body cavity;

said blocking wall and a cross section of said second hinge body orthogonal to said pivot pin axis being so shaped that said blocking wall interferes with said second hinge body to prevent removal or insertion of said pivot in from or into said first hinge body cavity except when said cover member is in a predetermined angular orientation about said pivot axis relative to said base member, said predetermined angular orientation corresponding to an engaging/disengaging position of said cover member; and

said base member hinge wall portion is further formed with a rounded projection in the space between said first hinge body first side and said blocking wall, and the orthogonal cross section of said second hinge body is further shaped to provide a plurality of detents which cooperate with said rounded projection when said cover member is within a range of angular positions about said pivot axis, said range being bounded by said closed position and said engaging/disengaging position.

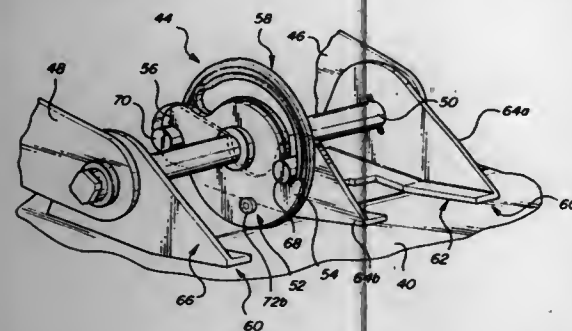
5,669,107
FRICTION DETENT APPARATUS FOR SEAT ACCESSORY

Patrick J. Carlsen, St. Clair Shores, and Daniel E. Hawkins, Milford, both of Mich., assignors to Lear Corporation, Southfield, Mich.

Filed Jul. 16, 1996, Ser. No. 682,943
Int. Cl.⁶ E05D 11/10

U.S. Cl. 16—348

20 Claims



1. A friction detent apparatus for use with a device pivotally mounted on a pivot rod attached to a support structure comprising: a resistance washer having a generally planar circular body with a central portion adapted to be fixedly mounted to a pivot rod attached to a support structure, said resistance washer body having a first generally arcuate friction contact surface spaced a first predetermined distance from said central portion and a second generally arcuate friction contact surface spaced a second predetermined distance from said central portion, said second predetermined distance being greater than said first predetermined distance, a first detent nub formed on said first friction contact surface and a second detent nub formed on said second friction contact surface; a first follower pin adapted to be fixedly mounted on a device pivotally mounted on the pivot rod for engaging said first friction

contact surface; and a second follower pin adapted to be fixedly mounted on the device for engaging said second friction contact surface whereby said first and second follower pins move along said first and second friction contact surfaces respectively as the device is rotated relative to the pivot rod and said first and second detent nubs releasably retain said first and second follower pins respectively in an "end of travel" position along said first and second friction contact surfaces.

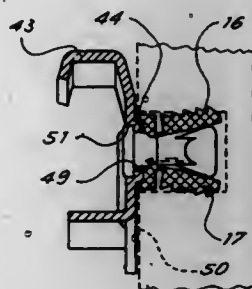
5,669,108
FASTENING UNIT FOR QUICK FASTENING OF IRON FITTINGS, AND IRON FITTINGS WITH SUCH FASTENING UNIT

Franco Ferrari, Frazione Deviscio, 2, 22053 Lecco, Italy, and Carlo Migli, Lecco, Italy, assignors to Franco Ferrari, Lecco, Italy

Filed Jul. 1, 1996, Ser. No. 672,970
Claims priority, application Italy, Jul. 12, 1995, MI950496 U
Int. Cl.⁶ E05D 6/00

U.S. Cl. 16—383

14 Claims



1. Unit for fastening iron fittings to furniture parts, comprising an expansion plug which axially receives a pin in a passage therein, the expansion plug being radially expandable by rotation of the pin from an insertion position to an expansion position of the expansion plug, the pin having a control head with a radial protrusion which defines a surface designed to imprison an iron fitting between it and an opposing top end of the expansion plug, characterized by the fact that the radial protrusion defines a flat surface substantially perpendicular to the axis of the pin which extends partially over a coupling seat formed in the opposing top end or the expansion plug around the passage for insertion of the pin in the expansion plug, a bottom of the deal forming a surface facing the flat surface of the radial protrusion, the seat having a side wall facing a corresponding side wall of the pin, and wherein the pin has a step extending radially which snap fits under a complementary protrusion in the passage in the expansion plug.

5,669,109
METHOD AND APPARATUS FOR LAYERING A FIBROUS WEB

Ernst Fehrer, Auf der Gugl 28, A-4020 Linz, Austria

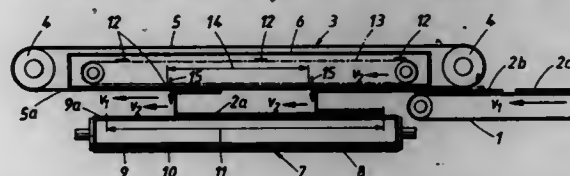
Filed May 23, 1996, Ser. No. 653,756
Claims priority, application Austria, May 26, 1995, 888/95; Jul. 31, 1995, 1303/95

Int. Cl.⁶ B65H 35/00; 51/16; 61/00

U.S. Cl. 19—163

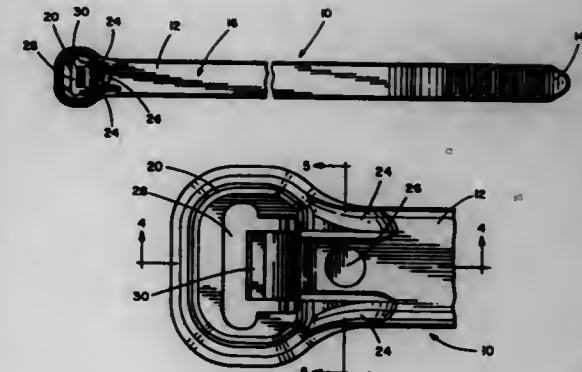
9 Claims

1. A method of layering a fibrous web in overlapping layers on a



draw-off conveyor along a predetermined layering distance, which comprises the steps of

- sub-dividing the fibrous web into layer sections corresponding in length to the layering distance,
- sequentially aspirating the layer sections by suction force against the force of gravity onto a lower strand of a continuously revolving layering conveyor extending over the layering distance and conveying the layers in a conveying direction,
- subsequently detaching the layer sections from the lower layering conveyor strand conveying the layer sections by interrupting the suction force, and
- depositing the detached layer sections only in a layering direction of the draw-off conveyor.



5,669,110
INTERLOCKING COVER FOLDING STRAP DISPOSABLE RESTRAINTS

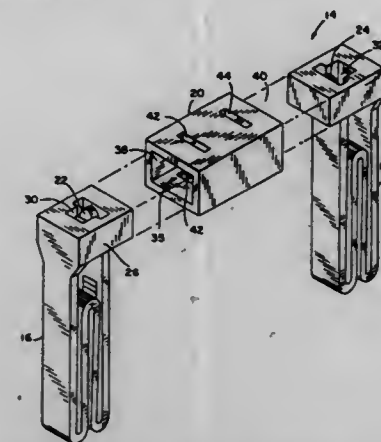
Kevin L. Parsons, Appleton, Wis., assignor to Armament Systems and Procedures, Inc., Appleton, Wis.

Filed Aug. 28, 1995, Ser. No. 520,979

Int. Cl.⁶ E05B 75/00; B65D 63/00

U.S. Cl. 24—16 PB

24 Claims

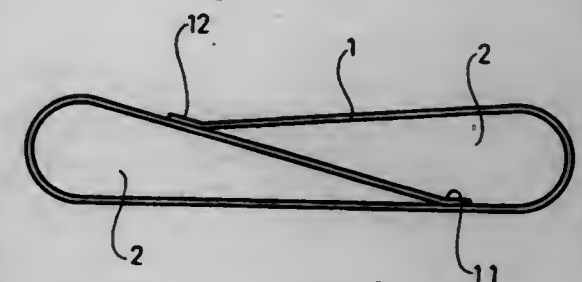


- A disposable restraining device comprising:
 - a first flexible strap and a second, separate flexible strap, each strap having opposite outer ends and including a free tip end at one outer end;
 - a locking box at the other outer end of each strap, said locking box having a central opening extending through the strap and adapted for receiving the tip end, whereby each strap forms a loop when the tip end is threaded through the locking box;
 - an interlocking cover for joining the straps together, said cover having a top and bottom wall, open opposite ends and a hollow interior, said open ends being adapted to receive each locking box for positioning the locking boxes in the hollow interior;
 - said top and bottom walls including a pair of slots for receiving the tip ends of the straps, wherein said slots are in alignment with the central opening of each locking box when the locking boxes are positioned in the cover, wherein said locking boxes are adapted to be inserted into the open ends of the cover and the free tip ends are adapted to be inserted into the slots and through the hollow interior for joining the straps together and defining two secure, closed loops.

a knockout impression area positioned on a top side of the strap adjacent the locking head; and strengthening means provided on the strap and extending along the strap from the locking head such that an end portion of the strengthening means extends past a midpoint of and substantially fully through the knockout impression area for preventing neck breaks caused by stress concentrations in the knockout impression area.

5,669,112
PACKAGE FILM DEVICE
Fu-Chuan Huang, 7, Chung Chuang Tuen, Shui Shang Town, Chia-Yi Hsien, Taiwan, Taiwan
Filed Feb. 6, 1996, Ser. No. 597,203
Int. Cl.⁶ B65D 63/00; A44B 21/00
U.S. Cl. 23—16 R

1 Claim



- A package film device for packaging two objects, said package film device comprising:
 - a sheet body of a flexible packaging film including a middle portion, a first end portion, a first edge secured to said middle portion, and a second edge secured to said first end portion so as to define two spaces for receiving the objects and so as to form a partition between said spaces.

5,669,113
HOSE CLAMP
Robert F. Fay, York, Pa., assignor to Murray Corporation, Hunt Valley, Md.
Filed Aug. 5, 1996, Ser. No. 691,021
Int. Cl.⁶ B65D 63/00

U.S. Cl. 24—20 CW

16 Claims

- A clamp comprising:
 - an elongated band having opposite ends and first and second opposite end portions engageable with one another with said first end portion overlapping said second end portion, said first end portion including a plurality of apertures spaced longitudinally from one another, the margins of at least a pair of said apertures on sides thereof toward said end of said first end portion having projections preformed to project from said

5,669,111
CABLE TIE HAVING A STRENGTHENED NECK AREA
Joseph S. Rohaly, Frankfort, Ill., assignor to Panduit Corp., Tinley Park, Ill.

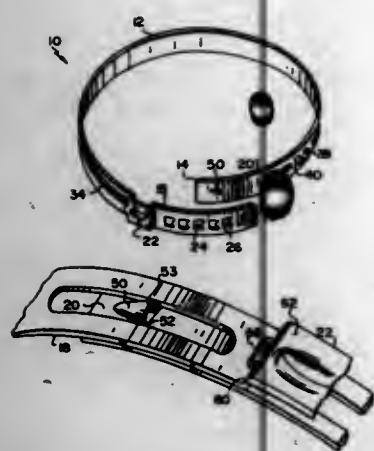
Filed Dec. 12, 1995, Ser. No. 570,999

Int. Cl.⁶ B65D 63/00

U.S. Cl. 24—16 PB

3 Claims

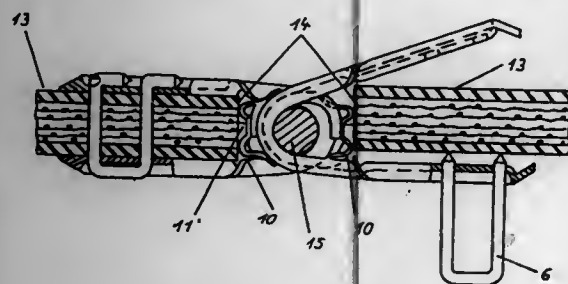
- A cable tie having a strap with a first end and a free end and a locking head secured to the first end of the strap, comprising:



first end portion out of said band toward said second end portion and projecting away from said one end; said second end portion including a plurality of hooks spaced from one another and preformed to project outwardly of said second end portion out of said band toward said first end portion and away from said second end for entering into said apertures, said hooks engaging said projections of said first end portion upon said first end portion overlapping and engaging said second end portion whereby said hooks and said projections prevent separation of said end portions from one another.

5,669,114
CONVEYOR BELT JOINTING DEVICE
Horst Jakob, Deaux, France, assignor to Aser, Saint-Chamond, France
PCT No. PCT/FR94/00960, § 371 Date Mar. 20, 1996, § 102(e)
Date Mar. 20, 1996, PCT Pub. No. WO96/03597, PCT Pub. Date Feb. 8, 1996

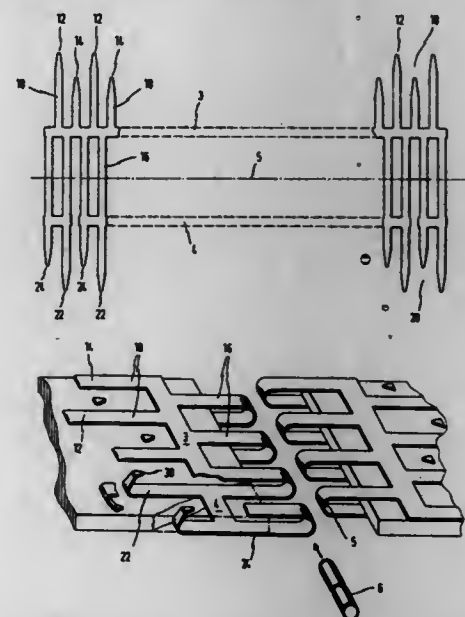
PCT Filed Jul. 28, 1994, Ser. No. 617,783
Int. Cl. F16G 3/04
U.S. Cl. 24—33 P



1. A joining device for conveyor belt comprising two rows of generally U-shaped staples adapted to be fixed on the edge of each end of a conveyor belt (13) by means of pointed head nails (6), a convex part of the U-shaped staples (1) projecting beyond the edges forming each end of the conveyor belt, a concave part for the U-shaped staples (1) forming a succession of eyelets bounded by the said concave part of the staples and by the edge of the end of the conveyor belt to which the staples are adapted to be fixed, the staples of a first row of the two rows being placed between the staples of the second row of the two rows, in such a way that the eyelets of the staples of each of the two rows are in alignment in the transversal direction of the belt, a metallic rod (15) which forms a linking and hinging axis being threaded across these aligned eyelets, wherein a ring (3) is fixed to the concave part of each one of the U-shaped staples, the metallic rod (15) being threaded across each said ring of successive rings belonging alternately to the first row and to the second row of said two rows of staples (1).

5,669,115
MECHANICAL CONVEYOR BELT FASTENER
Walther Sulzle, Rosenfeld, Germany, assignor to Wilhelm Sulzle, Rosenfeld, Germany
Filed Jul. 3, 1996, Ser. No. 675,013
Claims priority, application Germany, Jul. 4, 1995, 195 24 384.6

Int. Cl. F16G 3/00
U.S. Cl. 24—33 B

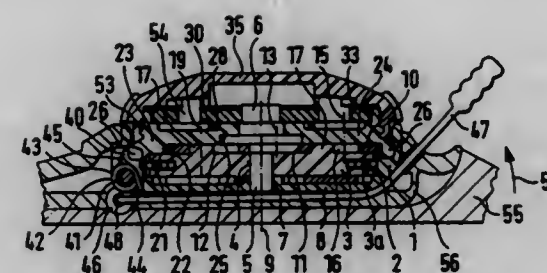


1. A mechanical belt fastener for joining the open ends of a conveyor belt, said fastener comprising a first row and a second row of legs arranged parallel to one another with a distance between the rows on both sides of a folding area, said legs being bendable in the folding area to form loops and having bent tips that penetrate material of the belt, legs of the two rows extending lengthwise on both sides of the folding area and the legs in the first row in a first section extending up to a continuous first strip that extends transversely with respect to lengths of said legs, said legs of the first section begin attached to said first strip, and the legs adjacent to one another in each row being of different lengths relative to the folding area, each two legs of the second row being connected through a second strip with one another to form leg pairs and said second strip being interrupted in a direction of immediately adjacent leg pairs of the second row; the bent tips of the legs of different lengths in the first and second rows being arranged in four different planes.

5,669,116
SHOE CLOSURE
Roland Jungkind, Garmisch-Partenkirchen, Germany, assignor to Puma AG Rudolf Dassler Sport, Herzogenaurach, Germany
PCT No. PCT/DE93/01250, § 371 Date Nov. 15, 1995, § 102(e)
Date Nov. 15, 1995, PCT Pub. No. WO94/26138, PCT Pub. Date Nov. 24, 1994

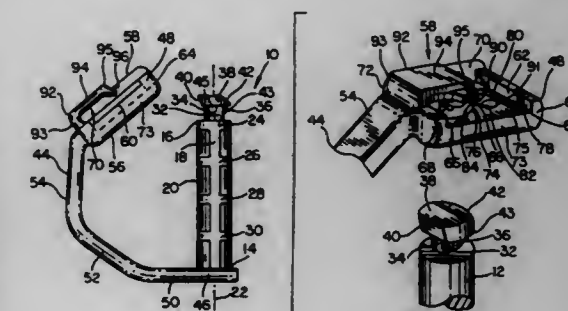
PCT Filed Dec. 27, 1993, Ser. No. 549,707
Claims priority, application Germany, May 15, 1993, 43 16 340.8; Aug. 14, 1993, 93 12 197 U
Int. Cl. A43C 11/00

U.S. Cl. 24—68 SK
1. Shoe fastener mounted on a part of a shoe upper which can move in an opening direction for opening of the shoe, comprising a rotary actuating element, a winding pulley pivotally mounted on a bearing element coaxially with respect to a central axis of the rotary actuating element for winding at least one cable-like tension element thereon, a reducing gear between the rotary actuating element and the winding pulley in the form of an eccentric drive in which an external unwinding gear is pivotally mounted in a hous-



5,669,118
STRAP RETAINER
Francis G. Frano, Hoffman Estates, Ill.; Paul F. Giampavolo, Old Tappan, and Diane M. Sipp, Westwood, both of N.J., assignors to Illinois Tool Works Inc., Ill.
Continuation of Ser. No. 503,547, Jul. 18, 1995. This application Apr. 4, 1996, Ser. No. 628,122

Int. Cl. A44B 11/00
U.S. Cl. 24—265 AL

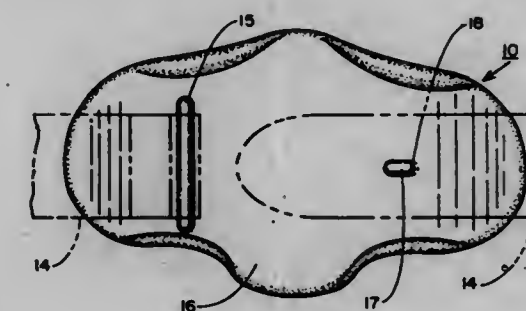


ing of the shoe closure and means for fixing the unwinding gear in each of several angular positions thereof;

wherein:
the unwinding gear is in the form of a disk having a grooved outer catch rim;
the means for fixing comprises a catch element with a catch component pointed towards the outer catch rim, the catch element being supported outwardly of the unwinding gear disk in a manner enabling the catch component to deflect transversely with respect to the central axis of the rotary actuating element, the catch element being elastically pretensioned by a tension element in a direction causing the catch component to elastically latch into a groove of the outer catch rim;
an externally actuable release element is arranged to act against the pretension of the tension element as a means for disengaging the catch component from the groove of the external catch rim; and
the release element forms a means for moving the shoe fastener together with said part of the shoe upper on which it is mounted in a shoe opening direction.

5,669,117
BUCKLE FOR LINE DANCING
Louis V. Spina, 1211 E. Dominick St., Rome, N.Y. 13440
Filed Jul. 25, 1996, Ser. No. 687,211
Int. Cl. A44B 11/00

U.S. Cl. 24—163 K

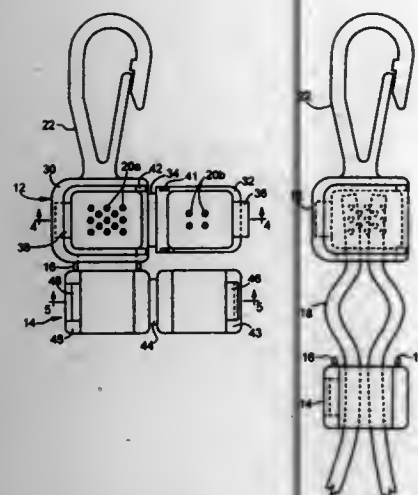


1. A belt buckle for use in line dancing that includes a body section having front and back faces and upper and lower edge surfaces, said body section further including connecting means for joining the buckle to a belt, a pair of contoured thumb seats mounted upon the upper edge surface of the body section, a pair of contoured finger seats mounted upon the lower edge surface of the body section whereby the wearer can securely grasp the buckle between the thumb and forefinger of each hand; each seat being concave in form to at least partially encompass a wearer's thumbs and forefingers.

5,669,119
CORD LANYARD
Suren V. Seron, Minooka, Ill., assignor to Seron Manufacturing Company, Joliet, Ill.
Filed Jul. 24, 1996, Ser. No. 687,146
Int. Cl. F16L 11/00

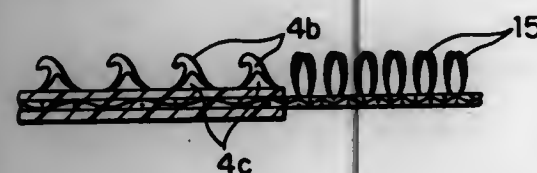
U.S. Cl. 24—265 H

1. A lanyard comprising:
(a) a base section having cord securing means;
(b) a slider section having an elongated recess;
(c) means releasably connecting said base and slider sections; and
(d) a cord disposed in a loop and extending through the elongated recess of the slider section and into said cord securing



means so that the cord is secured to the base section by the cord securing means.

5,669,120
MOLDED SURFACE FASTENER
 Roger Thor Wessels, and Piljae Cha, both of Macon, Ga., assignors to YKK Corporation, Tokyo, Japan
 Continuation of Ser. No. 437,930, May 9, 1995, abandoned.
 This application Oct. 17, 1996, Ser. No. 730,846
 Int. Cl.⁶ A44B 13/00; B29C 41/30
 U.S. Cl. 24—446 6 Claims

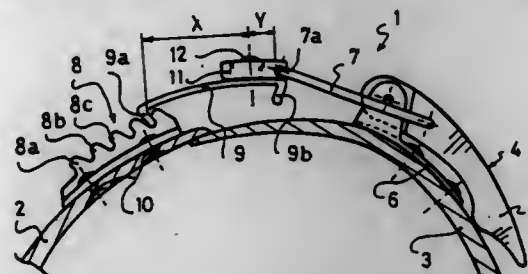


1. A surface fastener molded of synthetic resin, comprising:
 (a) a plate-like substrate sheet;
 (b) a multiplicity of hook elements; and
 (c) a multiplicity of loop elements;
 (d) said hook elements being molded of a synthetic resin material integrally with said plate-like substrate sheet on one surface of said plate-like substrate sheet, and said loop elements being composed of piles projecting from a pile woven or knit cloth;
 (e) at least part of a foundation structure of said pile woven or knit cloth being embedded into said substrate sheet simultaneously with the molding of said substrate sheet said hook elements and said loop elements projecting on one side of said surface fastener.

5,669,121

Patent Not Issued For This Number

5,669,122
TIGHTENING LEVER WITH ADJUSTABLE HOOK
 Louis Benoit, La Balme De Sillingy, France, assignor to Salomon S.A., France
 Filed Apr. 29, 1996, Ser. No. 639,752
 Claims priority, application France, Apr. 27, 1995, 95 05248
 Int. Cl.⁶ A43C 11/14
 U.S. Cl. 24—71 SK 7 Claims



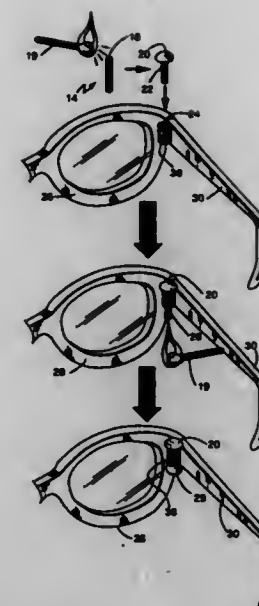
1. A device for closing a boot having two sections by drawing and holding said sections together, said device comprising
 (a) a control lever carried by a plate adapted to be integral with a first one of said sections;
 (b) a rack adapted to be carried by a second one of said sections;
 (c) a hooking device connected to said control lever, via a connection block, by an inextensible tie rod;
 (d) said hooking device having first and second hooking ends adapted to engage in said rack;
 (e) said hooking device being rotating asymmetrically about a pin in said connection block in a plane substantially parallel to a plane of a surface of said boot;
 (f) said first end of said hooking device being separated from said pin by a first distance greater than a second distance by which said second end of said hooking device is separated from said pin.

5,669,123
METHOD OF MAKING A DIMENSIONALLY STABLE PARTICULATE-LOADED PTFE WEB
 Dale R. Anderson, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Division of Ser. No. 225,464, Apr. 8, 1994, Pat. No. 5,582,892.
 This application Jul. 22, 1996, Ser. No. 681,240
 Int. Cl.⁶ D06C 21/00; B29C 67/00
 U.S. Cl. 26—18.5 10 Claims

1. A method of making a particulate loaded fibril web that is substantially dimensionally stable comprising the steps:
 (a) blending an aqueous dispersion of PTFE particles with solid particulates having an average diameter of from 0.1 to 250 μm ;
 (b) mixing the blend at a temperature of from 0° C. to 100° C. to form a putty-like mass;
 (c) biaxially calendaring the putty-like mass in a gap until at least one sheet or sheet laminate is formed having a thickness in the range of 0.05 to 10 mm;
 (d) drying the sheet or sheet laminate;
 (e) mechanically compacting only said sheet or sheet laminate.

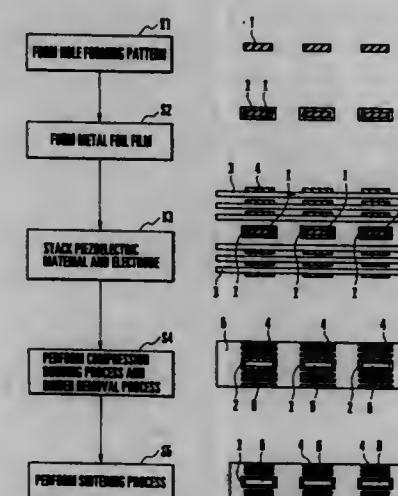
5,669,124
EYEGLOSS HINGE PIN REPAIR KIT
 John H. Kusmiss, 11160 Langmuir Ave., Sunland, Calif. 91040-2150
 Continuation of Ser. No. 132,310, Oct. 6, 1993, abandoned.
 This application Mar. 21, 1996, Ser. No. 607,910
 Int. Cl.⁶ B21D 33/00; G02C 5/22
 U.S. Cl. 29—20 6 Claims

1. A method for repairing an eyeglass frame using a hinge pin having a first end with a diameter larger than a maximum diameter



of a body of said pin, said maximum diameter being small enough to just fit in a hinge bore of said eyeglass frame, said hinge pin being plastically deformable by application of heat at a second end thereof, comprising the steps of:
 inserting said pin into a hinge of said eyeglass frame, and deforming said second end of said pin by heating to form a second deformed end with a diameter greater than said maximum diameter of said body of said hinge pin, wherein an earpiece of said frame becomes pivotally secured by said pin.

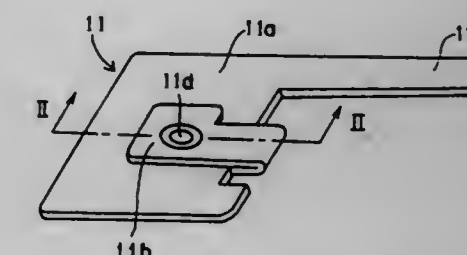
5,669,125
METHOD OF MANUFACTURING AN INK-JET RECORDING HEAD
 Yoshio Shida, Tokyo, Japan, assignor to NEC Corporation, Japan
 Filed Jul. 12, 1995, Ser. No. 501,401
 Claims priority, application Japan, Jul. 12, 1994, 6-159976
 Int. Cl.⁶ H01L 41/22; B41J 2/16
 U.S. Cl. 29—25.35 6 Claims



1. A method of manufacturing an ink-jet recording head, comprising the steps of:
 forming a hole forming pattern consisting one of a resin and carbon,
 forming a metal foil film on a surface of said hole forming pattern;

stacking and pressing a plurality of piezoelectric sheets having electrodes formed thereon to sandwich said hole forming pattern, thereby forming a multi-layer structure; and removing said hole forming pattern in a binder removal process and a sintering process for said multi-layer structure, thereby forming an ink cavity, which has said metal foil film formed on an inner surface thereof, in said multi-layer structure.

5,669,126
PROCESS FOR MANUFACTURING A TERMINAL FOR A PIEZOELECTRIC DEVICE
 Koichi Nagano; Atsushi Uno; Toshiyuki Baba; Takashi Shimura, and Yuusei Oyama, all of Nagakakyō, Japan, assignors to Murata Manufacturing Co., Ltd., Japan
 Division of Ser. No. 291,126, Aug. 16, 1994, Pat. No. 5,616,981. This application Sep. 5, 1995, Ser. No. 523,282
 Claims priority, application Japan, Aug. 20, 1993, 5-285963; Aug. 31, 1993, 5-215400; Sep. 29, 1993, 5-242360; Nov. 18, 1993, 5-288882
 Int. Cl.⁶ H04R 17/00; H01R 43/16
 U.S. Cl. 29—25.35 5 Claims



1. A method of producing a terminal for a piezoelectric device, the method comprising the steps of:
 applying press oil which contains at least 1 weight percent of non-volatile components onto a metal material;
 folding the metal material so as to form a twofold portion of a first electrode portion and a second electrode portion with the press oil in-between; and
 cutting a terminal with the twofold electrode portion out of the metal material.

5,669,127
METHOD OF MANUFACTURING AN ELECTRO-MECHANICAL ENERGY CONVERSION DEVICE FOR VIBRATION DRIVEN ACTUATOR
 Shigeru Takahashi, Shiki; Sadakatsu Okura, and Toshikatsu Nomura, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, and Nihon Cement Co., Ltd., both of Tokyo, Japan
 Continuation of Ser. No. 234,952, Apr. 28, 1994, abandoned, which is a division of Ser. No. 155,162, Nov. 19, 1993, abandoned. This application Nov. 5, 1996, Ser. No. 744,191
 Claims priority, application Japan, Nov. 20, 1992, 4-335586
 Int. Cl.⁶ H01L 41/047; 41/053; 41/08
 U.S. Cl. 29—25.35 13 Claims

1. A method of forming an electro-mechanical energy conversion device for generating in a vibration member a first vibrating wave having a first direction and a second vibrating wave having a second direction which is different from said first direction, comprising the steps of:
 (a) forming four piezoelectric green sheets, including a first green sheet having five through holes filled with conductive paste and a second green sheet and a third green sheet each having three through holes filled with conductive paste;
 (b) forming a ground electrode on the first green sheet, forming first divided electrodes on the second green sheet, forming a

along the length of the cable positioned between the jaw members, wherein the first and second jaw members are provided with cutting edges defining an opening configured to partially cut the sheath and the core without significantly cutting the insulation on the wires or the unsheathed ground wire when the first and second members are pressed together to form the opening so that the spaced apart curved sides of the sheath are uncut by the cutting edges;

- (b) inserting the cable between the cutting edges such that the jaw members are adjacent the portion of the cable along the length of the cable spaced apart from the end of the cable from which the outer sheath is to be removed;
- (c) pressing the first jaw member and the second jaw member together such that the cutting edges cut the outer sheath of the electrical cable so that the spaced apart curved sides of the sheath are uncut by the cutting edges;
- (d) removing the jaw members from around the electrical cable; and
- (e) pulling the outer sheath adjacent the end of the electrical cable to break the uncut curved sides of the sheath at the cut to remove the portion of the outer sheath from the cable to expose the covered wires and the uncovered wire within the cable.

5,669,133

METHOD OF MAKING A MAGNETORESISTIVE SENSOR

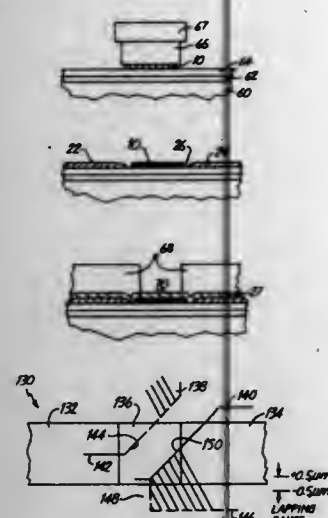
Peter Kurt George, Bloomington, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 214,689, Mar. 17, 1994, abandoned, which is a continuation-in-part of Ser. No. 936,185, Aug. 25, 1992, abandoned. This application Nov. 28, 1995, Ser. No. 563,563

Int. Cl.⁶ G11B 5/117; 5/39

U.S. Cl. 29—603.16

26 Claims



1. A method of making a magnetoresistive sensor, comprising: depositing a magnetoresistive element on a substrate, the magnetoresistive element having a magnetization vector and a lateral edge parallel to the magnetization vector extending in a lateral direction; patterning a first electrical contact adjacent and electrically coupling to the magnetoresistive element, the electrical contact including an inner lateral edge extending in a lateral direction and spaced apart in a vertical direction from the lateral edge of the magnetoresistive element; patterning a second electrical contact adjacent and electrically coupling to the magnetoresistive element and spaced apart in

a lateral direction from the first electrical contact, such that the second electrical contact includes an outer lateral edge extending in the lateral direction and substantially colinear with the lateral edge of the magnetoresistive element, the second electrical contact including a vertical edge adjacent the outer lateral edge and proximal the first electrical contact; and lapping the lateral edge of the second electrical contact along the vertical edge to form an air bearing surface wherein the vertical edge of the second electrical contact remains stationary relative to the magnetoresistive element and the first electrical contact during lapping to form a magnetoresistive sensor.

5,669,134

METHOD OF MANUFACTURING CHIP INDUCTOR

Kenichiro Nogi, and Nobuhiro Umeyama, both of Tokyo, Japan, assignors to Taiyo Yuden Kabushiki Kaisha, Tokyo, Japan

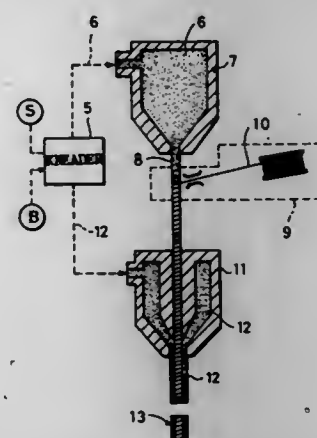
Filed Sep. 7, 1995, Ser. No. 525,420

Claims priority, application Japan, Sep. 9, 1994, 6-216224

Int. Cl.⁶ H01F 41/02

U.S. Cl. 29—605

3 Claims



1. A method of manufacturing a chip inductor comprising the steps of: continuously molding a winding core by continuously extruding a kneaded material which is a mixture of powdered magnetic material and a binder; continuously winding a conducting wire around said molded winding core in a coiled manner; continuously molding an external cover element by continuously extruding said kneaded material to enclose said molded winding core around which said conducting wire has been wound; thereafter, sintering said molded winding core with the conducting wire wound thereon and said molded external cover element enclosing said conducting wire and said core; cutting a semimanufactured product obtained by the preceding steps into a predetermined length to thereby obtain a plurality of chip inductor main bodies; and installing an external electrode on each end surface of said respective chip inductor main bodies such that said external electrode is connected to each end portion of said conducting wire, said end portions being exposed at opposite ends of said respective chip inductor main bodies.

5,669,135

CONNECTOR SUPPORT FOR HARNESS MAKING MACHINE

Michel Maurice Bernard Verhille, Peynier, France, assignor to The Whitaker Corporation, Wilmington, Del.

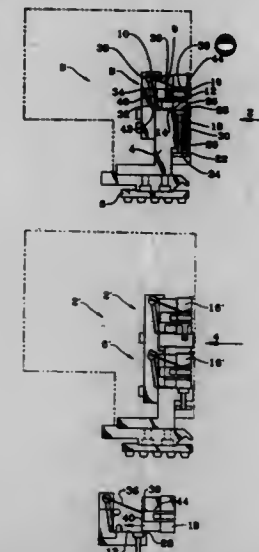
Filed May 6, 1996, Ser. No. 643,659

Claims priority, application France, May 18, 1995, 95 05941

Int. Cl.⁶ H01R 43/00

U.S. Cl. 29—760

7 Claims



1. A connector support for transporting and holding a connector in a harness making machine, the connector support comprising a support plate for transporting the connector support on a conveyor system, a base structure, and a connector holding means, wherein the connector holding means comprises a connector receiving face of the base structure, and a clip pivotally mounted about a pivot axis to the base structure, the clip comprising a bar and a spring attached together proximate the pivot axis, where the bar is adapted to abut a second surface of the connector, and the spring adapted to resiliently bias against a third surface of the connector transverse to the second surface, thereby biasing a first surface of the connector against the connector receiving face, the first surface being substantially opposed to the third surface.

5,669,136

METHOD OF MAKING HIGH INPUT/OUTPUT DENSITY MLC FLAT PACK

Robert Arthur Magee, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

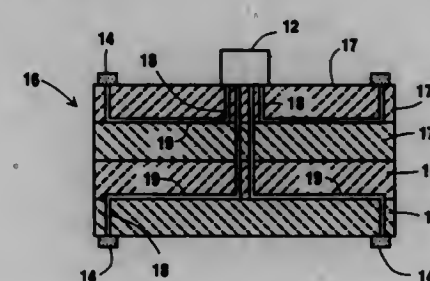
Continuation of Ser. No. 265,299, Jun. 24, 1994, abandoned.

This application Oct. 10, 1995, Ser. No. 541,397

Int. Cl.⁶ H05K 3/36

U.S. Cl. 29—830

10 Claims



1. A method for making a flat pack electronic component which comprises a multilayer ceramic substrate having electrical conductors in the substrate, a chip secured to the substrate and a plurality of input/output pads on at least one surface of the substrate at the

periphery of said substrate with sites on the chip and the pads being electrically connected by the electrical conductors, the method comprising:

- forming an individual layer of unfired green ceramic;
- forming top to bottom electrical interconnection via paths in the ceramic;
- metallizing the vias;
- forming planar conductor lines on the ceramic layer;
- repeating the above steps for the number of individual ceramic layers desired;
- laminating the layers to form the multilayer ceramic substrate in which individual conductor lines on one or more layers are connected with one or more vias in the multilayer ceramic substrate to form individual interconnection circuits within the substrate;
- securing a chip to the substrate;
- electrically connecting a site on the chip to its corresponding pad on the multilayer ceramic substrate surface by electrically connecting one end of an individual interconnection circuit to the site on the chip and the other end of the individual interconnection circuit to its corresponding pad; and
- wherein the pads of the flat pack are electrically connected to an outside device by conductor leads from the outside device.

5,669,137

METHOD OF MAKING ELECTRONIC PACKAGE ASSEMBLY WITH PROTECTIVE ENCAPSULANT MATERIAL

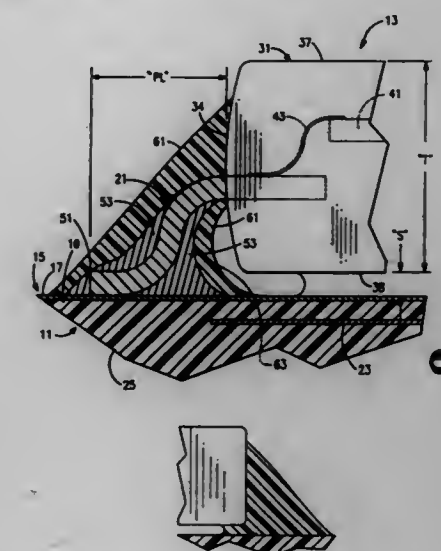
James Vernon Ellerson; Richard Joseph Noreika, both of Endicott, and Jack Arthur Varcoc, Endwell, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 252,488, Jun. 1, 1994, Pat. No. 5,469,333, which is a continuation-in-part of Ser. No. 57,205, May 5, 1993, abandoned, which is a continuation of Ser. No. 805,435, Dec. 11, 1991, abandoned. This application Apr. 19, 1995, Ser. No. 424,926

Int. Cl.⁶ H05K 3/34

U.S. Cl. 29—840

7 Claims



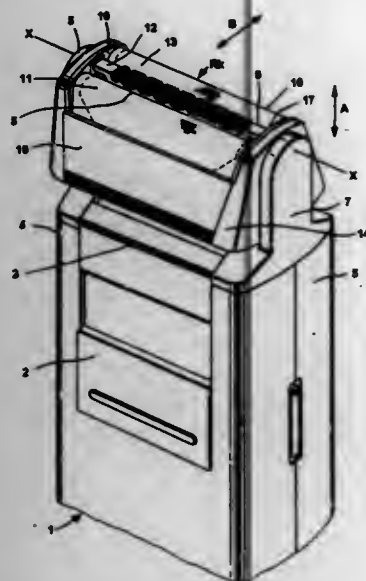
1. A method of making an electronic package assembly, said method comprising: providing an organic substrate including a surface thereon having a plurality of electrical conductors positioned on said surface; positioning an electronic package having an elongated, electrically insulative housing including first and second pairs of opposing sides and first and second pluralities of electrically conductive leads projecting from the opposing sides of said first pair of said opposing sides, respectively, such that said

housing is located on or above said surface of said substrate and said conductive leads are electrically connected to respective ones of said electrical conductors on said surface of said substrate, said second pair of said opposing sides not having electrically conductive leads projecting therefrom; substantially covering each of said conductive leads and at least a portion of a respective electrical conductor with a quantity of solder, said solder providing an electrical connection between said lead and respective conductor; and positioning a quantity of encapsulant material on said surface of said organic substrate and on said opposing sides of said second of said pairs of opposing sides of said insulative housing, said encapsulant material not being positioned on said conductive leads or said opposing sides of said first pair of said opposing sides, said encapsulant material substantially preventing electrical disconnection between said projecting conductive leads and said solder during operation of said electronic package assembly, said disconnection caused by stresses occurring due to differences in the coefficient of thermal expansion of said organic substrate, solder and conductive operation.

5,669,138
SHAVING HEAD FOR ELECTRIC RAZORS
Matthias Wetzel, Frankfurt, Germany, assignor to Braun Aktiengesellschaft, Kronberg, Germany
PCT No. PCT/EP94/00652, § 371 Date Sep. 15, 1995, § 102(e) Date Sep. 15, 1995, PCT Pub. No. WO94/23913, PCT Pub. Date Oct. 27, 1994

PCT Filed Mar. 4, 1994, Ser. No. 525,536
Claims priority, application Germany, Apr. 13, 1993, 43 12 060.1

Int. Cl.⁶ B26B 19/02; 19/14
U.S. Cl. 30—43.92

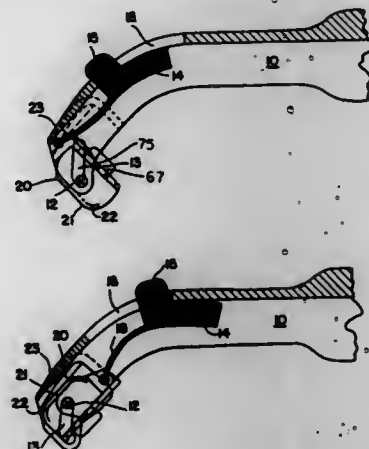


1. A shaving head, comprising:
an outer cutter including a surface for engaging a user's skin, said surface having a plurality of slots and bridge members lying substantially in a plane, said outer cutter including a first wall element and a second wall element disposed in an angled relationship to and extending down from said surface, at least a portion of said bridge members having at least one end projecting freely relative to and protruding beyond one of said first and said second wall elements, said at least one end defining an outer extremity of said outer cutter, and
an inner cutter positioned between said first and said second wall elements.

5,669,139
RAZOR WITH BLADE PROTECTION MEANS
Brian Oldroyd, and Kevin James Wain, both of Reading, England, assignors to The Gillette Company, Boston, Mass.
Continuation of Ser. No. 240,755; Aug. 24, 1994, abandoned.
This application Apr. 5, 1996, Ser. No. 628,394
Claims priority, application United Kingdom, Nov. 27, 1991, 9125262

Int. Cl.⁶ B26B 21/00
U.S. Cl. 30—47

13 Claims

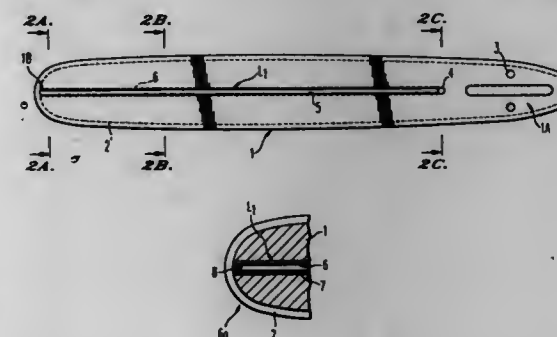


1. A razor comprising a handle, a shaving unit which includes a skin-engaging cap, a guard and at least one shaving blade, wherein a position of said skin engaging cap, said guard and said at least one shaving blade determines a shaving geometry, and means for moving the shaving unit relative to the handle between a shaving position and a non-shaving position in which the cutting edge of the at least one blade is protected, wherein said handle further comprises a shielding member non-removably formed with said handle for shielding the at least one blade, the shaving unit is retractable into said non-shaving position behind said shielding member, and retracting means are provided on the handle for retracting the shaving unit behind the shielding member.

5,669,140
CHAIN SAW GUIDE BAR HAVING A LUBRICANT FEEDING STRUCTURE
Seijiro Tsumura, Hyogo, Japan, assignor to Suehiro Seiko Kabushiki Kaisha, Hyogo, Japan
Filed Sep. 13, 1995, Ser. No. 527,586
Claims priority, application Japan, Sep. 13, 1994, 6-218520
Int. Cl.⁶ B27B 17/12

U.S. Cl. 30—123.4

16 Claims



1. A chain saw guide bar having a lubricant feeding structure, wherein:
the chain saw guide bar comprises a single plate and is provided with a lubricant supply port made in a base end portion of a guide bar surface of the chain saw guide bar;

a bottomed recess groove runs continuously from the lubricant supply port to a tip portion of the chain saw guide bar, the recess groove having side walls which are tilted to increase a width of a cross section of the recess groove toward a bottom of the recess groove;
a hollow pipe runs continuously from the lubricant supply port to the tip portion, the hollow pipe being installed in the recess groove;
the recess groove is filled with a light-weight filling material to thereby consolidate the hollow pipe integrally with the chain saw guide bar;
a dust-proof filter is installed at an end of the hollow pipe.

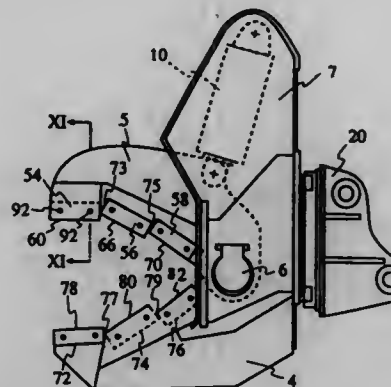
5,669,141
SCISSORS TYPE STEEL SHEARING APPARATUS WITH VERTICALLY DISPLACED AND ANGULARLY TILTED SHEARING ZONES AND TRANSVERSELY DISPLACED INTERLOCKING PORTIONS

Sumio Morihawa, Toshiji Ohga, and Masahiro Kondoh, all of Osaka-fu, Japan, assignors to Ohyodo Diesel Co., Ltd., Osaka-fu, Japan
Continuation-in-part of Ser. No. 101,358, Aug. 3, 1993, Pat. No. 5,471,747. This application Aug. 25, 1995, Ser. No. 519,667

Claims priority, application Japan, Jun. 16, 1993, 5-144448
Int. Cl.⁶ B25P 19/00

U.S. Cl. 30—134

9 Claims



1. A steel shearing machine comprising:
an upper jaw and a lower jaw;
means for articulating at least one of said upper jaw and said lower jaw with respect to the other thereof;
an upper leading shearing blade on said upper jaw;
an upper trailing shearing blade on said upper jaw;
a lower leading shearing blade on said lower jaw;
said lower leading shearing blade being engageable with said upper leading shearing blade by said means for articulating;
a lower trailing shearing blade on said lower jaw;
said lower trailing shearing blade being engageable with said upper trailing shearing blade by said means for articulating;
said lower leading shearing blade being displaced in a first direction transversely of a shearing plane, whereby transverse forces acting thereon are directed in a first direction;
said lower trailing shearing blade being displaced in a second direction transversely of said shearing plane, whereby transverse forces acting thereon are directed in a second direction substantially opposite to said first direction, whereby jaw spreading of said upper and lower jaws is prevented;
at least one of said upper leading shearing blade and said lower leading shearing blade having a first shearing edge displaced a first distance from a reference line which reference line is defined as a line extending from an axis of said means for articulating to a tip of said upper leading shearing blade;
said first shearing edge having a first tilt angle with respect to said reference line;

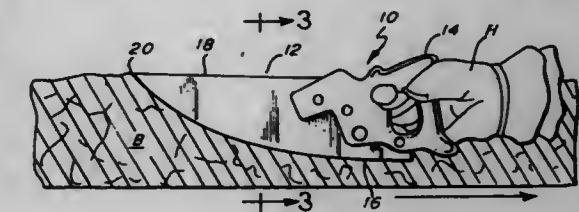
at least one of said upper trailing shearing blade and said lower trailing shearing blade having a second shearing edge displaced a second distance from said reference line;
said second shearing edge having a second tilt angle with respect to said reference line;
said first and second distances and said first and second tilt angles defining a step in a direction away from said reference line between a rear end of the first shearing edge of said at least one leading shearing blade and a forward end of the second shearing edge of said at least one trailing shearing blade; and
said step being effective for removing a requirement for providing a shearing force to one of said leading and trailing blades for a portion of jaw closing when shearing passes said step, whereby a maximum required shearing force is reduced.

5,669,142
KNIFE FOR CUTTING INSULATION BATTS
William J. Beckers, 421 Munich St., Box 24, New Munich, Minn. 56356, and Richard L. Studer, 418 Char Ave., NE., Avon, Minn. 56310

Filed May 31, 1996, Ser. No. 656,060
Int. Cl.⁶ B26B 3/08; 7/00

U.S. Cl. 30—314

16 Claims



1. A knife for cutting fibrous insulation batts in a single motion with one hand, comprising:
a blade having a smooth, curved edge adapted to both compress and cut the insulation batt along the entire length of the curved edge without tearing the insulation batt, a forward end, and a rearward end; and
a handle permanently and non-movably attached to the rearward end of the blade, the handle further comprising a blade-engaging portion and a gripping portion, the blade-engaging portion encompassing and supporting the blade along a substantial portion of the blade, the gripping portion enclosing the fingers of the hand and preventing contact between the fingers and the blade, wherein the width of the blade is one-fourth to one-third of the length of the blade, wherein the gripping portion is one-third to one-fourth of the length of the blade, and wherein the curved edge extends below the handle.

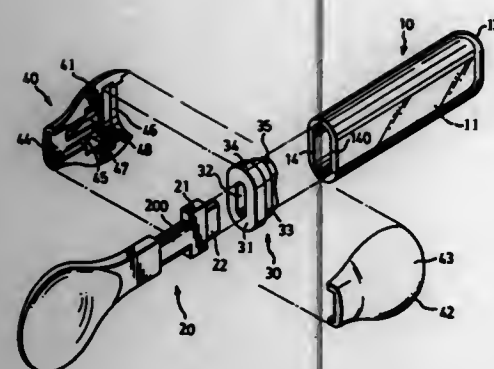
5,669,143
EATING UTENSIL WITH HANDLE PROVIDING A VISUAL AMUSING EFFECT
Paul Wu, Taipei, Taiwan, assignor to Dyna Chain Industrial Co., Ltd., and Sara Rose International Inc., both of Taipei Hsien, Taiwan

Filed Apr. 5, 1996, Ser. No. 628,052
Int. Cl.⁶ A47J 43/28

U.S. Cl. 30—324

4 Claims

1. An eating utensil, comprising:
a head unit having a stem with a distal end portion that is formed with a radial flange and an axial insert projection;
a handle unit including: a handle body formed as an elongated hollow transparent body which confines a receiving space for receiving liquid therein and which has a closed end portion and an open end portion; and a plug having a first end portion formed with an axial insert hole and a second end portion inserted fittingly into said open end portion of said handle



body, said insert protection of said head unit extending fittingly into said insert hole; and
a covering for covering said stem of said head unit, said plug, and said open end portion of said handle body, said covering including complementary first and second cover parts, each of said cover parts having a smooth outer face and an inner face that is formed with a stem receiving groove, a flange receiving groove and a plug engaging groove, said stem of said head unit being disposed in said stem receiving grooves of said cover parts, said radial flange of said head unit being disposed in said flange receiving grooves of said cover parts, and said first end portion of said plug having a peripheral section which extends into said plug engaging grooves of said cover parts.

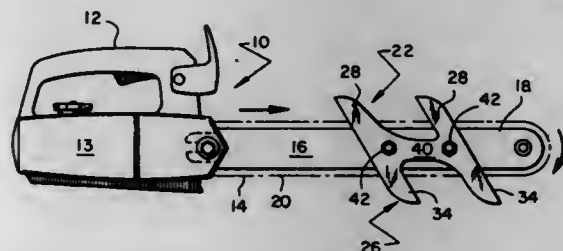
5,669,144
RAZOR BLADE TECHNOLOGY
Steve Syng-Hi Hahn, Wellesley; John Madela, Assonet; Chong-ping Peter Chou, Lexington, all of N.C., and Lamar Eugene Brooks, North Providence, R.I., assignors to The Gillette Company, Boston, Mass.
Continuation of Ser. No. 399,625, Mar. 7, 1995, abandoned, which is a continuation of Ser. No. 157,747, Nov. 24, 1993, abandoned, which is a continuation-in-part of Ser. No. 39,516, Mar. 29, 1993, abandoned, which is a continuation of Ser. No. 792,427, Nov. 15, 1991, abandoned. This application Nov. 7, 1995, Ser. No. 554,798
Int. Cl.⁶ B26B 21/54; C23C 14/34
U.S. Cl. 30—346.54



1. A razor blade comprising
a substrate with a wedge-shaped edge defined by a sharpened tip and facets that have an included angle of less than seventeen degrees at a distance of forty micrometers from the sharpened tip,
a layer of interlayer material on the tip and flanks of said wedge-shaped edge, the thickness of said interlayer material being in the range of about 50–500 angstroms, and a layer of diamond or diamond-like carbon material on said interlayer material, said layer of diamond or diamond-like carbon material having a thickness in the range of twelve hundred to

eighteen hundred angstroms from the sharpened tip of said substrate to a distance of forty micrometers from the sharpened tip, and an ultimate tip defined by facets that have lengths of at least about 0.1 micrometer and define an included angle of at least sixty degrees, a radius at the ultimate tip of said diamond or diamond-like material of less than 400 angstroms, and an aspect ratio in the range of 1:1–3:1, a hardness of at least thirteen gigapascals and an L5 wet wool felt cutter force of less than 0.8 kilogram, and dry wool felt (ten cuts) edge damage of less than fifty small edge damage regions and no damage regions of larger dimension or depth.

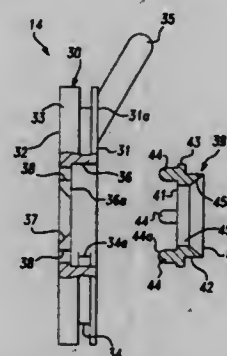
5,669,145
CHAINSAW ATTACHMENT
Harold O. Skripsky, 4296 Fox Meadow Dr. SE., Cedar Rapids, Iowa 52403
Filed Apr. 15, 1996, Ser. No. 631,146
Int. Cl.⁶ B27B 17/02
U.S. Cl. 30—371



29 Claims

1. An attachment for use with a chain saw having a housing at its inner end containing a motor with a chain bar extending outwardly from the housing and a cutting chain driven by the motor so as to travel longitudinally around the top and bottom of the chain bar, the chain bar having a plurality of longitudinally and equally spaced-apart openings, said attachment comprising: a pair of juxtaposed stop members adapted to be mounted on the chain bar between the housing and the outer end of the chain bar with one of the stop members positioned on each side of the chain bar, each stop member being formed of a single piece of substantially flat, rigid material and having a central connecting member, a first pair of longitudinally spaced apart prongs extending upwardly from the connecting member so that the prongs extend beyond the path of the chain traveling over the top of the chain bar when the stop members are mounted on the chain bar, a second pair of longitudinally spaced apart prongs extending downwardly from the connecting member so that the prongs extend beyond the path of the chain traveling over the bottom of the chain bar when the stop members are mounted on the chain bar, each of the first prongs having a substantially straight rear edge that is at an angle of 20° to 30° from a line perpendicular to the top path of the chain and a front edge that curves rearwardly and joins the rear edge at the outermost point of the first prong, each of the second prongs having a substantially straight front edge that is at an angle of 20° to 30° from a line perpendicular to the bottom path of the chain and a rear edge that curves forwardly and joins the front edge at the outermost point of the second prong, each stop member having a pair of longitudinally spaced apart openings corresponding to the spacing of the openings in the chain bar so as to provide for mounting of the stop members on the chain bar, the openings in each stop member being at substantially the same distance from the front and rear edges of the stop member so as to provide for reversed mounting of the stop members on the chain bar with the curved edge of each of the second prongs being the front edge that provides a pivot point for cutting kerfs, means to space each stop member from the chain bar a sufficient amount to allow the chain to pass without interference between the stop members when the stop members are properly installed on the chain bar, and removable fasteners combined with the openings in the stop members and the chain bar for removably attaching the stop members to the chain bar.

5,669,146
CHANGEABLE INSERT PEEP SIGHT
Robert C. Beutler, Sand Creek, Mich., assignor to Kenneth Robertson, Toledo, Ohio
Filed Feb. 27, 1996, Ser. No. 607,691
Int. Cl.⁶ F41G 1/467
U.S. Cl. 33—265



20 Claims

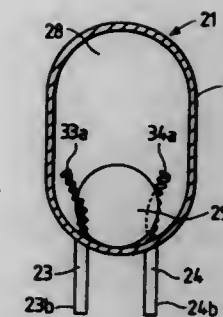
1. A rear peep sight for use with an archery bow comprising:
a sighting body having front and rear surfaces joined by a side surface, a cavity formed in said sighting body open to said sighting body front surface and having a bottom surface, a mounting groove formed in said sighting body side surface for retaining said sighting body on a bowstring and having a bottom surface, a sighting aperture formed in said sighting body extending from said sighting body rear surface to said cavity bottom surface and a plurality of locator apertures formed in said sighting body extending from said sighting body rear surface to said cavity bottom surface and positioned about said sighting aperture;
an insert body having front and rear surfaces joined by a side surface and being removably retained in said sighting body cavity, said insert body rear surface facing said cavity bottom surface and overlapping said locator apertures, said insert body being formed of a light transmitting material for transmitting light incident on said insert body front surface to said insert body rear surface; and means for causing a portion of a bowstring to block removal of said insert body from said sighting body when said sighting body is mounted on the bowstring with said insert body located in said sighting body cavity and with a portion of said bowstring inserted into said mounting groove whereby when said sighting body with said insert body located therein is mounted on a bowstring light incident on said insert body front surface is transmitted through said insert body to said locator apertures and to an eye of an archer located at said sighting body rear surface.

5,669,147
TILT SENSOR
Noriaki Nakajima, Yokohama; Hiroshi Hasegawa, Tokyo, and Tetsuro Goto, Funabashi, all of Japan, assignors to Nikon Corporation, Tokyo, Japan
Continuation of Ser. No. 599,412, Jan. 11, 1996, abandoned, which is a continuation of Ser. No. 357,775, Dec. 16, 1994, abandoned, which is a continuation of Ser. No. 36,352, Mar. 24, 1993, abandoned. This application Dec. 17, 1996, Ser. No. 767,714
Claims priority, application Japan, Apr. 23, 1992, 4-026682 U

Int. Cl.⁶ G03B 17/06; H01H 35/02
U.S. Cl. 33—334

7 Claims

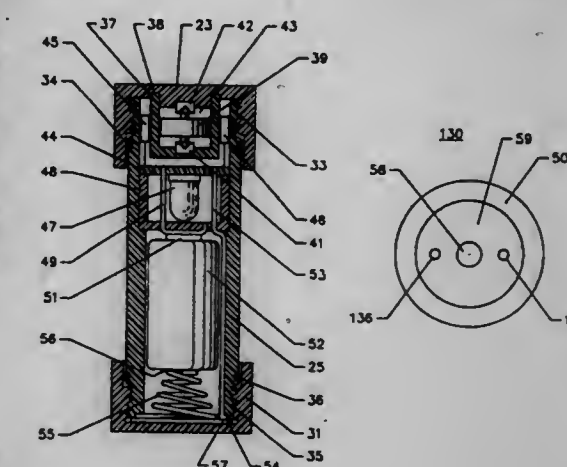
1. A tilt sensor for detecting an inclination, comprising:
a case having a non-conductive inner surface;
a plurality of electrodes having respective contact portions enclosed within said cases; and
a ball having a conductive outer surface and enclosed within said case, said ball being movable within said case by gravity and having a diameter greater than a distance between said



contact portions of said electrodes such that said contact portions are electrically connectable through said ball, said contact portions of said electrodes being constituted as elastically deformable coils which are elastically deformable by contact of said ball with intermediate lengthwise portions of said coils, irrespective of directions of contact by said ball.

5,669,148
ALTERED LIGHT NAVIGATION DEVICE
Kevin McDermott, 196 Phillips Dr., Hampstead, Md. 21074
Division of Ser. No. 376,773, Mar. 1, 1995, which is a division of Ser. No. 979,786, Nov. 20, 1992, Pat. No. 5,383,280. This application Jul. 23, 1996, Ser. No. 685,205
Int. Cl.⁶ G01C 17/02
U.S. Cl. 33—355 R

51 Claims



1. A navigation device comprising:
a housing assembly;
a light source;
a magnet rotatably mounted in said housing assembly for maintaining an alignment with Earth's magnetic field;
a light altering means connected to said housing assembly for altering light from said light source in response to a rotational position of said housing assembly, said altered light providing a direction signal indicative of said housing assembly being oriented at a first predetermined angular position relative to said Earth's magnetic field; and
an adjustment means to permit said direction signal to indicate said housing assembly being oriented at a second angular position relative to Earth's magnetic field.

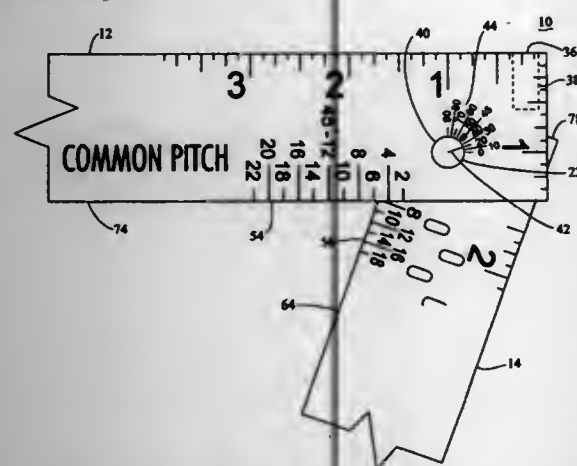
5,669,149

FOLDING FRAMING SQUARE AND LAYOUT TOOL

Robert A. Meltzer, 4462 Harpeth School Rd., Franklin, Tenn. 37064
Continuation of Ser. No. 559,481, Nov. 15, 1995, abandoned, which is a continuation of Ser. No. 388,625, Feb. 14, 1995, abandoned. This application Nov. 5, 1996, Ser. No. 743,173
Int. Cl.⁶ B43L 7/10

U.S. Cl. 33—471

20 Claims



1. A device for use in carpentry comprising:
 - a. an elongated base having a face and an inner edge; and
 - b. an arm pivotally connected to said elongated base at a pivot point such that said device having an open and a closed position wherein said arm and said elongated base are aligned along one plane in said closed position and said arm and said elongated base are aligned at a preset angle in said open position;
 - c. means for correcting said preset angle comprising a set screw received by a threaded orifice in said elongated base and contacting said arm, said elongated base having a channel; and
 - d. a layout adjuster slidably attached to said elongated base opposite said arm within said channel, said layout adjuster having a tongue received by said channel and a web contacting said face, said web having a hole for receiving a contact screw, said screw for holding said layout adjuster in place.

5,669,150

COORDINATE MEASURING MACHINE HAVING ARTICULATED ARM

Raymond J. Guertin, East Greenwich; YuZhong Dai, Coventry; Vitaly Pesikov, Providence; Walter L. Beckwith, Jr., Warwick, and Thomas Charlton, Jr., North Kingstown, all of R.I., assignors to Brown & Sharpe Manufacturing Company, North Kingstown, R.I.

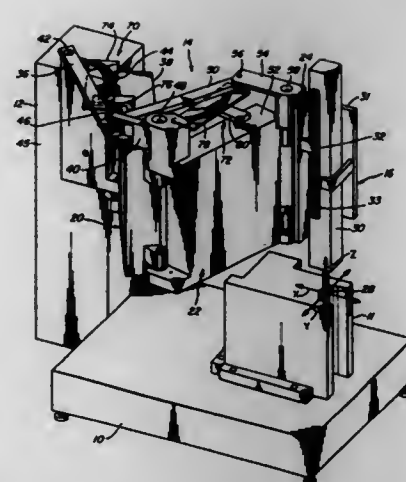
Continuation of Ser. No. 441,972, May 16, 1995, abandoned. This application Nov. 12, 1996, Ser. No. 748,052

Int. Cl.⁶ G01B 5/008

U.S. Cl. 33—503

19 Claims

1. A coordinate measuring machine comprising:
 - a support structure;
 - an articulated arm having a first end pivotally connected to said support structure and a second end that is movable in a horizontal plane;
 - a Z-arm assembly including a Z-arm housing mounted to the second end of said articulated arm and a probe that is vertically movable with respect to said Z-arm housing, whereby said probe is movable within a measurement volume defined by said articulated arm and said Z-arm assembly; and



a measuring assembly for determining coordinates of said probe in said measurement volume, said measuring assembly including means for sensing a position of the Z-arm housing in said horizontal plane and means for sensing a position of said probe relative to said Z-arm housing, means, rigidly connected to said support structure and said Z-arm assembly, for preventing rotation of said Z-arm relative to said support structure, thereby maintaining said Z-arm assembly in fixed angular relationship with respect to said support structure as said Z-arm assembly moves to an arbitrary position in said horizontal plane.

5,669,151

TRIGGER PROBE CIRCUIT

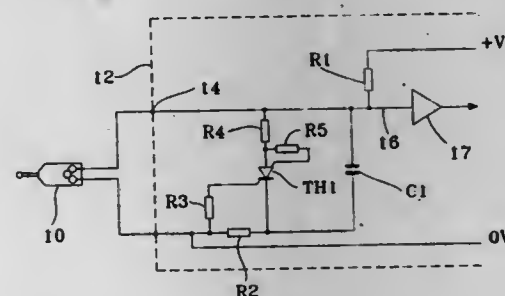
David Collingwood, Stonehouse, United Kingdom, assignor to Renishaw plc, Gloucestershire, United Kingdom
Filed Jul. 20, 1995, Ser. No. 504,310

Claims priority, application United Kingdom, Jul. 29, 1994, 9415338

Int. Cl.⁶ G01B 21/04

U.S. Cl. 33—558

8 Claims



1. A trigger probe circuit for a trigger probe for position determining apparatus, comprising
 - two input terminals for connection to an output of the probe,
 - a capacitor connected across the input terminals, and
 - a discharge circuit in parallel with the capacitor, whereby the capacitor filters out momentary, spurious changes in the probe output signal and the capacitor discharges substantially through said discharge circuit rather than into the probe output when the probe output presents a short circuit.

5,669,152

TOUCH PROBE

David R. McMurtry, Wotton-Under-Edge, United Kingdom, assignor to Renishaw, PLC, Gloucestershire, United Kingdom

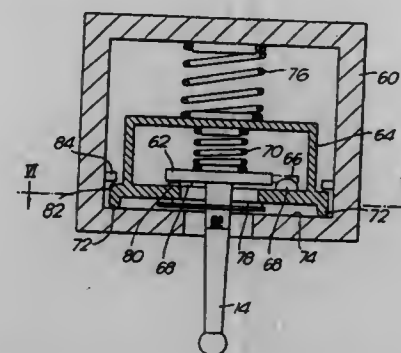
Continuation of Ser. No. 426,733, Apr. 21, 1995, Pat. No. 5,491,904, which is a continuation of Ser. No. 299,588, Sep. 1, 1994, abandoned, which is a continuation of Ser. No. 111,601, Aug. 25, 1993, Pat. No. 5,353,514, which is a continuation of Ser. No. 944,341, Sep. 14, 1992, Pat. No. 5,253,428, which is a continuation of Ser. No. 660,048, Feb. 25, 1991, Pat. No. 5,146,691. This application Feb. 20, 1996, Ser. No. 603,229

Claims priority, application United Kingdom, Feb. 23, 1990, 9004117

Int. Cl.⁶ G01B 5/012

U.S. Cl. 33—559

3 Claims



1. A touch probe, for use on a movable arm of a position determining apparatus, the probe having a housing with an axis and a stylus holder located within the housing, the stylus holder carrying an elongate stylus which projects through an aperture in the housing, and which has a sensing tip at a free end thereof, the probe generating a trigger signal when said sensing tip contacts an object and said stylus holder is thereby deflected relative to said housing, the trigger signal being used by the position determining apparatus to take a reading of an instantaneous position of the movable arm, the touch probe comprising:
 - a seating including at least one pair of mutually engageable elements, a first mutually engageable element of the at least one pair of mutually engageable elements being connected to the housing, and a second mutually engageable element of the at least one pair of mutually engageable elements being connected to the stylus holder, each of said first and second mutually engageable elements having a surface inclined relative to the axis;
 - at least one constraining spring connected to the housing and to the stylus holder;
 - biasing means for applying an axial biasing force to said stylus holder for biasing said first and second mutually engageable elements of said seating into engagement with each other;
 - an annular member retained in a predetermined relationship with the stylus holder and having an annular surface facing in a direction of said aperture, said stylus holder being tiltable with said annular member relative to the housing on said annular surface;
 - a transducer distinct from said first and second mutually engageable elements of said seating for generating said trigger signal, said transducer being actuable by tilting of said stylus holder with said annular member; and
 - said probe further comprising an abutment surface connected to the housing and said annular member being separated from said abutment surface by a clearance, said stylus holder thereby having a first tilting action relative to said housing before said clearance is taken up, and a second tilting action, distinct from said first tilting action, after said clearance is taken up, said first and second mutually engageable elements of said seating remaining engaged during said first tilting action and coming out of contact with each other during said second tilting action.

5,669,153

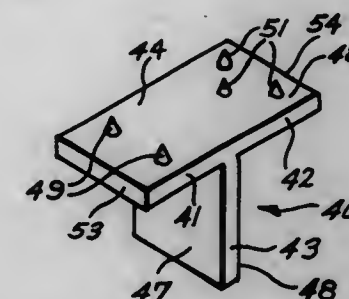
BUTT HINGE FASTENER LOCATION MARKING DEVICE

Edward D. Hood, 552 Alden Rd., Sellersburg, Ind. 47172
Filed Jun. 19, 1996, Ser. No. 663,855

Int. Cl.⁶ B25H 7/04

U.S. Cl. 33—667

9 Claims



1. A locator device for marking the proper position for securing the leaves of a hinge to and between opposable surfaces, which surfaces are to be made hingably movable relative to one another, said device comprising
 - at least one hinge leaf locator plate of a preselected size and shape having first and a second oppositely facing broad, flat surfaces,
 - a backing member attached to and extending at a right angle from a rear end portion of said locator plate, said backing member having a broad flat backing surface which extends perpendicular to the oppositely facing surfaces, said backing surface facing a free end of said locator plate,
 - a first plurality of sharp pins of predetermined spacing and arrangement affixed to said locator plate and extending at right angles from one of said oppositely facing surfaces for marking the location of fasteners for one of two leaves of a hinge,
 - a second plurality of sharp pins of predetermined spacing and arrangement affixed to said locator plate and extending at right angles from the other of said oppositely facing surfaces for marking the location of fasteners for another of the two leaves of said hinge,
 - a second locator plate having two oppositely facing broad, flat surfaces,
 - a first series of sharp pins of predetermined spacing and arrangement affixed to said second locator plate and extending at right angles from one of said second plate surfaces, and
 - a second series of sharp pins of predetermined spacing and arrangement affixed to said second locator plate and extending at right angles from another of said second plate surfaces, one end of said second locator plate being attached to one end of said at least one locator plate such that both of said locator plates lie in the same plane, at least one of said locator plates being attached to said backing member to form a T-shaped assembly.

5,669,154

AIR DRYING AND PURIFICATION SYSTEM

Erasmus Mimmo Bellomo, Victoria, Australia, assignor to A P Systems (Australia) Pty., Ltd., Ripponlea, Australia
PCT No. PCT/AU94/00283, § 371 Date Feb. 21, 1996, § 102(e) Date Feb. 21, 1996, PCT Pub. No. WO94/27706, PCT Pub. Date Dec. 8, 1994

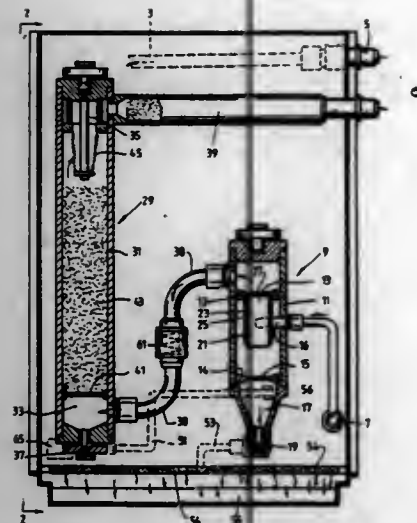
PCT Filed May 26, 1994, Ser. No. 553,335

Claims priority, application Australia, May 26, 1993, PL9004
Int. Cl.⁶ F26B 19/00

U.S. Cl. 34—71

17 Claims

1. An air drying and purification system for compressed air from a compressor, comprising:
 - (a) a centrifugal separator chamber for at least partially drying and purifying cooled compressed air from the compressor by



separating moisture and entrained particulate material and other contaminants from the compressed air, the separator chamber having an inlet for compressed air and an outlet for discharging at least partially dried and purified compressed air;

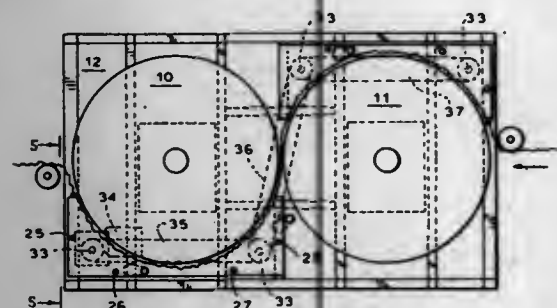
- (b) a drying chamber for further drying the compressed air, the drying chamber containing an absorbent material for absorbing moisture from the compressed air, the drying chamber having an inlet for introducing compressed air from the separator chamber and an outlet for discharging dried and purified compressed air;
- (c) a one-way valve between the separator chamber and the drying chamber for preventing flow of compressed air from the drying chamber to the separator chamber; and
- (d) an assembly for ventilating the chambers to regenerate the absorbent material in the drying chamber and to remove contaminants from the separator chamber, the assembly comprising:
- a vent outlet in the separator chamber;
 - a vent outlet in the drying chamber; and
 - a valve assembly for opening and closing the vent outlets.

5,669,155
SUCTION DRUM SYSTEM FOR PROCESSING WEB MATERIALS PARTICULARLY KNITTED FABRICS
 Robert J. Hughes; Michael S. Leonard, and William C. Hardin, Jr., all of Lexington, N.C., assignors to Tubular Textile LLC, Lexington, N.C.

Filed Sep. 20, 1996, Ser. No. 716,939
 Int. Cl.⁶ F26B 11/02

U.S. Cl. 34—115

10 Claims



1. A suction drum system for processing web materials of various widths, which comprises
- a housing provided with an inlet and outlet for web material,
 - a processing drum mounted for rotation within said housing and having a perforate outer circumferential wall with spaced-apart lateral margins defining its width,

- said inlet and outlet defining, with said processing drum, a processing path for directing said web to travel around a predetermined arcuate processing portion of said outer circumferential wall while being supported thereon,
- suction means communicating with the interior of said drum for partially evacuating said interior and causing the flow of air from areas external of said drum through said perforate circumferential wall,
- first masking means for masking an arcuate portion of said circumferential wall to limit the flow of air through said perforate circumferential wall substantially to said processing portion,
- second masking means positioned externally of said processing drum for selectively and adjustably masking at least one lateral margin of said perforate circumferential wall, to limit the flow of air through said perforate wall to selected circumferential areas of said processing portion, and
- means operable externally of said housing for controllably adjusting said second masking means.

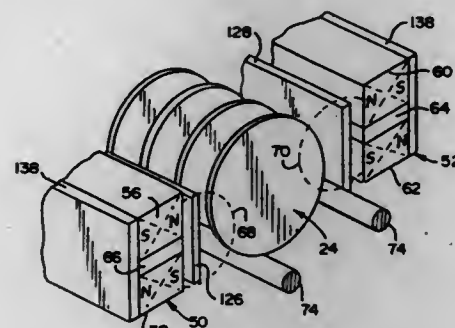
5,669,156
CAN END CURING SYSTEM WITH MAGNETIC FANNING AND BELT CONVEYING
 Miroslav W. Vejchoda, Downers Grove, Ill., assignor to Fleetwood Systems, Inc., Romeoville, Ill.

Filed Aug. 28, 1996, Ser. No. 697,670

Int. Cl.⁶ F26B 3/34

U.S. Cl. 34—248

16 Claims



1. An article separating and drying system which receives a plurality of articles, separates said articles, and passes air between neighboring ones of said separated articles, said system including an infeed station, an outfeed station, and a separating and drying station positioned between said infeed station and said outfeed station, said system comprising:

- a generally linear, axially elongated conveying device positioned in at least said separating and drying station for conveying said separated articles through said separating and drying station;
- a magnetic separation assembly positioned in at least said separating and drying station for inducing a magnetic flux on opposite sides of said articles moving therethrough to cause neighboring ones of said articles to be similarly magnetized thereby repelling each other and producing a generally parallel gap therebetween;
- an air distribution assembly positioned in said separating and drying station for moving air across said articles in said separating and drying station to pass air through said gaps between neighboring ones of said articles in order to facilitate drying of a substance on at least a portion of said articles.

5,669,157
APPARATUS AND METHOD FOR SEPARATING PIECES OF LAUNDRY

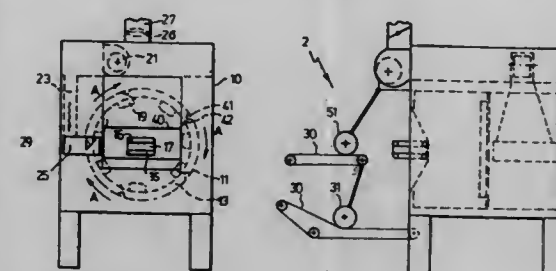
Gerardus Henricus Maria Kulpers, Berlicum, Netherlands, assignor to Amko International B.V., Kerkdriel, Netherlands

Filed May 16, 1996, Ser. No. 649,059
 Claims priority, application Netherlands, May 18, 1995, 1000389

Int. Cl.⁶ F26B 5/08

U.S. Cl. 34—321

30 Claims



1. Apparatus comprising:
- a means for separating pieces of laundry comprising a drum which is rotatable about a substantially horizontal axis and with an open front and an open rear, which drum is accommodated in a housing;
 - a stationary rear wall adjacent the rear of the drum so as to substantially close off the open rear of the drum, which stationary wall is provided in its middle with an engaging opening in which engaging means for engaging and feeding through the pieces of laundry are arranged; and
 - air conveying means in the housing for transporting the pieces of laundry from the front to the rear of the drum.

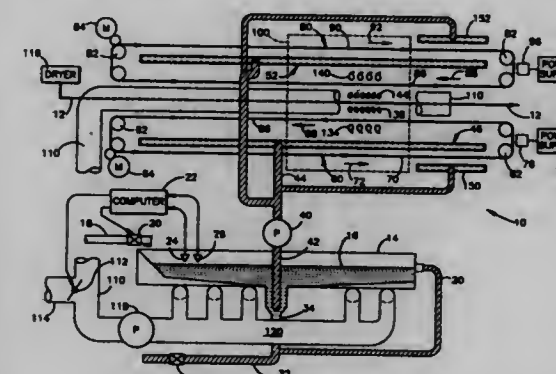
5,669,158
METHOD FOR COOLING A WEB
 Robert R. Murray, Madbury; Stephen P. Fraczek, Lee, and Dale H. Jackson, New Market, all of N.H., assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany

Filed Mar. 22, 1994, Ser. No. 216,485

Int. Cl.⁶ F26B 7/00

U.S. Cl. 34—393

12 Claims



1. A method of removing heat from a moving web having a surface temperature, said method comprising the steps of:
- providing a body of liquid which has a temperature of vaporization below the surface temperature of the web;
 - heating the body of liquid to a temperature slightly below its temperature of vaporization;
 - spraying the heated liquid in a first direction onto the surface of the web; and
 - vaporizing liquid from the surface of the web to cool the web.

5,669,159
METHOD AND APPARATUS FOR DRYING A FIBER WEB AT ELEVATED AMBIENT PRESSURES

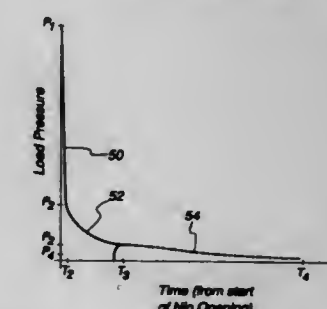
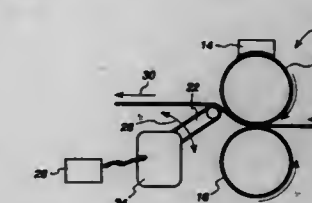
David I. Orloff; Timothy Patterson, and Isaak Rudman, all of Atlanta, Ga., assignors to The Institute of Paper Science and Technology, Atlanta, Ga.

Continuation-in-part of Ser. No. 440,539, May 12, 1995, Pat. No. 5,598,642. This application Mar. 18, 1996, Ser. No. 618,294

Int. Cl.⁶ F26B 5/14

U.S. Cl. 34—398

21 Claims



1. A method for drying a web comprising the steps of passing the web and a water receiving felt between a heated surface and another surface, applying pressure between said surfaces and releasing said pressure over a first time period, from an initial value at a first rate, further releasing said pressure over a transition time period, and releasing said pressure an additional amount more gradually than said first rate, over an ending time period which is substantially longer than the first time period.

5,669,160
INNERBOOT PARTICULARLY FOR SKATES
 Adolfo Pozzebon, Sala D'Istrana, Italy, assignor to Noridica S.p.A., Trevignano, Italy

Continuation of Ser. No. 206,380, Mar. 7, 1994, abandoned.

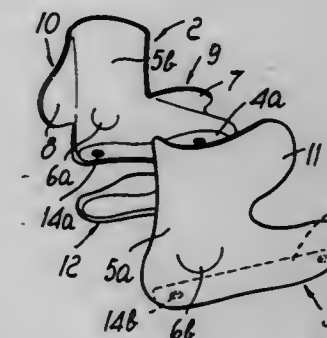
This application May 28, 1996, Ser. No. 655,202

Claims priority, application Italy, Mar. 25, 1993, TV93U0013

Int. Cl.⁶ A43B 5/04

U.S. Cl. 36—10

17 Claims



1. An innerboot for shorts shoes, said innerboot having an inside and comprising:
- a first lateral portion for surrounding at least a user's first lateral region;
 - a second lateral portion for surrounding at least a user's second lateral region;

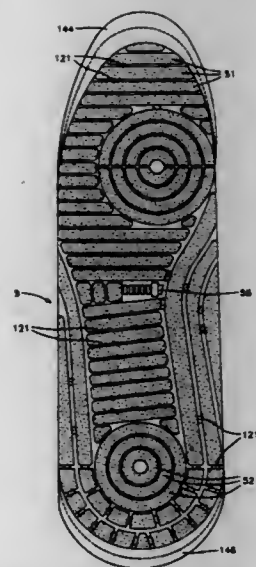
a releasably closable front opening extending continuously between said first and second lateral portions at a metatarsal region of the innerboot and at a front tibia region of the innerboot, said front opening extending from a top-most portion of the innerboot to a tip region of the innerboot;

a first flap portion connected to and protrudingly extending from said first lateral portion; and

a second flap portion connected to and protrudingly extending from said second lateral portion;

wherein said first flap portion is movably positionable between an open position in which said front opening is open allowing for insertion of a user's foot in the inside of the innerboot and a closed position in which said front opening is closed and in which said first flap portion is arranged to at least partially overlap said second lateral portion with respect to the inside of the innerboot at said metatarsal region of the innerboot, and wherein said second flap portion is movably positionable between said open position and said closed position in which said second flap portion is arranged to at least partially overlap said first lateral portion with respect to the inside of the innerboot at said front tibia region of the innerboot,

and wherein said first flap portion is a continuous flap portion extending from a front-most portion of said first flap portion rearwardly to a rear-most portion of said first flap portion, and said second flap portion is a continuous flap portion extending from a bottom-most portion of said second flap portion upwardly to a top-most portion of said flap portion, and wherein in the closed position said rear most portion of said first flap portion is arranged substantially adjacent said bottom-most portion of said second flap portion, and wherein in the closed position said front-most portion of said first flap portion is arranged to cover said front opening at the tip region of the innerboot, and wherein in the closed position said top-most portion of said second flap portion is arranged to cover said front opening at the top-most portion of the innerboot.



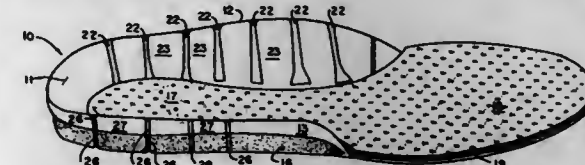
said air chamber removed defining the shape of a smaller one of said articles of footwear.

5,669,162
CUSHION INSERT
Robert M. Dyer, Glendale, Mo., assignor to Brown Group, Inc., St. Louis, Mo.

Filed Mar. 7, 1996, Ser. No. 611,876
Int. Cl.⁶ A43B 13/40; 21/32

U.S. Cl. 36—44

5 Claims



1. A cushion insert for placement in the interior of a shoe to accommodate the comfort of a foot placed in the interior of a shoe, the cushion insert comprising:

- a body having an upper foot receiving interior surface characterized by a liner ply flanked by medial and lateral flanges extending from a common heel receiving cup, each of said medial and lateral flanges having spaced apart grooves extending radially inwardly to said liner ply, said grooves defining spaced apart interior pads which render said medial and lateral flanges flexible to conform to a foot received on said liner ply; and
- said body having an applied exterior surface on said medial and lateral flanges with said exterior surfaces having spaced apart grooves defining spaced apart outer pads, with said outer pads being staggered relative to said interior pads.

5,669,163
SNOW REMOVAL DEVICE
Clem Winter, 2546 Lake Ridge Ct., Wichita, Kans. 67205
Filed Mar. 29, 1996, Ser. No. 625,720
Int. Cl.⁶ E01H 5/02

U.S. Cl. 37—284

2 Claims

1. A snow removal device comprising:
- a mobile handle assembly comprising:
 - an axle;
 - a wheel rotatably mounted at each end of said axle;
 - a brace having first and second arms with a cross arm spanning therebetween, said axle extending between said brace arms for mounting said brace rotatably about the axle; and

5,669,161

SHOCK-ABSORBING CUSHION

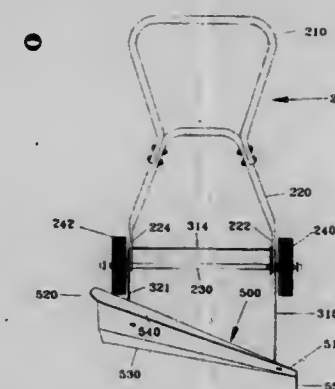
Ing-Jing Huang, 15, Reher-Her 1st Street, Kaohsiung, Taiwan
Continuation of Ser. No. 624,052, Mar. 29, 1996, abandoned, which is a continuation of Ser. No. 205,631, Mar. 4, 1994, abandoned, which is a continuation-in-part of Ser. No. 4,500, Jan. 14, 1993, abandoned, which is a continuation of Ser. No. 484,827, Feb. 26, 1990, abandoned. This application Nov. 15, 1996, Ser. No. 749,732

Int. Cl.⁶ A43B 13/40; 13/20

U.S. Cl. 36—43

3 Claims

1. An insole suitable for use in different size articles of footwear the insole including an arcuate removable portion located around at least one of a toe end and a heel end of the insole to enable the length of the insole to be decreased by removal of said portion, the insole including upper and lower sheets adhered together peripherally and defining therebetween shock-absorbing air chamber means wherein said removable portion is sealed from the air chamber means, wherein the air chamber means comprises a plurality of intercommunicating air chambers and the removable portion comprises a separate arcuate air chamber sealed from said plurality of chambers, the insole with said air chamber means defining the shape of a larger one of said articles of footwear, the insole with



a handle rotatably attached to said axle, said handle having first and second arms with said axle extending therethrough for rotatably mounting said handle about said axle;

a latch attached to one of said handle arms;

a notch in said latch for engaging said cross arm to restrain rotation of said handle about said axle;

a snow blade comprising:

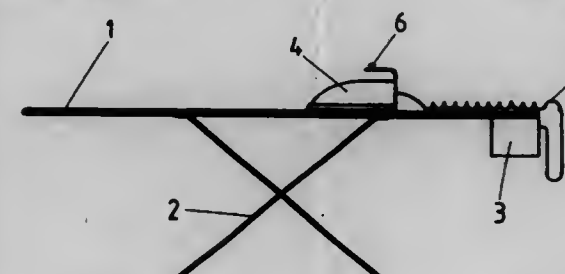
- a relatively rigid sheet of material presenting a front face for contact with snow during a movement of said blade along a straight line path of travel;
- said sheet having first and second laterally spaced-apart opposed ends;
- said sheet having a radius of curvature generally increasing from said first end to said second end, said curvature presenting upper and lower edges on said sheet which generally increase in displacement between said first and second ends, said sheet further comprising a lower surface on said sheet generally extending horizontally and forwardly from said lower edge thereof for contact with an underlying surface, said lower surface increasing in area between said first end and said second end of said sheet, whereupon said blade upon straight line movement contacts successively larger portions of snow between said first and second ends during the straight line movement;
- means for attaching said snow blade to said ends of said arms of said brace.

5,669,164
DOMESTIC IRONING EQUIPMENT INCLUDING PRESSURE PRODUCING IRONING BOARD
Serge Georges Voltchovsky, Mezières, Switzerland, assignor to Divelt S.A., Switzerland
Filed Jun. 3, 1996, Ser. No. 660,064
Claims priority, application Switzerland, Jun. 19, 1995, 1792/95

U.S. Cl. 38—137

Int. Cl.⁶ D06F 81/00

4 Claims

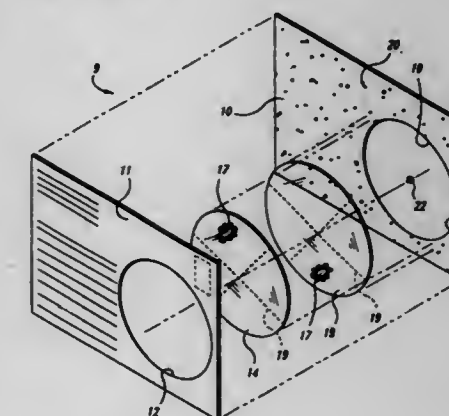


1. Domestic ironing equipment comprising an ironing board, underneath whose perforated upper surface there is a chamber connected to means of generating negative and positive pressure, and including a steam iron equipped with a steam control, characterized by the fact that the means of generating negative and positive pressure comprises one simple axial flow ventilator and

arrangements for selecting the direction of rotation and controlling the ventilator in order to generate positive and negative pressure, the means of controlling the ventilator comprising an electronic circuit that controls the ventilator's power supply, the electronic circuit being controlled by the steam control, the electronic circuit that controls the ventilator being arranged in such a way that the ventilator rotates in the direction required to produce a negative pressure if the user exerts a manual pressure for more than a pre-defined period t_0 , if the manual pressure is exerted for less than the pre-defined period t_0 , the ventilator rotates in the direction that produces positive pressure.

5,669,165
PICTURE CARD
Alan J. Santorsola, 6002 Beacon Ave. South, Seattle, Wash. 98108
Filed May 17, 1996, Ser. No. 649,201
Int. Cl.⁶ G09F 1/00
U.S. Cl. 40—124.191

5 Claims



1. A picture card comprising:

- a front panel having an opening therein,
- a first transparency bounded by an outer peripheral edge, said transparency having an image thereon,
- a second transparency bounded by an outer peripheral edge, said transparency having a separate corresponding image thereon, the first transparency being secured to the front panel over the opening therein, and
- the second transparency being rotatably secured to the first transparency between the first transparency and the front panel,

wherein the first transparency is of a size larger than the second transparency, so that the outer peripheral edge of the first transparency overlays the second transparency and can be mounted to the front panel, and

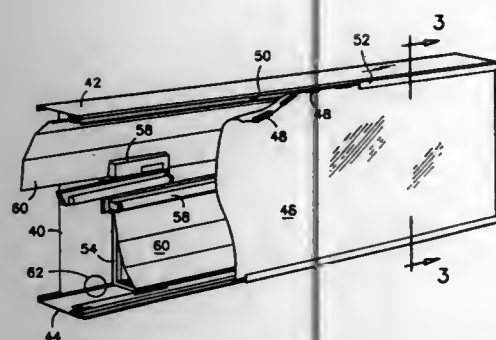
whereby the second transparency can be rotated to bring its image into alignment with its corresponding image on the first transparency.

5,669,166
CASING FOR SIGN
Normand Verret, 68 P'Tiso Park, Edmundston N. B., Canada, E3V 3X7
Filed Oct. 6, 1995, Ser. No. 540,586
Int. Cl.⁶ G09F 17/00

U.S. Cl. 40—603

15 Claims

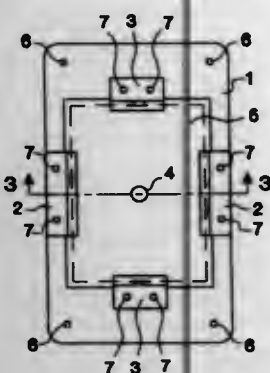
1. A casing for sign having a front plane, a rear plane, a plurality of lengthy side members defining a contour thereof and a backing sheet adjoining said side members and covering said rear plane; at least one of said side members has a first and second lips aligned longitudinally therealong and defining a slot enclosing an edge of said backing sheet;



said second lip having a longitudinal groove facing toward said first lip;
said first lip and said backing sheet being made respectively of a malleable material, and having each at least one common deformation bulging coincidentally into said groove;
whereby said backing sheet is frictionally retained to said at least one side member relative to a transversal axis of said slot, between said deformation in said first lip and said groove in said second lip.

5,669,167
SUSPENDED TRADING CARD HOLDER
Lori Ann Kemp, 707 Chestnut Hill Dr., Marietta, Ga. 30064
Filed Mar. 13, 1996, Ser. No. 615,684
Int. Cl.⁶ G09F 3/18
U.S. Cl. 40—642

4 Claims



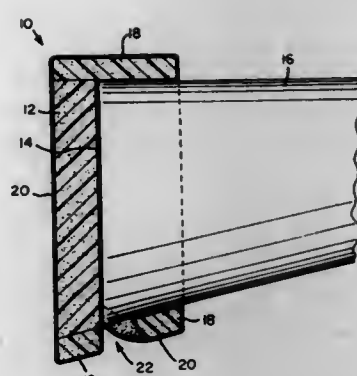
1. A holder for trading cards in combination with a trading card, said holder having a top, bottom and sides, said holder comprising: a bottom plate having stepped portions thereon, said bottom plate having a raised center portion means for engaging only a center portion of said trading card, holding means attached to said bottom plate for holding said trading cards at said top, bottom and sides, said holding means being positioned to engage said trading cards approximately in the center of said top, bottom and sides, a top plate having a raised center portion means for engaging only a center portion of said trading card, said top plate being secured to said bottom plate.

5,669,168
FIREARM RECOIL PAD
Gregory Richard Perry, 3364 Garden Brook, Dallas, Tex. 75234
Filed Aug. 6, 1996, Ser. No. 693,349
Int. Cl.⁶ F41C 23/00

U.S. Cl. 42—74

5 Claims

1. A firearm recoil pad, comprising:
a base wall formed of a resilient foam material;

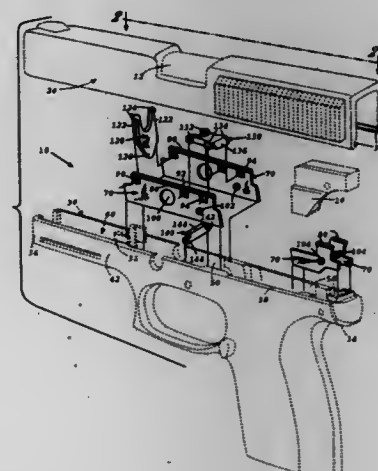


a retaining sleeve formed of a resilient foam material secured to said base wall, said retaining sleeve having a pair of integral side portions joined together by an integral strap portion spaced from said base wall; and,
said base wall and said retaining sleeve being hermetically sealed by a resilient, protective material.

5,669,169
HANDGUN HAVING METALLIC RAILS WITHIN A POLYMERIC FRAME
Edward P. Schmitter, Blythewood; Harold L. Miller, Lugoff, both of S.C.; Milton W. Erickson, Merrillan, and Gerald A. Thoe, Cippewa Falls, both of Wis., assignors to FN Manufacturing, Inc., Columbia, S.C.
Filed Apr. 16, 1996, Ser. No. 632,949
Int. Cl.⁶ F41C 23/00

U.S. Cl. 42—75.01

23 Claims

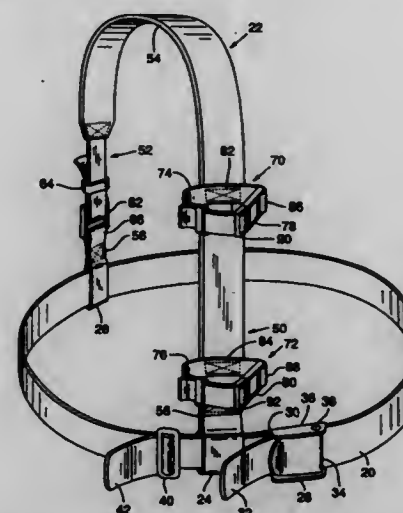


1. A handgun, comprising:
a frame having a channel formed therein, said channel having sides;
at least one pair of rails positioned within said channel of said frame; and
at least one part positioned between each of said at least one pair of rails said at least one part engaging said at least one pair of rails and securing said at least one pair of rails against said sides of said channel.

5,669,170
HANDS-FREE SLING FOR CARRYING A LONG GUN OR OTHER ELONGATED ARTICLE
Terry Bruce Norris, 1411 Elderberry La., Klamath Falls, Oreg. 97601
Filed Jul. 26, 1996, Ser. No. 693,790
Int. Cl.⁶ F41C 23/00; 23/02

U.S. Cl. 42—85

7 Claims



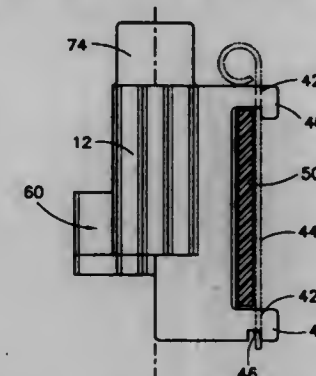
1. A sling for holding an elongated article adjacent a chest of a user wearing the sling, the sling comprising:
a belt including a belt fastener operable to fasten the belt around a waist; a shoulder strap including first and second ends coupled to the belt, a front chest portion extending from the first end, a back portion extending from the second end, and a shoulder portion positioned between the front chest and back portions and operable to rest on a shoulder;
first and second chest mounting members coupled to the front chest portion of the shoulder strap, the first and second chest mounting members being operable to removably support the elongated article adjacent the chest of the user; and
a chest strap coupled to the shoulder strap at the front chest and back portions, the chest strap being operable to hold the sling around the chest of the user.

5,669,171
SPEEDLOADER FOR MAGAZINES OF AUTOMATIC RIFLES
Thomas A. Sally, 2344 N. Old Bethlehem Pike, Quakertown, Pa. 18951
Filed Sep. 17, 1996, Ser. No. 718,066
Int. Cl.⁶ F41A 9/61; 9/82

U.S. Cl. 42—87

9 Claims

1. A speedloader that is usable to facilitate the loading of bullets



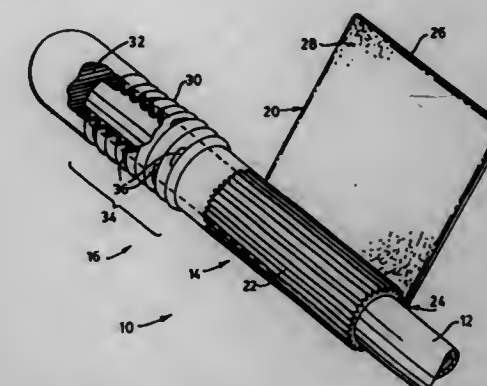
into the magazine of an automatic rifle by a rifle-user using only a single hand for the loading operation, comprising:

(a) a casing having a passage extending therethrough from its top to its bottom, the passage having an open top through which bullets may be fed and an open bottom into which the top of the magazine may be inserted,
(b) means for fastening the magazine to said casing in a position within said passage that allows bullets to be fed through the top of said passage into the magazine,
(c) means atop said casing for releasably attaching to said casing a stripper clip holding bullets, and
(d) means for fastening said casing to the belt of a rifle user so that the casing remains fixed to the belt as bullets are pushed downwardly off the stripper clip into the magazine while the magazine is fastened to the casing in the position defined in paragraph (b) hereinabove.

5,669,172
GUN SAFETY DEVICE
Norbert Goral, 15 Ravenview Drive, Whitby, Ontario, Canada, L1R 1Y2
Filed Sep. 20, 1995, Ser. No. 530,819
Int. Cl.⁶ F41A 35/04

U.S. Cl. 42—96

17 Claims

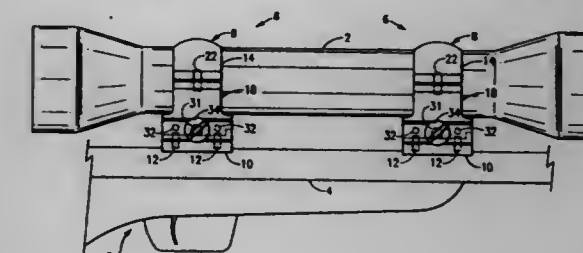


1. A gun safety device, for use with a gun for firing a projectile and having a barrel, comprising:
a mounting means for securing the device on the gun barrel, and
a projectile capturing means attached to the mounting means, said projectile capturing means comprising fibrous fabric, wherein when the device is mounted on the gun barrel, the projectile capturing means is capable of capturing a projectile fired from the gun.

5,669,173
SCOPE MOUNTING SYSTEM WITH RECOIL STOP
Frederick W. Rodney, Jr., 134 Flagg Rd., Gonic, N.H. 03839
Filed Jun. 6, 1996, Ser. No. 659,745
Int. Cl.⁶ F41G 1/38

U.S. Cl. 42—101

20 Claims



1. A scope mounting system for mounting a scope to a firearm, said scope mounting system comprising:

at least one scope base having a male dovetail protrusion formed in a first surface thereof and having a mechanism for releasably attaching said at least one scope base to a barrel of the firearm; and

at least one scope ring assembly having a clamping mechanism for clamping a desired scope to said at least one scope ring assembly and a female dovetail slot for securing said at least one scope ring assembly to said at least one scope base by engagement of said female dovetail slot with said mating male dovetail protrusion;

wherein said at least one scope base is provided with a recoil stop to prevent relative axial movement, in at least one direction, between said at least one scope ring assembly and said at least one scope base when the scope is mounted to the firearm, via said at least one scope ring assembly and said at least one scope base, and the firearm is discharged; and said scope mounting system further comprising a removable dust cover which has a female dovetail slot and a securing mechanism for releasably securing said dust cover to said at least one scope base when said scope is not in use.

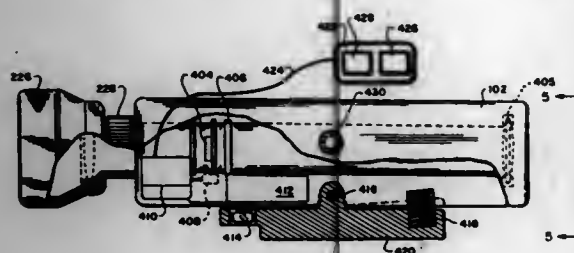
5,669,174

LASER RANGE FINDING APPARATUS

James W. Teetzel, 151 Lafayette Rd., Portsmouth, N.H. 03801
Continuation-in-part of Ser. No. 303,860, Sep. 9, 1994, Pat. No. 5,584,137, which is a continuation-in-part of Ser. No. 200,204, Feb. 23, 1994, Pat. No. 5,481,819, which is a continuation-in-part of Ser. No. 89,889, Jul. 12, 1993, Pat. No. 5,425,299, which is a continuation-in-part of Ser. No. 73,766, Jun. 8, 1993, Pat. No. 5,355,608. This application Jun. 8, 1995, Ser. No. 488,649
Int. Cl.⁶ F41G 1/36

U.S. Cl. 42—103

5 Claims

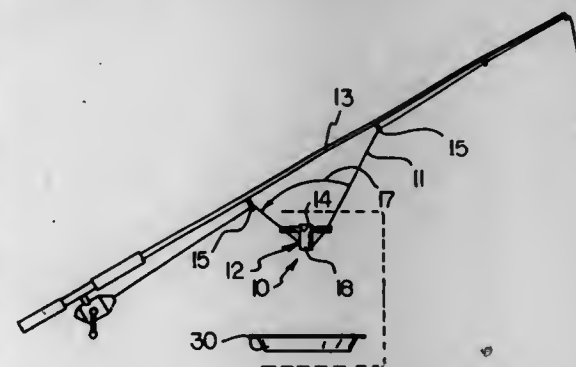


1. A range finding apparatus for determining the range to a selected target comprising:
pulsed laser ranging means for sending a timed laser signal to the target with said signal being reflected from the target;
laser pointing means for selectively pointing a laser spot at the target with said laser pointing means and said pulsed laser ranging means being in the same plane;
selection means for filtering out the reflections emanating from the target as a result of the laser spot emitted by said laser pointing means and providing an output signal corresponding solely to the reflections received from said pulsed laser ranging means;
processing means for processing the output signal received from said selection means to provide a distance output signal that corresponds to the measured time of said timed pulsed laser signal to reach the target and return to said apparatus, said distance output signal corresponding to the range of the selected target; and
elevation means for using the distance output signal of said processing means for automatically adjusting the elevation of said apparatus relative to a weapon that said apparatus is mounted upon, such that a projectile fired from the weapon will strike the target.

5,669,175
FISH STRIKE INDICATOR APPARATUS
Leroy F. Phipps, 2020 W. 1465 North, St. George, Utah 84770
Filed Jul. 11, 1996, Ser. No. 678,237
Int. Cl.⁶ A01K 97/12

U.S. Cl. 43—17

8 Claims



1. A fish strike indicator apparatus for use with a fishing line, comprising:
a main body portion which includes a top end, a mid-portion, and a bottom end, wherein said bottom end includes support groove means for receiving a fishing line;
a first balance arm connected to said top end of said main body portion and projecting transversely therefrom, wherein said first balance arm includes a first balance groove located at a distal end of said first balance arm, and
a second balance arm connected to said top end of said main body portion and projecting transversely therefrom in a direction opposite to said first balance arm, wherein said second balance arm includes a second balance groove located at a distal end of said second balance arm.

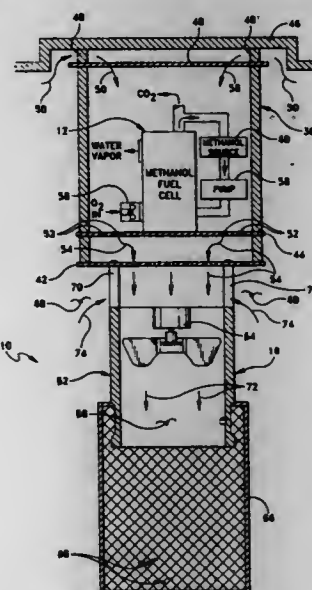
5,669,176

INSECT TRAP INCLUDING METHANOL FUEL CELL FOR GENERATING CARBON DIOXIDE AND WATER VAPOR AS ATTRACTANTS

Mark H. Miller, Hope, R.I., assignor to American Biophysics Corp., Jamestown, R.I.
Filed Nov. 15, 1995, Ser. No. 559,284
Int. Cl.⁶ A01M 1/06; 1/02

U.S. Cl. 43—139

8 Claims

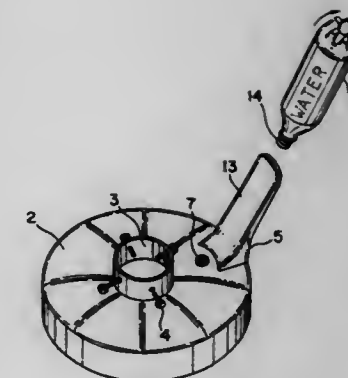


7. An insect trap comprising:
a first tubular housing having an inlet end and an outlet end;

methanol fuel cell means mounted in said housing for oxidizing oxygen and methanol, and thereby generating carbon dioxide, water vapor and heat as reaction products of said oxidations;
a second tubular housing having an inlet end and an outlet end, said inlet end of said second tubular housing being secured in spaced adjacent relation to the outlet end of said first tubular housing;

fan means mounted in said second tubular housing for creating an air flow through said first and second housings, said carbon dioxide and said water vapor being drawn out of the outlet end of said first housing and into the inlet end of said second housing by said air flow, said insects being drawn into the inlet end of said second housing by said air flow;

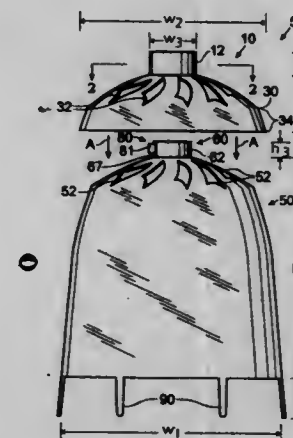
bag means secured around the outlet end of said second housing for trapping said insects.



5,669,177
THERMAL CONTROLLED PLANT PROTECTOR
Carl R. Frounfelker, 4939 Oak Hills Ave. NW., Albany, Oreg. 97321
Filed May 6, 1996, Ser. No. 643,503
Int. Cl.⁶ A01G 13/02

U.S. Cl. 47—21

15 Claims



1. A plant protector, comprising:
a housing of sufficient dimensions to enclose a plant, said housing having a plurality of ventilation openings therein;
a cover for said ventilation openings; and
a thermal controlled actuator directly operably coupled to both said housing and said cover for moving said cover between a closed position at lower temperatures where said cover is positioned over said openings and an open position at higher temperatures where said cover is not positioned over said openings; and
wherein said plurality of ventilation openings are distributed around said plant protector so as to provide cross ventilation of air through said plant protector.

5,669,178

AUTOMATIC CHRISTMAS TREE WATERER
William J. Petrovic, 2115 N. Winchester, Chicago, Ill. 60614
Filed Jul. 3, 1996, Ser. No. 675,192
Int. Cl.⁶ A47G 7/02

U.S. Cl. 47—40.5

5 Claims

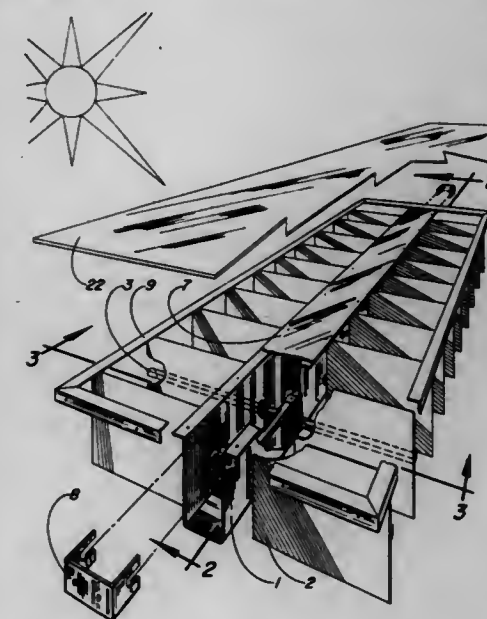
1. A Christmas tree watering apparatus for automatically supplying water to a tree stand comprising:
a container means for holding a supply of water, said container means having a top, and
holding means attached to said top for securing a trunk of a tree thereto in an upright position,

at least one aperture means formed in said container means for receiving a second container means for holding a supply of water,
support means adjacent said aperture means for supporting said second container means, said support means forming an angle with said top that is greater than 90°, and
wherein said aperture means has internal screw threads, and said second container means has external screw threads which cooperate with said internal screw threads for holding said second container means in said aperture means.

5,669,179
LOUVERED APPARATUS FOR THE REGULATION OF SOLAR LIGHT AND HEAT RADIATION THROUGH WINDOWS AND THE LIKE
William S. Hanlon, U.S. Post Office-Battle Grd., WA-608 W. Main St., Battle Grd., Wash. 98604-6902
Filed Mar. 25, 1996, Ser. No. 621,446
Int. Cl.⁶ E06B 7/08

U.S. Cl. 49—64

6 Claims



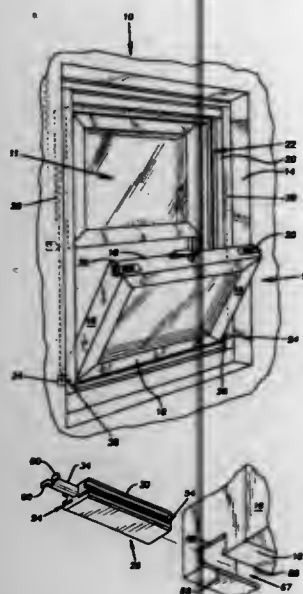
1. An apparatus for regulating the passage of solar light and heat radiation through a window; said apparatus comprising: a center mullion member integrally coupling a plurality of overlapping, interconnected, louver plate members, pivotable about a parallel axes;
said center mullion member having U-shaped cross section;
said center mullion member having a plurality of apertures therethrough, accommodating therein said louver plate members;

the plurality of said louver plate members fixedly mounted to a plurality of louver plate axle members;
 a plurality of bearing members fixedly mounted in said apertures of said center mullion member for pivotal mounting therein, the plurality of said louver plate axle members;
 a pivot arm member operably coupled to the plurality of said louver plate axle members, for a simultaneous opening closing adjustment of the plurality of said louver plate members;
 an adjusting lever member, is fixedly mounted to said louver plate axle member, adjacent to an adjustment opening, in said center mullion member;
 a louver plate adjusting hand tool member, for manually adjusting, opening closing, of the plurality of said louver plates;
 a cover plate member, fixedly mounted to said center mullion member, to shield the pivoting joints, of said apparatus from direct sun impingement; and
 a framing means fixedly mounted to the interior peripheral of the window opening, and adjacent to an interior surface of window glazing, for preventing direct solar radiation from entering a peripheral area between said window opening and said apparatus.

5,669,180
WINDOW BALANCE BRAKE SHOE AND PIVOT ASSEMBLY
 Robert G. Maier, 40 Prescott, Hudson, Ohio 44236
 Filed May 29, 1996, Ser. No. 654,597
 Int. Cl.⁶ E05D 15/22

U.S. Cl. 49—181

14 Claims

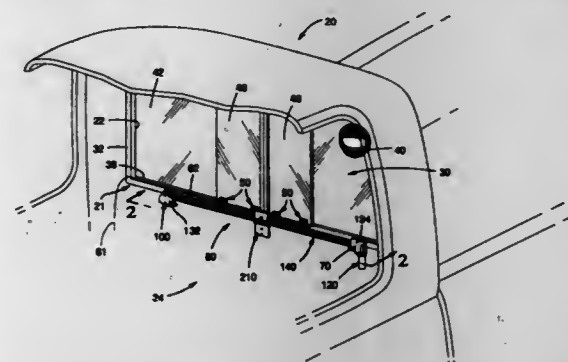


1. A pivot assembly for a window assembly having a window sash with a notch defining a pair of opposed tracks and having a brake assembly slidably disposed in a frame of the window assembly, the pivot assembly comprising:
 a rigid body having walls;
 a pivot bar projecting from the body and having an end adapted for being received in the brake assembly; and
 a flange extending from the body to distal edges of the flange and having walls spaced from walls of the body so as to define a pair of opposed channels, bases of the channels being defined where the flange is attached to the body, the assembly being slidable into the window sash and the channels being adapted for receiving the opposed tracks of the window sash therein, the channels being narrower at the distal edges than at the bases for accommodating deformations and thickness variations of edges of the tracks received in the windows.

5,669,181
POWER SLIDING WINDOW ASSEMBLY
 Craig Anthony Kollar, Sterling Heights; Donald Szerlag, Canton, and William Charles Lajack, Warren, all of Mich., assignors to General Motors Corporation, Detroit, Mich.
 Continuation-in-part of Ser. No. 459,042, Jun. 2, 1995, Pat. No. 5,531,046. This application Apr. 3, 1996, Ser. No. 627,190
 Int. Cl.⁶ E05F 11/48

U.S. Cl. 49—360

10 Claims

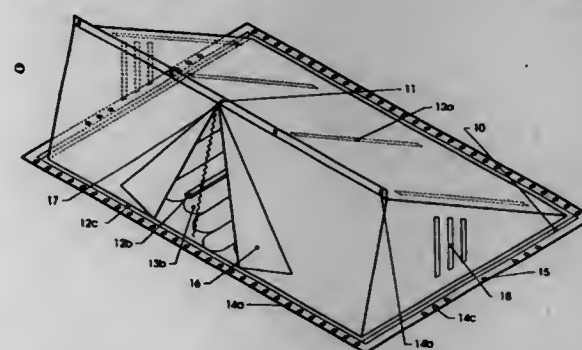


1. A power window assembly in a vehicle comprising:
 first and second slidable window panes for movement in opposing lateral directions towards each other to a closed position and away from each other to an open position;
 a first pair of connector arms operatively connected to the first window pane and a second pair of connector arms operatively connected to the second window pane; and
 a power drive mechanism including a length of tape formed into a loop for engaging the connector arms and selectively pulling one of the connector arms of the first pair and one of the connector arms of the second pair away from each other to pull the window panes towards the open position and selectively pulling the other of the connector arms of the first pair and the other of the connector arms of the second pair towards each other for pulling the window panes towards the closed position.

5,669,182
COCOON
 Richard L. Griffin, 942 SW. 11th St., Boca Raton, Fla. 33432
 Filed Aug. 14, 1995, Ser. No. 453,168
 Int. Cl.⁶ E04G 11/04

U.S. Cl. 52—2.18

4 Claims



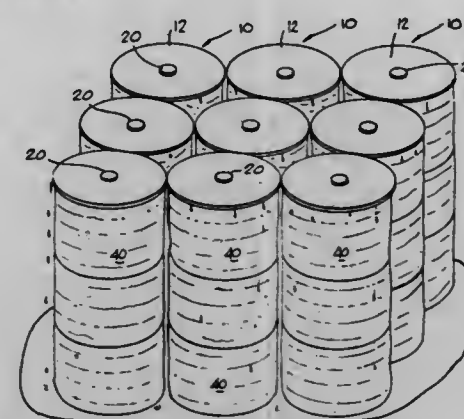
1. An apparatus forming a tent shelter, a canoe, a kayak and a cocoon or unclosed hammock comprising the combination of an inflatable canvas mattress base rubberized to hold air and repel water, said base having three independently inflated segments, said segments having air-columns of varied lengths;
 a nylon wedge shaped lining fixed permanently to the canvas base, said wedge shape, when flattened, is to be held to the canvas by Velcro boarder and strips, said lining to have flaps

which unzip to form an opening, an opening allowing a person to lie between the canvas and inside envelope created by the wedge shape, said lining having fish gill air slot for ventilation;
 larger and smaller size grommets inset into the canvas, larger grommets of greater numbers set at both ends of the canvas and said smaller grommet inset in fewer numbers to both sides of the canvas;
 two zippers set on the inside of the canvas boarder on both sides containing said smaller grommets, zippers joining the sides with sliding tab that work from each end towards the middle, said zippers located 1/4 inch away from the smallest air columns bordering both sides of the canvas.

5,669,183
DEVICE AND METHOD FOR PROTECTING BALED HAY FROM MOISTURE
 Kurt B. Frentress, P.O. Box 282, Hayden, Colo. 81639
 Filed Mar. 17, 1995, Ser. No. 406,318
 Int. Cl.⁶ E04B 1/34

U.S. Cl. 52—4

2 Claims

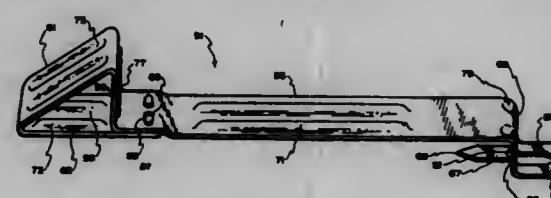


1. A combination for protecting hay from precipitation, comprising:
 (a) a cylindrical bale of hay having a first circular end for placement on a ground level and a second circular end thereabove, said bale having a columnar portion extending between said first and second ends;
 (b) a planar, disk-shaped circular top portion completely covering the first circular end; and
 (c) a unitary sleeve portion extending downward from said top portion, said sleeve portion covering at least part of the columnar portion of said bale, and said sleeve portion extending downward a uniform distance from the entire circumference of said top portion;
 wherein said circular top portion is substantially waterproof.

5,669,184
SNOW BRACKET
 Terry Elmer Anderson, 4544 W. Killarney Dr., Highland, Utah 84003
 Filed Jul. 19, 1996, Ser. No. 684,170
 Int. Cl.⁶ E04D 13/10

U.S. Cl. 52—26

9 Claims

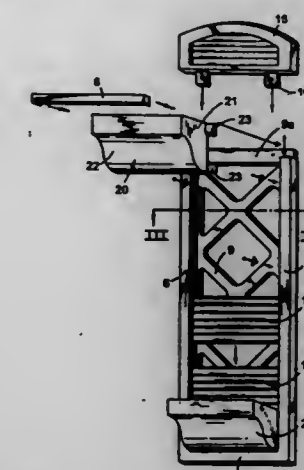


1. A snow bracket for tile roofs comprising an elongated body with a snow retention end and a roof attachment end, the snow retention end having a snow barrier means constructed and configured to inhibit sliding of snow from a roof to which the snow bracket is attached,
 the roof attachment end comprising an attachment member extending downwardly and generally perpendicular to the elongated body, and a barb in the form a pointed projection attached to the attachment member on an axis generally parallel to the elongated body with a point extending toward the snow retention end and adapted to be held in a roof batten upon which an underlying tile of the roof is supported.

5,669,185
SHUTTER FOR BUILDINGS
 Karen A. Proulx, P.O. Box 367, 2298 N. East Lake Rd., Hopkins, Mich. 49328
 Filed Feb. 20, 1996, Ser. No. 603,266
 Int. Cl.⁶ E06B 7/08; A01G 9/02

U.S. Cl. 52—27

7 Claims



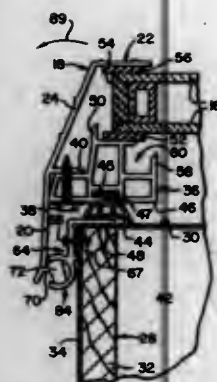
1. In combination with a window of a building said window having vertical sides; a pair of vertically elongated shutters located on each vertical side of said window, the improvement comprising:
 at least one planter box for each of said shutters, said planter boxes each extending laterally across its shutter and supported thereby;
 said shutters each including a frame with spaced vertical sides having vertical slots therein; said vertical slots of said spaced vertical sides facing each other; and said planter boxes each including supports slidably extending into said vertical slots for supporting said boxes.

5,669,186
OPENABLE HATCH APPARATUS FOR A SKYLIGHT
 Stanley M. Verby, Hewlett Harbor, and Barry Mirsky, Hauppauge, both of N.Y., assignors to Thermo-Vu Sunlite Industries, Inc., Edgewood, N.Y.
 Filed Sep. 29, 1995, Ser. No. 536,372
 Int. Cl.⁶ E04B 7/18

U.S. Cl. 52—72

1 Claim

1. An openable hatch apparatus for covering an opening through a surface of a structure, said opening having a raised curb defining the perimeter of said opening, said raised curb including an external curb surface extending substantially perpendicularly away from said structure surface, said hatch assembly comprising:
 covering means having a geometric shape and size suitable for substantially covering said opening;
 a frame assembly surrounding the periphery of said covering means and having a depending skirt portion, said depending



skirt portion opposing and being spaced from said external curb surface when said hatch assembly is joined to said raised curb;

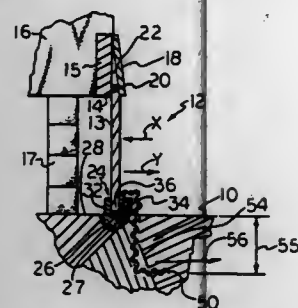
a stem extending from said depending skirt and a bearing joined to said stem, said bearing having a periphery that includes a convex surface and at least one chordal flat surface; said stem and said depending skirt defining a junction therebetween; and

a flange adapted to be connected to the curb and including a cradle in which said bearing can be rotatably mounted, said cradle defining an arc greater than 180° and having an opening which faces outwardly from the external curb surface, the shape of the bearing being such relative to the cradle that it can be (a) placed horizontally into the cradle through said opening when the frame assembly is in a predetermined position, and (b) rotated within said cradle to a position in which it cannot be removed from the cradle, whereby substantially the entire weight of the frame assembly may rest on the stem or bearing and be supported by the cradle after the bearing has been inserted into said cradle.

5,669,187
RODENT GUARD
Russell Bushong, 11311 Daisy La., Saginaw, Mich. 48609
Filed Mar. 25, 1996, Ser. No. 621,452
Int. Cl.⁶ E04B 1/72

U.S. Cl. 52—101

9 Claims



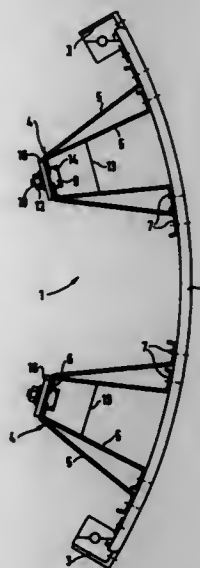
1. A rodent guard for a generally vertical, manufactured home skirting system including a lower margin provided with an upturned lip, said guard comprising:
an elongate barrier wall having upper and lower ends;
upper, above ground barrier flange means, on one lateral side of said wall for being received by said upturned lip to inhibit above ground passage of rodents between said above ground flange means and said skirting system; and
lower, underground, barrier flange means, on an opposite lateral side of said wall opposite said one lateral side, for being received in the ground and inhibiting any below ground rodents from passing downwardly alongside and beneath said barrier wall;

said upper barrier flange means comprising an elongate, downwardly opening channel having an elongate terminal lip adapted to be received by said upturned lip;
said lower barrier flange means comprising a generally horizontal barrier extending generally perpendicular to said lower end of said barrier wall;
said barrier wall comprising a mesh member having a plurality of interstices therein for receiving and freely passing underground dirt.

5,669,188
LINING BOARD WITH A SUPPORT WITH AN APPROXIMATELY U-SHAPED CROSS SECTION
Kurt Jaruzel, Haslach, Germany, assignor to Paschal-Werk G. Maier GmbH, Steinach, Germany
PCT No. PCT/EP94/02115, § 371 Date Jan. 5, 1996, § 102(e) Date Jan. 5, 1996, PCT Pub. No. WO95/02101, PCT Pub. Date Jan. 19, 1995
PCT Filed Jan. 29, 1994, Ser. No. 578,530
Claims priority, application Germany, Jul. 5, 1993, 43 22 271.4

Int. Cl.⁶ E04G 9/08; 9/02; 11/06; 17/14
U.S. Cl. 52—127.3

11 Claims



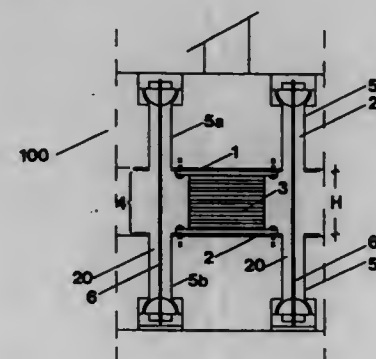
1. A form panel (1) with at least one girder (4) which supports a lining skin (2) on a side averted from a concrete location and has an approximately U-shaped cross section comprising U-limbs (5) of said girder connected by a U-crosspiece (6) situated on a side of said girder averted from the lining skin (2), and said U-limbs (5), viewed in cross section, diverging slantwise from the U-shaped crosspiece (6) and each having at free ends oppositely directed fastening flanges (7) which project outwardly from the U-limbs (5) and serve for being applied to the lining skin (2), characterized in that the girder (4) comprises two U-shaped girder portions (4a, 4b) which are adjustable relative to each other in a longitudinal direction and comprise an at least partially internal girder portion and an external girder portion which embrace each other at least in an overlapping zone, whereby inside the cross section of the at least partially internal girder portion (4b) of the U-limbs (5) thereof form together with the lining skin (2) an angle of inclination which is more obtuse or larger than that of the external girder portion (4a) embracing the internal girder portion (4b), and that at the lining skin (2) the width between the U-limbs (5) of the internal girder portion (4b) plus the width of the oppositely directed fastening flanges (7) of the internal girder portion (4b) is smaller than that between the U-limbs (5) of the external girder portion (4a) so that when the lining skin (2) is level the fastening flanges (7) of both girder portions (4a, 4b) lie side by side in the same plane.

5,669,189
ANTISEISMIC CONNECTOR OF LIMITED VIBRATION FOR SEISMIC ISOLATION OF AN STRUCTURE
Ioannis Logiadis; Emmanuel Logiadis, both of 40, Paritsi, N. Psychiko, Athens, and George Logiadis, 8 Pliadon Street, GR-175 61 P., Faliron, all of Greece
PCT No. PCT/GR93/00022, § 371 Date Aug. 23, 1994, § 102(e) Date Aug. 23, 1994, PCT Pub. No. WO94/15047, PCT Pub. Date Jul. 7, 1994

PCT Filed Dec. 23, 1993, Ser. No. 290,922
Claims priority, application Greece, Dec. 24, 1992, 920100576

Int. Cl.⁶ E02D 31/08
U.S. Cl. 52—167.4

20 Claims



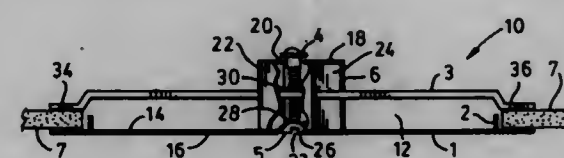
1. An antiseismic connector of limited vibration for the safe seismic isolation of structures having a superstructure and a foundation, comprising:

an upper plate adapted to be mounted on the superstructure;
a lower plate adapted to be mounted on the foundation;
at least one upper casing mounted on the upper plate;
at least one lower casing mounted on the lower plate such that the upper casing is disposed opposite from the lower casing;
at least one prestressed cable, which is approximately vertically arranged in the upper and lower casing, the cable having a first end anchored in either the superstructure or the foundation and a second end anchored in either the foundation or the superstructure, wherein a space is provided between the cable and the casing to permit relative vertical and horizontal movement between the ends of the cable; and
a bearing disposed between the upper plate and the lower plate.

5,669,190
FASTENING MECHANISM FOR ACCESS PANELS AND GRILLS USING SCREW DRIVEN ARM
Jerzy Szykowski, Caledon, Canada, assignor to Novera Products Inc., Caledon, Canada
Filed Apr. 8, 1996, Ser. No. 631,285
Int. Cl.⁶ E04H 7/00; F16B 21/00

U.S. Cl. 52—196
Int. Cl.⁶ E04H 7/00; F16B 21/00

19 Claims



1. A detachable panel device for covering an opening in a structure, duct or appliance, said device comprising:
a generally flat panel having an inner surface and an outer surface;
an elongate fastening arm member located adjacent said inner surface and extending during use thereof generally parallel to said inner surface, said arm member being pivotable relative to said panel between a first position usable for insertion of

said arm member into said opening and a second position used for clamping said panel to edge structure defining said opening;

a slideway member connected to said inner surface of the panel and limiting the extent of pivotable movement of said arm member relative to said panel;

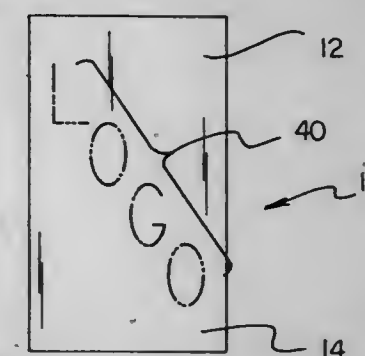
a threaded member having a head at one end thereof and a stop at an opposite end thereof, said threaded member extending through a hole formed in said panel and a threaded hole formed in a central section of said arm member and connecting said arm member to said panel; and

a spring acting on said arm member to bias said arm member so that the arm member pivots towards said second position, wherein in said second position said arm member travels towards said panel when said threaded member is turned in one predetermined direction so that said edge structure can be clamped between opposite end sections of said arm member and said panel.

5,669,191
WINDOW BOARD SYSTEM
Randal D. Weaver, 18 Hill St., Ashley, Pa. 18706
Filed May 15, 1996, Ser. No. 648,550
Int. Cl.⁶ E06B 3/263

U.S. Cl. 52—202

9 Claims



1. A Window Board System for covering the window panes of a window having lateral window frame surfaces being oriented substantially perpendicular to said window panes and defining a perimeter for said window, comprising:

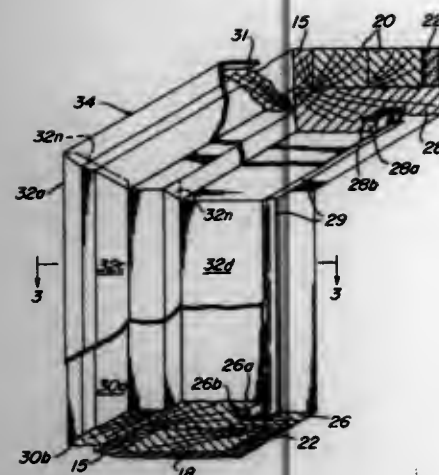
an upper window insert panel for covering an upper portion of a window, a lower window insert panel for covering a lower portion of a window, and an integral compressive spring area oriented between and connecting said upper and lower window insert panels together, wherein said compressive spring area has relatively less resistance to compression than said upper and lower window insert panels to thereby cause said upper and lower window insert panels to apply outward spring force against the window frame surfaces of a window when said compressive spring area is compressed between said upper and lower window insert panels to thereby hold the upper and lower window insert panels in place adjacent to the window panes of said window.

5,669,192
CLADDING FOR DOOR AND WINDOW FRAMES
Joseph Opdyke, Collegeville; Kenneth L. Laubsch, Chalfont, and Joseph DeMeo, Newtown Square, all of Pa., assignors to Benjamin Opdyke Incorporated, Warminster, Pa.
Filed Apr. 26, 1996, Ser. No. 638,300
Int. Cl.⁶ E06B 1/04

U.S. Cl. 52—211

10 Claims

1. In a system that protects the exterior surface of a frame assembly including a header member and opposed side members defining an opening in a wall, the header and side members each



having inner surfaces with weather strip edges, the frame assembly also including a brick molding having a fascia portion and inner and outer edges, the improvement comprising:

first and second one-piece cladding strips engaging respective ones of the side members; and

a third one-piece cladding strip engaging the header member; each of said cladding strips including:

a cladding fascia portion positioned against the brick mold fascia portion;

an intumed outer flange of a predetermined length terminating in a free edge, said intumed outer flange engaged with the outer edge of said brick mold;

an intumed inner flange having a predetermined length greater than said outer flange length, said inner flange having a narrow offset disposed in a plane substantially coplanar with the free edge of said outer flange, said offset dividing said inner flange into sections of unequal length with a shorter one of said sections being disposed parallel to said outer flange and engaged with the inner edge of said brick mold, and a longer of said sections extending substantially parallel to the shorter section and engageable with said header and side jamb inner surfaces, said longer section terminating in an intumed lip engaged with said weather strip edge;

whereby the cladding strips are retrofitted on a pre-existing installed frame by pushing the cladding strips against the frame and fastening them together.

5,669,193

Patent Not Issued For This Number

5,669,194

STRUCTURAL SYSTEMS FOR SUPPORTING A BUILDING UTILIZING LIGHT WEIGHT STEEL FRAMING FOR WALLS AND HOLLOW CORE CONCRETE SLABS FOR FLOORS

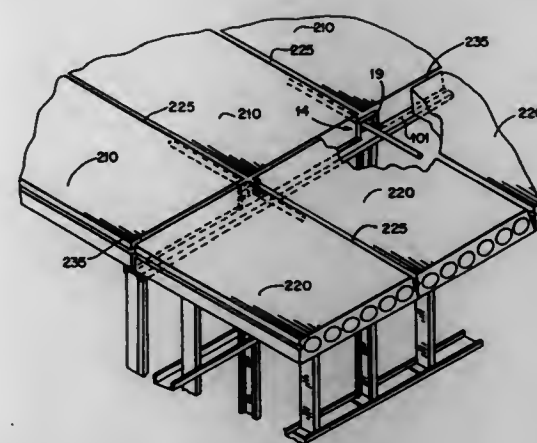
Thomas Colasanto, Commack, N.Y., and Thomas Nastasi, Jr., 331 Wheatley Rd., Old Westbury, N.Y. 11568, assignors to Marco Consulting, Inc., Commack, and Thomas Nastasi, Jr., Old Westbury, both of N.Y.

Division of Ser. No. 94,697, Jul. 22, 1993, Pat. No. 5,479,749, which is a continuation-in-part of Ser. No. 999,431, Dec. 31, 1992, Pat. No. 5,402,612, which is a division of Ser. No. 493,794, Mar. 15, 1990, Pat. No. 5,113,631. This application Sep. 1, 1995, Ser. No. 523,010

Int. Cl.⁶ E04B 1/02

U.S. Cl. 52—236.8

1. An improved structural system for supporting a building comprising:



first and second horizontal floor members and a plurality of light weight steel framed bearing wall panels, each panel comprising a horizontal bottom track attached to said first horizontal floor member, a horizontal top track attached to said second horizontal floor member, and a plurality of vertical wall studs arranged at predetermined intervals between said top and bottom tracks;

said second horizontal floor member comprising a plurality of concrete slabs arranged with interposed longitudinal keyways and butt joints extending perpendicular to said keyways;

each of said wall panels including a vertically extending generally U-shaped member attached to said top track, said vertically extending member having a single broad opening, a portion of said broad opening aligning with a respective keyway so that a longitudinal reinforcing member placed in said respective keyway will pass into said broad opening.

5,669,195

WIRE BEAD PLASTER, STUCCO AND THE LIKE

Alois Looverie, Moen, and Pol Timperman, Zwevegem, both of Belgium, assignors to N.V. Bekaert S.A., Zwevegem, Belgium

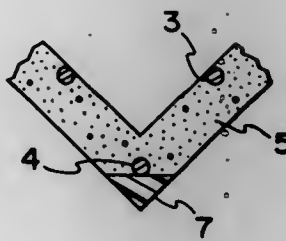
Filed Sep. 5, 1995, Ser. No. 523,432

Claims priority, application Belgium, Oct. 4, 1994, 9400898

Int. Cl.⁶ E04B 1/00

U.S. Cl. 52—255

15 Claims



1. A wire bead for plaster or stucco, comprising:

a) a strip of diagonal wires and longitudinal wires defining a substantially V-shaped cross-section;

b) one of said longitudinal wires being provided at the apex of said substantially V-shaped cross-section and being a longitudinal apex wire; and

c) a longitudinal profile having a substantially triangular cross-section being disposed adjacent said longitudinal apex wire.

5,669,196

EYE BOLT REINFORCEMENT STEEL COUPLER

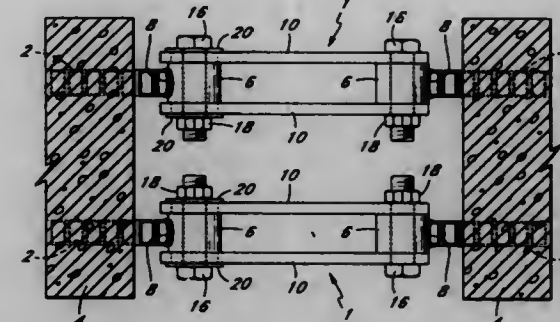
Kjell L. Dahl, 919 Bayside Dr., Newport Beach, Calif. 92660

Filed Feb. 13, 1996, Ser. No. 600,835

Int. Cl.⁶ E04C 5/18

U.S. Cl. 52—583.1

9 Claims



1. A reinforcement coupler to be joined to a pair of reinforcement bars, each of said pair of reinforcement bars having one embedded end and an opposite protruding end at which an eyelet is affixed, said pair of reinforcement bars being aligned along a common axis whereby the eyelets at the protruding ends of said reinforcement bars are located opposite each other, said reinforcement coupler including first and second coupler plates, each of said first and second coupler plates having an opening formed through each end thereof, said first and second coupler plates extending between the protruding ends of said pair of axially aligned reinforcement bars in parallel alignment with one another and with said common axis so that said eyelets are sandwiched therebetween and the openings through each end of each of said first and second coupler plates are aligned with respective ones of said eyelets, and a fastener received through said openings at each end of each of said first and second coupler plates and the respective eyelet that is aligned therewith to join said coupler to said pair of reinforcement bars and permit said first and second coupler plates to rotate around said fastener relative to one of said reinforcement bars in response to a force applied to the other of said reinforcement bars.

5,669,197

SHEET METAL STRUCTURAL MEMBER

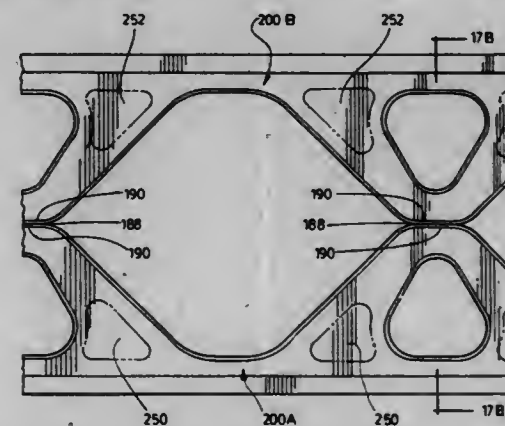
Ernest Robert Bodnar, 2 Danrose Crescent, Don Mills, Ontario, Canada, M3B 3N5

Continuation-in-part of Ser. No. 974,508, Nov. 12, 1992, abandoned, which is a continuation-in-part of Ser. No. 710,524, Jun. 3, 1991, Pat. No. 5,207,045. This application Aug. 4, 1994, Ser. No. 285,738

Int. Cl.⁶ E04C 3/08

U.S. Cl. 52—636

6 Claims



1. A first sheet metal structural member comprising:

a sheet metal web lying in a predetermined plane and defining a generally linear edge portion along one side, and a generally zig-zag edge portion along the other side, said zig-zag edge portion defining wider regions each having an apex, and narrower root regions between said wider regions, and said web extending in a generally zig-zag fashion from one said narrower region through said wider region to the next said narrower region;

edge flange formations formed around said zig-zag edge portions of said web and extending at an angle to said predetermined plane;

recess means formed in each of said wider portions of said web, said recess means extending generally from an apex of a said web to a root region of said web;

flange means formed around each of said recess means, whereby to reinforce said web, and,

generally triangular indentations formed in said root of said web adjacent said recess means, but spaced therefrom, said triangular indentations being defined by a first generally linear base side, parallel to said linear edge portion of said sheet metal web, a second side, extending from said base side at an angle, and a third generally curved side extending from said base side, said sides meeting one another at generally curved junctions, and said second and third sides defining on either side thereof respective root portions of said web, located between said edge flange and said indentations.

5,669,198

ANCHOR FOR METAL DOOR FRAME

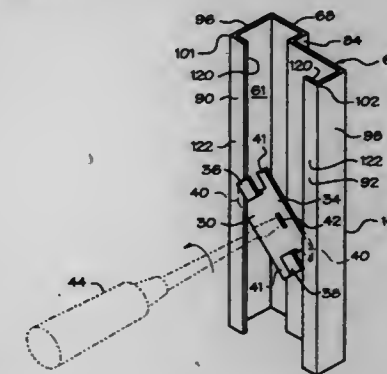
Robert O. Ruff, Cincinnati, Ohio, assignor to Ingersoll-Rand Company, Woodcliff, N.J.

Filed Oct. 2, 1995, Ser. No. 537,425

Int. Cl.⁶ E06B 1/12

U.S. Cl. 52—656.4

13 Claims



6. A metal frame assembly comprising;

a bent sheet metal frame element encompassing an inner space and having a soffit spaced apart from and generally parallel to a rabbet and a stop extending substantially perpendicular to and between said rabbet and said soffit;

said soffit and said rabbet supported by two faces extending generally perpendicular from and away from said rabbet and said soffit to back ends of said faces;

backbends extending perpendicularly inward from said back ends of said faces so as to be generally parallel to said rabbet and soffit and bordering said inner space;

a slidably insertable metal frame anchor disposed in said frame element;

said anchor comprising;

a generally rectangular base positioned on inside surfaces of said backbends,

two prongs bent upward and then over said base in opposite directions to form clips which open in said opposite directions and which are positioned on outside surfaces of said backbends to which said anchor is clipped, and said base having at least one set of angularly cut opposite corners.

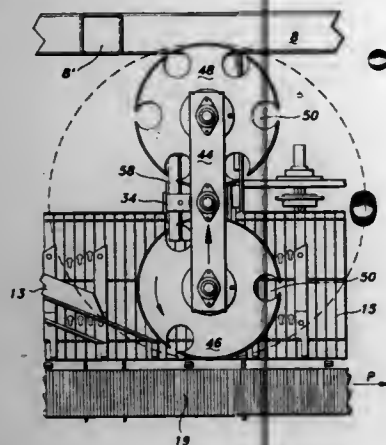
5,669,199
MEMBER FOR INSERTION INTO A BOREHOLE IN A RECEIVING MATERIAL
 Wolfgang Ludwig, Schwabmünchen, and Erich Leibhard, Munich, both of Germany, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein
 Filed May 31, 1996, Ser. No. 656,566
 Claims priority, application Germany, Jun. 1, 1995, 195 19 514.0

Int. Cl.⁶ E04B 1/41
 U.S. Cl. 52—704 9 Claims



1. A member for insertion into a borehole defining a surface in a receiving material comprising an axially extending generally cylindrical hollow body (2) having an axial direction, a closed leading end (4) for inserting into the borehole and an open trailing end (5) for receiving an anchoring member therein, said body being formed of a sieve-like mesh wall, means being secured on an outer surface of said mesh wall for cleaning the surface of the borehole as said member (1) is inserted therein, said means (8) comprising at least one circumferentially extending strip (8) of a compressible elastic open pore material secured to and extending around the outer surface of said mesh wall.

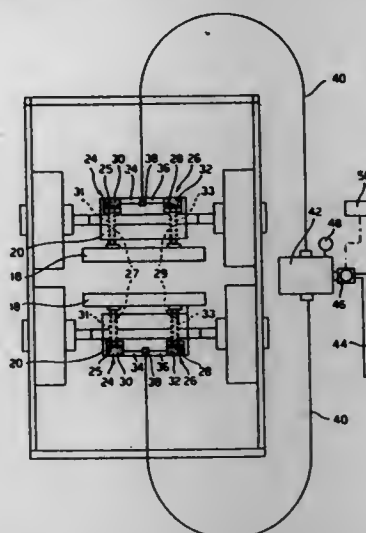
5,669,200
AUTOMATIC DUAL POCKET LOADER WHEEL ASSEMBLY
 Jeff Disrud, Marietta, Ga., assignor to Riverwood International Corporation, Atlanta, Ga.
 Filed Jun. 7, 1996, Ser. No. 650,124
 Int. Cl.⁶ B65B 33/26
 U.S. Cl. 53—201 12 Claims



1. A dual pocket loader wheel assembly for use on a packaging machine, the packaging machine having an infeed end and a spaced discharge end, a carton transport conveyor extending along a path of travel from the infeed end toward the discharge end of the packaging machine, said dual pocket wheel loader assembly comprising:
 a) an elongate tubular member extending along a longitudinal axis, said tubular member having a first end and a spaced second end;

b) a framework supported on the packaging machine with respect to the carton transport conveyor, said tubular member being supported for rotation about said longitudinal axis on said framework;
 c) a drive frame assembly mounted on the second end of said tubular member, said drive frame assembly supporting a first pocket loader wheel and a spaced second pocket loader wheel, each of said pocket loader wheels being rotatably supported on said drive frame assembly;
 d) drive means, mounted on said framework, for rotating each said pocket loader wheel in the direction of the path of travel; and
 e) means for alternately positioning each said pocket loader wheel adjacent the carton transport conveyor.

5,669,201
DEVICE FOR SEALING BAGS OR PACKAGES IN A HEAT-SEALABLE PLASTIC MATERIAL PROVIDED WITH PARTS FOR REGULATING THE WELDING PRESSURE
 Paolo Simionato, Padova, Italy, assignor to Simionato S.P.A., Padova, Italy
 Filed Mar. 27, 1996, Ser. No. 622,139
 Claims priority, application Italy, Apr. 7, 1995, MI95A0728
 Int. Cl.⁶ B65B 51/10
 U.S. Cl. 53—373.7 7 Claims

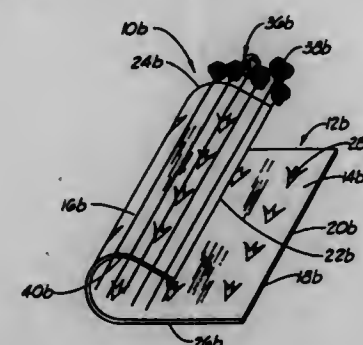


1. A sealing device for one of sealing bags and packages in a heat-sealable plastic material, each of said packages containing a portion of product, said packages being sealed in a packaging machine, wherein a tubular strip is longitudinally fed and gradually filled with said portion of product, said sealing device comprising:
 at least two welding elements transverse to said strip and opposite one another;
 a respective support element carrying each of said at least two welding elements;
 means for driving the support elements of said at least two welding elements along a respective circular path to move said support elements close to one another and a longitudinal section moving with the web so that said at least two welding elements compress opposite edges of said tubular strip against each other, thereby welding said edges, and to separate said support elements for allowing passage of said tubular strip between said at least two welding elements, said sealing device, by welding the opposite edges of said tubular strip, defining a plurality of packages;
 said driving means comprising at least a first and a second cylinder for a pressurized fluid provided between each of said at least two welding elements and their respective support elements, said first and second cylinders for the pressurized fluid having a respective piston and a respective compression

chamber, each respective compression chamber containing the respective piston, said piston being integral respectively to one of said at least two welding elements corresponding thereto and being integral respectively to one of the support elements corresponding thereto, each of said compression chambers containing a pressurized fluid having a fluid pressure that is maintained substantially at a constant level for allowing said at least two welding elements to be pressed against each other along said longitudinal section when the circular paths of the at least two welding elements cross.

5,669,202
METHOD FOR USING A DECORATIVE MATERIAL HAVING A COLORED STICKY ELEMENT DISPOSED THEREON FORMING AT LEAST A PORTION OF A DECORATION

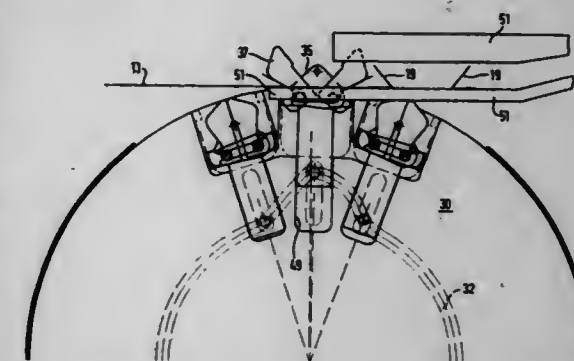
Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Inc., Okla. City, Okla., not individually, but as trustee of The Family Trust U/T/A dated December 8, 1995, Charles A. Coddling, Authorized Signatory for Southpac Trust International, Inc., trustee
 Division of Ser. No. 273,061, Jul. 11, 1994, Pat. No. 5,482,752, which is a division of Ser. No. 894,705, Jun. 3, 1992, Pat. No. 5,347,789, which is a continuation-in-part of Ser. No. 707,417, May 28, 1991, abandoned, which is a continuation of Ser. No. 502,358, Mar. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 391,463, Aug. 9, 1989, abandoned, which is a continuation-in-part of Ser. No. 249,761, Sep. 26, 1988, abandoned, which is a continuation-in-part of Ser. No. 219,083, Jul. 13, 1988, Pat. No. 4,897,031, which is a continuation of Ser. No. 4,275, Jan. 5, 1987, Pat. No. 4,773,182, which is a continuation of Ser. No. 613,080, May 22, 1984, abandoned. This application May 18, 1995, Ser. No. 444,179
 Int. Cl.⁶ B65B 11/04; 25/02
 U.S. Cl. 53—397 19 Claims



1. A method for wrapping a decorative material about an item, comprising the steps of:
 providing a sheet of material having an upper surface a lower surface, and an outer periphery, a colored sticky element being disposed upon at least a portion of at least one surface of the sheet of material, the colored sticky element comprising at least a portion of a decoration on the sheet of material, the colored sticky element blending with the decoration thereby hiding the bonding characteristics of the colored sticky element;
 providing an item comprising a floral arrangement;
 disposing the floral arrangement on the sheet of material;
 positioning the floral arrangement on the sheet of material such that both the decoration is displayed and the colored sticky element is positioned so that the colored sticky element will blend with the decoration when positioned to connect at least a portion of the sheet of material to itself;
 wrapping the sheet of material about the floral arrangement by overlapping a portion of the sheet of material over another portion of the sheet of material; and
 connecting the overlapping portions of the sheet of material together by contacting the colored sticky element on each

overlapping portion of the sheet of material with a corresponding adjacent portion of the sheet of material wherein the colored sticky element on the sheet of material contacts the sheet of material to connect the overlapping portions of the sheet of material together, the connected sheet of material substantially encompassing and surrounding a substantial portion of the floral arrangement thereby forming a wrapper, wherein the colored sticky element on the wrapper is visible, providing at least a portion of the decoration after the sheet of material has been wrapped about the floral arrangement to form the wrapper.

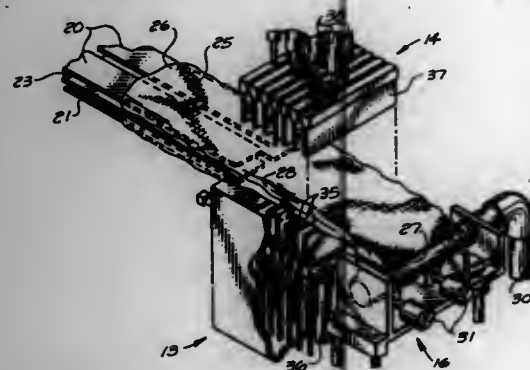
5,669,203
CARTON ACTIVATING MECHANISM
 Rolf Müller, Mehring, Germany, assignor to Riverwood International Corporation, Atlanta, Ga.
 Filed Oct. 20, 1995, Ser. No. 545,896
 Claims priority, application United Kingdom, Oct. 20, 1994, 9421189
 Int. Cl.⁶ B65B 21/00; 21/24; 27/04
 U.S. Cl. 53—398 16 Claims



1. A mechanism for folding spaced gatefold article seats of a carton blank into an activated article receiving position as the carton blank is advanced along a path of travel through a packaging machine, each gatefold article seat having a pair of tab panels hingedly connected to a side wall of the carton blank along side fold lines, and an angled fold line dividing each tab panel for folding the respective tab panels therealong into the activated position, and a base panel hingedly connected to each of the tab panels and to the side wall of the carton blank, said mechanism comprising:

a rotating disc positioned with respect to the carton blank;
 a spaced series of pairs of fingers positioned on at least a portion of the periphery of said disc, the fingers of each of said pairs of fingers sequentially engaging the tab panels of successive ones of the gatefold article seats as the carton blank advances along the path of travel;
 the fingers of each said pair of fingers being movable between a withdrawn position with respect to the gatefold article seats of the carton blank, and a projecting position in which the fingers of each said pair of fingers engage and bend the tab panels of the gatefold article seat inwardly of the carton blank along the side fold lines for each such tab panel;
 said mechanism being constructed and arranged to spread apart the fingers of each of said pairs of fingers for a predetermined period of time as the fingers are in said projecting position while a folding means simultaneously engages the base panel of the carton blank so as to fold the tab panels relative to each other along their respective angled fold lines such that the respective gatefold article seats adopt an activated configuration.

5,669,204
BAG FOLDING SYSTEM
 Kenneth C. Blaisdell, Phoenix, Ariz., assignor to Automated Solutions, Inc., Phoenix, Ariz.
 Filed Sep. 18, 1995, Ser. No. 529,688
 Int. Cl.⁶ B65B 63/04
 U.S. Cl. 53—429 18 Claims



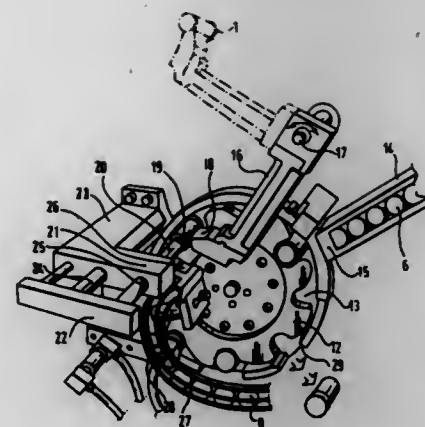
the housing of the cartridge to permit ready insertion of the cartridge and the film leader into the container.

1. A method of automatically folding an air bag having an end coupled to a retainer and an opposed distal end, said method comprising the steps of:

- flattening and narrowing the bag;
- providing a first plurality of upright blades individually movable between a normal lowered position and a raised position and a second plurality of upright blades spaced vertically above the first plurality and individually movable between a normal raised position and a lowered position, the first plurality and the second plurality being further positioned with the blades interdigitated in the raised and lowered positions, respectively;
- fixing the retainer with the bag positioned between the first and second pluralities of blades and holding the bag adjacent the distal end while allowing the distal end to gradually move toward the retainer; and
- forming undulating folds in the bag between the retainer and the distal end by individually moving each blade of the first plurality of blades into the raised position and alternately and individually moving each blade of the second plurality of blades into the lowered position while allowing the distal end of the bag to gradually move toward the retainer as each undulating fold is formed.

5,669,205
PACKING OF PHOTOGRAPHIC FILM
 Joseph Rice, West Bridgford, and Victor Gabbitts, Chilwell, both of United Kingdom, assignors to Eastman Kodak Company, Rochester, N.Y.
 Filed May 10, 1996, Ser. No. 644,885
 Claims priority, application United Kingdom, Jun. 21, 1995, 9512650
 Int. Cl.⁶ B65B 63/04 20 Claims

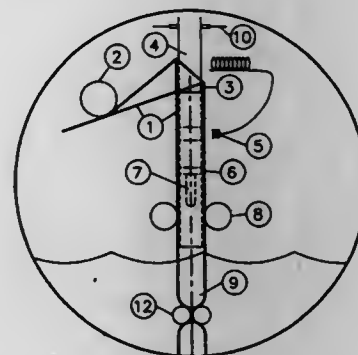
1. A method of inserting a cartridge of wound-up photographic film into a container via an open end of the container, where the cartridge has an elongate housing having a central longitudinal axis and where a length of film leader at a free end of the film projects through an outlet of the housing, the method comprising the steps of supplying an empty container to a loading station, supplying a cartridge of wound-up photographic film to the loading station in a position such that it is aligned with the open end of the container, conveying the cartridge of film into the open end of the container whereby an edge of the film leader is brought into engagement with a rim of the open end of the container and, simultaneously with the conveying of the cartridge, rotating one of the cartridge or the container about the longitudinal axis of the cartridge such that relative movement upon engagement of the film leader with the rim of the container causes the film leader to be wrapped around



5,669,206

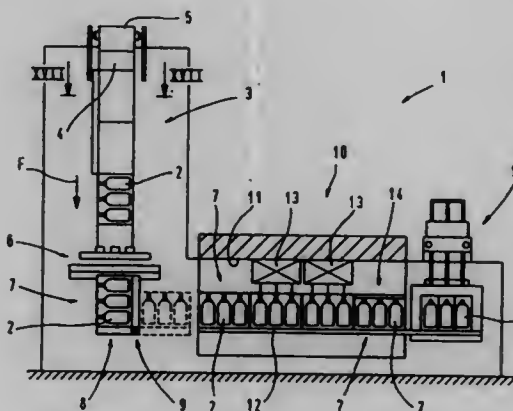
Patent Not Issued For This Number

5,669,207
METHOD FOR TACKLESS PACKAGING OF HOT MELT ADHESIVE
 Mark Hull, Marine On The St. Croix, Minn., assignor to H.B. Fuller Licensing & Financing, Inc., St. Paul, Minn.
 Filed Jun. 23, 1995, Ser. No. 494,623
 Int. Cl.⁶ B65B 55/13 2 Claims



1. A method for using a hot melt adhesive comprising the steps of:
- a. suspending a thermoplastic composition above a melt pot, said thermoplastic composition being substantially surrounded by a plastic film having an interior and exterior surface, said interior surface being in contact with a thermoplastic composition, said film becoming molten at a temperature higher than the thermoplastic composition;
 - b. heating the exterior of said film until said thermoplastic composition in contact with the interior surface of said film becomes sufficiently molten;
 - c. separating said exterior film from said thermoplastic composition after said thermoplastic composition becomes molten; and
 - d. allowing said thermoplastic composition to descend into said melt pot.

5,669,208
PACKAGING
 Roberto Tabaroni, Bologna, and Andrea Bartoli, Reggio Emilia, both of Italy, assignors to Unifill S.p.A., Modena, Italy
 Filed Jul. 11, 1995, Ser. No. 500,514
 Claims priority, application Italy, Jul. 12, 1994, MO94A0105
 Int. Cl.⁶ B65B 7/00; 47/00 32 Claims

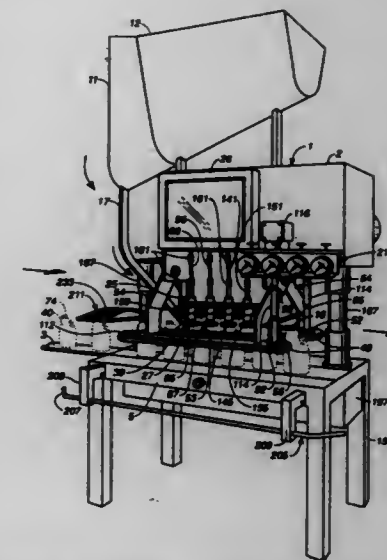


11. Packaging apparatus for use in filling of a container or a group of containers including inlet wall portions which are elastic so that an inlet or the container or group is self-closing, said packaging apparatus comprising product-injecting means insertable between said inlet wall portions to push said inlet wall portions apart elastically, serving to inject a product into the interior(s) of the container(s) and retractable from between said inlet wall portions to allow said inlet wall portions to come together to close said inlet, and forming means which serves to heat-weld a pair of webs of thermoplastic material together around an outline of said container, or around respective outlines of the containers of said group, and to thermo-form said webs to provide walls of said container or of said containers of said group, and to shape said inlet wall portions.

5,669,209
IN-LINE CAPPING MACHINE
 Thomas Gerret Dewees, Pleasanton, Calif.; Orice Darlington, Brunswick, Ohio; Jerry A. Volponi, Livermore, Calif.; Raymond W. Harold, Modesto, Calif.; Kenneth T. Felipe, Manteca, Calif.; Lee Griffey, Diablo, Calif.; and Ronald E. Heiskell, Tracy, Calif., assignors to The Clorox Company, Oakland, Calif.
 Continuation of Ser. No. 491,398, Jun. 19, 1995, abandoned.
 This application Apr. 17, 1996, Ser. No. 633,523
 Int. Cl.⁶ B67B 3/20; 7/28 18 Claims

1. A capping apparatus for use with a container conveyor that moves a container having a cap sitting thereon through the apparatus at a generally constant velocity, comprising:

- a front cap tightening disc located above the container conveyor;
- a rear cap tightening disc spaced from the front cap tightening disc so as to receive the cap on each container therebetween whereby when the container with the cap thereon passes between the front and rear cap tightening discs the cap is spun down on the container;
- a container grasping mechanism to prevent rotation of the container as the container passes between the front and rear cap tightening discs; and
- means for synchronizing the front cap tightening disc, the rear cap tightening disc and the container grasping mechanism to ensure that the tangential velocity of the rear cap tightening



disc minus the tangential velocity of the front cap tightening disc is about twice the velocity of the container passing through the apparatus.

5,669,210
HORSE BRIDLE BITS AND METHOD OF MANUFACTURING AND USING SAME
 Valentin Völlmecke, and Heinz Baumann, both of Iserlohn, Germany, assignors to Herm, Sprenger GmbH & Co. KG, Iserlohn, Germany
 Continuation-in-part of Ser. No. 285,195, Aug. 3, 1994, abandoned. This application Nov. 13, 1995, Ser. No. 557,970
 Claims priority, application Germany, Aug. 7, 1993, 43 26 550.2 14 Claims

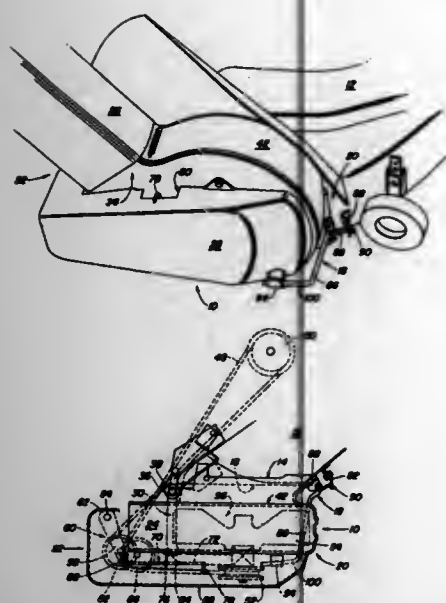
1. A shaped article adapted for placement into a horse's mouth comprising:

- a bridle bit consisting of:
- 81-88%, by weight, of copper;
- less than 4%, by weight, of silicon; and
- zinc including impurities;
- said bridle bit being devoid of nickel and heavy metals;
- said bridle bit being adapted for placement into a horse's mouth wherein the horse is stimulated to quick chewing so that the horse's pace and speed are better controlled.

5,669,211
PIVOTAL MOUNTING FOR AUXILIARY BLOWER
 Curtis Reinhard Bening, Burnett, Wis., and Harlin James Trefz, Jackson, Tenn., assignors to Deere & Company, Moline, Ill.
 Filed Feb. 2, 1996, Ser. No. 595,686
 Int. Cl.⁶ A01D 34/70 5 Claims

1. A blower attachment usable with a mower deck having a drive pulley and an outlet opening;

- the attachment including a housing with inlet and outlet openings and an impeller rotatably carried in the housing, said impeller being drivingly connected to an impeller pulley;
- a belt tensioning pulley operatively coupled with the attachment; belt means entrained around the drive, tensioning and impeller pulleys;
- a tensioning release mechanism connected with the belt tensioning pulley and operable to shift said tensioning pulley between a first belt tensioning position and a second belt untensioned position;



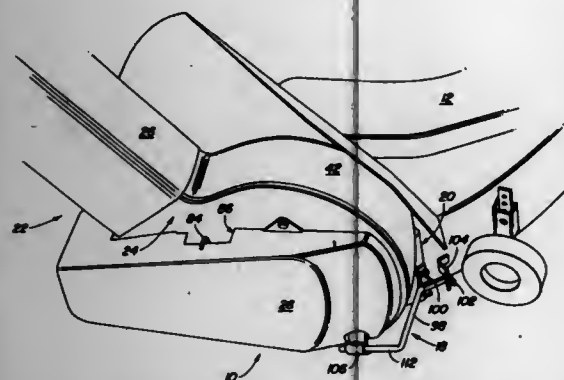
a pivot and sleeve carried between the deck and housing; the sleeve adapted to receive the pivot and permit swingable movement of the housing between a first position adjacent the deck wherein the inlet opening is adjacent to the outlet opening of the mower deck and a second position wherein one end portion of the housing is swung away from the mower deck to separate the inlet opening from the outlet opening of the deck; and

latching means between the deck and housing for releasably securing the one end portion of the housing with the deck, said latching means being adapted to be released and permit swinging movement of the housing between its first and second positions when the tensioning pulley is in either its first or second position, and including a resilient arm releasably engagable with the catch means.

5,669,212
AUXILIARY BLOWER FOR MOWER DECK
 Curtis Reinhard Bening, Burnett, Wis., and Harlin James Trefz, Jackson, Tenn., assignors to Deere & Company, Moline, Ill.

Filed Feb. 2, 1996, Ser. No. 605,236
 Int. Cl.⁶ A01D 34/70
 U.S. Cl. 56—13.3

9 Claims



1. A blower attachment usable with a mower deck having a drive pulley and an outlet opening; the attachment including a housing with inlet and outlet openings; means mounting the housing on the deck for swingable movement between a first position adjacent the deck wherein the inlet opening is adjacent to the outlet opening of the mower

deck and a second position wherein one end portion of the housing is swung away from the mower deck to separate the inlet opening from the outlet opening of the deck;

an impeller rotatably carried in the housing and drivingly coupled with an impeller pulley, said impeller adapted to propel material ejected through the deck outlet opening and received in the inlet opening of the housing to and through the outlet opening of the housing;

a directional pulley carried by the housing;

pivot means carried on the housing;

a tensioning pulley;

belt means entrained around the drive, directional, impeller and tensioning pulleys;

lever means having first and second end portions, one end portion being carried by the pivot means and the second end portion carrying the tensioning pulley, said second end portion of the lever means being movable between a first position where the tensioning pulley is spaced from the drive pulley and a second position where the tensioning pulley is closer to the drive pulley;

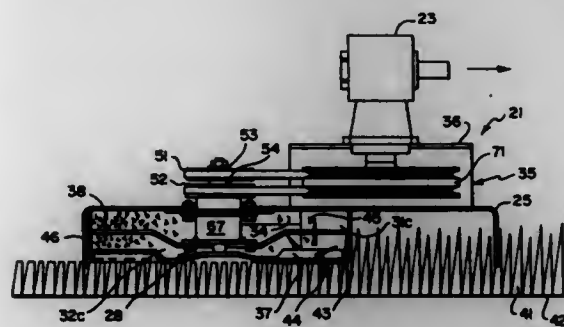
biasing means urging the second end portion of the lever means away from the drive pulley;

shifting means carried on the housing and coupled with the lever means, the shifting means being selectively movable between first and second positions as the shifting means moves the second end portion of the lever means between its respective first and second positions, and

locking means operatively coupled with the shifting means for retaining said shifting means and second end portion of the lever means in their respective first or second positions.

5,669,213
COUNTERROTATION MULCHING MOWER
 George E. Britton, Selma, Ala., assignor to Allied Products Corporation, Chicago, Ill.
 Filed Nov. 3, 1995, Ser. No. 553,074
 Int. Cl.⁶ A01D 34/66
 U.S. Cl. 56—17.5

14 Claims



1. A mulching finishing mower with dual counterrotating cutting assemblies for cutting and mulching turf vegetation, the mower comprising:

a deck assembly associated with at least one ground engagement member and an assembly for transporting the mower across a field of vegetation to be cut and mulched;

a lower blade rotatably mounted along said deck assembly so as to engage and cut vegetation over which said mower moves and which passes generally under said deck assembly;

an upper mulching tool rotatably mounted along said deck assembly so as to engage and mulch vegetation over which said mower moves and into which vegetation is propelled thereto by said lower blade, said upper mulching tool being above said lower blade;

a belt drive assembly secured to said deck assembly, said belt drive assembly simultaneously driving both said lower blade and said upper mulching tool;

said belt drive assembly including a rotatably mounted driven output shaft in driving engagement with said lower blade and

a rotatably mounted driven output tube in driving engagement with said mulching tool, said output shaft passing through said output tube, and said lower blade and said upper mulching tool being driven respectively by said output shaft and output tube in counterrotation with respect to each other;

said belt drive assembly includes a driven sheave for the lower blade which driven sheave is secured to an upper portion of said output shaft;

said belt drive assembly includes a driven sheave for the upper mulching tool, which driven sheave is secured to an upper portion of said output tube;

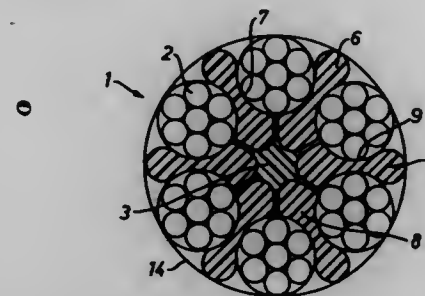
a main drive sheave assembly which is rotatably powered by a rotational power supply assembly; and

said belt drive assembly drivingly engages each of said main drive sheave, said driven sheave for the upper mulching tool and said driven sheave for the lower blade, said belt drive assembly thereby drivingly joining together said main drive sheave and said driven sheave for the mulching tool in order to rotate said mulching tool in one rotational direction, and said belt drive assembly also thereby drivingly joining together said main drive sheave and said driven sheave for the lower blade in a counterrotational direction opposite to that of said one rotational direction of the mulching tool.

5,669,214
STRANDED WIRE ROPE OR CABLE HAVING MULTIPLE STRANDED ROPE ELEMENTS, STRAND SEPARATION INSERT THEREFOR AND METHOD OF MANUFACTURE OF THE WIRE ROPE OR CABLE
 Georg A. Kopanakis, Waldshut-Tiengen, Germany, assignor to Fatzer AG, Romanshorn, Switzerland
 Continuation-in-part of Ser. No. 455,332, May 31, 1995, abandoned. This application Oct. 2, 1995, Ser. No. 538,408
 Claims priority, application Switzerland, Oct. 11, 1994, 03 048/94

Int. Cl.⁶ D07B 1/06; D02G 3/06
 U.S. Cl. 57—218

21 Claims



1. A stranded wire rope or cable having six stranded wire rope elements (2) helically stranded about a center line (12) extending longitudinally within the rope or cable;

insert elements (4) located between the stranded rope elements (2),

wherein the insert elements comprise

two end portions defining, each, a head portion (6) and a base portion (8), and

an intermediate portion (7) between said head portions and base portions,

wherein the base portions are essentially wedge-shaped defining lateral surfaces and an apex, said apex facing said center line (12), each with an angle of 60° at said apex, and extend close to the center line (12) of the rope or cable with said lateral surfaces of adjacent wedge-shaped portions engageable with each other,

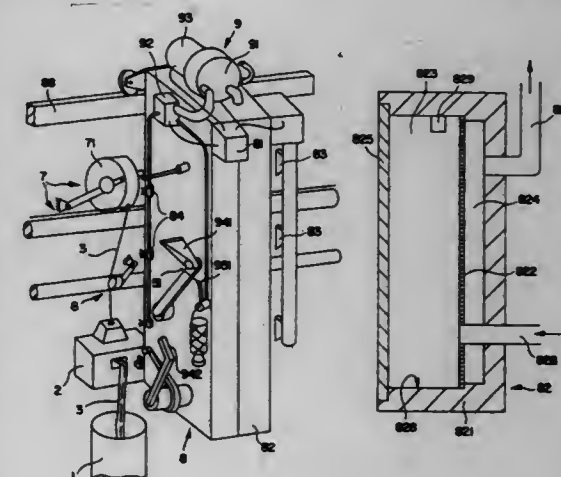
wherein said base portions (8) of the respective insert ribbons or tapes are separate from each other;

wherein the intermediate portions (7), in cross section, are formed with two opposite concave depressions (9), said depressions engaging against adjacent rope elements (2); and wherein the head portions (6) terminate at a theoretical outer surrounding circle (14) of the rope or cable (1).

5,669,215
COMBINED PNEUMATIC YARN ATTENDING FOR TEXTILE MACHINES
 Zdenek Spindler, B. Nemcove, and Vojtech Novotny, Dukelska, both of Czech Rep., assignors to Rieter Deutschland GmbH, Ingolstadt, Germany
 Filed Aug. 2, 1995, Ser. No. 510,445
 Claims priority, application Czech Rep., Aug. 3, 1994, PV 1862-94

Int. Cl.⁶ D01H 11/00; 5/28
 U.S. Cl. 57—301

27 Claims



1. A textile machine attending assembly to be disposed proximate the textile machine to perform attending operations thereto, said assembly comprising:

an attending unit configured to travel along the textile machine;

a pneumatic pressure generator disposed on said attending unit, said pneumatic pressure generator having an outlet and an inlet and generating a negative pneumatic pressure at said inlet and a positive pneumatic pressure at said outlet;

at least one positive pneumatic pressure cleaning mechanism and at least one yarn handling mechanism in communication with said pneumatic pressure generator outlet, said positive pneumatic pressure mechanisms performing one of a predetermined yarn handling operation and cleaning operation at the textile machine which requires a source of pressurized air;

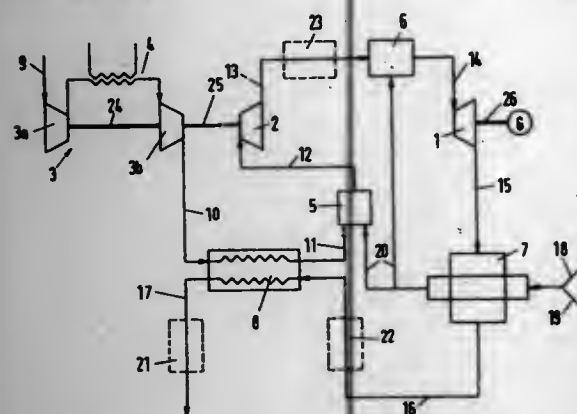
at least one negative pneumatic pressure cleaning mechanism and at least one yarn handling mechanism in communication with said pneumatic pressure generator inlet, said negative pneumatic pressure mechanisms performing one of a predetermined yarn handling operation and cleaning operation at the textile machine which requires a source of negative pressure air;

a control device in communication with said positive pneumatic pressure mechanisms and said negative pneumatic pressure mechanisms to selectively operate said mechanisms for said yarn handling and cleaning operations; and

an air filter mechanism disposed upstream from said pneumatic pressure generator inlet to filter air entering said inlet from said negative pneumatic pressure mechanisms, wherein the filtered air is directed to said positive pneumatic pressure mechanisms.

5,669,216
PROCESS AND DEVICE FOR GENERATING MECHANICAL ENERGY
 Hendrik Jan Ankersmit, Schiedam; Rudolf Hendriks, Velp, and Leo Jozef Maria Joannes Blomen, Voorschoten, all of Netherlands, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Germany
 Continuation of Ser. No. 917,075, May 24, 1993, abandoned.
 This application Apr. 3, 1995, Ser. No. 415,582
 Claims priority, application Germany, Feb. 1, 1990, 40 03 210.8

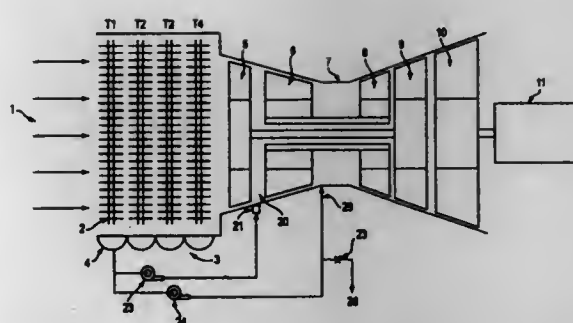
Int. Cl. F02G 1/00
 U.S. Cl. 60—39.02 15 Claims



1. A process for continuously converting energy that is chemically bound in a gaseous starting fuel essentially containing methane into usable mechanical energy, comprising the steps of:
 compressing combustion air;
 obtaining drive energy for the compression of the combustion air from a compressor drive gas turbine unit through which at least a flow volume of the compressed combustion air is conducted accompanied by partial expansion;
 combusting fuel in two stages with the compressed combustion air to generate hot exhaust gases;
 partially expanding the hot exhaust gas that is generated in a first of the combustion stages and has a high amount of excess air in the compressor drive gas turbine;
 feeding the partially expanded exhaust gas to a second of the combustion stages with additional fuel;
 expanding the hot exhaust gas generated in the second combustion stage in a gas turbine for producing usable mechanical energy;
 endothermically converting the starting fuel at a temperature below 780° C., in a reaction space arranged after the gas turbine for producing usable mechanical energy, into a converted fuel having a higher absolute thermal value by heating the reaction space using the total flow of the hot exhaust gas generated in the combustion after the hot exhaust gas has been expanded in the gas turbine for producing usable mechanical energy, so that at least a predominant quantity of individual combustible components of the converted fuel remain for combustion;
 using the converted fuel in the combusting steps; and
 heating the compressed combustion air prior to entering the first combustion stage using residual heat of the hot exhaust gas expanded in the gas turbine.

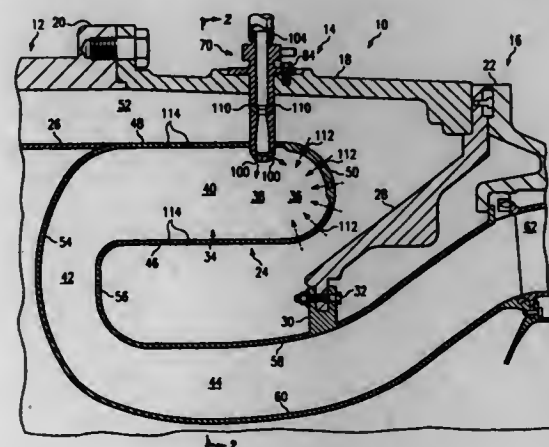
5,669,217
METHOD AND APPARATUS FOR INTERCOOLING GAS TURBINES
 J. Hilbert Anderson, 2422 S. Queen St., York, Pa. 17402
 Filed Sep. 25, 1995, Ser. No. 533,377
 Int. Cl. F02C 3/80; 7/143
 U.S. Cl. 60—39.05 12 Claims

1. An intercooled gas turbine comprising:
 a gas turbine having at least two air compression stages; and



at least one nozzle for supplying a liquid coolant to air travelling between said at least two air compression stages, wherein said nozzle has a structure which supplies said liquid coolant to said air at an average particle size of about 5 microns or less.

5,669,218
PREMIX FUEL NOZZLE
 Allewis A. Greninger, Allegany, N.Y., assignor to Dresser-Rand Company, Corning, N.Y.
 Filed May 31, 1995, Ser. No. 454,833
 Int. Cl. F02C 1/00
 U.S. Cl. 60—39.49 19 Claims

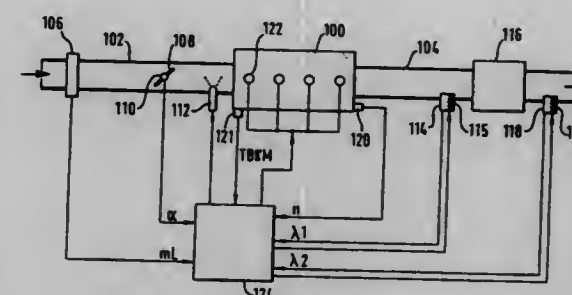


1. A combustion apparatus adapted for use in a gas turbine engine, said apparatus comprising:
 a combustion chamber wall forming a combustion chamber, said combustion chamber having an inlet end portion, an intermediate portion, and an outlet end portion, with at least one air inlet aperture located in said inlet end portion of said combustion chamber;
 an elongated nozzle structure having a first end portion and a second end portion, said nozzle structure being positioned with said second end portion extending into said intermediate portion of said combustion chamber, an elongated passageway in said nozzle structure extending from said first end portion to said second end portion, said elongated passageway having an upstream section, a venturi section, and a downstream section, said venturi section having a throat with an internal diameter which is smaller than each of an internal diameter of said upstream section and an internal diameter of said downstream section, said second end portion having at least one nozzle outlet connecting said downstream section to said combustion chamber; and
 a conduit connected to said nozzle structure to pass fuel sequentially through said upstream section, said venturi section, and said downstream section of said elongated passageway;
 said nozzle structure having at least one air inlet passageway extending from said throat to an exterior surface of said nozzle structure, whereby passage of fuel through said venturi section educts air through said at least one air inlet passageway

way into said venturi section so that the thus educted air mixes with the fuel passing through said venturi section.

5,669,219
METHOD AND DEVICE FOR MONITORING A HEATING DEVICE OF A SENSOR MOUNTED IN THE EXHAUST SYSTEM OF AN INTERNAL COMBUSTION ENGINE
 Eberhard Schnabel, Hemmingen; Erich Junginger, Stuttgart, and Erich Schneider, Kirchheim, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
 Filed Jun. 6, 1995, Ser. No. 468,862
 Claims priority, application Germany, Sep. 21, 1994, 44 33 632.2

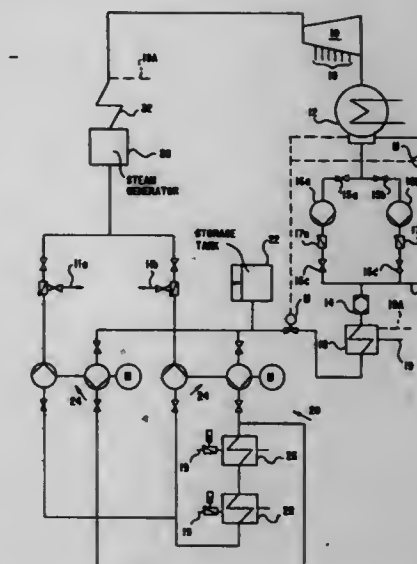
Int. Cl. F01N 3/28
 U.S. Cl. 60—274 11 Claims



1. A method for monitoring a heating device of a sensor mounted in an exhaust system of an internal combustion engine, comprising the steps of:
 forming a first signal indicative of an operational readiness of the sensor;
 forming a second signal indicative of a temperature of the sensor; and
 determining an operational state of the heating device as a function of the first signal and the second signal, the operational state including one of a working order and a non-working order, the heating device being in the working order when the first signal indicates the operational readiness of the sensor and the second signal has a value within a predetermined first range.

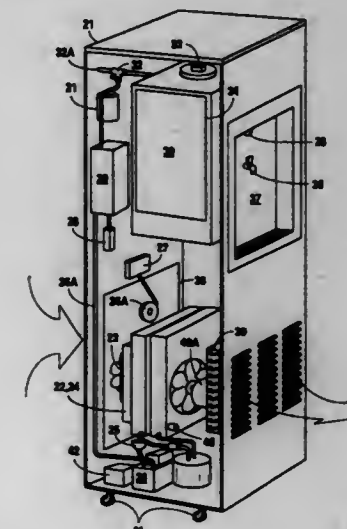
5,669,220
METHOD AND DEVICE FOR OPERATING THE WATER/STEAM CYCLE OF A THERMAL POWER STATION
 Nabil Rachid, Ladenburg, Germany, assignor to ABB Patent GmbH, Mannheim, Germany
 Filed Sep. 29, 1994, Ser. No. 314,890
 Int. Cl. F01K 9/00
 U.S. Cl. 60—654 17 Claims

1. In a method of operating a water/steam cycle of a thermal power station having:
 a preheating section for condensate, a steam generator connected to the preheating section, a steam turbine connected to the steam generator, a condenser connected to the steam turbine, a condensate treatment system downstream of the condenser, and condensate pumps upstream of the condensate treatment system,
 the method which comprises:
 subjecting the condensate to a pretreatment before reaching the preheating section without degassing the condensate, and supplying the condensate to the steam generator without degassing measures being carried out, and
 subjecting treated condensate from the condensate treatment system to tapped steam in the preheating section for heating



the treated condensate before supplying it to the steam generator.

5,669,221
PORTABLE, POTABLE WATER RECOVERY AND DISPENSING APPARATUS
 Terry L. LeBleu, San Antonio, and Francis C. Forsberg, Boerne, both of Tex., assignors to Worldwide Water, Inc., Boerne, Tex.
 Filed Apr. 8, 1996, Ser. No. 629,305
 Int. Cl. F25D 17/06
 U.S. Cl. 62—92 6 Claims



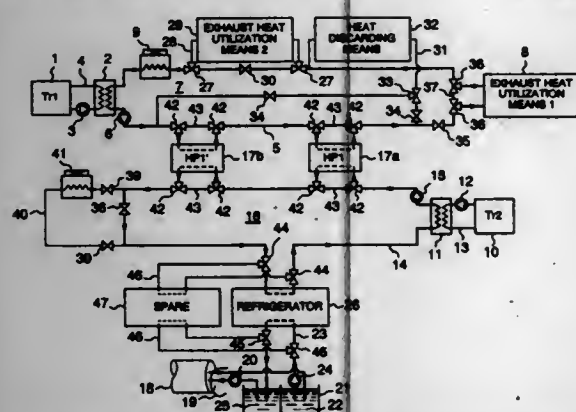
5. A process for preparing and dispensing EPA-compliant primary drinking water by condensation of moisture from ambient air carried out within a closed, wheeled housing comprising the steps of:
 a. removing particulate contaminants from ambient air by drawing a flowing stream through an enclosed channel fitted with electrostatic particle separators and particle filters,
 b. cooling the stream of particle-free air from step a. by closed-system, forced convection across a plurality of chemically-inert, dew-forming surfaces in a heat absorber to at least 3 deg. C. below its equilibrium dew point temperature,
 c. allowing liquid water formed on said cooled, dew-forming surfaces to flow under gravitational forces to a predetermined, enclosed dew-dripoff collection zone,

5,669,227
PORTABLE SKATING RINK
 G. Gilbert Morris, Ajax, Canada, assignor to Original Shiny Rink Incorporated, Ajax, Canada
 Filed Jan. 16, 1996, Ser. No. 586,216
 Int. Cl.⁶ F25C 3/02; A63C 19/10
 U.S. Cl. 62—235 14 Claims



1. A rectangular portable ice skating rink liner, of flat flexible sheet material joined with seams, comprising:
 a rectangular flat bottom sheet having a four sided peripheral edge;
 four elongate peripheral curb sleeves each having a vertical inward side extending from an associated side of the bottom sheet edge to form an upstanding rectangular curb with four vertical corner seams defined by intersection of the vertical inward sides of adjacent sleeves, each sleeve having an open first transverse end adapted to permit the longitudinal sliding insertion and removal of an associated elongate rectilinear rigid curb structural member, and a second transverse end adapted to permit abutting right angle corner engagement of a forward planar end of the associated rigid curb member with an inside planar side of an adjacent rigid curb member; and
 wherein the material and seams have resistance to water penetration sufficient to retain a pool of water covering the bottom sheet during freezing in outdoor conditions.

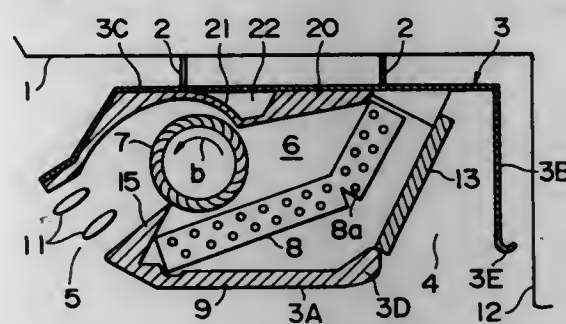
5,669,228
SYSTEM FOR UTILIZING EXHAUST HEAT OF STATIONARY INDUCTION APPARATUS
 Takashi Iga, Hitachi; Kaoru Endou, Ibaraki-ken; Takashi Shirone, Hitachi, and Yoshito Uwano, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Filed Apr. 24, 1996, Ser. No. 636,262
 Claims priority, application Japan, Apr. 26, 1995, 7-101902
 Int. Cl.⁶ F25B 27/00
 U.S. Cl. 62—238.7 14 Claims



6. A system for utilizing exhaust heat of a stationary induction apparatus comprising a first stationary induction apparatus cooling system which comprises a water-cooled stationary induction apparatus, and a cooling water circulation system which includes a water-cooling heat exchanger for said stationary induction apparatus, a pump for circulating cooling water, and piping connecting said heat exchanger and said pump together; a second stationary induction apparatus cooling system separate from said first stationary induction apparatus cooling system; a third stationary induction apparatus cooling system separate from said first and second stationary induction apparatus cooling systems; and exhaust heat utilization means for utilizing exhaust heat of the cooling water;

CHARACTERIZED in that said exhaust heat utilization means is connected to said cooling water circulation system of said first stationary induction apparatus cooling system; there is provided a first heat pump which uses said first stationary induction apparatus cooling system as a high-temperature heat source, and also uses said second stationary induction apparatus cooling system as a low-temperature heat source; and there is provided a second heat pump which uses said first stationary induction apparatus cooling system as a high-temperature heat source, and also uses said third stationary induction apparatus cooling system as a low-temperature heat source.

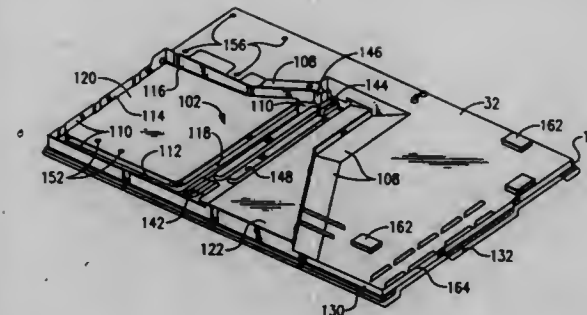
5,669,229
CEILING-MOUNTED TYPE AIR CONDITIONER
 Kazumi Ohbayashi; Susumu Yamashita; Masami Ito, all of Aichi-ken; Kenji Matsuda, Nagoya; Shin Watabe, Nagoya, and Mitsuru Nakamura, Nagoya, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
 Filed Apr. 16, 1996, Ser. No. 633,122
 Claims priority, application Japan, May 30, 1995, 7-155295; Jun. 1, 1995, 7-158670; Jun. 1, 1995, 7-158671
 Int. Cl.⁶ F25D 23/12; F24F 1/00
 U.S. Cl. 62—259.1 9 Claims



1. A ceiling-mounted type air conditioner in which an air inlet is provided in the rear of a lower part of a housing hung from a ceiling and an air outlet is provided in the front of said housing; a heat exchanger and a fan are installed in an air flow passage which is formed in said housing and extends from said air inlet to said air outlet; and room air sucked by said fan through said air inlet, being cooled or heated by said heat exchanger, is blown into a room through said air outlet,
 wherein said heat exchanger is bent into a doglegged shape, said heat exchanger is composed of a section extending slantingly along a lower panel of said housing and a section rising slantingly along a rear panel of said housing, the bent portion thereof is convex to the air inlet side, said heat exchanger is inclined so as to be raised on the air inlet side, a cross flow fan rotating around a horizontal axis is disposed downstream of said heat exchanger, and an air filter extends slantingly on the air inlet side so as to be substantially parallel with the section of said heat exchanger rising slantingly.

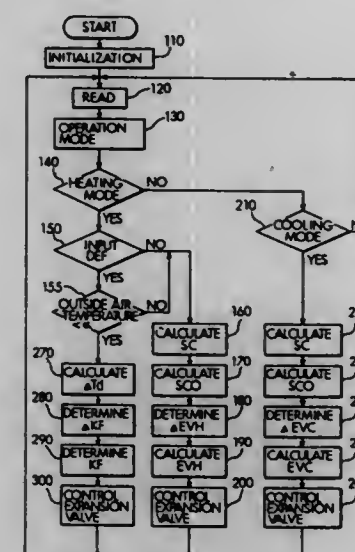
5,669,230
BASE PAN FOR PACKAGED AIR CONDITIONING UNIT
 Thomas P. Bruce, Columbus, Miss.; Joe W. Dark, Tyler, Tex.; Bradley L. Kersh, Flint, Tex.; William P. Timmons, and John W. Schedel, both of Tyler, Tex., assignors to Carrier Corporation, Syracuse, N.Y.
 Filed Apr. 12, 1996, Ser. No. 631,362
 Int. Cl.⁶ F25D 21/14
 U.S. Cl. 62—285 6 Claims

1. A base pan for an air conditioning unit, said base pan comprising:
 a top surface having a periphery, said base pan comprising a non-corrosive polymer material;



an airflow section defined on said top surface, said airflow section adapted to receive compartment partitions of said unit; and
 a non-flammable material formed on said airflow section of said top surface.

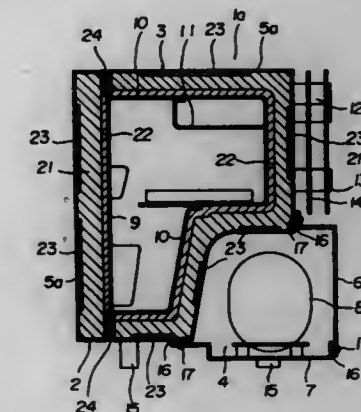
5,669,231
AIR CONDITIONING APPARATUS
 Satoshi Itoh, Kariya, and Kunio Iritani, Anjo, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan
 Filed Jun. 21, 1996, Ser. No. 667,512
 Claims priority, application Japan, Jun. 23, 1995, 7-157622; Apr. 12, 1996, 8-091440
 Int. Cl.⁶ B60H 1/00
 U.S. Cl. 62—210 15 Claims



1. An air conditioning apparatus comprising:
 air blowing means for generating air flow;
 a casing having an air passage therein, said air passage at least having a defroster air outlet at one end for blowing air generated by said air blowing means toward an inside surface of a windshield;
 a refrigerating cycle having a compressor for compressing a refrigerant, a condenser for condensing the refrigerant from said compressor to heat air in said air passage by heat of condensation thereof, an electric expansion valve for decompressing the refrigerant from said condenser and an evaporator for evaporating the refrigerant from said electric expansion valve;
 defrosting instruction signal generating means for generating a defrosting instruction signal which instructs a defrosting of said windshield;
 defroster air outlet opening/closing means for opening and closing said defroster air outlet, said defroster outlet opening/closing means open said defroster air outlet to perform a

defrosting of said windshield when said defrosting instruction signal generating means generates a defrosting instruction signal;
 defrosting instruction signal determining means for determining whether said defrosting instruction signals generating means generates said defrosting instruction signal;
 first expansion valve control means in which an opening degree of said electric expansion valve becomes a first opening degree when said defrosting instruction signal determining means determines that said defrosting instruction signal is not generated; and
 second expansion valve control means in which an opening degree of said electric expansion valve becomes a second opening degree which is smaller than said first opening degree when said defrosting instruction signal determining means determines that said defrosting instruction signal is generated.

5,669,232
REFRIGERATING UNIT
 Keiichi Iwamoto, Oizumi-machi, and Yukinobu Nishikawa, Higashiosaka, both of Japan, assignors to Sanyo Electric Co., Ltd., Osaka-fu, Japan
 Filed Nov. 17, 1995, Ser. No. 560,482
 Claims priority, application Japan, Nov. 22, 1994, 6-311276; Nov. 25, 1994, 6-314236; May 29, 1995, 7-152723; May 29, 1995, 7-152724
 Int. Cl.⁶ F25D 23/04; F25B 1/00
 U.S. Cl. 62—296 13 Claims

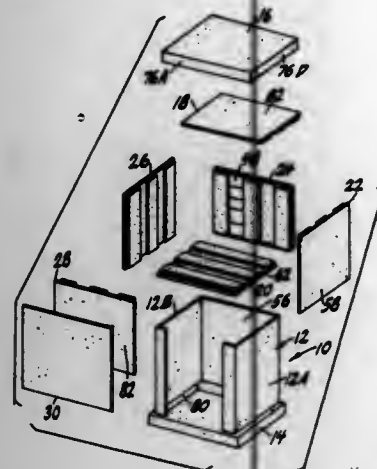


1. A refrigerating unit comprising an adiabatic box provided with a door to its opening, a machine compartment in contact with said adiabatic box, and a refrigerating circuit comprising a compressor mounted in said machine compartment, an evaporator mounted in said adiabatic box, and a condenser mounted on an outer backside of said adiabatic box, said compressor, said evaporator and said condenser being interconnected with pipes, wherein:
 said adiabatic box comprises an outer casing made of an iron plate to which a damping plate and damping material is stuck; said machine compartment is covered with the damping plate and is attached to said adiabatic box with a mounting means so as to be sealed; and
 said refrigerating unit further comprises an oil cooler for cooling lubricating oil provided between said condenser and compressor, a part of said oil cooler disposed within said lubricating oil in the compressor.

5,669,233
COLLAPSIBLE AND REUSABLE SHIPPING CONTAINER
 Sanford L. Cook, Ocean, and Joseph N. Villa, Hazlet, both of N.J., assignors to TCP Reliable Inc., Edison, and Johnson & Johnson, New Brunswick, both of N.J.
 Filed Mar. 11, 1996, Ser. No. 613,976
 Int. Cl.⁶ F25D 1/08

U.S. Cl. 62—371

2 Claims



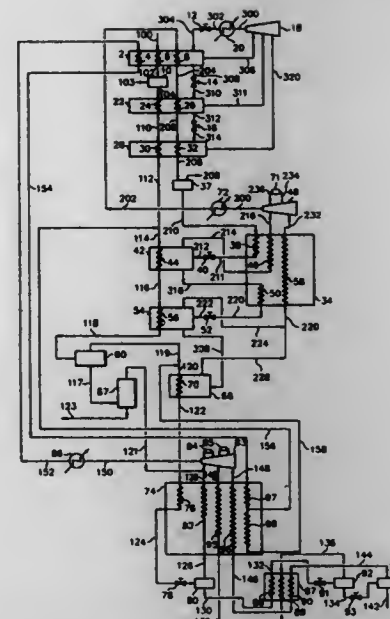
1. A collapsible and reusable shipping container comprising:
 - a. a planar exterior bottom piece adapted to receive a bottom panel therein, said bottom panel possessing a plurality of parallel arrayed horizontal channels;
 - b. an exterior planar enclosure having at least two opposing side panels joining a rear panel along a vertical abutting surface and surrounding;
 - c. a plurality of interior panels, said interior panels possessing a plurality of channels arrayed vertically there within, said interior panels communicating with one another and said bottom panel to form an inner area open on the top and front and closed on the bottom;
 - d. a plurality of heat sinks disposed within said horizontal channels of said bottom panel;
 - e. a plurality of boxed product packed within said inner area and creating a like number of closed vertical troughs within said plurality of channels arrayed vertically;
 - f. a plurality of heat sinks disposed within said closed vertical troughs;
 - g. an interior front panel adapted to close the inner area and possessing a plurality of channels arrayed vertically;
 - h. an exterior front panel adapted to overlay said interior front panel and being retained thereon by retention flaps;
 - i. a plurality of heat sinks disposed within said plurality of vertical channels of said interior front panel;
 - j. a plurality of heat sinks disposed over the top of said boxed product in an overlapping configuration, and retained thereon by an interior top panel, said interior top panel possessing a matrix of studs and channels adapted to retain said plurality of overlapping heat sinks; and
 - k. a planar lid.

5,669,234
EFFICIENCY IMPROVEMENT OF OPEN-CYCLE CASCADED REFRIGERATION PROCESS
 Clarence G. Houser, Houston; Jams Yao, Sugar Land, both of Tex.; Donald L. Andress, and William R. Low, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.
 Filed Jul. 16, 1996, Ser. No. 683,282
 Int. Cl.⁶ F25J 1/00

U.S. Cl. 62—612

29 Claims

1. A process for liquefying a pressurized gas stream comprising the steps of:



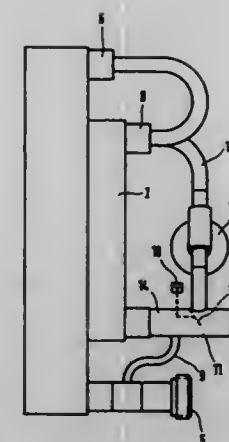
- (a) combining the pressurized gas stream and a first recycle gas stream as defined in step (j);
- (b) cooling said stream of step (a) to near its liquefaction temperature;
- (c) combining said stream of step (b) and a second recycle gas stream as defined in step (j);
- (d) cooling and thereby condensing in major portion said stream of step (c);
- (e) flowing said stream of step (d) through at least one pressure reduction means thereby producing a two-phase stream;
- (f) separating the two-phase stream of step (e) into a return gas stream and a liquid stream;
- (g) flowing said return gas stream of step (f) through an indirect heat exchange means thereby producing a warmed return gas stream;
- (h) compressing said warmed return gas stream to a pressure greater than or equal to the pressure possessed by the pressurized gas stream of step (a) thereby producing a compressed return gas stream;
- (i) cooling the compressed return gas stream of step (h) to a near ambient temperature, and
- (j) cooling further the compressed return gas stream of step (i) by flowing through an indirect heat exchange means which is in thermal contact with the indirect heat exchange means of step (g) wherein said cooling comprises cooling said compressed return gas stream in its entirety to a first temperature, splitting said stream into a first recycle gas stream and a second compressed return gas stream, and further cooling said second stream thereby producing a second recycle gas stream possessing a temperature lower than that of the first recycle gas stream and wherein the gas streams of step (g) and this step flow through their respective indirect heat exchange means in a generally countercurrent manner to one another.

5,669,235
DEVICE TO GENERATE A FLOW OF COED GAS
 Friedel Michel, Erkrath, Germany, assignor to Messer Griesheim GmbH, Germany
 Filed Feb. 20, 1996, Ser. No. 603,656
 Claims priority, application Germany, Feb. 24, 1995, 195 06 478.9
 Int. Cl.⁶ F25B 1/00

U.S. Cl. 62—614

10 Claims

1. In a device to generate a flow of cold gas by means of the heat exchange of a cryogenic medium with a heat transfer medium, the improvement being in a first heat exchanger having a heat transfer medium inlet and a heat transfer medium outlet, said first heat

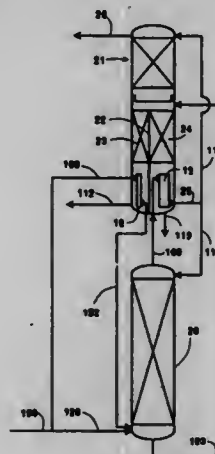


exchanger having a liquefied cryogenic medium inlet and an evaporated cryogenic medium outlet, a second heat exchanger having an evaporated gaseous cryogenic medium inlet, a connection line communicating with said evaporated gaseous cryogenic medium outlet of said first heat exchanger and said evaporated gaseous cryogenic medium inlet of said second heat exchanger for supplying the evaporated gaseous cryogenic medium from said first heat exchanger to said second heat exchanger, said second heat exchanger having a liquefied cryogenic medium inlet for flowing liquefied cryogenic medium through said second heat exchanger to re-cool the evaporated gaseous cryogenic medium and to evaporate the liquefied cryogenic medium, a mixing site, and connection lines communicating with said mixing site to supply the re-cooled cryogenic medium and the evaporated liquefied cryogenic medium from said second heat exchanger to said mixing site for mixing said mediums at said mixing site.

5,669,236
CRYOGENIC RECTIFICATION SYSTEM FOR PRODUCING LOW PURITY OXYGEN AND HIGH PURITY OXYGEN
 John Fredric Billingham, Tonawanda; Michael James Lockett, and Dante Patrick Bonaquist, both of Grand Island, all of N.Y., assignors to Praxair Technology, Inc., Danbury, Conn.
 Filed Aug. 5, 1996, Ser. No. 691,963
 Int. Cl.⁶ F25J 3/04

U.S. Cl. 62—643

8 Claims



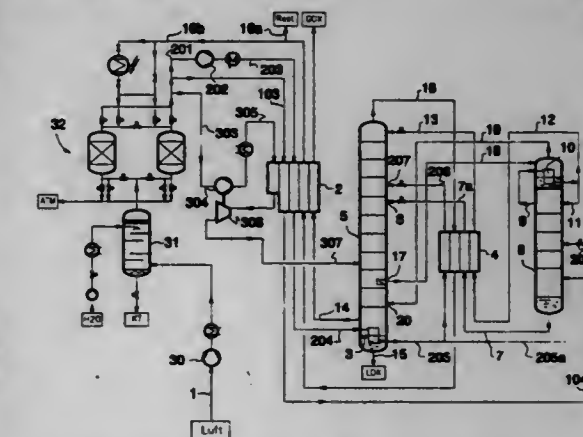
1. A method for producing high purity oxygen and low purity oxygen comprising:
 - (A) condensing feed air and passing the resulting feed air into a higher pressure column;
 - (B) separating the feed air within the higher pressure column by cryogenic rectification into oxygen-enriched liquid and nitrogen-enriched vapor;

- (C) passing oxygen-enriched liquid from the higher pressure column into a lower pressure column having a first product portion and a second product portion separated by a longitudinally oriented partition;
- (D) processing oxygen-enriched liquid in each of the first product portion and the second product portion of the lower pressure column by cryogenic rectification and producing high purity oxygen in the first product portion and low purity oxygen in the second product portion;
- (E) reboiling the first product portion by the said condensing feed air and reboiling the second product portion by condensing nitrogen-enriched vapor from the higher pressure column; and
- (F) recovering high purity oxygen from the first product portion and recovering low purity oxygen from the second product portion.

5,669,237
METHOD AND APPARATUS FOR THE LOW-TEMPERATURE FRACTIONATION OF AIR
 Jürgen Volt, Schondorf, Germany, assignor to Linde Aktiengesellschaft, Hoeftriegelskreuth, Germany
 Filed Mar. 11, 1996, Ser. No. 614,974
 Claims priority, application Germany, Mar. 10, 1995, 195 06 759.3; Jun. 1, 1995, 195 20 196.5; Jun. 1, 1995, 195 20 198.1
 Int. Cl.⁶ F25J 3/04

U.S. Cl. 62—646

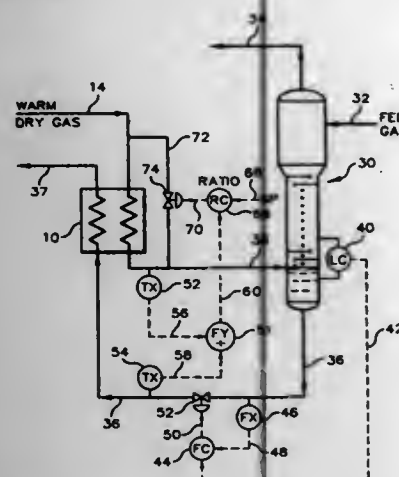
27 Claims



1. A method for the low temperature fractionation of air, comprising:
 - forming a first airflow and a second airflow,
 - passing the first airflow into a medium-pressure column, which is operated at above atmospheric pressure and in which an oxygen-enriched sump liquid and a first nitrogen-rich fraction are obtained,
 - passing the sump liquid at a first intermediate site into a low-pressure column, which is operated under a pressure lower than that of the medium-pressure column,
 - condensing the first nitrogen-rich fraction at least partially by indirect heat exchange, a nitrogen-rich liquid being produced, using a first portion of the nitrogen-rich liquid as backflow in the medium-pressure column,
 - using a second portion of the nitrogen-rich liquid as backflow in the low-pressure column,
 - obtaining a second nitrogen-rich fraction at the head of the low-pressure column and obtaining an oxygen-rich liquid in the sump of the low-pressure column,
 - evaporating the oxygen-rich liquid at least partially by indirect heat exchange against the second airflow in an indirect heat exchanger,
 - using at least a portion of the evaporated, oxygen-rich liquid as rising vapor in the low-pressure column,
 - drawing off a different portion of the evaporated, oxygen-rich liquid and/or a portion of the oxygen-rich liquid as oxygen product(s),

evaporating a first liquid intermediate fraction, which is obtained in the low-pressure column at a second intermediate site, at least partially by the indirect heat exchange for condensing the first nitrogen-rich fraction, and using at least a portion of the evaporated first intermediate fraction as rising vapor in the low-pressure column, wherein the second airflow is under a pressure during the heat exchange in the indirect heat exchanger which is different than the pressure of the medium pressure column, and wherein the second airflow is under a pressure during the heat exchange in the indirect heat exchanger which is less than the pressure of the medium pressure column.

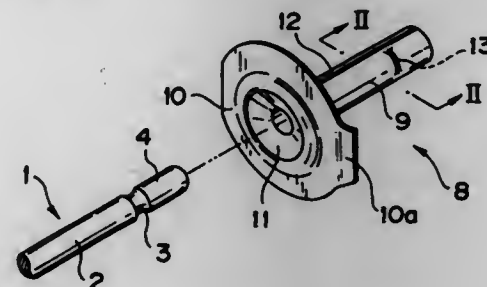
5,669,238
HEAT EXCHANGER CONTROLS FOR LOW TEMPERATURE FLUIDS
 Barnard J. Devers, Greenville, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.
 Filed Mar. 26, 1996, Ser. No. 621,923
 Int. Cl.⁶ F25J 3/00
 U.S. Cl. 62—457 8 Claims



1. Apparatus comprising:
 - a) a cryogenic separation column for partially condensing a feed gas stream in an LNG recovery process;
 - b) means for withdrawing a liquid condensate stream from said cryogenic separation column;
 - c) a heat exchanger associated with said cryogenic separation column;
 - d) means for passing said liquid condensate stream through said heat exchanger;
 - e) means for passing a warm dry gas stream through said heat exchanger and thereafter to said cryogenic separation column, wherein said warm dry gas stream is cooled by indirect heat exchange with said liquid condensate stream in said heat exchanger;
 - f) a bypass conduit having a first control valve operably located therein for bypassing said warm dry gas stream around said heat exchanger;
 - g) means for establishing a first signal representative of the actual temperature of said warm dry gas stream exiting said heat exchanger;
 - h) means for establishing a second signal representative of the actual temperature of said liquid condensate stream entering said heat exchanger;
 - i) means for dividing said first signal by said second signal to establish a third signal representative of the ratio of said first signal and said second signal;
 - j) means for establishing a fourth signal representative of a desired value for the ratio represented by said third signal;
 - k) means for comparing said third signal and said fourth signal and establishing a fifth signal which is responsive to the difference of said third signal and said fourth signal, wherein

said fifth signal is scaled to be representative of the position of said first control valve required to maintain the actual ratio represented by said third signal substantially equal to the desired ratio represented by said fourth signal; and
 m) means for manipulating said first control valve in said bypass conduit in response to said fifth signal.

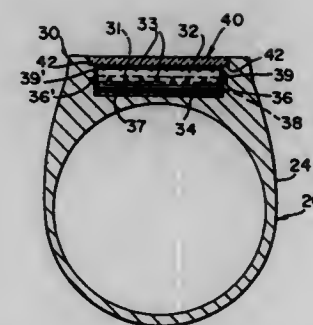
5,669,239
PIERCED EARRING WITH IMPROVED NUT
 Osamu Tobita, Tokyo, Japan, assignor to Setsuko Ishida, Tokyo, Japan, a part interest
 Continuation of Ser. No. 365,813, Dec. 29, 1994, abandoned.
 This application Sep. 4, 1996, Ser. No. 698,689
 Claims priority, application Japan, Jan. 28, 1994, 6-026134
 Int. Cl.⁶ A44C 7/00
 U.S. Cl. 63—12 4 Claims



1. A pierced earring comprising:
 - a pin member having formed therein an engaging groove;
 - a nut made from resilient thin plate material and including a one-piece cylindrical fastener body having first and second opposite ends, said second end being open;
 - a guide part integral with said first end of said fastener body and tapering therefrom in a direction outwardly therefrom and away from said second end of said fastener body, thereby forming means to guide insertion of said pin member into said fastener body;
 - a radial flange extending outwardly from said guide part in an axial direction toward said second end;
 - a pair of engaging ridges integral with said fastener body and extending inwardly from an inner peripheral surface thereof at locations to fit in said engaging groove when said pin member is inserted into said fastener body;
 - said fastener body having formed therein only a single slit extending longitudinally thereof from said second end thereof throughout substantially the entire length thereof, and thereby defining means to enable said fastener body to deform outwardly, in cooperation with the resiliency of said plate material, during insertion of said pin member into said fastener body and to contract resiliently inwardly when said engaging ridges become aligned with said engaging groove, thus ensuring intimate engagement of said engaging ridges in said engaging groove; and
 - said single slit being defined by confronting longitudinal edges of said fastener body, said fastener body being circumferentially continuous and uninterrupted from a first said edge to a second said edge.

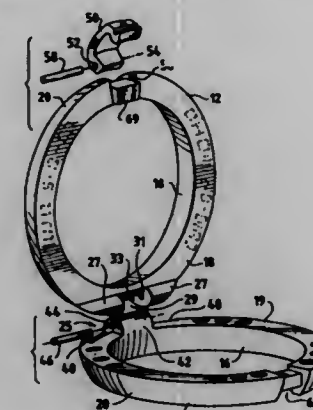
5,669,240
RING WITH ROLLERS
 Alejandro E. Lima, 4807 W. Flagler St., Miami, Fla. 33134
 Continuation-in-part of Ser. No. 512,207, Aug. 7, 1995, abandoned. This application Dec. 10, 1996, Ser. No. 763,576
 Int. Cl.⁶ A44C 9/00
 U.S. Cl. 63—15 6 Claims

1. A device for enhancing the appearance of jewelry stones, comprising:



- A) housing means including a frame and a wall mounted thereon to define a space;
- B) at least one roller means rotatably mounted within said space and said roller means includes an outer surface on which a plurality of stones are mounted; and
- C) a phosphorescent element positioned on said wall.

5,669,241
HINGED FINGER RING
 Tammy Kohl, 312 N. Carpenter, Chicago, Ill. 60607
 Filed Mar. 22, 1996, Ser. No. 620,461
 Int. Cl.⁶ A44C 9/00
 U.S. Cl. 63—15.2 18 Claims



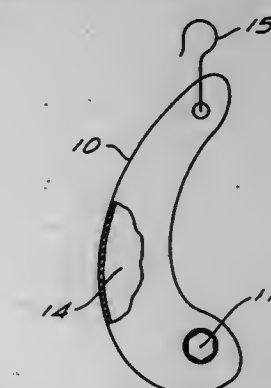
1. A finger ring comprising:
 - a first toroidal member;
 - a second toroidal member located axially adjacent the first toroidal member and being hinged to the first toroidal member at a hinge point;
 - a clasp diametrically opposite the hinge point for latching together the first and second toroidal members in a ring configuration having a unitary appearance, one end of the clasp being hinged to the first toroidal member; and
 - a catch diametrically opposite the hinge on the second toroidal member and directly opposite the other end of the clasp, the clasp and the catch, when engaged, forming with the toroidal members the ring of unitary appearance.

5,669,242
NECKLACE EXTENSION ACCESSORY
 Meryl L. Cayton, 12 Brian Ct., Northport, N.Y. 11768
 Filed Mar. 16, 1995, Ser. No. 405,525
 Int. Cl.⁶ A44C 19/00
 U.S. Cl. 63—21 13 Claims

1. A necklace extension accessory for use with a base necklace, said base necklace having a first portion and a second portion, said necklace extension accessory comprising:



5,669,243
JEWELRY CONSTRUCTION
 Gerald Drown, 4678 E. Coachlight La., Tucson, Ariz. 85718
 Filed Aug. 2, 1996, Ser. No. 691,372
 Int. Cl.⁶ A44C 13/00
 U.S. Cl. 63—33 11 Claims



1. An article of jewelry to be worn by a user comprising:
 - a) a sealed envelope of metal such that gas contained with said sealed envelope is at a pressure higher than ambient air pressure; and
 - b) attachment means secured to said envelope of metal for attaching said envelope of metal to a wearer.

5,669,244

BINDING OFF METHOD WITH USE OF A FLAT KNITTING MACHINE AND A KNIT FABRIC THUS BOUND OFF

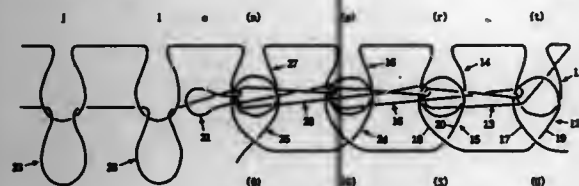
Masao Okuno, Wakayama, Japan, assignor to Shima Seiki Manufacturing Ltd., Wakayama, Japan

Filed Apr. 9, 1996, Ser. No. 628,107

Claims priority, application Japan, Apr. 10, 1995, 7-083695
Int. Cl.⁶ D04B 1/00

U.S. Cl. 66—64

7 Claims



1. A binding off method for binding off stitches of at least two fabrics wherein said at least two fabrics form a tube, said method comprising the steps of:

- providing a flat knitting machine having at least a first needle bed and a second needle bed, each of said first and second needle beds having a plurality of needles and being slidable relative to each other, said first and second needle beds being configured to hold stitches thereupon, said stitches being transferable between said first and second needle beds;
- knitting a first knit fabric and a second knit fabric, wherein said first knit fabric corresponds to said first needle bed and wherein said second knit fabric corresponds to the second needle bed, said first knit fabric and said second knit fabric being configured to face each other on said first and second needle beds, respectively;
- overlapping a stitch of the first knit fabric and a stitch of the second knit fabric by holding at least one first stitch of the first knit fabric on a needle of the second needle bed, holding at least one second stitch of the second knit fabric on a needle of the first needle bed, and holding a third stitch as a binding off stitch on a needle of one of the first and second needle beds, then transferring at least one of said above three stitches between said first needle bed and said second needle bed wherein said first, second and third stitches are alternately overlapped with each other to form a triple stitch, said triple stitch being held on a needle of one of the first and second needle beds;
- forming a fourth stitch for binding off the triple stitch on the needle of the one of the first and second needle beds upon which the triple stitch is held;
- removing the triple stitch from the one of the first and second needle beds upon which the triple stitch is held, wherein said first, second, and third stitches of said triple stitch are rotated to suppress a protrusion formed by the binding off of the triple stitch; and
- repeating said steps of c through e.

5,669,245

YARN FEEDING DEVICE OF A CIRCULAR KNITTING MACHINE

Meei-Ju Shieh, 10-6F, No. 20, Lane 609, Sec. 5, Chung-Hsin Rd., Sanchung City, Taipei Hsein, Taiwan

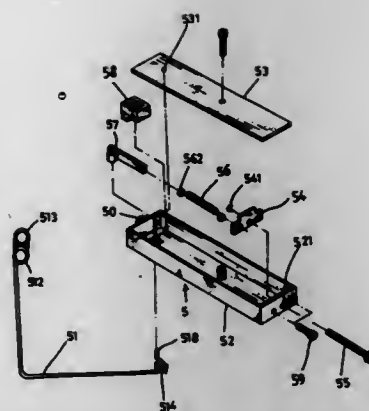
Filed Mar. 8, 1996, Ser. No. 613,192

Int. Cl.⁶ D04B 15/48

U.S. Cl. 66—132 T

2 Claims

1. A yarn feeding device for a circular knitting machine comprising a mounting frame having a top and secured to the circular knitting machine, a yarn guide plate having a plurality of thread eyes for passing yarn and secured to said top of said mounting frame, a driving wheel having a wheel shaft and mounted on said mounting frame above said yarn guide plate, a yarn guide bracket having first and second rows of thread eyes for passing of said yarn and mounted on said mounting frame below said yarn guide plate, a yarn feeding wheel set including a plurality of feeding wheels, each said feeding wheel including a metal wheel hub, a plastic



yarn feeding wheel secured to said metal wheel hub and a rubber collar arranged around said plastic yarn feeding wheel; each said plastic yarn feeding wheel having a wheel face and an annular flange around said wheel face so that an annular convex portion is formed around a periphery of said rubber collar for separating two runs of said yarn after said collar is mounted around said plastic yarn feeding wheel; said plurality of feeding wheels mounted around said wheel shaft of said driving wheel by screws and washers with said metal hubs of said feeding wheels longitudinally arranged along said wheel shaft, and

a plurality of yarn tension guides respectively mounted on said yarn guide bracket, said yarn tension guides being arranged adjacent said first row of thread eyes of said yarn guide bracket; each of said yarn tension guides having a rotating tension adjustment plate and a yarn tension guide rod, said rotating tension adjustment plate contacting yarn tension guide rod, so that when said rotating adjustment tension plate is turned relative to said yarn tension guide rod, said rotating tension adjustment plate interacts with said yarn tension guide rod thereby changing an oscillating amplitude of said yarn tension guide rod and a degree of circumferential engagement of a respective yarn with said wheel face of a respective said yarn feeding wheel.

5,669,246

DEVICE FOR FEEDING A THREAD, PARTICULARLY AN ELASTIC THREAD, FOR KNITTING MACHINES, HOSIERY KNITTING MACHINES, OR THE LIKE

Lorenzo Massardi, Via della Chiesa, 98 - 25127, Brescia, Italy

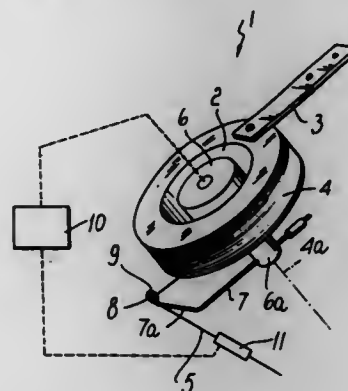
Filed May 20, 1996, Ser. No. 650,243

Claims priority, application Italy, May 23, 1995, MI95A001053

Int. Cl.⁶ D04B 15/48

U.S. Cl. 66—146

31 Claims



1. Device for feeding thread for knitting machines and hosiery machines comprising:

a supporting element;
a spool of thread to be fed, said spool defining an axis thereof and being fixedly connected to said supporting element;
a variable-speed motor having a body and an output shaft, said body being connected to said supporting element;
an arm having a first end thereof connected to said output shaft for rotating about the axis of said spool, said arm gradually unwinding the thread from said spool;
a thread passage provided at a second free end of said arm for guiding the unwound thread;
an actuation and control element for controllably driving said motor with a speed that is variable according to a tension required for the thread during feeding;
a thread tension sensor operatively connected to said actuation and control element, said tension sensor being arranged between said arm and the knitting machine along a thread feeding direction for sensing a tension degree of the thread being fed to the knitting machine, and wherein said tension sensor comprises:
at least two passages forming a thread path for the thread to be controlled;
an oscillatable lever, said lever having a contact end arranged along the path formed by said two passages, said contact end making contact with the thread for performing a deflection of the thread path between said two passages; and
oscillation sensing means for sensing the oscillation of said lever as a consequence of the tension degree of the thread engaged by said contact.

elongation to promote conformation of the fabric to the shape of the underwire in fabrication of the brassiere.

5,669,248

TEXTILE MACHINES, IN PARTICULAR WARP KNITTING MACHINES, WITH THREAD LIFTING ELEMENTS

Kresimir Mista, Heusenstamm, and Joachim Fischer, Rodgau, both of Germany, assignors to Karl Mayer Textilmaschinenfabrik GmbH, Obertshausen, Germany

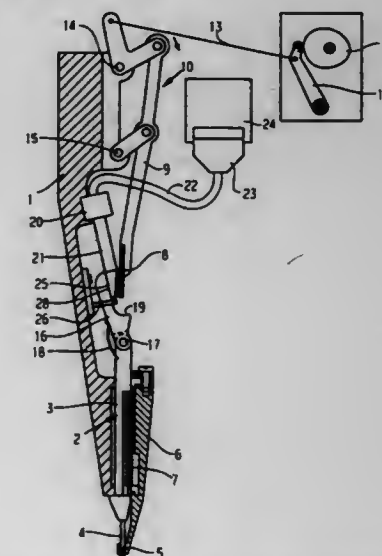
Filed Mar. 12, 1996, Ser. No. 631,166

Claims priority, application Germany, Apr. 24, 1995, 195 14 995.5

Int. Cl.⁶ D04B 27/24; 27/32

U.S. Cl. 66—205

24 Claims



1. A textile machine for a warp knitting machine, a weaving loom or other textile equipment, comprising:

- a carrier;
- a thread-gripping plurality of stroke elements mounted side-by-side on said carrier, said stroke elements being individually and longitudinally displaceable in a stroke direction;
- a pattern-following plurality of control elements mounted on said carrier and electrically activatable to be brought into a first and a second position for affecting displacement of said stroke elements;
- a single, common, activating arrangement running the length of the carrier and reciprocable in the stroke direction for carrying into a working position those ones of the stroke elements associated with selected ones of the control elements that are in the second position.

5,669,249

MAGNETIC SELECTION RING FOR AN ELASTIC SELECTOR FOR NEEDLES IN A CIRCULAR KNITTING MACHINE

Jan Ando, Scandicci, Italy, assignor to Matec S.r.l., Scandicci, Italy

Filed Feb. 26, 1996, Ser. No. 605,461

Claims priority, application Italy, Mar. 3, 1995, B095A0079
Int. Cl.⁶ D04B 15/78

U.S. Cl. 66—219

4 Claims

1. A magnetic selection ring for an elastic selector for needles in a circular knitting machine, comprising:
a fixed annular permanent magnet arranged towards an inside of a cylinder of the knitting machine for retaining a downward extension tab of the elastic selector during rotation of the cylinder;

5,669,247

UNDERWIRE BRASSIERE, WARP KNITTED TEXTILE FABRIC FOR USE IN FABRICATING SAME, AND METHOD OF WARP KNITTING SUCH FABRIC

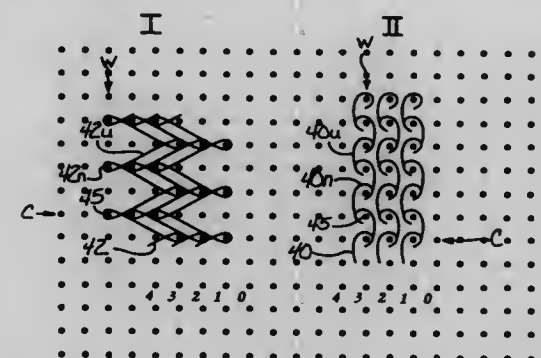
Phillip D. McCartney, Oak Ridge; Hilda E. Allen, High Point, both of N.C., and James G. Donaghy, Emerson, N.J., assignors to Guilford Mills, Inc., Greensboro, N.C.

Filed Aug. 28, 1996, Ser. No. 704,137

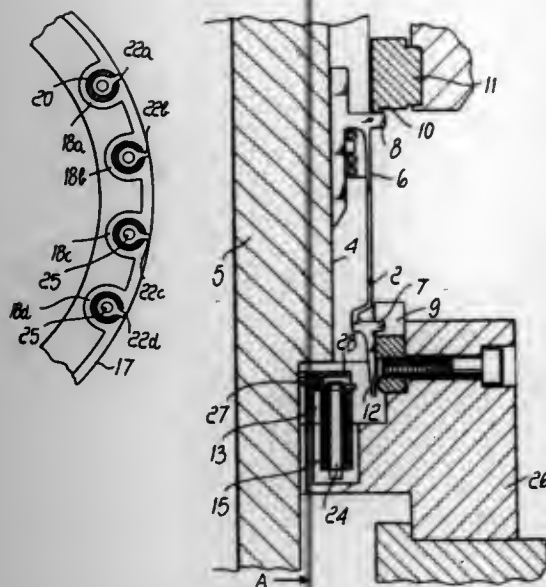
Int. Cl.⁶ D04B 21/14; A41B 3/12; 3/14

U.S. Cl. 66—195

31 Claims



1. A textile fabric of a warp knitted construction characterized by a generally inelastic and dimensionally stable stitch structure adapted for use as an underwire covering in a brassiere of the type having a supporting underwire shaped in conformity to a wearer's breasts, the fabric comprising a plurality of generally inelastic yarns interknitted with one another in stitches arranged in longitudinally extending fabric wales and transversely extending fabric courses, the yarns comprising a first set of yarns each warp knitted in a pattern of coursewise spaced stitches with extended underlaps therebetween for providing structural stability and elongation resistance coursewise of the fabric and a second set of yarns each warp knitted in a pattern of walewise aligned chain stitches for providing structural stability and elongation resistance walewise of the fabric, the chain stitches of the second yarns being canted in a coursewise inclination relative to the walewise alignment of the second yarns for providing the fabric with a predetermined degree of walewise



a plurality of electromagnets formed in a peripheral region of said fixed annular permanent magnet, such that an activation of said electromagnets causes a selective release of the extension tab of the elastic selector;

a body of the annular permanent magnet made of ferromagnetic material including a solid annular region with a substantially square cross-section and, on one side of the solid annular region, an external flange;

a plurality of recesses formed in the solid annular region; slots formed in the external flange at said recesses and being open radially outwardly of the external flange; and

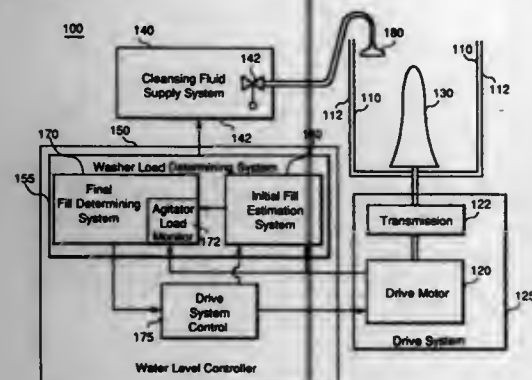
diamagnetic material filled in said slots to form, in the flange, respective heads made of ferromagnetic material for said electromagnets.

5,669,250

WASHING MACHINE FILL CONTROL SYSTEM
Mark Edward Dausch, Latham; Walter Whipple, III, Amsterdam; Vivek Venugopal Badami, Niskayuna, and Harold John Jenkins, Jr., Amsterdam, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Continuation of Ser. No. 496,115, Jun. 28, 1995, abandoned.
This application Sep. 23, 1996, Ser. No. 717,593
Int. Cl.⁶ D06F 31/02; 39/08

U.S. Cl. 68—12.02

16 Claims



1. A washing machine for cleansing articles in a cleansing fluid, the machine comprising:

a rotatable basket adapted to receive the articles to be cleansed,

a rotatable agitator device further being disposed within said basket to effect movement of cleansing fluid and articles within said basket;

a drive system coupled to respectively drive said rotatable basket and said agitator device;

a cleansing fluid supply system disposed to provide said cleansing fluid to said basket in a clothes-positioning spray pattern; and

a closed loop water level controller responsive to the load of articles disposed in said basket to be cleansed, said water level controller being coupled to said cleansing fluid supply system and said drive system and adapted to provide an optimal fill level of cleansing fluid in said basket, said controller comprising a washer load determining system adapted to control rotation cycles of said agitator to displace said articles to be cleansed and to process information derived therefrom so as to determine said optimal fill level;

said cleansing fluid supply system further comprising a fluid fill funnel being disposed in a spraydown position with respect to said basket so as to provide said clothes-positioning spray pattern such that the articles in said basket are disposed so as to be displaced by said agitator during agitator rotation cycles to determine the load of said articles in the basket.

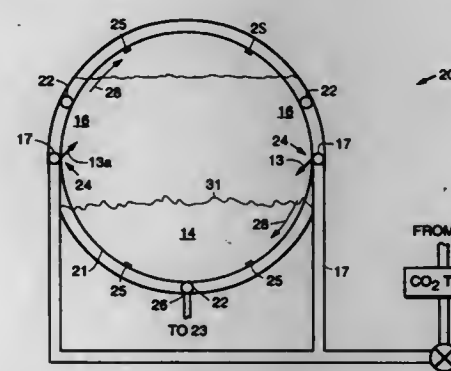
5,669,251

LIQUID CARBON DIOXIDE DRY CLEANING SYSTEM HAVING A HYDRAULICALLY POWERED BASKET
Carl W. Townsend, and Edna M. Purer, both of Los Angeles, Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jul. 30, 1996, Ser. No. 688,701
Int. Cl.⁶ D06F 43/02

U.S. Cl. 68—58

12 Claims



1. A liquid carbon dioxide cleaning system for dry cleaning garments, said system comprising:

a pressurized vessel containing a fluid bath comprising liquid carbon dioxide;

a basket for holding the garments that are to be dry cleaned that is disposed within the pressurized vessel and that has a plurality of openings disposed around the periphery thereof;

a plurality of roller bearings disposed between the basket and the pressurized vessel for allowing the basket to rotate within the vessel;

a plurality of manifolds disposed between the pressurized vessel and the basket that each comprise a plurality of nozzles that produce jets of liquid carbon dioxide that agitate the garments, and wherein the nozzles are aligned with the plurality of openings in the basket; and

a pump coupled between the manifolds and the pressurized vessel for pumping the liquid carbon dioxide to produce the jets that clean the garments and rotate the basket.

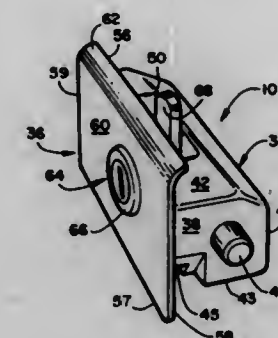
5,669,252

COMBINATION SHOTGUN LOCK AND EJECTION PORT COVER ASSEMBLY
James K. Bentley, 2489 Starling Dr., Paso Robles, Calif. 93446-4703

Filed Apr. 13, 1995, Ser. No. 422,064
Int. Cl.⁶ E05B 73/00

U.S. Cl. 70—14

4 Claims



1. A combination shotgun lock and ejection port cover assembly in combination with a shotgun having a receiver that has an ejection port having a predetermined length L1 and a predetermined height H1, said shotgun having a gun barrel having a rear end, and wherein said assembly comprises:

a solid plastic block-shaped member having a height less than H1 and a length less than L1, said block-shaped member having a front wall, a rear wall, a top wall having a rear edge, a bottom wall having a rear edge, a left side wall, and a right side wall; said rear wall being a continuous surface that extends from the rear edge of said top wall to the rear edge of said bottom wall; a slot is formed in said top wall and said slot is in communication with a lock cylinder chamber formed in said solid plastic block-shaped member;

a solid plastic cover panel having a top edge, a bottom edge, a left edge, a right edge, a front surface, a rear surface, a predetermined length L2 that is greater than L1, and a predetermined height H2 that is greater than H1; the rear surface of said cover panel being integrally connected to the front wall of said block-shaped member; a longitudinally extending slot having an open left end and an open right end formed along the entire length of the bottom wall of said block-shaped member adjacent the rear surface of said cover panel for receiving a bottom edge of a structure that defines the ejection port of said shotgun; and

a key lock cylinder having a front end and a rear end; said key lock cylinder having a shank adjacent said rear end; said key lock cylinder extending through said cover panel and into the lock cylinder chamber formed in said block-shaped member; an elongated tang member having a top end and a bottom end, said bottom end having an aperture that receives the shank of said key lock cylinder; said tang being aligned with the slot in the top wall of said block-shaped member so that rotation of said key lock cylinder will cause the top end of said tang member to be rotated upwardly through said slot for positively locking said combination shotgun lock and ejection port cover assembly in the ejection port of said shotgun.

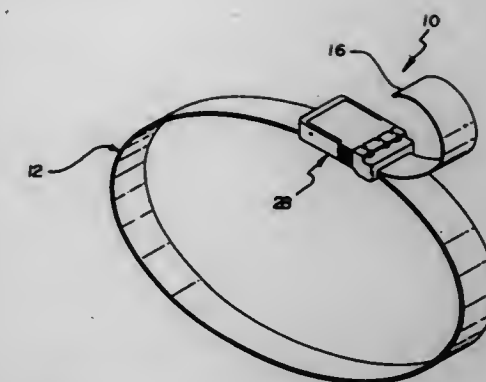
5,669,253

LOCKING STRAP
Scott W. Higgins, 26 Central St., Northfield, Vt. 05663
Filed Jun. 21, 1996, Ser. No. 670,265
Int. Cl.⁶ E05B 73/00

U.S. Cl. 70—18

1 Claim

1. A new and improved locking strap for securing recreational items when not in use comprising in combination:



an elongated strap having a captured end and a free end, the strap being a layer of woven metal being covered by a layer of polymeric material being nylon, the strap being sized for wearing as a belt;

a buckle member being fixedly attached to the captured end of the strap, the buckle member being formed of a rigid material, the buckle member having a rear opening and a front opening, the rear opening and the front opening being capable of receiving the free end of the strap therethrough for allowing the looping of the strap around a first object and a second object;

a locking mechanism being secured within a bottom portion of the buckle member, the locking mechanism having at least three tumblers with each secured within the buckle member by a cylindrical pin;

a buckle lid being coupled to the bottom portion of the buckle member and spaced from the locking mechanism, the lid having a first end and a second end, the first end of the lid having a vertical projection extending therefrom, the vertical projection having a flat face capable of clamping down onto the strap when the free end being positioned through the buckle member; and

the second end of the lid having a pair of flaps for overlapping the bottom portion of the buckle member, each flap having a plurality of ridges on an exterior surface thereof for non-slip gripping of the lid when opening and closing the buckle member, the second end of the lid further having grooves for snap fastening with the tumblers, the second end of the lid being locked within the bottom portion by the tumblers for preventing the release of the free end when the strap being secured around the first and second object, each tumbler of the buckle member being disc-like and having a numbering wherein a combination of numbers being used for releasing the second end of the lid having been secured to the bottom portion of the buckle member.

5,669,254

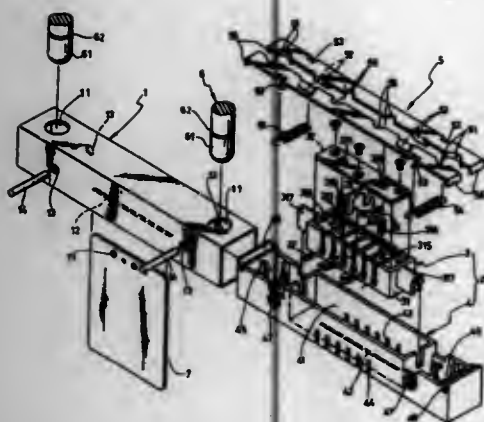
LOCKING DEVICE

Chi-Hou Lee, Taipei, Taiwan, assignor to Simple Locksmith Co., Ltd., Taiwan
Filed Apr. 5, 1996, Ser. No. 628,860
Int. Cl.⁶ E05B 67/22

U.S. Cl. 70—38 A

1 Claim

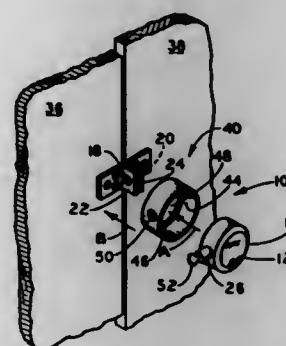
1. A locking device of the type comprising a casing having two shackle slots at a top side and a card slot at a bottom side, a U-shackle having two ends respectively inserted into the shackle slots of said casing, a lock cylinder mounted in said casing, two locking plates mounted in said casing and coupled to said lock cylinder to lock the ends of said U-shackle in said casing, and a card inserted through the card slot of said casing to drive said lock cylinder, causing said lock cylinder to release said locking plates from the ends of said U-shackle for permitting said U-shackle to be disconnected from said casing, wherein: said lock cylinder comprises a tumbler holder, a mounting shell, a set of tumblers, a set of springs, and a set of steel balls, said tumbler holder comprising a rectangular base having a plurality of U-shaped tumbler slots



5,669,255
ANTI-TAMPER LOCK GUARD
 George Albano, 30 Comber St., Valley Stream, N.Y. 11580
 Filed Aug. 25, 1995, Ser. No. 519,544
 Int. Cl.⁶ E05B 67/38

U.S. Cl. 70—56

1 Claim



longitudinally spaced at a top side thereof, a plurality of first transverse holes and a plurality of second transverse holes at two opposite lateral sides thereof and respectively extending from said tumbler slots at a bottom side in reversed directions, a bottom slot for the insertion of said card, two upright posts raised from a top side thereof, two press blocks respectively raised from two opposite ends of said rectangular base and moved with said rectangular base to unlock said locking plates, and a cover board connected to said rectangular base by spring means and moved vertically along said upright post to hold said tumblers in said tumbler holder, said steel balls being respectively inserted through said first transverse holes into the inside of said rectangular base, said set of springs being respectively inserted through said second transverse holes into the inside of said rectangular base, each of said tumblers having a substantially U-shaped profile, a first hooked portion and a second hooked portion raised from two opposite ends at an outer side in reversed directions respectively moved relative to said first transverse holes and said second transverse holes of said rectangular base, and a third hooked portion raised from one end at an inner side and respectively connected to said springs, said mounting shell having a rectangular shape, a longitudinal chamber, which receives said tumbler holder, a bottom slot corresponding to the card slot of said casing for the insertion of said card, a plurality of first vertical slots and a plurality of second vertical slots at two opposite sides of said longitudinal chamber corresponding to the first transverse holes and second transverse holes of said rectangular base, two transverse grooves at two opposite ends, two retaining holes spaced between said transverse grooves and said longitudinal chamber for receiving the ends of said U-shackle, and two pairs of pin holes at two opposite sides connected to respective pin holes on said casing by pins; said locking plates are symmetrical and connected in parallel by springs to hold said U-shackle in the locking position, each locking plate comprising two downward end flanges at two opposite ends respectively inserted into the transverse grooves said mounting shell, two first circularly arched notches longitudinally spaced at an inner side between said downward end flanges and adapted to engage the ends of said U-shackle to hold said U-shackle in the locked position, two downward contact strips shackle longitudinally spaced at an inner side between said first circularly arched notches and disposed in contact with the press blocks of said tumbler holder, two hooked portions longitudinally spaced at an inner side between said downward end flanges, and two second circularly arched notches longitudinally spaced at an inner side between said downward contact strips, the first circularly arched notches of said locking plates being matched into two circular holes adapted to engage the ends of said U-shackle, the second circularly arched notches of said locking plates being matched into two circular holes adapted for passing the upright posts of said tumbler holder.

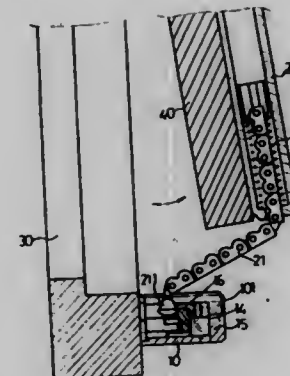
1. Improvements for means temporarily rendered inseparable by a lock comprising adjacent lugs on said means adapted to be locked together, a guard for a lock consisting of a housing having a lock-receiving compartment bounded by a circular side wall, said side wall having opposite outer and inner edges, said outer edge bounding an opening into said lock-receiving compartment and said inner edge having an in-turned flange forming a partial closure for said lock-receiving compartment, said flange having a central opening sized to receive in projected relation therethrough said lugs, said guard having an operative position with said lugs projected into said lock-receiving compartment through said flange opening and a degree of rotative movement about said lugs, a lock having a face with a lug-receiving compartment therein, said lock having a circular shape sized to fit within said lock-receiving compartment and presenting a peripheral edge in adjacent position to a surface bounding said lock-receiving compartment, said lock having an operative position disposed within said guard lock-receiving compartment with said lugs projected within said lock lug-receiving compartment and adapted to be engaged by said lock such that said lock is inadvertently held stationary by said lugs and rendered vulnerable to twisting removal therefrom but without impeding said guard from partaking of rotative movement about said stationary-held lock, and said peripheral edge of said stationary-held lock having an operative position immediately forward of said guard in-turned flange so as to prevent removal of said guard from an encircling position about said lock, whereby said guard circular side wall is in an interposed position between said lock and a tampering tool attempted to be applied externally to said lock and any rotative movement using said tampering tool merely causes harmless rotation of said guard rather than a forced rotative movement of said stationary-held lock.

5,669,256
DOOR LOCK MECHANISM WITH A RELEASE BUTTON
 Kuan-Chin Chung, No. 91, Chu Shan Road, Ho Hsin Tsun, Nei Pu Hsiang, Ping Tung Hsien, Taiwan
 Filed Oct. 30, 1996, Ser. No. 739,894
 Int. Cl.⁶ E05B 65/00

U.S. Cl. 70—93

4 Claims

1. A door lock mechanism, comprising:
 a retainer housing assembly comprising:
 a retainer housing adapted to be mounted to a doorframe and including a retaining slot defined in a lateral side thereof and a compartment defined therein, a lock core received in the compartment the lock core having a retaining member mounted to a lower end thereof, and a first elastic member mounted around the retaining member;
 a lock piece pivotally received in the retaining slot and including an arcuate operative surface, the lock piece fur-



ther including a first end releasably engaged with the retaining member and a second end;
 a second elastic means for returning the lock piece to its initial position; and
 a release button having a first end releasably engaged with the second end of the lock piece and a second end for manual operation so as to be moved between a first position which engages with the lock piece and a second position which disengages from the lock piece; and

a chain housing assembly comprising:
 a chain housing having a longitudinal compartment defined therein;
 a chain received in the longitudinal compartment of the chain housing and including a first end fixedly mounted to the chain housing and a second end which is stretchable beyond the chain housing;
 a third elastic means mounted around the chain for returning the chain to its initial unstretched position; and
 a slide bolt securely mounted to the second end of the chain and releasably, slidably received in the retaining slot of the retainer housing;
 wherein when in a locked position and when the release button is in its first position, the lock piece is stopped by the retaining member and the slide bolt is retained in the retaining slot and allows the door to be opened for a small gap, and when in a locked position and when the release button is in its second position, the lock piece is disengaged from the lock piece and thus allows removal of the slide bolt from the retaining slot without operation of the lock core.

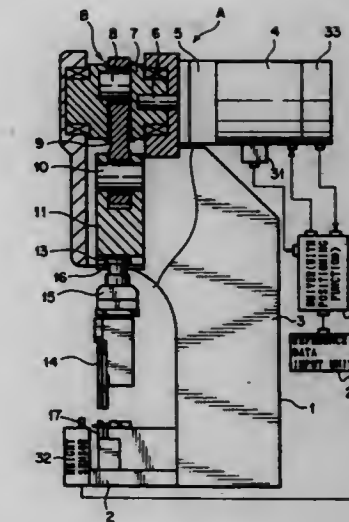
5,669,257
METHOD OF CRIMPING TERMINAL AND APPARATUS FOR THE SAME

Toshihiro Inoue, and Kazuhiko Takada, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan
 Filed Dec. 21, 1995, Ser. No. 576,090
 Claims priority, application Japan, Dec. 28, 1994, 6-328826
 Int. Cl.⁶ B21D 9/08; B21J 9/18

U.S. Cl. 72—20.1

12 Claims

1. A method of crimping a terminal barrel to a wire laid on an anvil by a crimper driven by a servo-motor through a piston crank mechanism having an off-center pin, the forward and reverse rotations of said servo-motor vertically reciprocating said crimper, said method comprising:
 preliminarily recording reference speeds or accelerations of said crimper at vertical positions of the reciprocating movement thereof, and the reference value of a current which is supplied to said servo-motor when the terminal is crimped;
 descending said crimper at the recorded reference speeds corresponding to the crimper positions while said crimper descends from its top position to its crimping start position;
 crimping said terminal when the off-center pin is positioned at an intermediate position between its top dead point and its bottom dead point by supplying said servo-motor with said

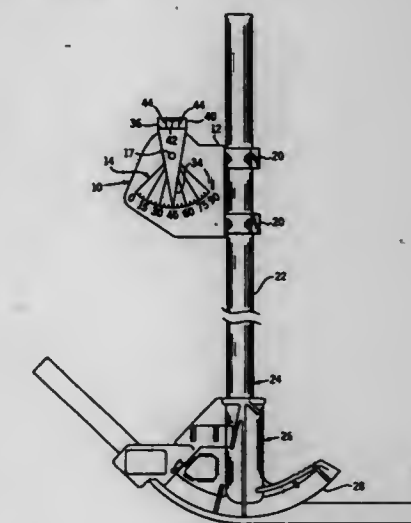


recorded reference current for a predetermined prolonged period sufficient to prevent spring back of said terminal barrel.

5,669,258
TUBE BENDER ANGLE INDICATOR
 Thomas M. Luebke, Menomonee Falls, Wis., assignor to Applied Power Inc., Butler, Wis.
 Filed Jun. 13, 1996, Ser. No. 664,066
 Int. Cl.⁶ B21D 7/14

U.S. Cl. 72—31.04

7 Claims



1. A tube bender angle indicator, comprising:
 a frame having angle scale indicia in a certain orientation thereon, said orientation corresponding to a certain type of tube bender, said angle scale identifying various bend angles of said type of tube bender and defining an apex;
 an angle pointer connected to said frame to pivot about an axis which approximately intersects said apex, said frame pointer being rotatable relative to said frame about said axis to select one of said bend angles;
 a bubble level vial secured to said pointer for indicating when said vial is in a certain reference orientation relative to the horizon; and
 means for affixing said frame to said tube bender in a fixed orientation so that said vial is in said reference orientation with said pointer at a zero degree position of said angle scale and said tube bender in a zero degree position.

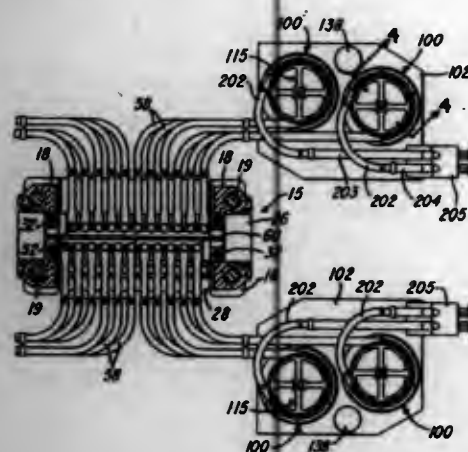
5,669,259

APPARATUS FOR HIGH SPEED PRODUCTION OF SHELLS FOR BEVERAGE CONTAINERS
 Ralph P. Stodd, 6450 Poe Ave., Suite 213, Dayton, Ohio 45414
 Continuation-in-part of Ser. No. 798,910, Mar. 6, 1995, Pat. No. 5,491,995, which is a continuation of Ser. No. 139,032, Oct. 21, 1993, abandoned. This application Feb. 20, 1996, Ser. No. 604,496

Int. Cl.⁶ B21D 51/44

U.S. Cl. 72—68

14 Claims



1. Apparatus for high speed production of metal shells each having a curled peripheral lip portion, said apparatus comprising a power operated reciprocating press including a plurality of shell forming stations extending in a row, each of said forming stations including tooling components for successively forming shells with strokes of the press, at least one curling unit including a base member supporting a shaft for rotation, a wheel having a hub portion connected to an outer rim portion, said hub portion mounted on said shaft for supporting said wheel for rotation on the axis of said shaft, a plurality of axially arranged inner die rings mounted in close relation on said rim portion of said wheel for rotation with said wheel, said base member including an outer portion extending around said rim portion of said wheel, a plurality of axially arranged outer forming dies mounted on said outer portion in close relation and radially opposing corresponding said inner die rings, said inner die rings and the corresponding opposing said outer forming dies forming a plurality of closely spaced lip curling stations each corresponding to one of said shell forming stations, each of said lip curling stations including a shell support member projecting radially between the corresponding said inner die ring and said outer forming die, a separate shell guide conveyor extending from each said shell forming station to the corresponding said lip curling station with a plurality of said guide conveyors connected to said lip curling stations in closely spaced relation, and each said guide conveyor directing each shell from the corresponding said forming station to the corresponding said lip curling station of said curling unit.

5,669,260

METHOD OF MANUFACTURING A C-SHAPED RAIL WITH PROFILED SURFACES

Hans Stampfl, Feldkirch-Tisis; Siegfried Höfle, Götzis, and Walter Hintersteiner, Ybbsitz, all of Austria, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein
 Filed Apr. 3, 1996, Ser. No. 626,818

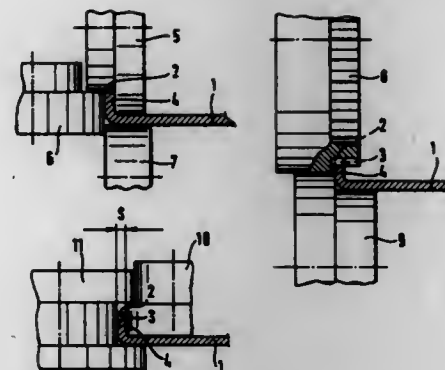
Claims priority, application Germany, Apr. 3, 1995, 195 12 414.6

Int. Cl.⁶ B21D 19/04

U.S. Cl. 72—177

6 Claims

1. Method of manufacturing an elongated C-shaped rail from an elongated planar sheet metal strip (1) having a first planar surface an opposite second planar surface and side edges (2) extending between said first and second planar surfaces and in the elongated



direction, comprising the steps of bending laterally spaced marginal sections of said sheet metal strip (1) extending along said side edges outwardly from and at substantially 90° relative to said first planar surface, rolling a profiled surface extending in the elongated direction into each of said side edges bent outwardly, after rolling the profiled surfaces into the elongated edges (2), rolling the marginal sections including the elongated edges by calibrating discs (10, 11) to return the marginal sections to an original thickness (S) and subsequently forming said sheet metal strip (1) into a C-shaped section transversely of the elongated direction with the profiled surfaces facing inwardly into the C-shaped rail.

5,669,261

APPARATUS FOR BENDING A HEAT-EXCHANGER TUBE

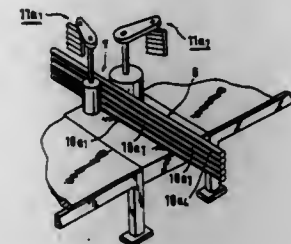
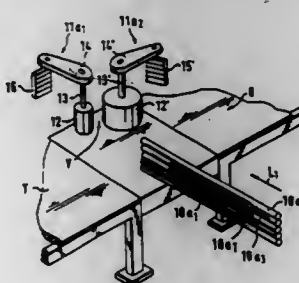
Risto Castrén, Lahti, Finland, assignor to Retermia Oy, Heinoala, Finland

Filed Sep. 22, 1995, Ser. No. 532,463

Int. Cl.⁶ B21D 7/024

U.S. Cl. 72—307

21 Claims



1. A bending apparatus for bending a plurality of heat-exchanger tubes, comprising
 first and second bending means for bending the tubes, said first and second bending means being arranged in opposed relationship to one another to define a passage therebetween through which the tubes are passed in a first direction, each of said first and second bending means comprising a pivot shaft having a geometric axis oriented in a second direction perpendicular to the first direction, a bending blade coupled to said pivot shaft,

first actuating means for pivoting said pivot shaft around its geometric axis to thereby move said bending blade into engagement with the tubes to bend the tubes, and
 second actuating means for displacing said pivot shaft in the second direction.

5,669,262

REMOVABLE ULTRASONIC TRANSDUCER WITH INTEGRAL ELECTRICAL DISCONNECT

Frederick Lloyd Lichtenfels, II, and Ralph Ernest Burt, both of Vergennes, Vt., assignors to Simmonds Precision Products, Inc., Richfield, Ohio

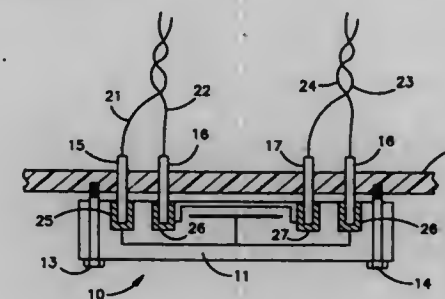
Continuation of Ser. No. 173,842, Dec. 27, 1993, abandoned.

This application Jan. 22, 1996, Ser. No. 589,128

Int. Cl.⁶ G01F 23/28

U.S. Cl. 73—290 V

10 Claims



1. A system for measuring the level of liquid contained within the interior of a tank having a tank wall, the system comprising:
 electrical conductors for conducting electrical energy through the interior of the tank;
 an ultrasonic transducer for disposal on the exterior of the tank, said transducer having first electrical contacts; and,
 second electrical contacts provided for placement through the tank wall and electrically connected to said electrical conductors for electrically connecting said first electrical contacts to said electrical conductors.

5,669,263

PROBE FOR MONITORING LIQUID WITH PROTECTION AGAINST LEAKAGE

Kerstin Borchers; Joachim-Christian Politt, both of Bremen, and Holger Schroter, Achim, all of Germany, assignors to Gestra Aktiengesellschaft, Bremen, Germany
 Filed Feb. 15, 1996, Ser. No. 602,096

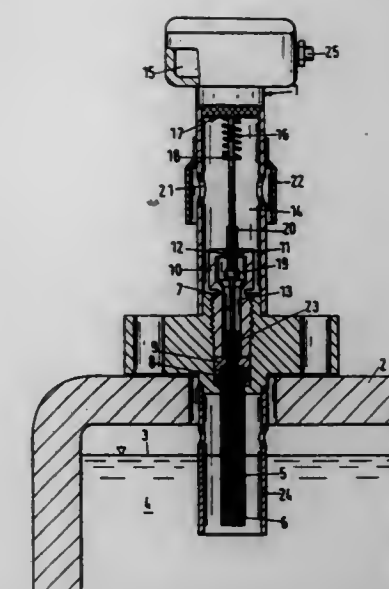
Claims priority, application Germany, Mar. 4, 1995, 195 07 616.8

Int. Cl.⁶ G01F 23/00

U.S. Cl. 73—304 R

17 Claims

1. Probe for monitoring liquid in a container, comprising a probe housing to be mounted on the container, and said probe housing having an interior space;
 the interior space of the probe housing having a first chamber close to the container and a second chamber remote from the container, a separation wall present between said first chamber and said second chamber, and said separation wall being provided with a passage opening;
 a sensor electrode extending into the container and extending from the first chamber through the passage opening and into the second chamber;
 an insulation cover surrounding the sensor electrode in the container and supported sealingly on the probe housing;
 the wall of the first chamber close to the container, including the separation wall, being pressure-proof; and
 a closing part for the passage opening being arranged in the first chamber, said closing part being axially movable against the separation wall and, with the probe intact, assuming a position



remote from the passage opening, whereas, under the influence of the inflow of medium from the container, it closes the passage opening pressure-tight.

5,669,264

APPARATUS FOR PREVENTING URGING ROTATION OF A BALL SCREW SHAFT FOR A LINEAR WORKING MACHINE

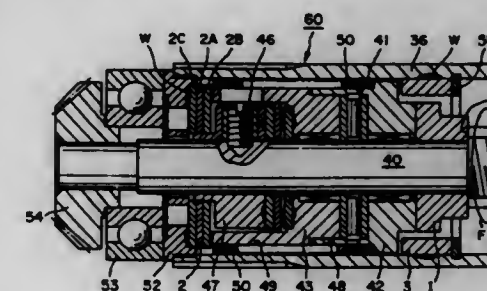
Shunji Sakura, Kyoto; Koichi Saeda, Higashiosaka; Hiroto Sunaba, Osaka, and Naoto Shibata, Takatsuki, all of Japan, assignors to Tsubakimoto Chain Co., Osaka, Japan

Filed Oct. 24, 1995, Ser. No. 547,398

Claims priority, application Japan, Jun. 15, 1995, 7-148866
 Int. Cl.⁶ F16H 27/02

U.S. Cl. 74—89.15

2 Claims



1. An apparatus for preventing rotation of a ball screw shaft in a linear working machine including a driving motor, a ball screw shaft made to rotate in either a clockwise or counterclockwise direction by said driving motor, a ball nut reciprocating along said ball screw shaft, and an output shaft attached to said ball nut and linearly moving to-and-fro with respect to a housing of said linear working machine, wherein said apparatus for preventing rotation of a ball screw shaft comprises:

a compressive force receptive rotation member loosely fitted around a base end portion of said ball screw shaft;
 a tensile force receptive rotation member loosely fitted around said base end portion of said ball screw shaft;
 a shaft compressive step portion formed at said base end portion of said ball screw shaft;
 a torque ring means mounted on said ball screw shaft and interposed between said compressive force receptive rotation member and said shaft compressive step portion, for pressing against said compressive force receptive rotation member when a compressive force is exerted on said ball screw shaft;

a shaft tractive step portion means, fixed on said base end portion of said ball screw shaft, for pressing against said tensile force receptive rotation member when a tensile force is exerted on said ball screw shaft;

a thrust bearing interposed between said compressive force receptive rotation member and said tensile force receptive rotation member;

a compressive force stopper means, mounted on said housing, and being operative for preventing axial movement of said tensile force receptive rotation member when pressed, through said compressive force receptive rotation member and said thrust bearing, by said shaft compressive step portion when said compressive force is exerted on said ball screw shaft;

a tensile force stopper means, mounted on said housing, for receiving said compressive force receptive rotation member and said thrust bearing, by said shaft tractive step portion when said tensile force is exerted on said ball screw shaft; and

a coil spring tightly mounted on the outer periphery of said compressive force receptive rotation member and said tensile force receptive rotation member, wherein, when an external axial force, applied to said output shaft in an axial direction thereof, is exerted through said ball nut on said ball screw shaft so that rotary force is generated in the clockwise or counterclockwise direction at said ball screw shaft, either of said compressive force receptive rotation member or said tensile force receptive rotation member rotates, thereby tightening said coil spring and restraining said ball screw shaft against axial movement.

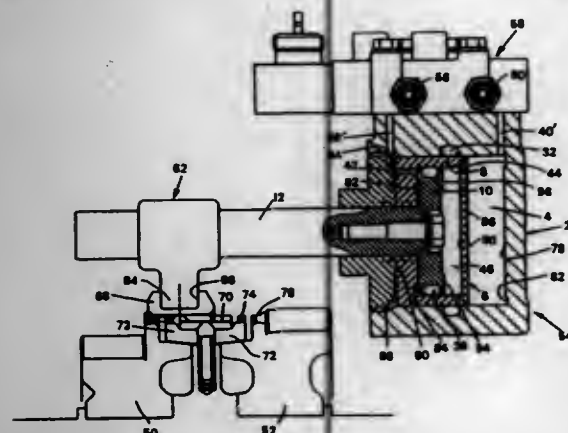
5,669,265

ARRANGEMENT FOR GEAR CHANGE OPERATION
Horst Adler, Vagnhärad, Sweden, assignor to Scania CV AB, Sweden

Filed Apr. 24, 1996, Ser. No. 636,922
Claims priority, application Sweden, Apr. 26, 1995, 9501536
Int. Cl.⁶ F16H 59/00

U.S. Cl. 74—335

19 Claims



1. Apparatus for causing staged movement of a gear change shaft in a synchronized vehicle gearbox, the apparatus comprising:

an outer cylinder having opposite spaced apart first and second end walls and the cylinder extending between the first and second end walls and defining a space in the outer cylinder;

a piston-and-cylinder package in the outer cylinder and shaped for moving through the space in the outer cylinder selectively toward the first or the second end walls; the piston-and-cylinder package comprising:

an outer, first piston in the space in the outer cylinder and movable through the outer cylinder selectively toward one of the first and the second end walls, the first piston defining a space within the first piston which defines a second, inner cylinder having respective opposite spaced apart third and fourth end walls and the inner cylinder defining the space therein extending between the third and fourth end walls; the third end wall of the first piston

opposing the first end wall of the outer cylinder and the fourth end wall of the first piston opposing the second end wall of the outer cylinder;

an inner, second piston disposed in and movable through the inner cylinder selectively toward one of the third and fourth end walls;

the gear change shaft being connected with the second inner piston to be moved by movement of the second piston;

a first fluid duct communicating into the outer cylinder between the first and third end walls; a second fluid duct communicating into the outer cylinder between the second and fourth end walls; the first and second fluid ducts being connected for selectively supplying fluid to or removing fluid from the cylinder space inside the outer cylinder;

a third fluid flow passage between the outer and the inner cylinders past the third end wall of the inner cylinder; and a fourth fluid flow passage between the outer and the inner cylinders past the fourth end wall of the inner cylinder.

5,669,266
COUPLING GEAR

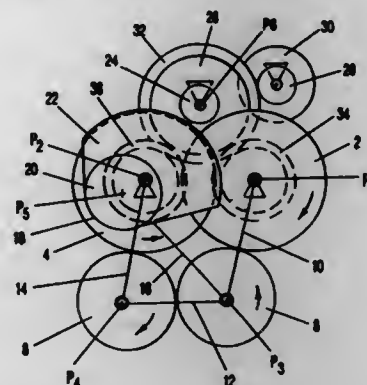
Peter Kreuter, Aachen, Germany, assignor to Meta Motoren- und Energie-Technik GmbH, Herzogenrath, Germany

Filed Feb. 8, 1996, Ser. No. 598,512
Claims priority, application Germany, Feb. 8, 1995, 195 04 132.1; Jun. 8, 1995, 195 21 004.2

Int. Cl.⁶ F01L 1/34; F16H 53/04

U.S. Cl. 74—395

22 Claims



1. A coupling gear for transmitting rotation of a first shaft onto a second shaft, said coupling gear comprising:

a first and a second shaft;

a first coupling wheel fixedly connected to said first shaft;

a second coupling wheel fixedly connected to said second shaft;

a third coupling wheel with a rotational axle driven by said first coupling wheel;

a fourth coupling wheel with a rotational axle driven by said third coupling wheel and driving said second coupling wheel;

a first coupler for coupling the rotational axle of said first coupling wheel and said rotational axle of said third coupling wheel;

a second coupler for coupling said rotational axle of said third coupling wheel and said rotational axle of said fourth coupling wheel;

a third coupler for coupling said rotational axle of said fourth coupling wheel and the rotational axle of said second coupling wheel;

a control device for adjusting with a control movement a rotational phase of said first shaft relative to said second shaft, said control device comprising a control element for adjusting an angle between said first, second, and third couplers; said control device further comprising a friction member moveable into frictional engagement with at least one of said coupling wheels to thereby aid the control movement initiated by said control device.

5,669,267

REMOTE CONTROL APPARATUS AND RELATED METHOD

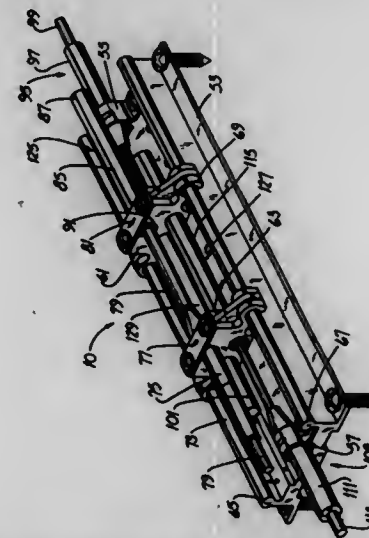
William J. Ross, Sarasota; Andrew K. Stiteler, Bradenton, and Gerald G. Wagner, Venice, all of Fla., assignors to IMO Industries, Inc., Sarasota, Fla.

Filed Feb. 14, 1996, Ser. No. 601,100

Int. Cl.⁶ G05G 11/00

U.S. Cl. 74—480 B

16 Claims



1. In a remote-control apparatus having (a) a base, (b) a slider supported with respect to the base, (c) a first cable including a first conduit and a first core coupled to the slider and movable in the first conduit, and (d) an output cable including a clamped conduit supported with respect to the base and having an output core movable in the clamped conduit, the improvement wherein the slider is a first slider and the apparatus includes:

a second slider supported with respect to the base;

a second cable having (a) a second conduit and (b) a second core coupled to the second slider and movable in the second conduit;

and wherein:

the first core and the output core are coupled to the first slider; and

the second core is coupled to the second slider.

5,669,268

BRAKE LEVER MECHANISM

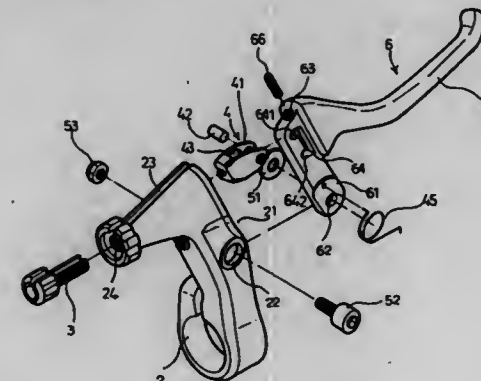
Shih Fan Tsai, Chang Hua Hsien, Taiwan, assignor to Tektro Technology Corporation, Chang Hua Hsien, Taiwan

Filed Jun. 5, 1996, Ser. No. 659,153

Int. Cl.⁶ B62K 23/06; B62L 3/02

U.S. Cl. 74—489

3 Claims



1. A brake lever mechanism comprising:

a bracket including a middle portion having a pivot shaft provided therein;

a brake handle including an elongated finger grip and a transverse elongated mounting arm joined at their proximal ends and integrally formed, said arm including a lower portion engaged with said pivot shaft so as to allow said arm to be rotated about said pivot shaft, said arm including a groove formed therein and including a first and a second recesses formed therein and communicating with said groove, said second recess being located between said pivot shaft and said first recess and located closer to said pivot shaft than said second recess, such that said first recess moves for a farther distance than said second recess relative to said pivot shaft when said arm is rotated about said pivot shaft;

a coupler including a rod secured thereto and slidably engaged in said groove for engaging with said first and said second recesses, and

means for retaining said rod in said first and said second recesses.

5,669,269

JOINT DRIVING STRUCTURE FOR INDUSTRIAL ROBOT

Kuniaki Katamine, and Shigeo Matsushita, both of Fukuoka, Japan, assignors to Kabushiki Kaisha Yaskawa Denki, Fukuoka, Japan

PCT No. PCT/JP94/01790, § 371 Date Jun. 21, 1995, § 102(e) Date Jun. 21, 1995, PCT Pub. No. WO95/11781, PCT Pub. Date Apr. 5, 1994

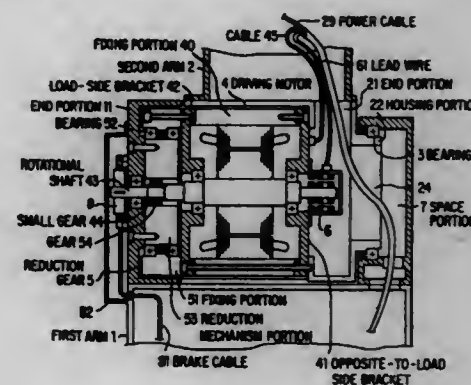
PCT Filed Oct. 26, 1994, Ser. No. 454,275

Claims priority, application Japan, Oct. 27, 1993, 5-292658

Int. Cl.⁶ B25J 9/06; 17/00

U.S. Cl. 74—490.02

4 Claims



1. A joint driving structure for an industrial robot comprising a first arm having a box-like end portion, a second arm having a box-like end portion, a bearing between said box-like end portion of said first arm and said box-like end portion of said second arm, a driving motor disposed at the box-like end portion of said second arm, said driving motor having a rotational shaft, a reduction gear mechanism coupled to said rotational shaft and operable to rotationally drive said second arm, said driving motor having a fixing portion, said driving motor further having an opposite-to-load side bracket fixed to said fixing portion of said driving motor, said reduction gear mechanism having a fixing portion fixed to said fixing portion of said drive motor, said reduction gear mechanism having an output portion fixed to said box-like end portion of said first arm, said box-like end portion of said first arm having a space portion passing into the inside of said first arm, a housing section on said box-like end portion of said second arm, said housing section supporting said bearing, said housing section having an internal space extending into said space portion in said box-like end portion of said first arm, and a power cable extending between said first arm and said second arm, said cable passing through said space portion in said box-like end portion of said first arm and through said internal space of said housing section, said power

cable having one portion which extends continuously from inside of said first arm, through said space portion in said box-like end portion of said first arm, through said internal space of said housing section, and into the inside of said second arm.

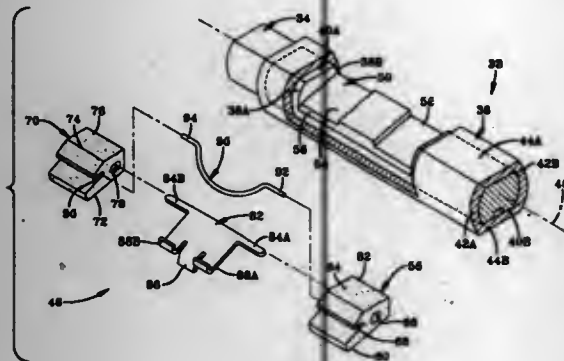
5,669,270
ROTARY TELESCOPEABLE SHAFT WITH RESILIENT INSERT

William David Cymbal, Freeland, and Donald Anthony Niedzelski, Bay City, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 29, 1996, Ser. No. 624,229
Int. Cl.⁶ B62D 1/20

U.S. Cl. 74—493

3 Claims



1. A rotary telescopeable shaft comprising:

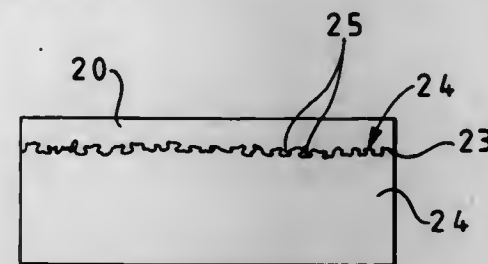
- a tubular shaft having a pair of diametrically opposite parallel flat sides and a pair of diametrically opposite cylindrical segments;
- a solid shaft slidably telescoped in said tubular shaft having a pair of diametrically opposite parallel flat sides facing said parallel flat sides of said tubular shaft and engageable thereon to effect a rotary driving connection and a pair of diametrically opposite cylindrical segments facing said cylindrical segments of said tubular shaft with running clearance between said solid shaft and said tubular shaft parallel to and perpendicular to said flat sides;
- a notch in one of said pair of flat sides of said solid shaft overlapped by a corresponding one of said flat sides of said tubular shaft;
- a pair of lateral ramps on a bottom of said notch converging with said one flat side of said tubular shaft;
- a longitudinal ramp on said bottom of said notch converging with one of said pair of cylindrical segments of said tubular shaft;
- a first slider;
- a second slider;
- a third slider;
- a spring urging relative separation between said third slider and each of said first and said second sliders, and means operative to prevent said spring from ejecting said third slider from each of said first and said second sliders;
- said first slider, said second slider, said third slider, and said spring being disposed in said notch with said spring wedging said first and said second sliders between said pair of lateral ramps and said one flat side of said tubular shaft to eliminate running clearance perpendicular to said flat sides by spreading apart said solid and said tubular shafts perpendicular to said flat sides and to eliminate running clearance parallel to said flat sides by wedging said third slider between said longitudinal ramp and said one cylindrical segment of said tubular shaft to spread apart said solid shaft and said tubular shaft parallel to said flat sides.

5,669,271
ELEMENTS FACED WITH SUPERHARD MATERIAL
Nigel Dennis Griffin, Whitminster, and John Michael Fuller, Nailsworth, both of England, assignors to Camco Drilling Group Limited of Hycalog, Stonehouse, England
Filed Dec. 8, 1995, Ser. No. 569,333
Claims priority, application United Kingdom, Dec. 10, 1994, 9424968

Int. Cl.⁶ B21K 5/04

U.S. Cl. 76—108.2

7 Claims

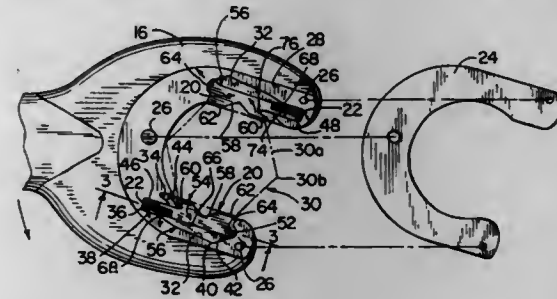


1. A method of manufacturing a preform element including a facing table of superhard material having a front face and a rear surface bonded to the front surface of a substrate which is less hard than the superhard material, the method comprising forming a solid substrate, applying an intense heating source to adjacent areas of the front surface of the substrate to melt the surface of the substrate in each of said area so as to form in each area a pool of molten substrate material and thereby to create, on subsequent cooling and solidification of the molten material, a cavity in the surface of the substrate in each said area, applying to said front face a layer of superhard particles so that particles of superhard material fill said cavities, and subjecting the superhard layer and substrate to pressure and temperature in a high pressure, high temperature press to bond the superhard layer of the substrate.

5,669,272
OPEN END RATCHET WRENCH
William S. Hansen, New Berlin, Wis., assignor to A&E Manufacturing Company, Racine, Wis.
Filed Feb. 22, 1996, Ser. No. 605,395
Int. Cl.⁶ B25B 13/12

U.S. Cl. 81—179

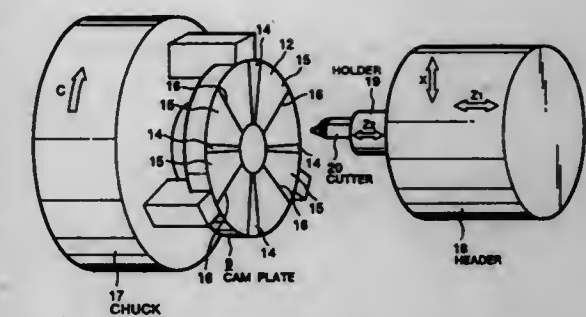
20 Claims



1. A ratchet wrench comprising:

- a handle;
- a body disposed on said handle, and having a head provided with a main wall defining an opening for receiving an element to be rotated;
- a pair of supplementary walls extending radially outwardly from said main wall, each of said supplementary walls being formed of a plurality of variously-shaped segments defining a recess;
- a pair of element engaging jaw members retained in each of said recesses, each of said jaw members having a multiplicity of variously-shaped surfaces slidable and pivotable along said segments of each of said recesses, each of said jaw members including a first rounded end portion slidable along a first portion of one of said supplementary walls and a second

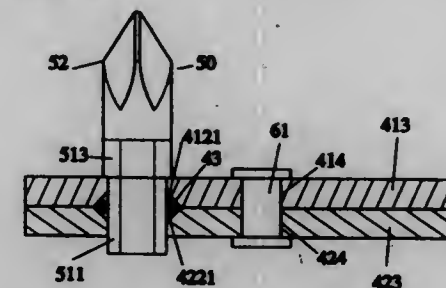
rounded end portion opposite said first rounded end portion and slidable and pivotable along a second portion of one of said supplementary walls; and
a pair of springs, each of said springs being mounted separately in each of said recesses for biasing each of said jaw members into said opening,
whereby rotation of said wrench in one direction maintains a bias of said spring such that when the element to be rotated is engaged against each of said jaw members, the element is drivingly rotated; and
whereby rotation of the wrench in an opposite direction acts against the bias of the spring to move each of said jaw members such that the element to be rotated slips against each of the said jaw members to permit the element to ratchet.



5,669,273
SCREW DRIVER
Daniel Huang, 56, Min Sheng Street, Fengyuan, Taichung, Taiwan
Filed Feb. 29, 1996, Ser. No. 608,665
Int. Cl.⁶ B25B 23/00

U.S. Cl. 81—438

7 Claims



1. A spanner type screw driver comprising:

- a spanner device having a first spanner and a second spanner disposed beneath said first spanner;
- said first spanner having a first hexagonal hole on a first head portion of said first spanner;
- said second spanner having a second hexagonal hole on a second head portion of said second spanner;
- said first hexagonal hole having six blunt corners;
- said second hexagonal hole having six blunt corners;
- a first tapered recess which is formed on said first head portion of said first spanner disposed on said first hexagonal hole to communicate with said first hexagonal hole;
- a second tapered recess which is formed on said second head portion of said second spanner disposed on said second hexagonal hole to communicate with said second hexagonal hole;
- an elastic retaining ring disposed on said first tapered recess and said second tapered recess;
- said first and second spanners fastened together;
- a screw driver bit inserted in said first hexagonal hole, said retaining ring and said second hexagonal hole.

5,669,274
METHOD FOR FORMING CAM FACE ON STRUCTURE MEMBER OF LOADING CAM DEVICE FOR TOROIDAL-TYPE CONTINUOUSLY VARIABLE TRANSMISSION
Kouichi Yokoi, Fujisawa; Takashi Yoshikai, Maebashi; Masami Tanaka, Maebashi, and Hidetoshi Hashitani, Maebashi, all of Japan, assignors to NSK Ltd., Tokyo, Japan
Filed Aug. 16, 1995, Ser. No. 515,582
Claims priority, application Japan, Aug. 26, 1994, 6-202265
Int. Cl.⁶ B23B 1/00

U.S. Cl. 82—1.11

2 Claims

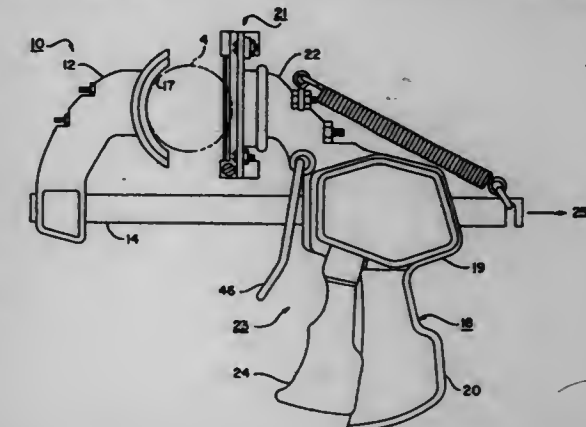
1. A method of forming a cam face on a structure member to be machined of a loading cam device for a toroidal-type continuously variable transmission, comprising the steps of:

rotating said structure member about its own axis, said structure member being incorporated into said loading cam device to be rotatable about its own axis;
axially pressing a cutting tool mounted on a holder against one axial surface of said structure member to be formed to have said cam face;
axially displacing said cutting tool in a direction Z₂ and axially displacing a header supporting said holder in a direction Z₁, in accordance with a rotational angle of said structure member to form an irregular surface serving as said cam face; and
forming a circumferentially extending surface;
wherein said cutting tool is displaced in a diametric direction of said structure member in accordance with the rotational angle of said structure member, and wherein the displacements of the axial direction and the diametric direction are controlled by a numerical control system or a copy shaping control system, and wherein a stroke length in the axial direction of said cutting tool is set to exceed a step between a flat portion and concave portion on the cam face to be formed.

5,669,275
CONDUCTOR INSULATION REMOVER
Edward Otis Mills, 4325 Lynn Burke Rd., Monrovia, Md.
Filed Aug. 18, 1995, Ser. No. 516,589
Int. Cl.⁶ B21F 13/00; B26B 27/00

U.S. Cl. 82—47

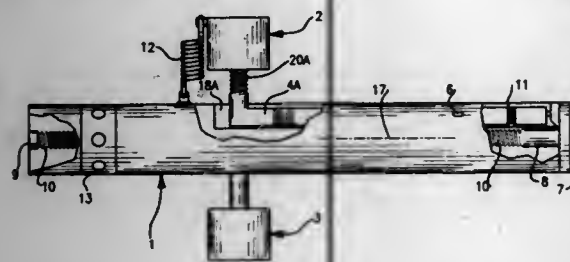
29 Claims



1. A method for removing insulation from a conductor using an apparatus including a body, a blade mounted to the body and having a cutting edge, a blade support pivotally mounted to the body and to which the blade is mounted, a movable jaw connected to the body, a one-way drive mechanism attached to the body to incrementally advance the movable jaw toward the blade, and an actuatable release lever permitting free movement of the movable jaw away from the blade upon actuation thereof, the method comprising the steps of:
positioning the apparatus so that the conductor is disposed between the movable jaw and the blade;
incrementally driving the one-way drive mechanism until the apparatus grips the conductor;

rotating the apparatus about the conductor to score the perimeter of the insulation; and
 actuating the release lever to release the conductor from the apparatus;
 pivoting the blade support so that the cutting edge is located at an acute angle relative to a longitudinal axis of the conductor; incrementally driving the one-way drive mechanism until the apparatus again grips the conductor;
 rotating the apparatus about the conductor to helically score the perimeter of the insulation;
 actuating the release lever to release the conductor from the apparatus; and
 removing the insulation from the conductor.

5,669,276
APPARATUS FOR CABLE STRIPPING
 Timothy Spacek, 5665 SW. Woodham St., Palm City, Fla. 34990
 Filed Jun. 4, 1996, Ser. No. 658,184
 Int. Cl.⁶ H02G 1/12
 U.S. Cl. 82—128 17 Claims

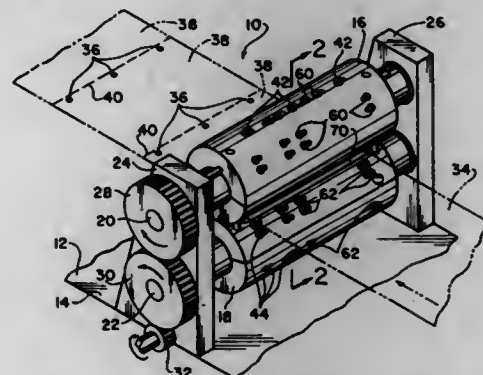


1. Apparatus for stripping a cable of the type having a center conductor, said center conductor typically being surrounded by a generally coaxial insulator and an outer coaxial shield, the stripping operation of said cable consisting of removing the shield from the insulator and the insulator from the center conductor at an end of said cable, said apparatus comprising:

- a shaft having a first and a second end and a longitudinal central axis extending from said first end to said second end of said shaft;
- a port centered in said first end of said shaft to accept an end of said cable to be stripped with the center conductor of said cable being generally aligned with the longitudinal central axis of said shaft, said port extending inwardly of said shaft from its opening into said shaft located at said first end of said shaft and said port being generally centered about the longitudinal central axis of said shaft, and said port having a cross section in a plane orthogonal to said longitudinal central axis of said shaft that is greater than the cross section of the cable to be stripped to enable said shaft to rotate about its longitudinal central axis and about said cable end when inserted in said port without interference between said cable and said shaft;
- a first slot in said shaft being positioned radially with respect to said longitudinal central axis of said shaft, said first slot extending from the outer surface of said shaft inwardly of said shaft to intersect said port to form an opening of said slot into said port;
- a blade having a cutting edge, said blade being located within said first slot with its cutting edge facing said cable and said blade having a cross section that enables said blade to slide within said first slot and be guided by the walls of said first slot for movement generally radially with respect to said longitudinal central axis of said shaft, said opening of said slot into said port enabling the cutting edge of said blade to extend through said opening and contact said cable when said cable is inserted into said port;
- lever means having a first and a second end, said lever means extending longitudinally between said first and second ends generally along the surface of said shaft in a direction gener-

ally parallel to said longitudinal central axis of said shaft, said lever means including a lever drive means located about and attached to the second end of said lever means, and said lever means further including fulcrum means located between said first and said second end of said lever means, said fulcrum means rotatively connecting said lever means to said shaft, and said lever means being flexibly attached to said blade at the first end of said lever means, said lever drive means, when activated, moving said cutting edge of said blade into contact with said cable by moving the second end of said lever means in a direction generally radially outward with respect to said longitudinal central axis of said shaft, and p1 (f) means for rotating said shaft about said longitudinal central axis of said shaft to activate said lever drive means and drive the cutting edge of said blade into engagement with the entire circumference of said cable to penetrate and strip said cable.

5,669,277
METHOD OF DIE-PUNCHING HOLES IN PAPER
 Sal Perrone, 129 Forest Ave., Shirley, N.Y. 11967
 Filed Jan. 29, 1993, Ser. No. 10,831
 Int. Cl.⁶ B26D 1/56
 U.S. Cl. 83—37 1 Claim

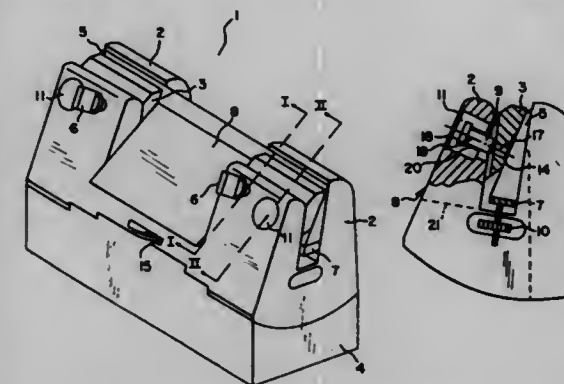


1. A method of using cooperating male and female die punches to die punch holes in an elongated paper substrate strip of a width size of at least 8½ inches at selected locations which in number are less than a selected larger number of available locations, said method comprising the steps of:

- locating in a rotatable upper roller of a width as measured along a rotational axis of said roller of at least a selected extent plural male punch die-receiving mounting means;
- locating in a rotatable lower roller of a width as measured along a rotational axis of said roller of at least a selected extent plural female punch die-receiving mounting means;
- selecting as said selected extents of said rotatable upper roller and rotatable lower roller said width of said elongated paper substrate strip to contribute to longitudinal direction tracking of said elongated paper substrate strip in an interposed position therebetween;
- mounting said upper and lower rollers in adjacent relation to form a hole-punching nip therebetween parallel to a rotating axis of said rollers;
- disposing respectively in said die-receiving mounting means at a first selected plural location and in a corresponding number male punch dies in said upper roller and an equal number of cooperating female punch dies in said lower roller;
- rotating manually said upper and lower rollers at different angular velocities until said male punches project into said cooperating female punches;
- confining said upper and lower rollers to the same angular velocity so as to provide said established alignment of said male and female die punches in each rotational traverse thereof;
- punching holes in an elongated paper substrate strip of a width size of at least 8½ inches at said first selected plural locations and number; and

(i) relocating said male and female die punches in a second location different from said first location in said upper and lower rollers while maintaining said simultaneous rotational mode of said rollers;
 whereby the alignment between said male and female die punches previously established in said first selection is automatically established also for said relocated second location of said male and female die members.

5,669,278
KNIFE HOLDER FOR RECEIVING A WEDGE-SHAPED MICROTOME KNIFE
 Rolf Metzner, Dossenheim, Germany, assignor to Leica Instruments GmbH, Wetzlar, Germany
 Filed Feb. 28, 1996, Ser. No. 608,534
 Claims priority, application Germany, Feb. 28, 1995, 195 06 837.8
 Int. Cl.⁶ G01N 1/06
 U.S. Cl. 83—165 20 Claims

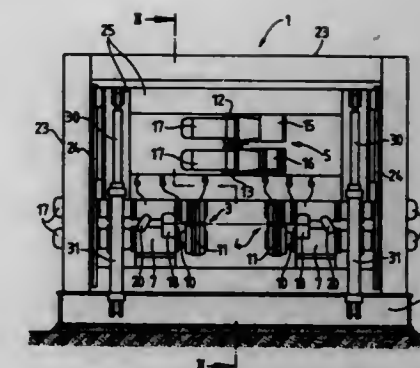


1. A knife holder for receiving a wedge-shaped knife comprising:

- a knife clamping device having a pair of laterally spaced clamping jaws, each of the clamping jaws having first and second oppositely spaced apart walls forming an upwardly open slot;
- a clamping screw secured to each of the clamping jaws and having a tip which is extendable through the first wall of the associated clamping jaw;
- a height-adjustable knife rest extending in the slots of the clamping jaws for supporting the knife;
- a clamping plate positioned in the slots between the first and second opposing walls thereof, whereby the knife is positionable in the slots between the clamping plate and the second walls of the clamping jaws, whereby the clamping screws push the clamping plate against the knife so that the knife rests against the second walls of the clamping jaws; and
- a spring suspension secured to each of the clamping jaws and the clamping plate to suspend the clamping plate between the first and second walls of the clamping jaws.

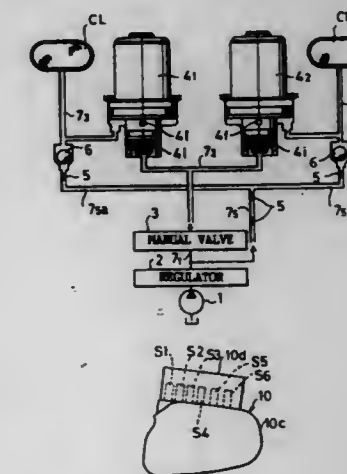
5,669,279
SHEARING MACHINE FOR TRIMMING FLAT MATERIAL PARTICULARLY SHEETS AND STRIPS OF METAL
 Ralf-Hartmut Sohl, Solingen, and Robert Berg, Langenfeld, both of Germany, assignors to SMS Schloemann-Siemag Aktiengesellschaft, Düsseldorf, Germany
 Filed Dec. 22, 1995, Ser. No. 577,275
 Claims priority, application Germany, Dec. 23, 1994, 44 46 267.0
 Int. Cl.⁶ B23D 19/04; B26D 1/24
 U.S. Cl. 83—425.2 7 Claims

1. A shearing machine for trimming flat material, particularly sheets and strips of metal, the shearing machine comprising a pair



of spaced apart rotary blade shears, each rotary blade shear having an upper blade housing and a lower blade housing, and rotary blade shafts with rotary blades mounted in the upper blade housing and the lower blade housing, further comprising a transverse eccentric connecting the upper blade housing and the lower blade housing for adjusting a blade gap and a blade overlap in dependence of a material thickness and a material strength, further comprising a center cut shear having a movable upper blade housing and lower blade housing and rotary blade shafts with rotary blades mounted in the upper blade housing and the lower blade housing of the center cut shear, a frame supporting the center cut shear and a blade gap adjusting device with a reversible transverse eccentric mounted between the frame and the rotary blade of the rotary blade shaft of the upper blade housing of the center cut shear, wherein the reversible transverse eccentric is connected to an end of the upper blade housing of the center cut shear adjacent the rotary blades thereof, wherein the frame of the center cut shear is vertically adjustably mounted in an outer frame.

5,669,280
HYDRAULIC CONTROL APPARATUS
 Tsunefumi Niiyama, Haruhiko Yoshikawa, and Kazuhisa Yamamoto, all of Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
 Filed Dec. 22, 1995, Ser. No. 577,087
 Claims priority, application Japan, Jan. 5, 1995, 7-000366
 Int. Cl.⁶ F15B 13/04
 U.S. Cl. 91—31 5 Claims



1. A hydraulic control apparatus for a hydraulically operated vehicular transmission having control valves corresponding to hydraulic engaging elements provided in said transmission, each of said control valves controlling the supply and discharge of hydraulic oil to and from each of said corresponding hydraulic engaging elements, said hydraulic control apparatus comprising:

an oil supply passage which is connected to a hydraulic oil source and into which a throttle is interposed, said oil supply passage being connected to oil passages which are on a downstream side of each of said control valves and which are to be communicated with said hydraulic engaging elements; check valves which are interposed in said oil passages such that said check valves allow for the hydraulic oil flow only from said oil supply passage to said oil passages on the downstream side of each of said control valves; and wherein said control valves are disposed in an elevation higher than said hydraulic engaging elements.

5,669,281

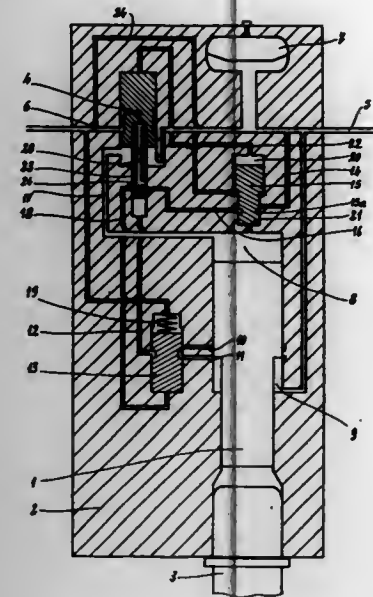
METHOD AND MACHINE FOR ALTERING THE STRIKING STROKE OF A PERCUSSIVE MACHINE MOVED BY A PRESSURIZED INCOMPRESSIBLE FLUID
Jean S. Comarmond, Vourles, France, assignor to Etablissements Montabert, Saint Priest, France

Filed Nov. 30, 1995, Ser. No. 565,577

Claims priority, application France, Dec. 8, 1994, 94 15020
Int. Cl.⁶ F01L 1/20; 31/00

U.S. Cl. 91—245

13 Claims



1. A device for altering the striking stroke of a percussive machine moved by a pressurized fluid, comprising:
 - a piston movably located in a cylinder and defining a top chamber and bottom chamber;
 - a stroke selector piston for varying the stroke of the piston;
 - a distributor in communication with the top chamber, bottom chamber and the stroke selector piston;
 - said stroke selector piston located in the cylinder and having a face subjectable to fluid pressure, said stroke selector piston having a groove communicating with the distributor and capable of being placed in communication with the bottom chamber when the piston approaches the top chamber.

5,669,282
HYDRAULIC CIRCUIT FOR ACTUATING MATERIALS HANDLING MACHINE

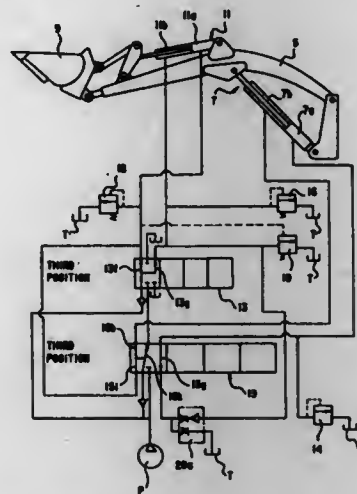
Masahiro Tanino, Osaka, and Manabu Ogo, Itami, both of Japan, assignors to Sanyo Kiki Kabushiki Kaisha, Okayama-ken, Japan

Filed Dec. 22, 1995, Ser. No. 577,109

Int. Cl.⁶ F15B 11/22

U.S. Cl. 91—520

2 Claims



1. A hydraulic circuit for actuating a materials handling machine in which:

hydraulic oil from a hydraulic oil supply is directed, through a first directional control valve shiftable between an N-position (neutral position), and a first position and a second position, to a first cylinder for tilting an attachment, so as to cause the attachment to be tilted in the rearward direction, when the first directional control valve is assigned to the first position, and so as to cause the attachment to be tilted in the forward direction, when the first directional control valve is assigned to the second position;

hydraulic oil from the hydraulic oil supply is directed, through a second directional control valve shiftable between an N-position, and a first position and a second position, to a second cylinder for raising and lowering a pivotable lift-arm carrying the attachment at the forward end thereof, so as to raise the lift-arm when the second directional control valve is assigned to the first position, and so as to lower the lift-arm when the second directional control valve is assigned to the second position; characterized by:

with said first directional control valve being assigned to said N-position;

a hydraulic circuit extending from said second directional control valve and said second cylinder to said first cylinder is so configured that, when said second directional control valve is assigned to said first position, hydraulic oil expelled from said second cylinder is supplied to said first cylinder in a manner so as to cause said attachment to be tilted in the forward direction, and that, when said second directional control valve is assigned to said second position, hydraulic oil from said second cylinder is supplied to said first cylinder in a manner so as to cause said attachment to be tilted in the rearward direction;

the hydraulic circuit for actuating a materials handling machine further including:

a hydraulic oil divider/restrictor means for regulating a quantity of hydraulic oil flowing from said second cylinder to said first cylinder, whereby said attachment is kept at a substantially constant angle with respect to the ground surface in accordance with a displacement (variation) in height of said lift-arm;

said first directional control valve is shiftable to an additional third position thereof;

with said first directional control valve being assigned to said third position,

said hydraulic circuit extending from said second directional control valve and said second cylinder to said first

cylinder is so configured that, when said second directional control valve is assigned either to said first or second positions, hydraulic oil expelled from said second cylinder is supplied to said first cylinder in a manner so as to cause said attachment to be tilted more quickly in the forward direction.

5,669,283

CYLINDER APPARATUS

Kenji Iida, Ibaraki-ken; Shuji Ono, and Ken Kobayashi, both of Kadoma, all of Japan, assignors to SMC Kabushiki Kaisha, Tokyo, and Matsushita Electric Industrial Co., Ltd., Kadoma, both of Japan

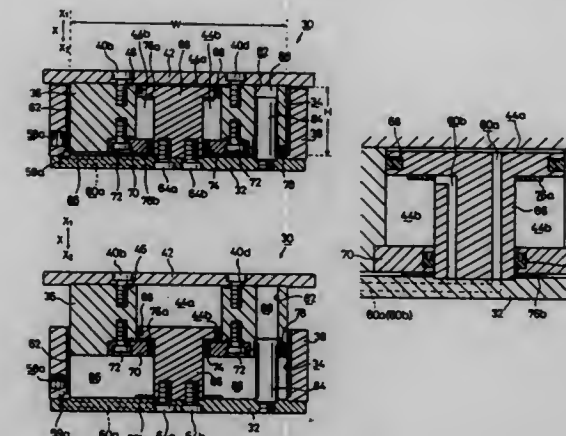
Filed Jan. 4, 1996, Ser. No. 582,911

Claims priority, application Japan, Jan. 17, 1995, 7-005254

Int. Cl.⁶ F01B 15/02

U.S. Cl. 92—117 A

26 Claims



1. A cylinder apparatus comprising:

- a base plate;
- a piston fixed on top of said base plate and having a piston head and a piston rod connected thereto, wherein an end of said piston rod opposite said piston head is disposed on an upper surface of said base plate;
- a cylinder body having a cylinder chamber defined on one side of said piston head and a cylinder chamber defined on another side of the piston head around said piston rod, said cylinder body being supported for reciprocating movement with respect to said base plate in axial directions of said piston, said cylinder body having a diameter greater than an axial dimension thereof which is perpendicular to said diameter;
- a guide rod fixed to said base plate and inserted in said cylinder body for guiding the reciprocating movement of said cylinder body;

- an upper plate fixed on top of said cylinder body;
- a guide member comprising a casing surrounding said cylinder body and held in slidable contact with an outer circumferential wall surface of said cylinder body for guiding the reciprocating movement of the cylinder body;
- a pair of compressed-air inlet/outlet ports defined in a side wall of said casing for introducing a fluid under pressure alternately to said cylinder chambers;
- a first pair of communication passages defined in said base plate; and
- a second pair of communication passages defined in said piston and connected with said first pair of communication passages, wherein said compressed-air inlet/outlet ports communicate with said cylinder chambers through said first and second pairs of communication passages.

5,669,284

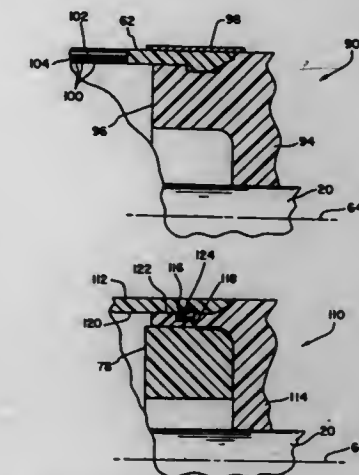
FLUID CYLINDER END CAP ASSEMBLY

Elson B. Fish, Lakeville, Ind., assignor to Polygon Company, Walkerton, Ind.

Division of Ser. No. 458,917, Jun. 2, 1995, which is a continuation-in-part of Ser. No. 338,037, Nov. 14, 1991, Pat. No. 5,465,647. This application Jul. 2, 1996, Ser. No. 677,427
Int. Cl.⁶ F01B 29/00

U.S. Cl. 92—128

4 Claims



1. An end cap assembly for a fluid cylinder, comprising:
 - a cylinder casing having a longitudinal axis and an open end;
 - an end cap closing said open end of said casing;
 - said end cap having a first connecting means for connecting with said casing, and said casing having a second connecting means for connecting with said end cap, said first and said second connecting means interconnecting with each other; and
 - a backup ring disposed radially outside of and engaged against said casing without plastically deforming said casing, said backup ring preventing deflection of said engaged casing in a direction radially outward from said longitudinal axis.
2. An end cap assembly for a tube adapted to contain a fluid, comprising:
 - an elongate, hollow casing having an open end and an annular groove;
 - an end cap closing said open end of said casing and having an annular groove; and
 - a one-piece retainer ring disposed in each of said casing annular groove and said end cap annular groove, said retainer ring having a generally V-shaped cross-section pointing in a direction parallel to the longitudinal axis;
 - at least one of said casing and said end cap consisting essentially of a composite material.

5,669,285

SPHERICAL JOINT CONNECTING ROD HOLDER RINGS

Paul David Wiczynski, Columbus; Richard Duane Conrow, Churubusco, both of Ind., and Siegfried Gustav Mielke, Neckarsulm, Germany, assignors to Cummins Engine Company, Inc., Columbus, Ind.

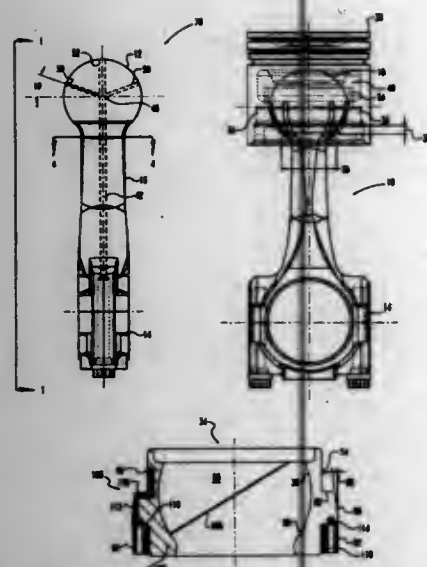
Filed Feb. 7, 1996, Ser. No. 597,665

Int. Cl.⁶ F01B 31/10

U.S. Cl. 92—157

10 Claims

1. A pair of holder ring halves operative to retain a spherical joint connecting rod within a spherical joint piston, the pair comprising:
 - a wall adapted to circumferentially surround a spherical small end of the spherical joint connecting rod;
 - a socket defined by an interior surface of the wall, the socket including a lower bearing surface for bearing against the small end; and



at least one groove formed in the interior surface in the socket and extending from an upper perimeter of the socket, the at least one groove operative to channel lubricant from an area above the pair of holder ring halves and into the socket.

5,669,286

Patent Not Issued For This Number

5,669,287

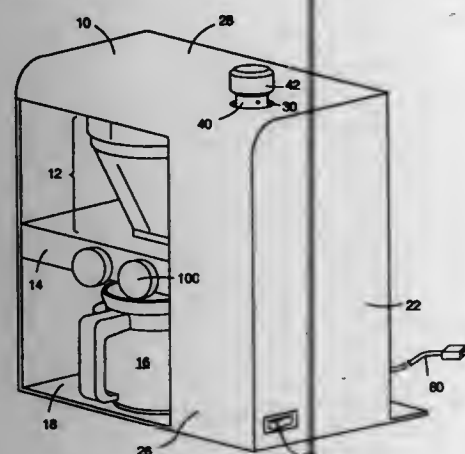
COFFEE AND TEA BREWING APPARATUS AND SYSTEM

Harry D. Jefferson, Jr., Honolulu, HI, and Dale W. Ploeger, Menlo Park, Calif., assignors to Harry D. Jefferson, Honolulu, HI.

Filed Jul. 20, 1995, Ser. No. 504,701
Int. Cl.⁶ A47J 37/00

U.S. Cl. 99—299

4 Claims



1. Apparatus for brewing a desired volume of coffee comprising:
 - (a) a receptacle for receiving brewed coffee;
 - (b) a brewing chamber including a filter within the brewing chamber for holding coffee grounds;
 - (b) means for selecting a volume of water corresponding to the desired volume of coffee to be brewed;
 - (d) means for heating the water to brewing temperature and directing the heated water into the brewing chamber for contact with the coffee grounds in the filter basket;

- (e) means for maintaining contact between at least a portion of the heated water and the coffee grounds for a period of time which is substantially independent of the selected volume of coffee to be brewed; and
- (f) means for transferring the brewed coffee into the receptacle.

5,669,288

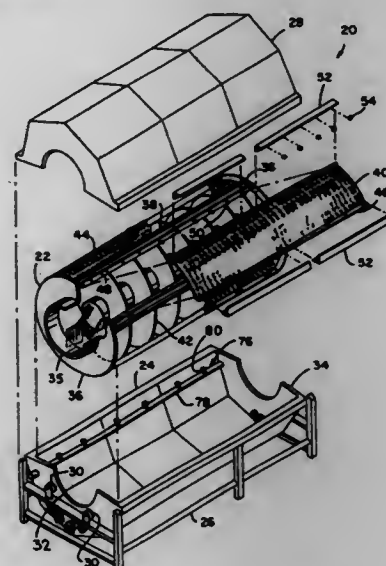
ROTATING DRUM FOOD PROCESSOR WITH CLEANING SPRAY ACCESSIBLE PANELS

David R. Zittel, Columbus, and Steven B. Malchow, Lake Mills, both of Wis., assignors to Lyco Manufacturing, Inc., Columbus, Wis.

Filed Mar. 29, 1996, Ser. No. 624,059

Int. Cl.⁶ A23L 3/00; A23N 12/00; A47J 37/12; F25D 25/02
U.S. Cl. 99—348

11 Claims



1. A food processing apparatus comprising:
 - a) a tank;
 - b) a drum rotatable within the tank, wherein the drum has a plurality of support members which extend between an inlet plate and an outlet plate;
 - c) at least one perforated skin panel which extends between support members, wherein the skin panel has a flange which extends adjacent a support member;
 - d) a bracket which overlies the skin panel flange, wherein portions of the bracket define at least two fastener slots, having an enlarged opening at one end; and
 - e) a fastener which extends through each of said fastener slots, wherein the fasteners may be tightened to secure the bracket to the support member with the skin panel therebetween to retain the skin panel to the drum, and wherein the fasteners may be loosened to permit the release of the bracket from the support member to thereby permit the skin panel to hang loosely on the drum for rotation through a cleaning liquid to thereby remove accumulated contaminants.

5,669,289

STRAINER ASSEMBLY

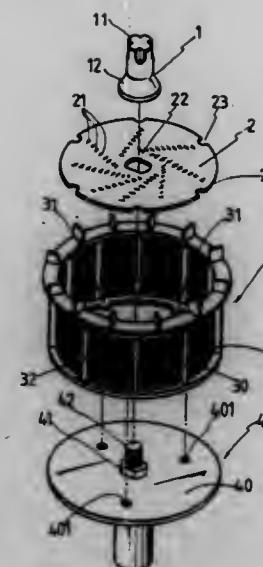
Tse-Hsiung Chen, P.O. Box 82-144, Taipei, Taiwan
Filed Dec. 30, 1996, Ser. No. 777,095

Int. Cl.⁶ A23N 1/02

U.S. Cl. 99—511

1 Claim

1. A strainer assembly comprising:
 - a base formed at a central portion thereof with a rectangular projection having a cylindrical upper portion with external threads, said base having a plurality of holes;



a cylindrical filter arranged on said base and having an open top and a rectangular opening adapted to receive said rectangular projection, said cylindrical filter having an inner bottom formed with a plurality of protuberances around a periphery thereof and an outer bottom formed with a plurality of downwardly depending projections adapted to fit into said holes of said base;

a circular cutter having a rectangular opening at a central portion thereof adapted to engage with said rectangular projection of said base and a plurality of recesses adapted to engage with said protuberances of said cylindrical filter; and

a cap threadedly engaged with said external threads of said base.

5,669,290

REVOLVING SPIT-GRILLING APPARATUS

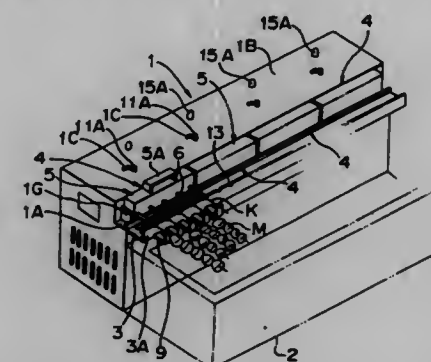
Yoshio Natsumi, and Hideko Natsumi, both of Taira Akai Hira 3-144, Iwaki-shi, Fukushima-ken, Japan

Filed Apr. 3, 1996, Ser. No. 626,089

Claims priority, application Japan, Apr. 11, 1995, 7-111247
Int. Cl.⁶ A47J 37/04

U.S. Cl. 99—421 H

20 Claims



1. A revolving grilling apparatus for grilling foods provided on a plurality of revolving rods over a heat range comprising:
 - a main body having a base portion installed thereon, said base portion having at least one partitioned station and a first power transmitting mechanism;
 - a cartridge corresponding to each station and having a plurality of revolving members for receiving said revolving rods and a second power transmitting mechanism driving said revolving members so that they revolve; and
 - at least one engaging means for engaging said first power transmitting mechanism and said second power transmitting mechanism when said cartridge is installed on said at least

one partitioned station so that said revolving members simultaneously begin to revolve.

5,669,291

APPARATUS FOR SEPARATING WHEY FROM A SLURRY-LIKE MATERIAL

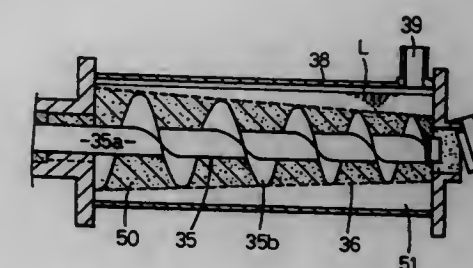
Kazuyoshi Ii, 4-3-28 Terakawa, Daitou City, Osaka, Japan

Filed Apr. 8, 1996, Ser. No. 628,078

Claims priority, application Japan, Apr. 6, 1995, 7-108209
Int. Cl.⁶ A01J 13/00; 25/00; A23L 1/20; B30B 9/14

U.S. Cl. 99—459

8 Claims



1. An apparatus for separating whey from a slurry material such as bean and dairy products, the apparatus comprising:
 - a screen for squeezing said slurry material therethrough;
 - a jacket mantling the screen with a first space outside the screen and a second space inside the screen, wherein the first space provides a whey chamber of a size which allows the screen to be submerged in the whey staying therein after the whey is squeezed through the screen;
 - a spiral screw rotatively housed in the screen, the blades of the screw being kept in contact with the wall surface of the screen such that a reverse flow of the whey is prevented; and
 - a take-out port provided in the jacket so as to allow the whey in the whey chamber to overflow therethrough.

5,669,292

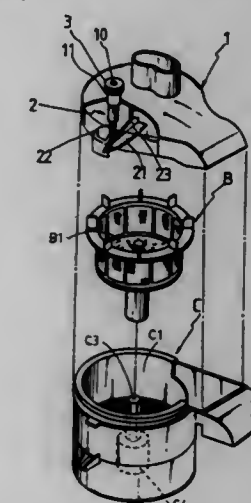
JUICER

Tse-Hsiung Chen, P.O. Box 82-144, Taipei, Taiwan
Filed Dec. 24, 1996, Ser. No. 772,916

Int. Cl.⁶ A23N 1/02; A47J 19/02

U.S. Cl. 99—512

3 Claims



1. In a juicer comprising a main body formed with a cylindrical recess having an open top, a dreg outlet extending said main body and being communication with said cylindrical recess, an electric motor arranged within said main body and provided with an

output axle extending upwardly out of said main body, a cylindrical strainer disposed within said main body and driven by said output axle of said motor, a lid adapted to engage with said top of said main body, and a drag displacing tool arranged in said lid, the improvement wherein said lid is formed with a first tubular portion, a second tubular portion, an annular cavity between said first and second tubular portions, said second tubular portion having an upper end formed with two opposite protuberances at an inner side of said upper end, a cap mounted on said first tubular portion, a spring fitted within said annular cavity with an upper end of said spring bearing against said cap, said drag displacing tool comprising an axle, a scraper extending from said axle and located at an angular position with respect to said axle and a baffle extending upwardly from said scraper, said axle being inserted into said second tubular portion and having a spiral groove receiving said two protuberances of said second tubular portion and an upper end fixedly connected with said cap.

5,669,293

DEVICE FOR PEELING ELONGATED VEGETABLES
Felix Sommer, Am Weckersgraben 7, D-79436 Buggingen, Germany

PCT No. PCT/EP94/02877, § 371 Date Mar. 7, 1996, § 102(e)
Date Mar. 7, 1996, PCT Pub. No. WO95/07030, PCT Pub.
Date Mar. 16, 1995

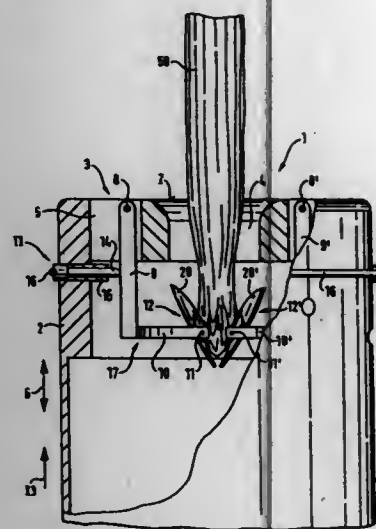
PCT Filed Aug. 31, 1994, Ser. No. 602,777

Claims priority, application Germany, Sep. 7, 1993, 43 30 173.8

Int. Cl. A23N 7/00, 7/04

U.S. Cl. 99—589

29 Claims



1. A device for peeling elongated vegetables comprising:
a housing having a passage defined therethrough, the passage extending in a longitudinal direction of the housing and having a first end adapted for insertion of a vegetable into the passage, which defines a direction of vegetable insertion, and a second end adapted for removal of the vegetable from the passage;
a peeling blade located in the housing in proximity to the passage, the peeling blade having a cutting edge adapted to act on a periphery of a vegetable and being movably mounted for movement crosswise to the longitudinal direction to press against the vegetable; and
a feeler connected to the peeling blade, the feeler being located upstream of the blade in the direction of vegetable insertion and being adapted to lie against a periphery of the vegetable.

5,669,294
PROCESS FOR SUPPLYING ENERGY TO ELECTRONICALLY CONTROLLED PRESS DRIVES
Peter Klemm, Stuttgart, and Burkhard Schumann, Ottenbach, both of Germany, assignors to Schuler Pressen GmbH & Co., Germany

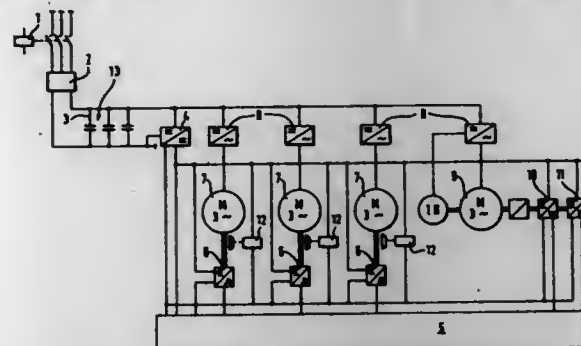
Filed Jul. 12, 1996, Ser. No. 679,723

Claims priority, application Germany, Jul. 20, 1995, 195 26 491.6

Int. Cl. B30B 15/30

U.S. Cl. 100—35

20 Claims



1. A process for supplying energy to electronically controlled drives for electromechanically driven and electronically controlled workpiece handling devices in and on a press having a slide, comprising the steps of, in the event of a power supply outage, supplying at least the workpiece handling devices with voltage by one of an intermediate circuit of a drive amplifier and an uninterruptible power supply, and supplying all devices essential for movement of the workpiece handling devices with the voltage from the one of the intermediate circuit and the uninterruptible power supply.

5,669,295

CALENDER FOR TREATING BOTH SIDES OF A PAPER WEB

Franz Kayser, Geldern; Rolf van Haag, Kerken, and Ulrich Rothfuss, Greifath, all of Germany, assignors to Voith Sulzer Finishing GmbH, Krefeld, Germany

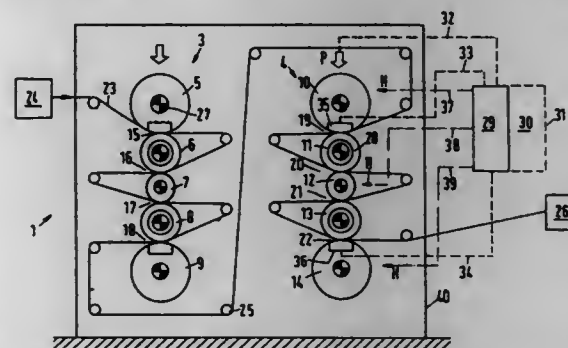
Filed Mar. 7, 1996, Ser. No. 612,258

Claims priority, application Germany, Mar. 9, 1995, 195 08 353.9

Int. Cl. B30B 3/04; D21G 1/00

U.S. Cl. 100—331

15 Claims



1. A calendar for treating both sides of a paper web, comprising:
two roller stacks, each of which is loaded on one end by a load, each roller stack comprising:
at least two hard rollers having a substantially smooth outer surface, said at least two hard rollers each including means for heating a surface of said at least two hard rollers to a temperature of at least 100° C.; and
at least two soft rollers, wherein each of said at least two soft rollers is disposed adjacent to at least one of said at least two hard rollers to form a working nip therebetween.

- wherein at least one working nip has a predetermined width so that a dwell time of said paper web passing through said at least one working nip is at least 0.1 ms, said roller stack being loaded to produce an average compressive stress in said at least one working nip of at least 42 N/mm².

5,669,296

HIGH RATIO SCREW ACTUATED PRESS

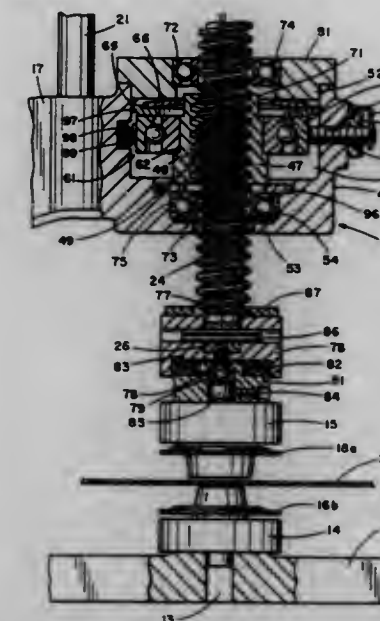
Alan R. Newton, 67 Bluebird Ave., East Wareham, Mass. 02538

Filed Dec. 4, 1995, Ser. No. 566,729

Int. Cl. B30B 1/18

U.S. Cl. 100—99

29 Claims



1. A high ratio screw actuated press for small incremental feed in a high pressure operation, comprising a frame including a base and a housing, an elongated screw rotatably mounted in said housing, said screw having an externally threaded surface with a pitch, an enlarged nut rotatably mounted in said housing and having an internally threaded surface with an identical pitch to the pitch of said screw, the nut having an internal pitch diameter, and the screw having an external pitch diameter, the internal pitch diameter of said nut being greater than the external pitch diameter of said screw, said screw having a lower end and an upper end, the upper end provided with a socket formed therein, means to rotate said screw including a driving end conformably received in said socket, means on said lower end of said screw for mounting a die thereon, and means mounted on said base below and axially aligned with said lower end of said screw for receiving a complementary die adapted to cooperate with said first mentioned die, the nut including a longitudinal centerline and the screw including a longitudinal axis, and means to adjust the longitudinal centerline of said nut relative to the longitudinal axis of said screw.

5,669,297

CUTTING AND SHAPING PRESS WITH ONE OR MORE CYLINDERS AND A HINGED LEVER DRIVE

Ulrich Verhoeven, Schillerstrasse 6a, D-6466 Gröndau 2, Germany

Continuation of Ser. No. 79,058, Jun. 21, 1993, abandoned.

This application Jan. 29, 1997, Ser. No. 789,410

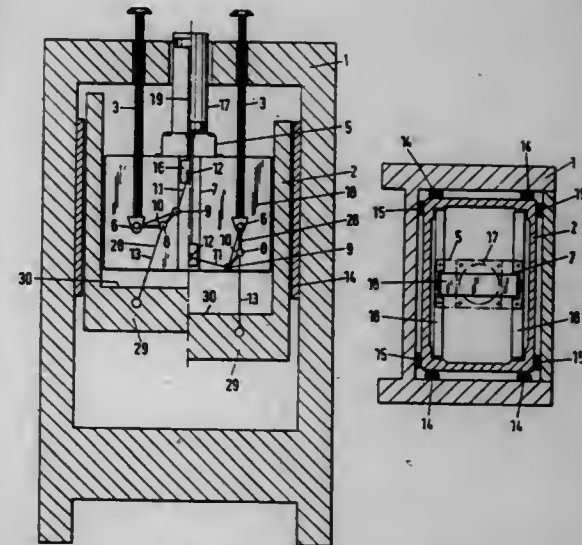
Claims priority, application Germany, Jun. 22, 1992, 42 20 043.1

Int. Cl. B30B 1/16

U.S. Cl. 100—257

16 Claims

1. A cutting and shaping press comprising a press ram, a press stand, at least one drive cylinder having a piston rod, and a hinged



- lever drive having at least two knee lever systems connected to the ram and symmetrically arranged with respect to a vertical center plane of the ram, the knee lever systems having fixed points and at least two threaded spindles adjustable in height in the press stand and positioning bearing blocks fitted on ends of the threaded spindles for pivoting one of the fixed points of each of the knee lever systems, the press further comprising a slide device within the press ram, a multiple pivot carrier connected to the piston rod of the drive cylinder, and a connecting rod connecting the multiple pivot carrier to a knee joint of each of the knee lever systems, characterized in that the multiple pivot carrier is guided by a structure in the press ram and that the slide device connected to said bearing blocks is supported in the press ram.

5,669,298

STENCIL PRINTER HAVING INK LEAKAGE PREVENTING CONSTRUCTION

Hideo Negishi, and Katsuro Motoe, both of Ibaraki-ken, Japan, assignors to Riso Kagaku Corporation, Tokyo, Japan

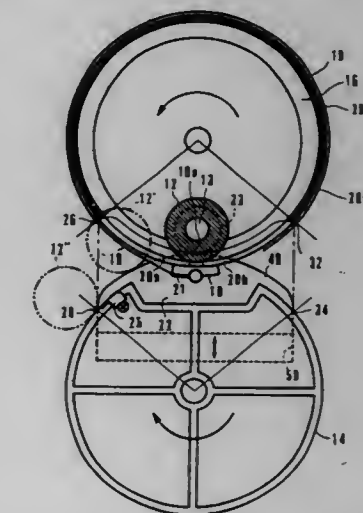
Filed Jul. 25, 1996, Ser. No. 684,852

Claims priority, application Japan, Jul. 31, 1995, 7-214074

Int. Cl. B41L 13/18

U.S. Cl. 101—119

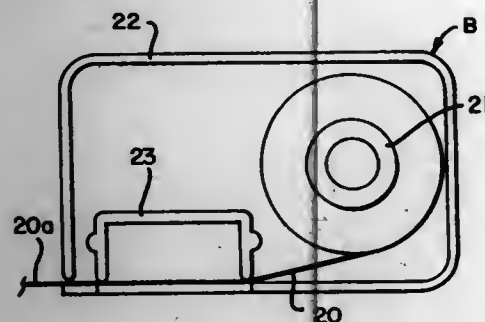
4 Claims



1. A stencil printer comprising a printing drum having a perforated construction at a circumferential portion thereof except two annular edge portions extending along opposite axial ends of a cylindrical configuration thereof and a strip of stencil sheet leading end mounting portion extending between said two annular edge

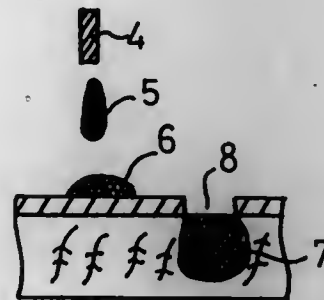
portions along a generatrix of the cylindrical configuration, an inking roller provided inside of said printing drum to be shiftable in radially outward and inward directions of said printing drum so as to supply ink to said perforated circumferential portion of said printing drum from the inside thereof while selectively pushing a part of said circumferential portion of said printing drum extending along a generatrix thereof radially outwardly, and a back press roller having a transverse groove formed at a portion of an outer circumferential surface thereof along a generatrix thereof and a clamp for mounting a leading end of a print sheet thereto, said printing drum and said back press roller being arranged in proximity and parallel to one another and adapted to rotate in synchronization with and directions opposite to one another such that said stencil sheet leading end mounting portion is aligned with said transverse groove when they meet one another, thereby executing a stencil printing such that the ink supplied to said perforated portion of said printing drum by said inking roller is selectively transferred through a stencil sheet mounted around said printing drum to provide a printed image of ink on a print sheet supplied between said printing drum and said back press roller with a leading end portion thereof being held by said clamp, wherein the printer further comprises means at least partly carried on said back press roller and adapted to act at said inking roller when said clamp of said back press roller aligns with said inking roller, so as to restrict said radially outward shifting of said inking roller not to press the circumferential portion of said printing drum against said clamp.

5,669,299
METHOD FOR PREPARING A THERMOSENSITIVE STENCIL WITH A THERMAL LABEL PRINTER
 Yotchi Ando, Sagami-hara, and Kōichi Hirano, Yokohama, both of Japan, assignors to Mitsubishi Pencil Kabushiki Kaisha, Tokyo, Japan
 Continuation of Ser. No. 433,242, May 2, 1995, abandoned, which is a division of Ser. No. 341,045, Nov. 17, 1994, abandoned. This application Aug. 16, 1996, Ser. No. 698,753
 Claims priority, application Japan, Dec. 3, 1993, 5-304383
 Int. Cl.⁶ B41L 13/00
 U.S. Cl. 101—128.4 5 Claims



1. A method for preparing a thermosensitive stencil with a label word processor having a label tape cartridge compartment, a thermal printer, and a thermal head, said cartridge compartment being shaped to receive a cartridge containing a label tape therein, and said thermal printer being designed for printing on said label tape with heat generated by said thermal head, said method comprising the steps of:
 providing a cartridge having substantially the same shape and features as a label tape cartridge designed for use with said label word processor, said cartridge having a thermosensitive stencil tape therein and containing no thermal transfer ink ribbon such as required in label tape cartridges;
 loading said cartridge into said cartridge compartment of said label word processor designed for tape-printing;
 perforating said stencil tape to create a print image by means of said thermal head; and
 cutting a resulting stencil carried out from said cartridge in a desired length.

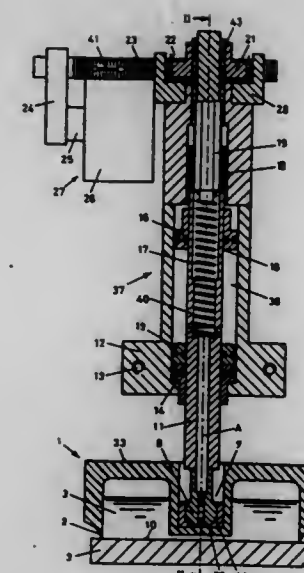
5,669,300
PROCESS FOR PERFORATING A SOLVENT SOLUBLE STENCIL
 Hideo Watanabe, Tokyo, Japan, assignor to Riso Kagaku Corporation, Tokyo, Japan
 Division of Ser. No. 322,700, Oct. 13, 1994, abandoned. This application Mar. 12, 1996, Ser. No. 622,446
 Claims priority, application Japan, Oct. 14, 1993, 5-257296
 Int. Cl.⁶ B41N 1/24
 U.S. Cl. 101—128.21 5 Claims



1. A process for perforating a stencil printing sheet which comprises a porous substrate and a solvent-soluble resin film laminated thereon, wherein said resin film is of a thickness in the range of 0.1–100 μm, the process comprising the steps of:
 providing said stencil printing sheet;
 contacting a solvent with said solvent-soluble resin film of said stencil printing sheet by feeding said solvent in a non-contact condition from a solvent-ejecting device, to perforate the contacted resin film, wherein said resin is water-soluble or a water-miscible resin selected from the group consisting of polyvinyl alcohol, methyl cellulose, carboxymethyl cellulose, hydroxyethyl cellulose, polyvinyl pyrrolidone, polyethylene-polyvinyl alcohol copolymer, polyethylene oxide, polyvinyl ether, polyvinyl acetal and polyacrylamide, and said solvent is water or an aqueous solvent and, a viscosity of a solution of said solvent into which said resin is dissolved is 1000 cps or less at 20° C., when 10% of the solution's weight is the dissolved resin.

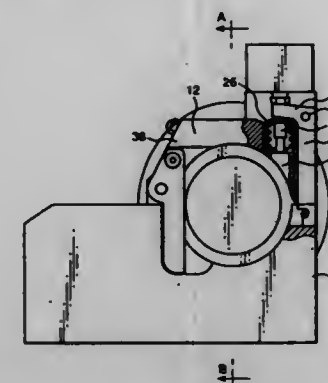
5,669,301
PROCESS AND DEVICE FOR ROTATING AN INK CONTAINER USED IN TAMPON PRINTING
 Louis Bachmann, Wil, and Fredi Studer, Frauenfeld, both of Switzerland, assignors to Teca-Print AG, Thayngen, Switzerland
 Filed Nov. 17, 1995, Ser. No. 559,146
 Claims priority, application Switzerland, Nov. 18, 1994, 3481/94
 Int. Cl.⁶ B41F 9/10
 U.S. Cl. 101—163 10 Claims

6. A device for tampion printing, comprising a container with at least one open side, said open side having an edge; a printing block, said edge of said container lying on said printing block, said printing block and said container performing relative movement in relation to one another to ink said printing block; a drive connected to said container for rotating said edge of said container around a vertical axis during said relative movement; and a pressing means for pressing said container against said printing block, said drive



and said pressing means forming a single unit, said unit acting on said container approximately centrally, on a top side of said container.

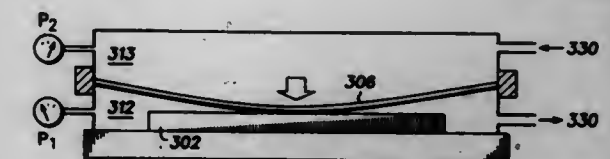
5,669,302
MOUNTING DEVICE FOR BEARINGS PLACED ON SHAFT EXTENSIONS
 Günter Rogge, Lienen, and Werner Jost-Enkeling, Lotte, both of Germany, assignors to Windmüller & Hölscher, Lengerich, Germany
 Filed May 2, 1996, Ser. No. 641,904
 Claims priority, application Germany, May 4, 1995, 195 16 455.5
 Int. Cl.⁶ B41F 5/00
 U.S. Cl. 101—216 6 Claims



1. A mounting device for bearings placed on shaft extensions of printing and inking rollers of printing machines, comprising:
 a frame,
 a lower support basin forming a rigid part of the frame and having a curved inner side,
 a single lid connected to the lower support basin and pivoting relative to said lower support basin between an open position and a closed position,
 a lever on the lid forming an operating element which, when the lid is in the open position, extends at least partly across the lower support basin and which pivots the lid into the closed position by lowering one of the bearings placed on one of the shaft extensions and abutting against the lever,
 the curved inner side of the basin resting tightly against the one of the bearings when said lid is in the closed position,
 a locking lever provided in a pivoting manner on said single lid,

a hook portion provided on an end of said locking lever, an abutment defined on the support basin with which said hook portion hooks, and
 a device which automatically pivots the locking lever.

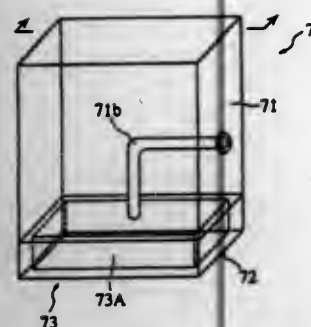
5,669,303
APPARATUS AND METHOD FOR STAMPING A SURFACE
 George N. Maracas, Phoenix; Lawrence N. Dworsky, Scottsdale, and Kathleen Tobin, Tempe, all of Ariz., assignors to Motorola, Schaumburg, Ill.
 Filed Mar. 4, 1996, Ser. No. 610,776
 Int. Cl.⁶ B41F 31/00
 U.S. Cl. 101—327 12 Claims



1. An apparatus for stamping a surface of an article, the surface of the article having an alignment pattern, the apparatus comprising:
 a support structure having a surface;
 a first pressure-controlled chamber being disposed above the surface of the support structure;
 a flexible stamp having an outer surface and having a stamping surface having a predetermined pattern, the flexible stamp being positioned above the support structure so that the stamping surface opposes the surface of the support structure, the stamping surface being disposed within the first pressure-controlled chamber, the support structure and the first pressure-controlled chamber being designed so that the article is positioned on the surface of the support structure and within the first pressure-controlled chamber and so that the surface of the article opposes the stamping surface;
 means for controllably contacting the stamping surface with the surface of the article so that the predetermined pattern of the stamping surface is stamped onto surface of the article;
 an alignment pattern positioned on the flexible stamp; and
 compensating means for compensating for runout and bowing of the flexible stamp which can distort the predetermined pattern of the stamping surface.

5,669,304
STAMP UNIT AND METHOD OF PREPARING STAMP UNIT
 Hiroshi Kuriyama; Youichi Kodaira; Haruyuki Miyasaka, and Hideki Horiuchi, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
 Filed Mar. 28, 1996, Ser. No. 623,578
 Claims priority, application Japan, Mar. 30, 1995, 7-099774; Feb. 22, 1996, 8-035241
 Int. Cl.⁶ B41N 1/12
 U.S. Cl. 101—401.1 30 Claims

1. A stamp unit including a base material for stamp face formation using a liquid photosensitive resin which changes from a liquid to a solid upon receiving rays of light, said stamp unit comprising:
 a stamp stock;
 a liquid resin encapsulating section provided on a stamp face formation side of the stamp stock serving to encapsulate the liquid photosensitive resin in an exposable state;
 an injection hole having one end open to the liquid resin encapsulating section and another end open to the exterior; and
 a stopping member for stopping the injection hole to thereby seal the liquid photosensitive resin in said liquid resin encapsulating section;



wherein said liquid resin encapsulating section is constructed such that at least that portion thereof which covers the stamp face can be removed after the stamp face formation.

5,669,305 SHEET-CONVEYING DRUM BODY FOR A PRINTING MACHINE

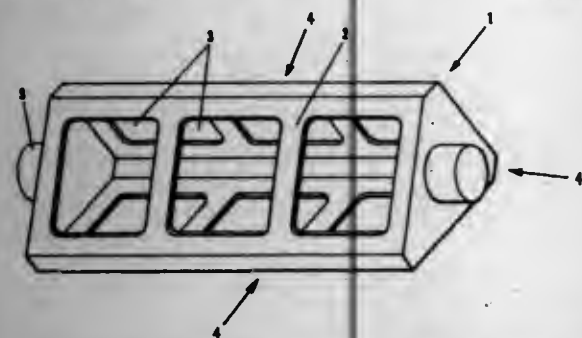
Harald Bayer, Rodgau, and Klemens Kemmerer, Seligenstadt, both of Germany, assignors to MAN Roland Druckmaschinen AG, Germany

Filed Sep. 1, 1995, Ser. No. 522,629

Claims priority, application Germany, Sep. 1, 1994, 44 31 114.1

U.S. Cl. 101—409 Int. Cl.⁶ B41F 1/30

16 Claims



1. A sheet-conveying drum for a printing machine having spaced apart bearings, said drum comprising in combination:
a drum body in the form of a one-piece prism which consists of two end faces and a plurality of side faces;
drum journals secured to the end faces of the drum for journaling the drum for rotation in the bearings of the printing machine;
at least two gripper bridges extending between the end faces and being disposed symmetrically about the periphery of the prism; and
said side faces being formed with communicating openings extending into and through the drum body for allowing the flow of air through the drum body as the drum rotates.

5,669,306

RUBBER BLANKET UNIT FASTENING DEVICE

Helmut Puschnerat, Wachenheim, Germany, assignor to Koenig & Bauer-Albert Aktiengesellschaft, Würzburg, Germany

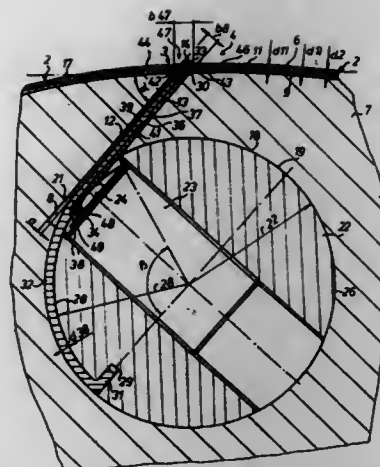
Filed Jun. 14, 1996, Ser. No. 663,814

Claims priority, application Germany, Jun. 14, 1995, 195 21 645.8

U.S. Cl. 101—415.1 Int. Cl.⁶ B41F 1/28

10 Claims

1. In a rotary printing press, the combination comprising:
a blanket cylinder;



a narrow, axially extending, generally radially inwardly directed slit formed on a peripheral surface of said blanket cylinder and extending inwardly into said cylinder from an outer surface of said cylinder;
a flexible rubber blanket unit having leading and trailing beveled ends, said rubber blanket unit further having a rubber blanket fastened on an underlying support plate, said rubber blanket having a leading edge and a trailing edge, said support plate having a leading end leg and a trailing end leg, said support plate end legs projecting past said blanket leading and trailing edges, said support plate end legs having inner and outer lateral faces, said leading and trailing support plate end legs being insertable in said slit;
a rotatable pivot spindle positioned in said cylinder and extending generally parallel to said slit for rotation between a support plate end leg insertion position and a support plate end leg clamping position;
a plurality of ejectors supported for movement in said slit between said support plate end leg insertion and clamping positions, each said ejector having a free outer end and an inner end secured to said rotatable pivot spindle, said ejectors being shiftable in said slit in response to rotation of said pivot spindle, each said ejector being positionable between said leading and trailing support plate end legs when said end legs are inserted in said slit; and
a filler strip attached to said outer ends of said plurality of ejectors and extending generally axially, said filler strip and said ejector free ends extending beyond said blanket cylinder peripheral surface in said insertion position, said filler strip being disposed between said rubber blanket leading and trailing edges in said clamping position to close a gap defined by said rubber blanket leading and trailing edges.

5,669,307

TRANSPORTATION VEHICLE HAVING DOORS WITH DOORSILLS AT DIFFERENT LEVELS

Gerald R. Cichy, 1 Halifax Ct., Rockville, Md. 20850-3009

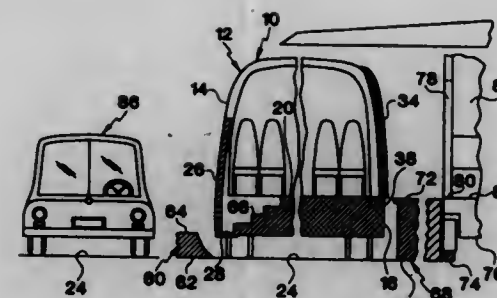
Filed Feb. 1, 1996, Ser. No. 595,243

Int. Cl.⁶ B61B 1/02; B62D 31/02

U.S. Cl. 104—28

11 Claims

1. A transportation system comprising: a road vehicle having a road vehicle body with a plurality of seats therein, a floor, a curb side, and a street side,
wheels on said road vehicle body supporting said road vehicle body above a road level,
a first door on said curb side of said road vehicle body having a first doorsill at a first level above the road level, and
a second door on said street side of said road vehicle body having a second doorsill at a second level above the road level, said first and second levels being at different distances from the road level;
a first station having a first platform level substantially spaced from said second level and relatively close to said first level;



a second station having a second platform level substantially coplanar with said second level; and
a tracked vehicle operating through said second station, said tracked vehicle having a tracked vehicle body with at least one seat therein, a floor, and at least one door with a doorsill at a level substantially coplanar with said second platform level and said floor of said tracked vehicle body.

5,669,308

LINEAR TURBINE PROPULSION SYSTEM

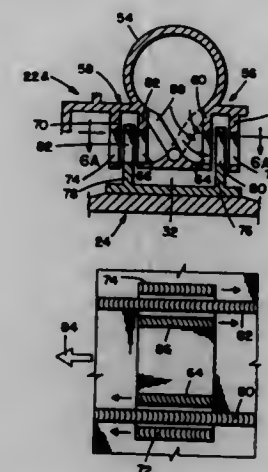
Heinz A. Gerhardt, Redondo Beach, Calif., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Division of Ser. No. 210,858, Mar. 18, 1994, Pat. No. 5,542,357. This application Mar. 18, 1996, Ser. No. 619,262

Int. Cl.⁶ B61C 5/00

U.S. Cl. 104—155

6 Claims



6. A linear turbine propulsion system for a vehicle operating on a track, comprising:
gas producer means mounted on said vehicle for producing a propulsive fluid stream;
first linear turbine means mounted on said vehicle and extending longitudinally along a length of said vehicle for receiving said propulsive fluid stream and redirecting a flow of said propulsive fluid stream to a first flow direction, whereby propulsive force is applied to said vehicle;
means mounted on said vehicle for delivering said propulsive fluid stream from said gas producer means to said first linear turbine means, said means for delivering comprising at least one of
a manifold mounted on said vehicle connecting said gas producer means and said first linear turbine means, and
valve means mounted on said vehicle for selectively directing said flow of said propulsive fluid stream from said manifold to a first portion of said first linear turbine means, whereby said propulsive force propels said vehicle in a forward direction along said track, and to a second portion of said first linear turbine means, whereby said propulsive force applies braking force and propels said vehicle in a rearward direction along said track, and

closure door means mounted on said vehicle for selectively directing said flow of said propulsive fluid stream from said manifold to said first portion of said first linear turbine means and blocking said flow of said propulsive fluid stream from said second portion of said first linear turbine means, whereby said propulsive force propels said vehicle in said forward direction, and for selectively directing said flow of said propulsive fluid stream from said manifold to said second portion of said first linear turbine means and blocking said flow of said propulsive fluid stream from said first portion of said first linear turbine means, whereby said propulsive force applies said braking force and propels said vehicle in said rearward direction;

stator blade means mounted to said track along its length for receiving said flow of said propulsive fluid stream from said first linear turbine means and for substantially reversing said flow of said propulsive fluid stream to a second flow direction whereby additional propulsive force is applied to said vehicle;

second linear turbine means mounted on said vehicle extending longitudinally along said length in a parallel and spaced apart relation with said first linear turbine means, said stator blade means extending between and parallel to said first and second linear turbine means, for receiving said flow of said propulsive fluid stream from said stator blade means and for redirecting said flow of said propulsive fluid stream to a third flow direction, whereby final propulsive force is applied to said vehicle;

plenum means extending beneath said vehicle for receiving said flow of said propulsive fluid stream from said second linear turbine means, said plenum means defining a gas-cushion of said received propulsive fluid stream for support of said vehicle;

means for vertically supporting said vehicle on said track, comprising at least one of
said plenum means,

magnetic levitation means mounted to said vehicle and to said track for applying vertical magnetic support force to said vehicle, and

wheel means mounted to said vehicle for engaging a rail mounted to said track, whereby wheel-on-rail support force is applied to said vehicle; and,

means for laterally restraining said vehicle on said track, comprising at least one of
said magnetic levitation means, and
said wheel means.

5,669,309

ACCUMULATING CONVEYOR SYSTEM

Lawrence Curtis Carlton, Lansing, and Kenneth Darrow Kuhn, Fenton, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 17, 1996, Ser. No. 633,341

Int. Cl.⁶ B61B 13/00

U.S. Cl. 104—162

7 Claims



1. In a conveyor system of the type having a first conveyor drive driving a plurality of trucks along a conveyor track to a drop off point and a second conveyor drive spaced at a distance from the first conveyor drive for picking up the trucks at a pick up point and driving the trucks further along the conveyor track, an accumulating conveyor system for shuttling conveyor trucks from the first conveyor drive to the second conveyor drive to insulate each conveyor drive from a stoppage of the other conveyor drive, comprising:

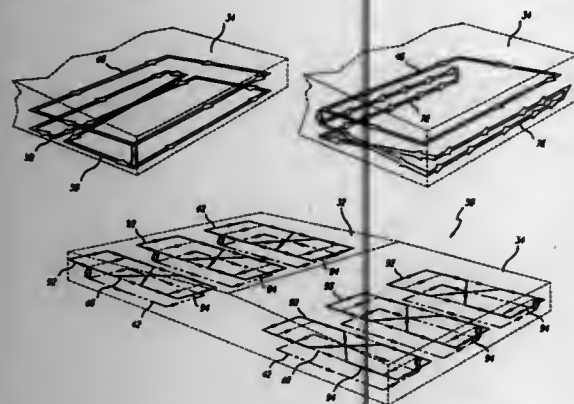
a drive track extending parallel along the conveyor track;
a plurality of tractors adapted to selectively couple with a truck at the drop off point, tow the truck along the conveyor track to the pickup point of the second conveyor drive, and uncouple from the truck;
a return track extending parallel along the drive track for returning the tractors from the pickup point to the drop off point.

5,669,310
ELECTROMAGNETIC INDUCTION SUSPENSION AND HORIZONTAL SWITCHING SYSTEM FOR A VEHICLE ON A PLANAR GUIDEWAY

James R. Powell, P.O. Box 547, Shorttman, N.Y. 11786; Gordon T. Danby, P.O. Box 12, Wading River, N.Y. 11792, and John Morena, 4540 Sandpebble Trace #104, Stuart, Fla. 34996
Continuation of Ser. No. 265,044, Jan. 23, 1994, Pat. No. 5,503,063. This application Feb. 14, 1996, Ser. No. 601,083
Int. Cl.⁶ B61B 13/00

U.S. Cl. 104—281

21 Claims



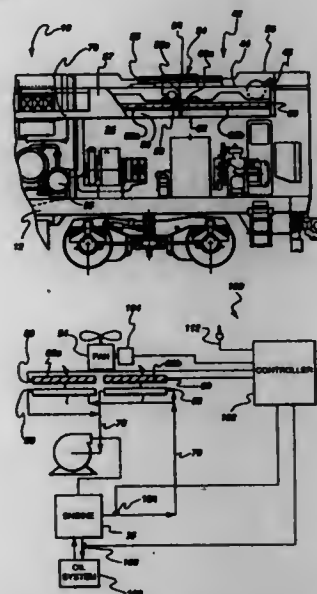
1. An electromagnetic induction suspension and stabilization system for a vehicle, said system comprising:
a guideway for a vehicle, said guideway having first and second sides;

vertical lift and stability means for providing vertical lift stability to the vehicle on said guideway, said vertical lift and stability means comprising a plurality of first and second pairs of passive magnetic induction coils arranged as electrically independent first and second pairs of null flux loop circuits mounted on said first and second sides of said guideway, respectively, each successive pair of first and second null flux loop circuits extending longitudinally to create a first and second magnetically induced path along said guideway; and said first and second pairs of null flux loop circuits comprising parallel top and bottom horizontal loops, electrically connected in series, wound in opposite directions, said top loop comprised of fewer turns of wire than said bottom loop and superimposed over the bottom loop, whereby when magnets of said vehicle are in proximity to said first and second pairs of null flux loop circuits the upwards magnetic force of said first and second null flux loop circuits equals the weight of the vehicle so as to maintain the vehicle magnets at an equilibrium level above said first and second pairs of null flux loop circuits.

5,669,311
SHUTTERED RADIATOR SYSTEM WITH CONTROL
James Arnold Hill, Pittsfield; Gregory Alan Marsh, Erie, and Myron Lee Smith, Fairview, all of Pa., assignors to General Electric Company, Erie, Pa.
Division of Ser. No. 376,633, Jan. 23, 1995, Pat. No. 5,566,745, which is a continuation of Ser. No. 60,108, May 10, 1993, abandoned. This application Feb. 22, 1996, Ser. No. 605,608
Int. Cl.⁶ F01P 7/00

U.S. Cl. 105—62.2

9 Claims



1. In a locomotive having an engine for driving the locomotive and a cooling water system for circulating cooling water through the engine to operatively control the temperature of the engine, a radiator assembly comprising:

a radiator in fluid communication with the cooling system;
a fan means for selectively drawing air through the radiator and into the inlet of the fan means;
a shutter means for selectively controlling the drawn air flow through the radiator; and

control means comprising an engine control computer responsive to a water temperature sensor, an ambient air temperature sensor and an oil temperature sensor, the control means being operatively attached to the shutter means for actuating the shutter means to control the drawn air flow in dependence on a determined control temperature, the control means including means operatively attached to the fan means for selecting and setting the speed of the fan means in dependence on the determined control temperature;

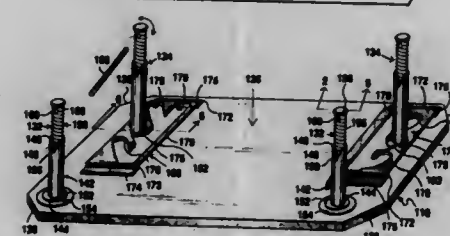
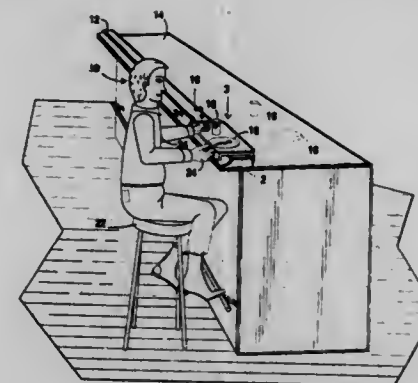
said locomotive including a carbody, the engine being disposed within the carbody, the radiator means being rigidly attached to a frame which extends about the periphery of the radiator, the shutter means being rigidly attached to the frame and the fan means being rigidly attached to the frame, the frame being removably attached to the carbody.

5,669,312
BAR RAIL COMFORT TRAY
Donald J. Norton, 100 Victoria Heights, Hyde Park, Mass. 02136
Filed Feb. 12, 1996, Ser. No. 600,094
Int. Cl.⁶ A47B 23/00

U.S. Cl. 108—42

13 Claims

1. An adjustable bar rail comfort tray, comprising:
a) a flat rectangular-shaped tray portion having a front, a rear, a pair of skewed front corners, and a pair of skewed rear corners;
b) a pair of adjustable front leg assemblies, each of which being disposed in proximity of each of said pair of skewed front



corners of said flat rectangular-shaped tray portion and extending downwardly therefrom; each of said pair of adjustable front leg assemblies having a free end; said pair of adjustable front leg assemblies being adjustable in height; each of said pair of adjustable front leg assemblies including a tubular body with a proximal end, a distal free end, and a threaded inner surface; each of said pair of adjustable front leg assemblies further including at least two expandable longitudinal V-shaped slots disposed at said distal free end of said tubular body of each of said pair of adjustable front leg assemblies; each of said pair of adjustable front leg assemblies further including a small disk fixedly attached to said proximal end of said tubular body of each of said pair of front leg assemblies; each of said pair of adjustable front leg assemblies further including a large disk fixedly attached between said flat rectangular-shaped tray portion and said small disk of each of said pair of adjustable front leg assemblies; and

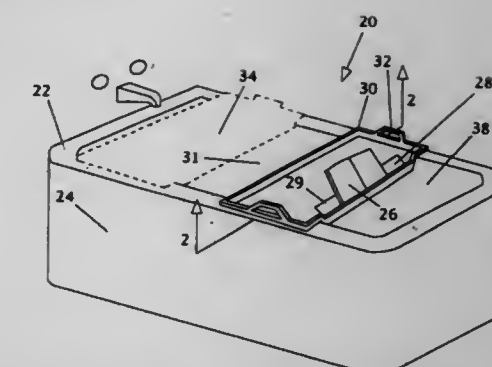
c) a pair of adjustable rear leg assemblies, each of which being disposed in proximity of each of said pair of skewed rear corners of said flat rectangular-shaped tray portion and extending downwardly therefrom; said pair of adjustable rear leg assemblies being adjustable in height and adjustable in a position between said front of said flat rectangular-shaped tray portion and said rear of said flat rectangular-shaped tray portion; each of said pair of adjustable rear leg assemblies having a free end, so that when said bar rail comfort tray is positioned on a conventional bar rail of a conventional bar, said flat rectangular-shaped tray portion is substantially on a conventional bar rail top of the conventional bar rail of the conventional bar, said free end of each of said pair of adjustable front leg assemblies rests on a conventional bar rail shaped front of the conventional bar rail of the conventional bar, and said pair of adjustable rear leg assemblies are behind a conventional bar rail rear of the conventional bar rail of the conventional bar with said free end of each of said pair of adjustable rear leg assemblies resting on the conventional bar.

5,669,313
TUB TABLE
David Cottingham, A1 80 Galbraith Dr. SW., Calgary, Alberta, Canada, T3E 3H2
Filed Mar. 11, 1996, Ser. No. 613,634
Int. Cl.⁶ A47B 23/00

U.S. Cl. 108—42

5 Claims

1. A tub table comprising:



(a) a planar member, having a bottom side portion, the planar member adapted to slide on opposed top sides of a bathtub, the planar member having a length sufficient to extend between the top side portions of opposed elongate walls of the bathtub, and

(b) a lateral trough extending across a central front portion of the planar member, the lateral trough having a length and two ends adapted to engage the opposed elongate walls of the bathtub, thereby allowing the lateral trough to be in contact with the opposed elongate walls of the bathtub, thereby preventing the tub table from falling into the bathtub, the lateral trough sized to support an open book, having a rear portion which extends down angularly to support the open book in an angularly erect position suitable for reading;

(c) a peripheral top rim, a portion of the peripheral top rim adjacent to the lateral trough;

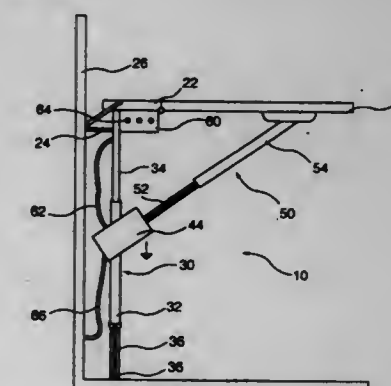
(d) handles formed in a central portion of the peripheral top rim as opposed ends of the tub table;

(e) first and second curved ridges attached to the lateral trough and extending downwardly from the bottom side portion of the planar member, the first and second ridges adapted to extend below to define engaging means for engaging the top side portion of the bathtub, thereby positionally maintaining the tub table on the bathtub.

5,669,314
MOTORIZED COLLAPSIBLE PLATFORM ASSEMBLY
Alvin S. Grant, 6772 Castleton Dr., Clemmons, N.C. 27012
Filed Dec. 1, 1995, Ser. No. 566,262
Int. Cl.⁶ A47B 5/00

U.S. Cl. 108—48

4 Claims

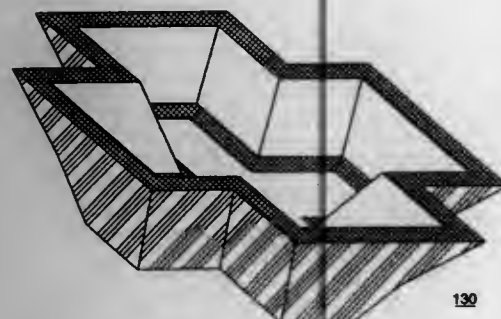
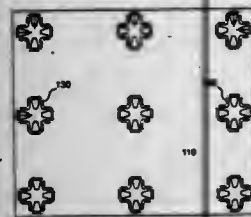


1. A collapsible platform assembly adapted to be secured to a vertically extending surface such as a wall and having a planar work surface which is adjustable between a horizontal work position and a vertical storage position comprising:

a single vertical support member having an upper end and a lower end, said lower end having a cylindrical coaxial base member extending therefrom, said base member attached to an inner coaxial member, said vertical support member further including an outer coaxial member axially slidable upon said

inner member, said outer coaxial member having an outer surface and an inner surface, said upper end of said vertical support member having a horizontal support ledge attached thereto, said horizontal support ledge being attached to said wall at one side and being hingedly connected to said planar work surface at an opposing side, a source of motive power attached to said outer surface of said outer coaxial member, said source of motive power being operably connected to a first end of an axially reciprocable drive shaft, the drive shaft having an opposing end connected to said work surface thereby allowing adjustment of the position of said work surface in accordance with the actuation of said source of motive power.

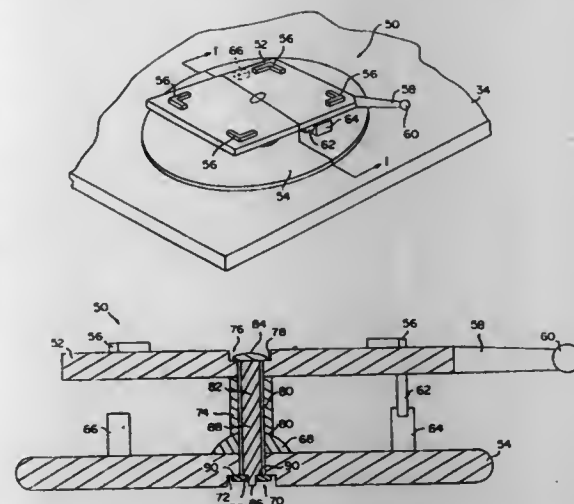
5,669,315
CORRUGATED PALLET AND PALLET FOOT
Peter L. Model, 1310 E. Thirteenth St., Chattanooga, Tenn. 37404
Continuation-in-part of Ser. No. 463,245, Jun. 5, 1995. This application Feb. 26, 1996, Ser. No. 606,858
Int. Cl.⁶ B65D 19/00
U.S. Cl. 108—56.3 10 Claims



7. A recyclable pallet foot formed from scrap pieces of recyclable material the pallet foot composed of shredded fibrous scrap recyclable material, molded, using a wet pulp process, into a substantially cruciform shape having a concave upward surface and a convex lower surface, said concave upward surfacing for attaching to a substantially planar deck portion of a pallet so as to contact a periphery of one of a plurality of openings in the substantially planar deck portion.

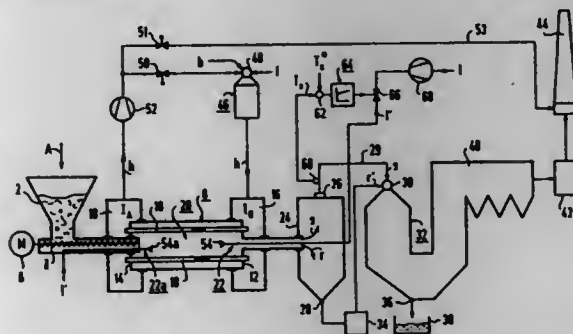
5,669,316
TURNTABLE FOR ROTATING A WAFER CARRIER
Albert Faz, and Rodolfo U. Coronado, both of San Antonio, Tex., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.
Filed Dec. 10, 1993, Ser. No. 166,182
Int. Cl.⁶ A47B 1/00
U.S. Cl. 108—142 11 Claims

1. A turntable for rotating a wafer carrier, comprising:
a baseplate having first and second upwardly extending baseplate stop elements;
a platform for supporting said wafer carrier, said platform having a handle and a downwardly extending platform stop



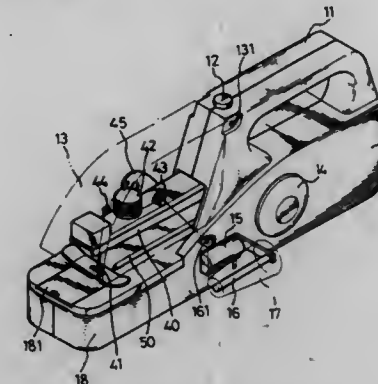
element which is adapted to engage either of said first and second upwardly extending baseplate stop elements; and rotating means for enabling rotation of said platform relative to said baseplate when said handle is manipulated wherein said first upwardly extending baseplate stop is positioned to engage said downwardly extending platform stop element to stop said rotation of said platform in a first position and said second upwardly extending baseplate stop element is positioned to engage said downwardly extending platform stop element to stop rotation of said platform in a second position.

5,669,317
PLANT FOR THERMAL WASTE DISPOSAL AND PROCESS FOR OPERATING SUCH A PLANT
Karl May, Bad Vilbel; Herbert Tratz, Ottensoos, and Reiner Engelhardt, Effeltrich, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed Feb. 20, 1996, Ser. No. 603,936
Claims priority, application Germany, Aug. 19, 1993, 43 27 953.8
Int. Cl.⁶ F23G 5/12 22 Claims
U.S. Cl. 110—229



1. A process for operating a plant for thermal waste disposal, which comprises:
indirectly heating waste within a pyrolysis reactor with a first heating device performing a major basal heating of the waste over an entire length of the pyrolysis reactor;
directly heating the waste within the pyrolysis reactor with a second heating device performing a regulated, slight supplementary heating of the waste as required over the entire length of the pyrolysis reactor by introducing air into an interior of the pyrolysis reactor;
converting the waste into low-temperature carbonization gas and solid pyrolysis residue in the pyrolysis reactor; and
burning at least one of the low-temperature carbonization gas and the pyrolysis residue in a high-temperature reactor.

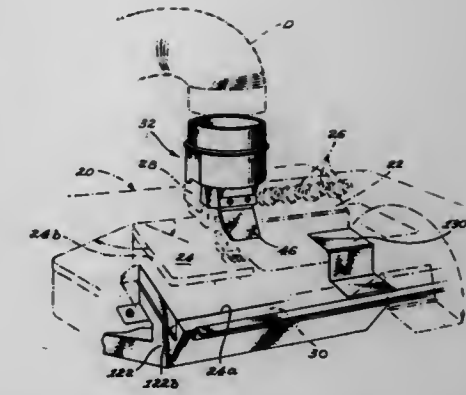
5,669,318
PORTABLE LOCK STITCH SEWING MACHINE
Shi-chour Tsay, and Jen-hsin Ho, both of Taoyuan Hsien, Taiwan, assignors to Airtek Industry Corp., Taipei, Taiwan
Continuation-in-part of Ser. No. 659,403, Jun. 6, 1996. This application Aug. 5, 1996, Ser. No. 692,334
Int. Cl.⁶ D05B 69/12; 27/24
U.S. Cl. 112—169 8 Claims



1. A portable sewing machine comprising:
a driving means having:
a main housing;
a motor received within said main housing;
a handle mounted on said main housing;
a bed extending forward and defined integrally with said main housing; and
a gear seat provided with a deceleration gear having a detachable gear and a driving gear pivotally connected with a driving rod;
a transmitting means having:
a needle arm pivotally connected with said main housing;
a transmitting shaft having a front rod pivotally connected with said driving rod and a rear rod pivotally connected with an elevation rod which is pivotally connected with said needle arm;
a driven rod pivotally connected with said driving rod and said rear rod of said transmitting shaft;
a sectorial gear pivotally connected with said driven rod and having a plurality of integral lugs and a top plate;
a gyration gear mated with said sectorial gear;
a presser foot pivotally connected with said needle arm through an axis;
an adjusting rod pivotally connected with said bed, having an adjusting protrusion abutting a bottom face of said presser foot;
a coil spring securely fixed between a bottom face of said bed and an inner surface of said presser foot for providing a downward force to said presser foot; and
a feed dog mated with said sectorial gear, having a projection; and
a plurality of guiding means mounted on said main housing for providing proper direction to threads.

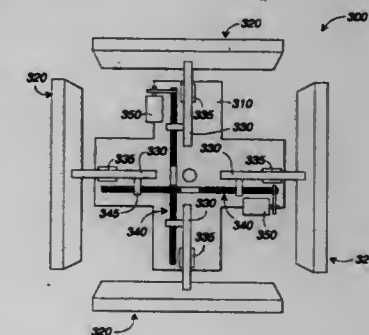
5,669,319
VACUUM CLEANER FOR SEWING MACHINE
Xin Liang, 6002, rue St-Hubert, Montréal (Québec), Canada, H2S 2R7
Filed Jun. 20, 1996, Ser. No. 667,832
Int. Cl.⁶ D05B 71/00; A47L 5/00; B08B 15/04
U.S. Cl. 112—282 7 Claims

1. A waste fabric and lint collector for use with an overlock stitching type sewing machine, the sewing machine of the type having a main frame with an upwardly opening trimmed fabric and lint outlet, the collector consisting of:
(a) a collector box, including a front wall, two opposite lateral side walls, and top and bottom walls, a large see-through window forming part of said front wall thereof;



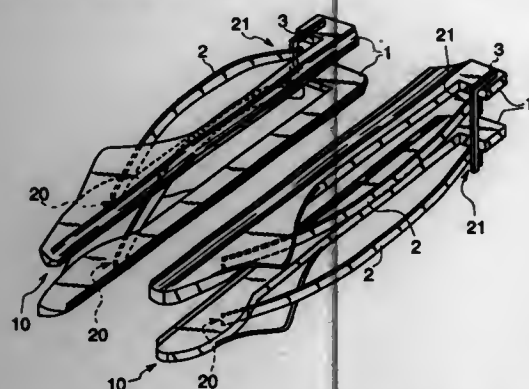
(b) pivotal means, for pivotally mounting in a releasable fashion said collector box to the sewing machine frame, wherein the front portion of said trimmed fabric and lint outlet is substantially closed by said collector box;
(c) a tubular coupling member, having an inner end portion of a shape complementary to that of the top wall of said collector box, for releasably flow-through interlocking engagement therewith, and an outer end portion, for releasably flow-through coupling with a complementary flexible air suction conduit for discharge of the lint to a waste container.

5,669,320
ADJUSTABLE TEMPLATE FOR TEXTILE FINISHING APPARATUS
Parks C. Stewart, and Robert A. Trobaugh, III, both of Duluth, Ga., assignors to Phoenix Automation Inc., Atlanta, Ga.
Continuation-in-part of Ser. No. 422,358, Apr. 14, 1995, Pat. No. 5,619,942. This application Oct. 4, 1996, Ser. No. 726,242
Int. Cl.⁶ D05B 21/00; 33/02; 19/00
U.S. Cl. 112—470.07 21 Claims



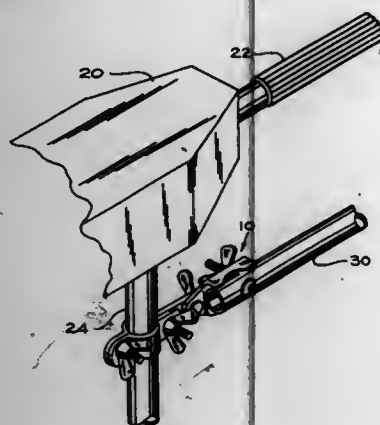
1. In combination with a means for detecting the length and width of a textile product with lateral edges, an adjustable template for maneuvering the textile product along a predetermined path, wherein said detecting means is positioned along said predetermined path and said template is mounted for movement along said path;
said template comprising a template base with lateral sides and a plurality of template shoes movably mounted along said lateral sides of said template base; and
means for adjusting the position of said template shoes with respect to said template base in response to said detection of said length and said width of said textile product such that when said template is positioned on said textile product, said template shoes are positioned a predetermined distance from said lateral edges of said textile product.

5,669,321
STOCKING-HOLDER SHAPE FOR PANTYHOSE SEWING MACHINE
 Pier Lorenzo Migliorini, Terranuova Bracciolini, Italy, assignor to Solis S.R.L., Tavarnuzze, Italy
 Filed May 7, 1996, Ser. No. 643,856
 Claims priority, application Italy, May 10, 1995, FI95A0098
 Int. Cl.⁶ D06C 5/00
 U.S. Cl. 112—470.08 13 Claims



1. A improved stocking-holder for supporting stockings comprising two contoured flat elements connected by a flexure element that can be stretched apart under control for supporting stockings wherein the improvement comprises: each of said flat elements being provided, in correspondence of the respective outer side, with a flexible and elastic body which has one end fixed at a front portion of the flat element, while another end is free, so as to allow for elastic yielding thereof and movement of said free end close to a side of the flat part, during the stretching apart of the flat elements, owing to action exerted by fabric of the stocking.

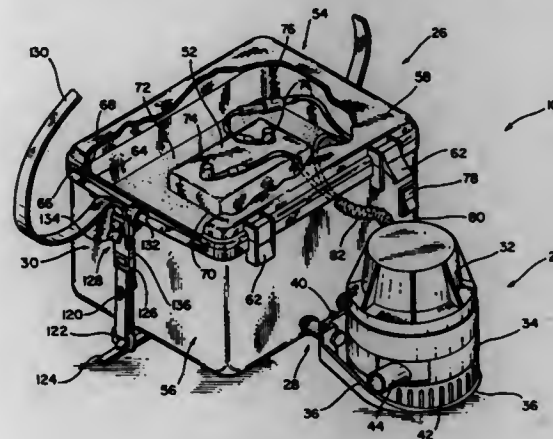
5,669,322
TROLLING MOTOR EXTENSION HANDLE BRACKET
 George P. Huzjak, 1826 S. 71st St., West Allis, Wis. 53214
 Filed Apr. 5, 1995, Ser. No. 417,301
 Int. Cl.⁶ B63H 20/12
 U.S. Cl. 114—146 4 Claims



1. An extension handle bracket assembly for a trolling motor handle and a trolling motor shaft, the extension handle bracket assembly comprising:
 an extension handle member;
 an extension handle bracket having a pivot end and a receiving end;
 said pivot end having an aperture;
 said receiving end having two channels formed therein for receiving said extension handle member;
 said two channels being perpendicular to each other;
 said extension handle member connected to said receiving end;

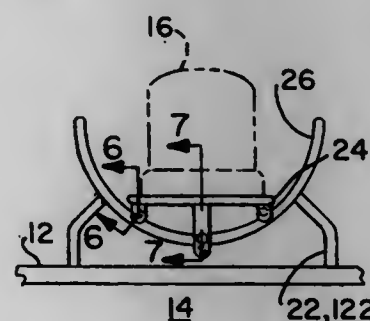
a trolling motor bracket assembly having a first end including attachment means for alternative attachment to the trolling motor handle and the trolling motor shaft and a second end including attachment means for attachment to the pivot end; a rubber washer located between said pivot end and said second end of said trolling motor bracket assembly.

5,669,323
AUTOMATIC BAILER
 Aaron L. Pritchard, R.R. 1 Box 161A, Lynch Station, Va. 24571
 Filed Sep. 6, 1996, Ser. No. 708,942
 Int. Cl.⁶ F04B 49/04
 U.S. Cl. 114—183 R 10 Claims



1. An automatic bailer positionable in an open vessel, such as a whitewater canoe comprising:
 a submersible, electrically operated pump having an inlet and an outlet;
 a power supply including a battery in a dry box, said power supply being in switched electrical connection with said pump;
 a flexible connection assembly joining said pump to said dry box to allow movement of said pump with respect to said dry box; means to removably secure said automatic bailer in the vessel; and
 means carrying water pumped by said pump out of the vessel.

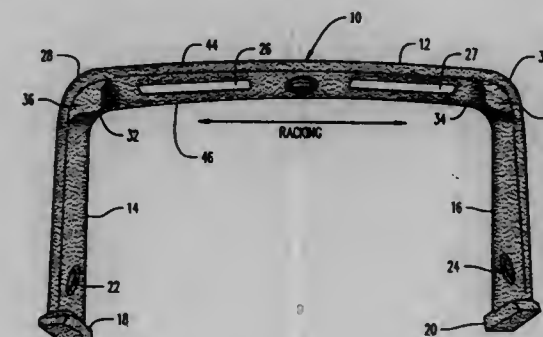
5,669,324
ROLLING CHAIR FRAME
 Robert C. Muir, III, 2270 Hillcrest Rd., Quakertown, Pa. 18951
 Filed Jul. 8, 1996, Ser. No. 676,984
 Int. Cl.⁶ B63B 29/04
 U.S. Cl. 114—194 25 Claims



1. A rolling chair frame, comprising:
 a) a one-piece tubular frame being attachable to a movable object;

b) a platform being sidewardly movably mounted to said one-piece tubular frame and being adapted to replaceably receive a chair;
 c) preventing means for preventing removal of said platform from said one-piece tubular frame, so that said platform cannot be unintentionally removed from said one-piece tubular frame; and
 d) movable mounting means for sidewardly movably mounting said platform to said one-piece tubular frame and maintaining said platform level as the movable object moves.

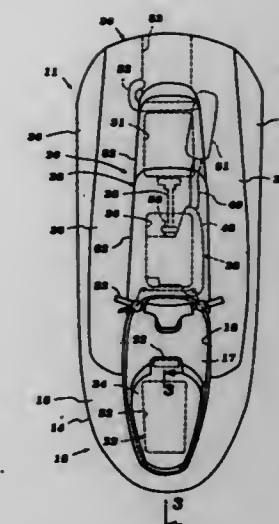
5,669,325
MARINE RADAR ARCH
 Orville A. Feikema, 6805 Riverview Blvd. W., Bradenton, Fla. 34209
 Filed Jul. 19, 1996, Ser. No. 683,846
 Int. Cl.⁶ B63B 17/00
 U.S. Cl. 114—343 4 Claims



1. A radar arch structure for connection onto a deck or superstructure of a boat comprising:
 a rigid arch member formed of molded fiberglass or plastic and having a generally inverted U-shaped configuration, a leading edge and a trailing edge, and including a transverse upper portion generally spanning the width of the deck or superstructure and a pair of downwardly extending side portions each structured at its lower end for connection to the deck or superstructure;
 a substantially enlarged stiffening portion of said arch member positioned and extending inwardly from an inner surface of each upper corner of said arch member, each said corner positioned and smoothly contoured between said upper portion and each said side portion and defining an enclosed volume for storage or for mounting a piece of boat equipment thereon;
 each said enlarged stiffening portion substantially increasing the strength and rigidity of each said corner whereby a tendency of said upper portion to rack or move laterally with respect to each said lower end is substantially reduced.

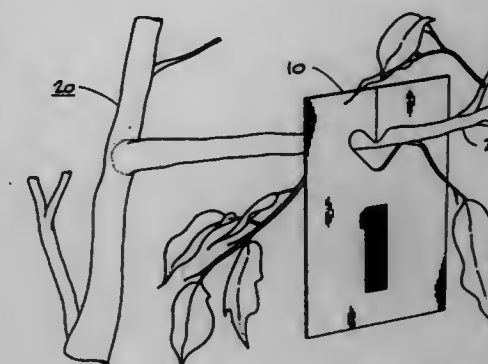
5,669,326
WATERCRAFT
 Keijiro Ikeda, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan
 Filed Jan. 29, 1996, Ser. No. 593,669
 Claims priority, application Japan, Jan. 27, 1995, 7-011892
 Int. Cl.⁶ B63B 17/00
 U.S. Cl. 114—363 30 Claims

1. A small watercraft comprised of a hull, said hull defining a rider's area having a raised seat portion adapted to accommodate at least one rider, an engine compartment formed in said hull at least in part beneath said raised seat portion, an internal combustion engine supported in said engine compartment, a propulsion device for propelling said hull supported said hull and driven by said internal combustion engine, said seat portion being formed with a



service access opening through which at least one component of said engine may be accessed for servicing, a first removable closure detachably covering said service access opening, said service access opening not being large enough to pass said internal combustion engine as a unit therethrough, a further replacement access opening formed in said hull at a location spaced from said service access opening and through which said internal combustion engine may be removed as a unit, and a second removable closure for closing said replacement access opening.

5,669,327
BIODEGRADABLE TRAIL MARKER SYSTEM
 Richard W. Beebe, 1089 Starr Rd., Cortland, N.Y. 13045
 Filed May 29, 1996, Ser. No. 654,851
 Int. Cl.⁶ G09F 3/00; 17/00
 U.S. Cl. 116—209 4 Claims

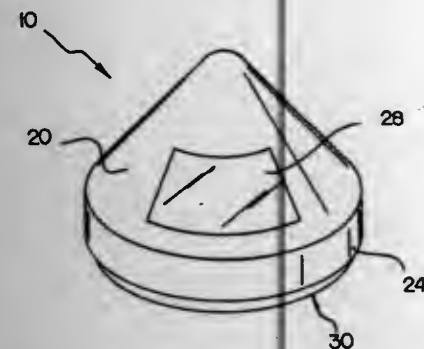


1. A system for marking a trail which comprises:
 (a) providing a plurality of visible tags suitable for use as a trail marker, each of said tags having a unitary body of a planar configuration, said body having a highly visible color, with the body of said tag being made of at least one biodegradable material selected from the group consisting of a starch based material, polyesters, cellulose acetate, and polyethylene, and further containing fastening means formed integrally with said body;
 (b) fastening said tags with said fastening means at regular intervals along a trail to provide a series of visual markers which define said trail, and
 (c) retrieving said tags for reuse after the tags have served their intended purpose.

5,669,328
AUTOMATIC ANIMAL FEEDING SYSTEM
 Tammy Lanfranchi, 32 Ferman Dr., Guelph, Ontario, Canada, N1H 7E1

Filed Jun. 14, 1996, Ser. No. 663,785
 Int. Cl.⁶ A01K 7/02

U.S. Cl. 119—57.92

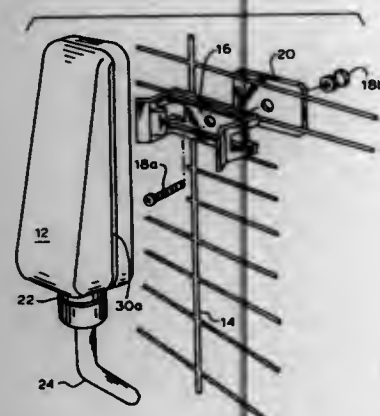


1. An automatic animal feeding system comprising:
 - a base member;
 - a conical-shaped protective cover rotatably secured to the top of the base member;
 - a feeding dish removably resting on the base member;
 - a rotating means secured to the base member and mechanically engaging the conical-shaped protective cover where the rotating means protected by a water proof cover;
 - a power source electronically connected to the rotating means, and
 - an adjustable pet collar with transmitter attached thereto, whereby said transmitter sends a signal to activate said rotating means.

5,669,329
WATER BOTTLE APPARATUS
 Robert C. Krause, Arlington Heights, Ill., assignor to Pets International, Ltd., Arlington Heights, Ill.

Filed Aug. 19, 1996, Ser. No. 697,039
 Int. Cl.⁶ A01K 7/00

U.S. Cl. 119—72.5



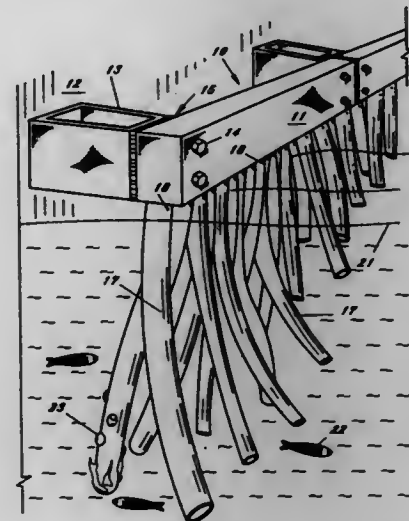
1. A water bottle apparatus for use with an animal enclosure comprising:
 - a bottle member having vertically oriented mounting edges defined along opposing vertical sides thereof; and
 - clip means comprising a base for attachment to the animal enclosure, and arms extending from said base, wherein said arms exhibit catch means for engaging said mounting edges of said bottle member.

5,669,330
AQUATIC ORGANISM HABITAT DEVICE
 Christopher F. O'Hare, 22 Harbour Dr. South, Ocean Ridge, Fla. 33435

Filed Jun. 7, 1995, Ser. No. 474,749
 Int. Cl.⁶ A01K 61/00

6 Claims U.S. Cl. 119—215

10 Claims

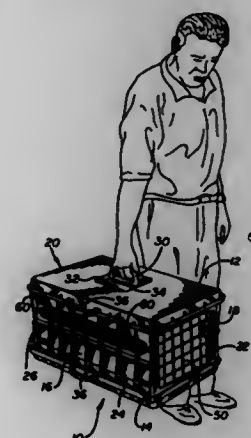


6. An apparatus for providing a synthetic aquatic organism habitat below the surface of a body of water in a marine environment, said apparatus comprising:
 - a support means fixed relative to a marine environment by an anchoring means, said support means having a length;
 - a plurality of flexible elongate appendage members connected to said support means, said appendage members each having an outer surface formed about a generally curved longitudinal axis, each of said appendage members extending generally downwardly from said support means such that a portion of said outer surface is disposed beneath the surface of the water;
 - said appendage members spaced at predetermined distances along the length of said support means whereby said downwardly extending appendage members form a randomized pattern below the mean surface of the water.

5,669,331
ANIMAL CARRIER
 Edward Richmond, 3551 Caribeth Dr., Encino, Calif. 91436
 Filed Jun. 12, 1995, Ser. No. 489,559
 Int. Cl.⁶ A01K 1/03

U.S. Cl. 119—497

43 Claims



1. In combination in a portable pet housing,

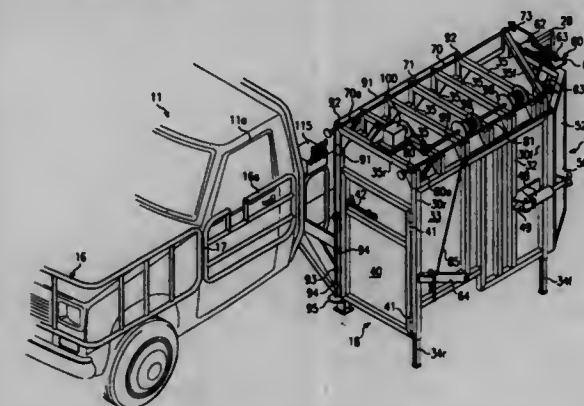
top and bottom platforms defining the top and bottom of the pet housing, front and rear collapsible walls each having opposite ends respectively attached pivotably to the top and bottom platforms and hinged at an intermediate position between the opposite ends to provide for a pivotable collapse of such walls against the top and bottom platforms for portable transport of the pet housing in a collapsed relationship and to provide for an expansion of the front and rear walls for use in housing the pet, left and right side walls each pivotably attached to an individual one of the top and bottom platforms to facilitate the collapse of the front and rear walls when such side wall is pivoted toward the individual one of the top and bottom platforms, first detent means disposed on an individual one of the left and right side walls, and second detent means disposed on an individual one of the front and rear collapsible walls and providing a frictional engagement with the first detent means when the side walls are pivoted to positions closing the pet housing.

means operable from the rear of said structure for moving said front gate between said open position and said closed position; a rear gate pivotably connected to the rear of said structure, said rear gate blocking entry into or exit from said structure when in a closed position and allowing entry into said structure when in an open position; means for immobilizing the head of the animal when said animal is within said structure, said means comprising: a stanchion pivotably mounted on said front gate and moveable between a set open position and a set closed position wherein said head of said animal is immobilized with respect to said front gate; and means operable from the rear of said structure for automatically moving said stanchion between said set closed position wherein said head of said animal is immobilized and said set open position wherein said head of said animal is not immobilized.

5,669,332
PORTABLE CHUTE FOR IMMOBILIZING AN ANIMAL
 William S. Riley, 7802 Genoa, Lubbock, Tex. 75424
 Continuation-in-part of Ser. No. 367,702, Jan. 3, 1995, abandoned. This application Feb. 20, 1996, Ser. No. 603,212
 Int. Cl.⁶ A01K 15/00

U.S. Cl. 119—724

16 Claims



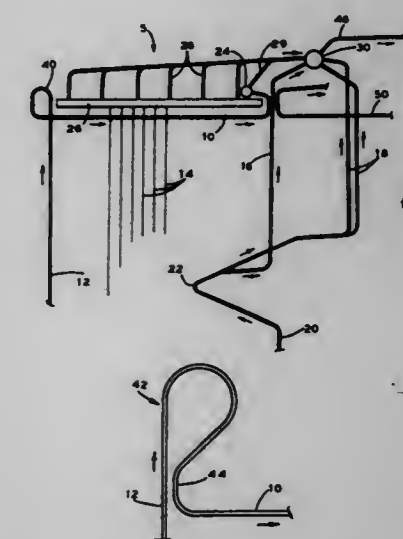
1. A portable chute for immobilizing an animal comprising:
 - an inside wall and an outside wall connected together to form a rectangular, box-like structure;
 - a vehicle;
 - means for pivotably mounting said structure on said vehicle; and
 - means for moving said structure between a horizontal position on said vehicle and a vertical, upright position adjacent said vehicle;
- a front gate pivotably connected to the front of said structure, said front gate blocking exit from said structure when in a closed position and allowing exit from said structure when in an open position, said front gate comprising:
 - a first and a second vertical section connected together along one respective vertical edge to form an angle therebetween wherein said second section provides a surface which tapers inwardly with respect to said first section when said front gate is in its said closed position, said front gate having an opening in said first section into which the head of said animal passes through when said animal is fully within said structure, said tapered surface inherently guiding the head of said animal as the animal enters the structure;
- means for releasably latching said front gate in said closed position; and
- means operable from the rear of said structure for releasing said latching means whereby said front gate can be moved to said open position;

5,669,333
ONCE-THROUGH STEAM GENERATOR FURNACE OUTLET FLUID MIX TO MINIMIZE THE NUMBER OF HEADERS AND RISER MATERIALS
 Calvin Eugene Phelps, Sr., Akron, Ohio, assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Feb. 13, 1996, Ser. No. 600,616
 Int. Cl.⁶ F22B 37/14; 37/20; 37/22

U.S. Cl. 122—6 A

2 Claims



1. An arrangement for a furnace of a once-through steam generator having convection pass circuitry, comprising:
 - a. a fluid mix header for containing a volume of a fluid;
 - b. a side wall header at a side wall of the furnace;
 - c. at least one side wall tube at the side wall of the furnace, said side wall tube being connected to said side wall header;
 - d. an outlet header at the roof of the furnace;
 - e. a loop section of tube;
 - f. a roof tube at the roof of the furnace connected at one end to said outlet header and at the opposite end to one end of said loop section of tube;
 - g. a front wall tube at the front of the furnace connected to the opposite end of said loop section of tube from said roof tube;
 - f. a tube connected between said outlet header and said fluid mix header;
 - g. a plurality of screen tubes connected to said fluid mix header; and
 - h. means for providing fluid from said fluid mix header to the convection pass circuitry of the furnace.

5,669,334

INJECTION VALVES FOR LIQUID-FUEL MIXTURES AND ASSOCIATED PROCESSES

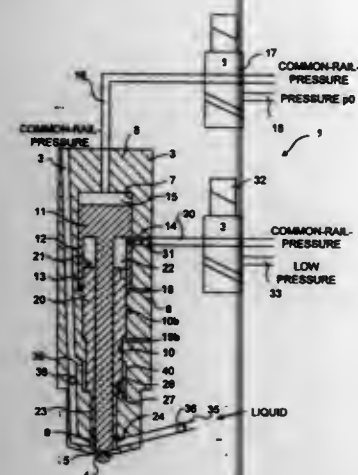
Dieter Schönfeld, Markdorf; Bernhard Bächle; Martin Freitag, both of Friedrichshafen, and Torsten Guth, Gerswalde, all of Germany, assignors to MTU Motoren-und Turbinen-Union Friedrichshafen GmbH, Friedrichshafen, Germany
PCT No. PCT/EP95/00497, § 371 Date Dec. 27, 1995, § 102(e) Date Dec. 27, 1995, PCT Pub. No. WO95/21998, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 10, 1995, Ser. No. 535,022

Claims priority, application Germany, Feb. 11, 1994, 44 04 325.2; Jul. 18, 1994, 44 25 339.7

Int. Cl.⁶ F02M 43/04; 47/02

U.S. Cl. 123—25 R



1. An injection system for intermittent introduction of a fuel-liquid mixture into a combustion space of an internal combustion engine, said injection system comprising:

- a first high pressure line,
- a first low pressure line, and an injection valve,
- said injection valve comprising:
- a housing having an injection opening for communication with a combustion space of an internal combustion engine,
- a valve member displaceable in said housing to open and close said injection opening,
- said valve member and said housing defining a first control space,

means for selectively and intermittently connecting said first control space to said first high pressure line or said first low pressure line to pressurize said valve member and enable the valve member to be displaced to close and open said injection opening,

means for supply of fuel and liquid into said housing in a region communicating with said injection opening,

a second high pressure line,

a second low pressure line,

a second control space

means for selectively and intermittently connecting said second control space to said second high pressure line and said second low pressure line and

a piston supported for undergoing relative displacement with respect to said valve member depending on the pressure in said second control space to increase the volume of said region by a determined amount so that liquid is introduced into said region in an amount which is a function of said increase in volume.

5,669,335

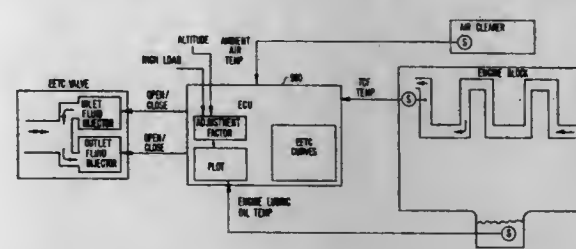
SYSTEM FOR CONTROLLING THE STATE OF A FLOW CONTROL VALVE

Thomas J. Hollis, 5 Roxbury Dr., Medford, N.J. 08055, assignor to Thomas J. Hollis, Medford, N.J.
Continuation of Ser. No. 390,711, Feb. 17, 1995, abandoned, which is a continuation-in-part of Ser. No. 306,272, Sep. 14, 1994, Pat. No. 5,467,745. This application Mar. 22, 1996, Ser. No. 623,349

Int. Cl.⁶ F01P 7/14

U.S. Cl. 123—41.1

85 Claims



1. A temperature control system in a liquid cooled internal combustion engine equipped with a radiator, the system comprising:

- (a) a first flow control valve for controlling flow of a temperature control fluid through a first passageway which communicates with the radiator, the first flow control valve having a first state for preventing said flow and a second state for allowing said flow;
- (b) a first sensor for measuring the temperature of the temperature control fluid, t1;
- (c) a second sensor for measuring ambient air temperature, t2;
- (d) a third sensor for measuring an actual engine operation temperature indicative of engine oil temperature;
- (e) an engine computer for receiving signals from the first and second sensors, producing control signals based on both of said sensor signals, and sending said control signals to the first flow control valve to control the state of the valve,

t1 and t2 defining a first mathematical function of $t1=f(t2)$ which forms a first two-dimensional curve on an orthogonal coordinate system having axes t1 and t2, the first curve dividing the coordinate system into two regions, one on either side of the first curve, the engine computer sending said control signals to place the valve in the first state when coordinate pairs of t1 and t2 lie on a first region of the coordinate system and sending said control signals to place the valve in the second state when coordinate pairs of t1 and t2 lie on a second region of the coordinate system defined by the first curve,

t1 and t2 also defining a second mathematical function of $t1=f(t2)$ which forms a second two-dimensional curve on the orthogonal coordinate system having axes t1 and t2, the second curve dividing the coordinate system into two regions, one on either side of the second curve, the engine computer sending said control signals to place the valve in the first state when coordinate pairs of t1 and t2 lie on a first region of the coordinate system defined by the second curve and sending said control signals to place the valve in the second state when coordinate pairs of t1 and t2 lie on a second region of the coordinate system defined by the second curve;

(f) means for comparing the measured engine operation temperature to a preselected engine operation temperature; and

(g) means for selecting either the first or second curve to control the state of the valve, the first curve being selected when the actual engine operation temperature is at or below the preselected temperature, the second curve being selected when the actual engine operation temperature is above the preselected temperature.

5,669,336

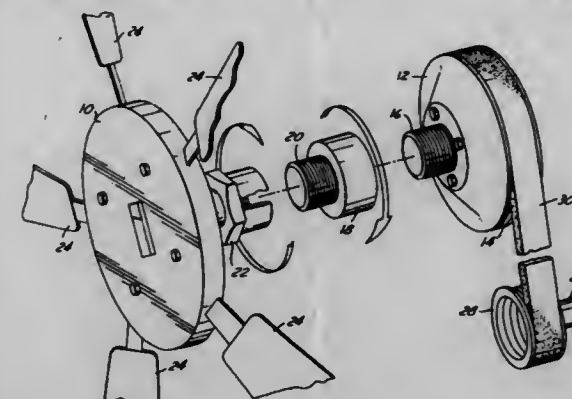
COMPLIANT DRIVE FOR INTERNAL COMBUSTION ENGINE COOLING FAN

Bruce P. Williams, Grosse Point Park, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.
Continuation of Ser. No. 363,787, Dec. 27, 1994, abandoned. This application Aug. 1, 1996, Ser. No. 693,580

Int. Cl.⁶ F01P 7/02

U.S. Cl. 123—41.12

11 Claims



1. A compliant drive system and cooling fan for an internal combustion engine, comprising:

- a rotatable fan hub having a running surface for receiving a drive belt powered by the engine;
- a fan rotatably mounted upon the hub; and
- a clutch interposed between the hub and the fan for locking the fan to the hub when the hub is either increasing the rotational speed of the fan or maintaining the rotational speed of the fan at a constant value, with said clutch unlocking the fan from the hub at least part of any time period in which the rotational speed of the hub is decreasing, with the result that said fan is allowed to rotate at a speed in excess of the rotational speed of said hub during certain engine operating conditions, with said clutch further comprising a thermally responsive element interposed between said fan and said clutch, with said thermally responsive element serving to disengage said fan from said hub in the event that the operating temperature of the engine is below a predetermined value.

5,669,337

TEMPERATURE SENSING SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

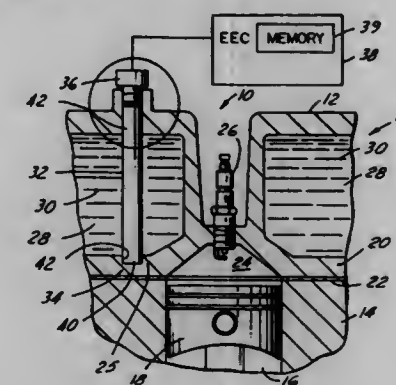
Darrell C. Drouillard, Windsor, Canada, assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed May 6, 1996, Ser. No. 643,700

Int. Cl.⁶ F01P 5/14

U.S. Cl. 123—41.15

12 Claims



1. A temperature sensing system for sensing coolant temperature and fire deck temperature in an internal combustion engine, with the engine having a cylinder block having a piston reciprocally

housed in a cylinder formed therein, and a cylinder head having a coolant passage and a fire deck, with said cylinder head being mounted to the cylinder block so as to close the outer end of the cylinder thereby defining a combustion chamber between the cylinder head fire deck and the top of the piston, with said system comprising:

- a heat pipe in operative contact with the cylinder head near the fire deck and with the coolant passage; and
- a temperature sensor for sensing the temperature of said heat pipe.

5,669,338

DUAL CIRCUIT COOLING SYSTEMS

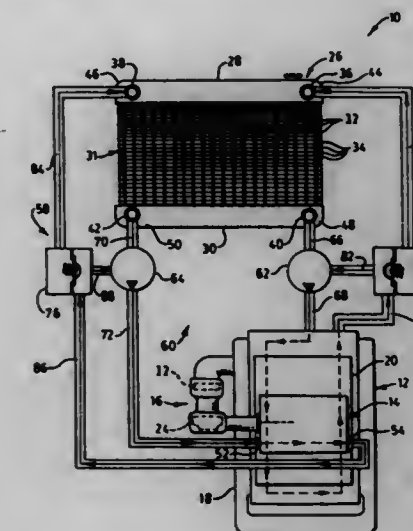
Robert L. Pribble; Gregg W. Uhland, and Brian R. Weller, all of Lafayette, Ind., assignors to Caterpillar Inc., Peoria, Ill.

Filed Apr. 15, 1996, Ser. No. 632,045

Int. Cl.⁶ F01P 3/00

U.S. Cl. 123—41.29

2 Claims



1. A cooling system for a turbocharged internal combustion engine, comprising:

- a radiator having upper and lower tanks and a core connected to the upper and lower tanks, said core being open to pass fluid flow between the upper and lower tanks, said upper tank having first and second spaced apart fluid passing inlet ports and said lower tank having first and second spaced apart fluid passing outlet ports;
- an aftercooler having a fluid passing inlet port and a fluid passing outlet port;

a first fluid passing cooling circuit connecting the first inlet port of the radiator to the engine and the first outlet port of the radiator to the engine, said first fluid passing cooling circuit delivering engine jacket cooling fluid from the first outlet port of the radiator to the engine and returning engine heated cooling fluid from the engine to the first inlet port of the radiator;

a second fluid passing cooling circuit connecting the second inlet port of the radiator to the outlet port of the aftercooler and the second outlet port of the radiator to the inlet port of the aftercooler, said second fluid passing cooling circuit delivering aftercooler cooling fluid from the second outlet port of the radiator to the inlet port of the aftercooler and returning aftercooler heated cooling fluid from the outlet port of the aftercooler to the second inlet port of the radiator;

a first cooling fluid circulating pump connected in the first fluid passing cooling circuit between the first outlet of the radiator and the engine and being adapted to pass cooling fluid from the radiator to the engine;

a second cooling fluid circulating pump connected between the second outlet of the radiator and the inlet to the aftercooler,

said second cooling fluid circulating pump being adapted to pass cooling fluid flow from the radiator to the aftercooler; a first temperature responsive valve having open and closed positions and being movable from said closed position to said open position in response to the temperature of the engine cooling fluid being greater than a first preselected minimum temperature, said first temperature responsive valve being connected between the first inlet port and the engine and connected to the first cooling fluid circulating pump, said first temperature responsive valve blocking the passing of cooling fluid flow from the engine to the first inlet port of the radiator at the closed position, passing fluid flow to the first cooling fluid circulating pump at the closed position, and passing fluid flow from the engine to the first inlet port at the open position; a second temperature responsive valve having closed and open positions and being movable from said closed position to said open position in response to the temperature of the engine cooling fluid being greater than a second preselected minimum temperature having a magnitude lower than the first preselected minimum temperature, said second temperature responsive valve being connected between the second inlet port of the radiator and the outlet port of the aftercooler and connected to the second cooling fluid circulating pump, said second temperature responsive valve blocking the passing of cooling fluid flow between the aftercooler and the radiator second inlet port at the closed position, passing fluid flow to the second cooling fluid circulating pump at the closed position, and passing fluid flow from the aftercooler to the second inlet port at the open position.

5,669,339

CYLINDER COOLING APPARATUS OF MULTI-CYLINDER ENGINE

Masaji Yukawa; Masahiro Aketa; Kazutoshi Okamoto; Yasukazu Kamada; Akira Hayashi; Masahiko Sugimoto; and Nobuhiro Yamamoto, all of Sakai, Japan, assignors to Kubota Corporation, Osaka, Japan

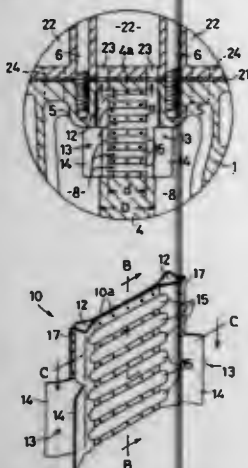
Filed Feb. 28, 1996, Ser. No. 608,076

Claims priority, application Japan, Mar. 20, 1995, 7-060818; Jul. 18, 1995, 7-181215; Aug. 18, 1995, 7-210383

Int. Cl.⁶ F02F 1/4; 7/00

U.S. Cl. 123-41.79

9 Claims



1. A cylinder cooling apparatus of a multi-cylinder engine having a water passage forming member embedded in a connection wall between adjacent bores of a multi-cylinder block formed by a casting process, wherein:

said water passage forming member is provided with vertical left and right jacket communication passages for communicating cylinder jackets within said multicylinder block with a head jacket,

a plurality of cooling water passages disposed in a vertical arrangement to provide communication between said left and right jacket communication passages, and

a plurality of non-hollow portions arranged in alternation with said cooling water passages to separate adjacent ones of said plurality of cooling water passages.

5,669,340

TWO-CYCLE ENGINE EMPLOYING A FLYWHEEL

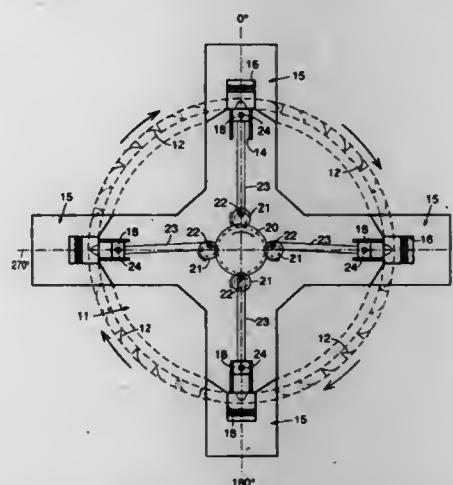
Hiroshi D. Ohori, 11 Saddle Rd., Cedar Knolls, N.J. 07927

Continuation of Ser. No. 331,044, Oct. 28, 1994. This application May 1, 1996, Ser. No. 646,731

Int. Cl.⁶ F02C 5/00

U.S. Cl. 123-48 AA

20 Claims



1. In a two-cycle engine, the combination comprising a rotatably mounted flywheel having at least one transfer pocket therein;
- a stationary housing means having at least one radially disposed cylinder therein for receiving a combustible mixture, a chamber opposite said cylinder and a power transmission cavity communicating with said chamber and facing said flywheel;
- a piston slidably mounted in said cylinder;
- transmission means for reciprocating said piston in said cylinder to compress a combustible mixture therein;
- ignition means for igniting a compressed combustible mixture in said cylinder;
- a counter-piston slidably disposed in said chamber of said housing means opposite said cylinder and piston to move from an extended position adjacent said cylinder to a retracted position spaced from said piston and said cylinder under the force of an ignited combustible mixture in said cylinder; and
- a spring biasing said counter piston from said retracted position to said extended position to exhaust a flow of the combusted mixture from said chamber through said power transmission cavity into said pocket of said flywheel to effect rotation of said flywheel.

5,669,341

VALVE OPERATING SYSTEM FOR INTERNAL COMBUSTION ENGINE

Akihito Ushirono; Takashi Sugai, and Takahiro Okuyama, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 1, 1995, Ser. No. 509,950

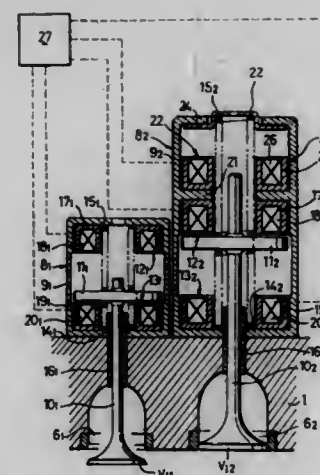
Int. Cl.⁶ F01L 9/04; F02B 31/00

U.S. Cl. 123-90.11

10 Claims

5. A valve operating system for an internal combustion engine, comprising:

first and second engine valves capable of opening and closing first and second engine valve bores, respectively, which are provided in a cylinder head to face a combustion chamber;



- a first electromagnetic driving means for electromagnetically driving said first engine valve;
- a second electromagnetic driving means for electromagnetically driving said second engine valve with a larger opening and closing stroke than that of said first engine valve; and
- control means for controlling the operation of said first and second electromagnetic driving means in a manner that when the engine is in predetermined operational states including an engine starting state, said first and second engine valves are independently operated from each other, wherein said second electromagnetic driving means is provided with an equilibrium position changing means for selectively changing an equilibrium neutral position of said second engine valve.

5,669,342

DEVICE FOR SIMULTANEOUS ACTUATION OF AT LEAST TWO GAS EXCHANGE VALVES

Walter Spell, Ingolstadt, Germany, assignor to INA Walzlager Schaeffler KG, Germany

Continuation of Ser. No. 407,450, Mar. 17, 1995, abandoned.

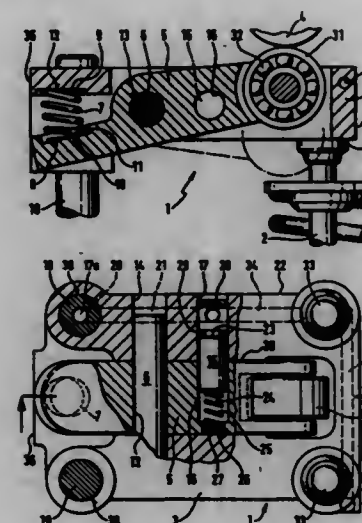
This application Feb. 28, 1996, Ser. No. 608,281

Claims priority, application Germany, Apr. 14, 1994, 9406190 U

Int. Cl.⁶ F01L 1/26; 1/18

U.S. Cl. 123-90.16

20 Claims



1. A device (1) for simultaneous actuation of at least two gas exchange valves (2) of an internal combustion engine comprising a bridge-type cam follower (3) with a generally rectangular outer contour arranged in driving relationship between a camshaft and

the gas exchange valves (2) and serving to directly transmit a stroke motion caused by a control cam (4) of the camshaft to the gas exchange valves (2), said cam follower (3) being guided by guiding means (18,19) for substantially uniform vertical displacement in a cylinder head and comprising a cam contacting element (31) on which the control cam (4) contacts; characterized in that the cam contacting element (31) formed on a lever (5) mounted in the cam follower (3) is displaceable relative to the cam follower (3) so that the cam follower (3) can be uncoupled from a stroke-transmitting motion of the control cam (4) for at least a portion of the stroke-transmitting motion of the control cam, the cam follower being guided at one of its smaller sides (36,37) by guiding columns (18,19) connected to the cylinder head, said columns (18,19) extending in complementary bores (38,39) of the cam follower (3) opposite the gas exchange valves (2) while being fixed optionally in the cylinder head or in the cam follower (3) to be slidable in the other one of the cam follower (3) and the cylinder head and a displaceable coupling means (15) is provided in the lever (5), the coupling means (15) comes to extend beyond at least one parting plane (30) formed between the lever (5) and the cam follower (3) to effect coupling, the cam contacting element (31) being brought to bear against the control cam (4) by the lever (5) and by a spring means (7) acting between the lever (5) and the cam follower (3).

5,669,343

VALVE TIMING CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

Michio Adachi, Oobu, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Continuation of Ser. No. 341,958, Nov. 16, 1994, abandoned.

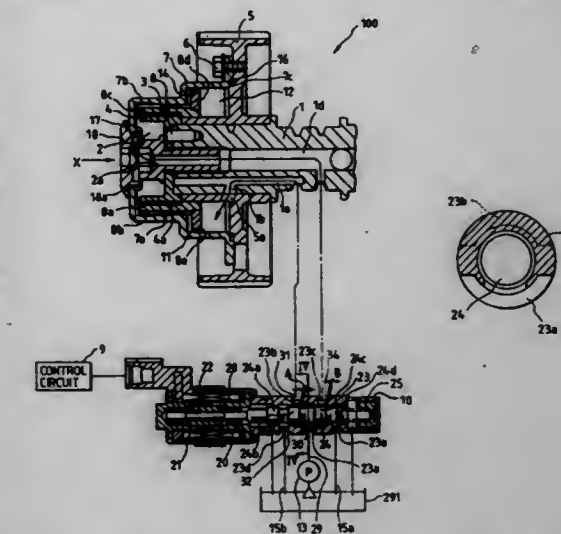
This application May 13, 1996, Ser. No. 644,942

Claims priority, application Japan, Nov. 16, 1993, 5-287082

Int. Cl.⁶ F01L 1/34

U.S. Cl. 123-90.17

14 Claims



1. A valve timing control system for an internal combustion engine comprising:

a valve timing varying mechanism having a pressure chamber for varying a valve timing in response to a pressure in the pressure chamber;

a passage defining member defining a receiving space, the passage defining member also defining a passage connecting the receiving space with the pressure chamber; and

a control valve communicating with the pressure chamber for controlling the pressure in the pressure chamber, the control valve comprising:

a cylindrical sleeve disposed in the receiving space of the passage defining member, the sleeve defining a space therein, the sleeve having a pair of openings to the sleeve space arranged on a cylindrical outer periphery of the sleeve, each of the pair of openings being elongate in shape

and extending circumferentially about the sleeve over an angular range less than 180 degrees one of the pair of openings for connecting the sleeve space to the passage of the passage defining member and the other of the pair of openings for connecting the sleeve space to one of a pressure source and a pressure drain;
a spool movably disposed in the sleeve space; and
an actuator arranged to mechanically operate the spool for moving the spool between a position wherein the pair of openings are connected and a position wherein the pair of openings are disconnected,
wherein the pair of openings are arranged at circumferentially opposite sides of the sleeve and are offset axially from each other such that a length of a portion of the sleeve between the pair of openings prevents leakage between the pair of openings when the spool is in the disconnected position.

5,669,344

SOHC SYSTEM WITH RADIAL VALVES

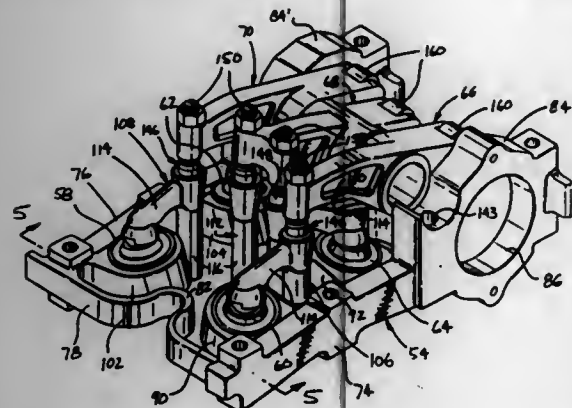
Jose F. Regueiro, Rochester Hills, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.

Filed Aug. 9, 1996, Ser. No. 694,720

Int. Cl.⁶ F01L 1/26

U.S. Cl. 123—90.22

10 Claims



1. A valve train mechanism for an internal combustion engine having a cylinder head fixedly mounted on an engine block provided with one or more cylinders each of which has a piston reciprocally supported therein along the axial center line of the associated cylinder, a combustion chamber in each of said cylinders of said engine being defined by a recess in the base of said cylinder head and the top of said piston, an exhaust valve and an air intake valve located in said cylinder head, each of said valves being biased into a closed position by a spring and being inclined outwardly from said combustion chamber relative to said axial center line, a first rocker arm and a first actuator for moving said exhaust valve to an open position against the bias of the associated spring, a second rocker arm and a second actuator for moving said intake valve to the open position against the bias of the associated spring, said first rocker arm and said second rocker arm each being supported by said cylinder head for pivotal movement along an axis normal to said axial center line, each of said first and second actuators having the configuration of an inverted "L" and comprising a leg portion integrally formed with an arm portion, a first guide pin fixed to said cylinder head between said intake valve and said exhaust valve for supporting said leg portion of said first actuator, a second guide pin fixed to said cylinder head between said axial center line of said cylinder and the longitudinal center axis of one of said valves for supporting said leg portion of said second actuator, a first ball and socket connection located between said arm portion of said first actuator and one of said valves, a first sliding connection between said one of said valves and said first actuator for cooperation with first ball and socket connection so as to permit said first actuator to reciprocate along and oscillate about the first guide pin while said one of said valves is moved between

said closed position and said open position, a second ball and socket connection located between said arm portion of said second actuator and the other of said valves, and a second sliding connection between said other of said valves and said second actuator for cooperation with said second ball and socket connection so as to permit said second actuator to reciprocate only along said second guide pin while said other of said valves is moved between said closed position and said open position.

5,669,345

DIRECT-INJECTION GASOLINE ENGINE

Yong-Gyun Lee, Kumpo, Rep. of Korea, assignor to KIA Motors Corporation, Seoul, Rep. of Korea

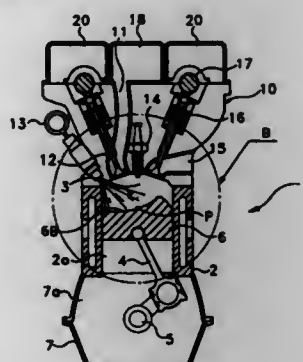
Filed Jun. 21, 1996, Ser. No. 668,637

Claims priority, application Rep. of Korea, Apr. 19, 1996, 96-11977

Int. Cl.⁶ F02M 35/10

U.S. Cl. 123—184.42

5 Claims



1. A direct-injection gasoline engine comprising:
a cylinder block;
a crank case, mounted in the lower part of the cylinder block;
a cylinder head, mounted to the top of the cylinder block;
head covers, formed to the top of the cylinder head;
a crank shaft formed in a crank chamber, formed between the cylinder block and the crank case;
a piston formed in the cylinder block, with an eddy-current producing part in its upper surface;
a connecting rod, the ends of which connect the piston and crank shaft and converts the alternating motion of the piston into a rotating motion;
an ignition plug, formed in the middle of the cylinder head;
a fuel injector, which sprays fuel into a combustion chamber;
an exhaust port, formed on one side of the cylinder head;
an exhaust valve, for opening and closing the exhaust port;
a suction port, formed on the other side of the cylinder head;
a suction valve, which opens and closes the suction port;
a pair of cam shafts, each installed in the head covers for operating the suction valve and exhaust valve; and
a surge tank, directly connected to the suction port and mounted to the central part of the head covers.

5,669,346

INTERNAL COMBUSTION ENGINE

Johannes Lewoux, Esslingen; Hubert Schnüppe, Stuttgart, and Albert Pietsch, Illingen, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

Filed Mar. 15, 1996, Ser. No. 616,671

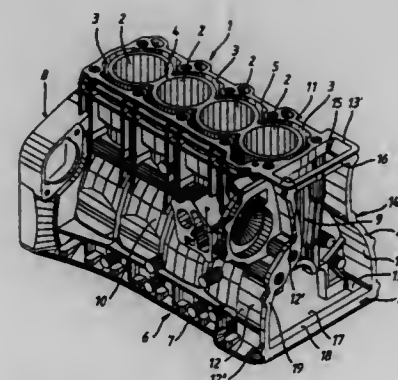
Claims priority, application Germany, Mar. 31, 1995, 195 11 864.2

Int. Cl.⁶ F02F 7/00

U.S. Cl. 123—195 R

5 Claims

1. An engine block comprising a casting including side walls extending along a row of cylinders, and front and rear walls extending between said side walls in front of said row of cylinders



said side-, front- and rear walls having top flange surfaces for mounting a cylinder head and bottom flange surfaces for mounting on oil pan to said engine block, said side walls having sections extending forwardly beyond said front wall and defining therebetween a timing chamber adapted to receive the timing gear for driving a cam shaft mounted on said cylinder head, said timing chamber having top and bottom openings, and a rib extending between the lower ends of said side wall projections, and limiting said bottom opening.

5,669,347

INTAKE SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

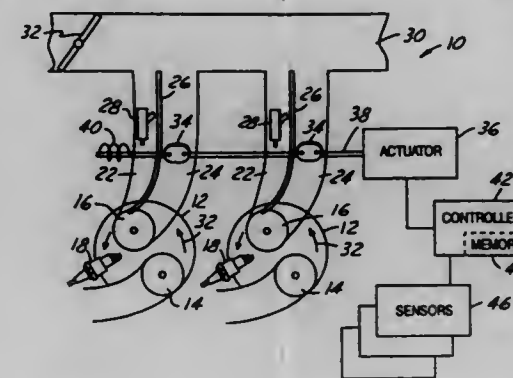
Michael John Cullen, Northville; Bruce Allen Meek, Highland, and Kevin Joseph Rzemien, Warren, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jul. 29, 1996, Ser. No. 687,898

Int. Cl.⁶ F02B 31/00

U.S. Cl. 123—306

20 Claims



1. An intake system for a multicylinder internal combustion engine, comprising:
a manifold having a plurality of inlet runners for conducting charge air into the cylinders of an engine;
at least one secondary throttle valve situated within at least one of said inlet runners;
an actuator for positioning said at least one secondary throttle valve;
at least one sensor for sensing at least one operating parameter of said engine; and
a controller for operating said actuator so as to move said secondary throttle valve between a first, relatively restricting position, and a second, relatively unrestricting position, with said controller receiving a sensed value from said sensor, determining an appropriate position for said secondary throttle valve, predicting an optimum transition point at which said secondary throttle valve transitions to said appropriate position and thereafter initiating operation of said actuator at a point before said transition point such that the engine smoothly transitions between engine operating conditions.

5,669,348

CYLINDER HEAD AND INDUCTION SYSTEM FOR ENGINE

Masato Nishigaki, and Takashi Hara, both of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

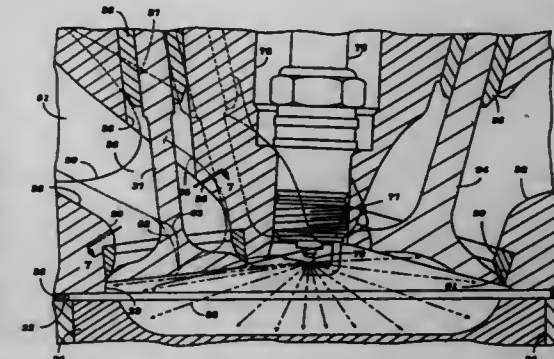
Filed Aug. 29, 1994, Ser. No. 297,372

Claims priority, application Japan, Aug. 27, 1993, 5-234340

Int. Cl.⁶ F02B 17/00

U.S. Cl. 123—308

14 Claims



1. A cylinder head arrangement for an internal combustion engine comprising a cylinder head assembly having a surface for cooperation with a cylinder block having a cylinder bore in which a piston is reciprocally supported to form a combustion chamber, at least three valve seats formed in said cylinder head surface at the termination of respective intake passages for delivering an intake charge to said combustion chamber, two of said valve seats comprising side valve seats and lying at least in part on a plane containing the axis of the cylinder bore, said side valve seats lying primarily on one side of said plane, the third of said valve seats comprising a center valve seat lying generally between said side valve seats and completely on said one side of said plane, said intake passages comprising a pair of side intake passages, each serving a respective one of said side valve seats, and a center intake passage serving said center valve seat, said center intake passage being formed with a generally straight first section opening through an outer side of said cylinder head and terminating in a curved portion extending to said center intake valve seat, the upper surface of said first section adjacent and leading to said curved portion being generally planar for directing the flow generally toward the side of the intake valve seat closest to the plane and for restricting the flow therethrough and thereby increasing the velocity of the intake charge flowing therethrough, the side of said center intake passage facing the planar portion of said first section being formed with a flow restriction for reducing the flow through the side of said center intake passage, for directing the flow from said center intake valve seat toward said plane, said center intake passage being substantially smaller in cross-sectional area than at least one of said side intake passages for generating a tumble motion to the intake charge in said combustion chamber.

5,669,349

ENGINE CONTROL SYSTEM FOR MARINE PROPULSION

Yoshifumi Iwata; Akihiko Hoshiba; Sadato Yoshida, and Masaru Suzuki, all of Hamamatsu, Japan, assignors to San-shin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Jan. 22, 1996, Ser. No. 589,657

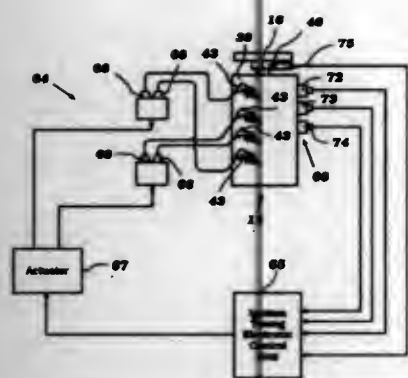
Claims priority, application Japan, Jan. 23, 1995, 7-027346

Int. Cl.⁶ F01N 3/28

U.S. Cl. 123—335

50 Claims

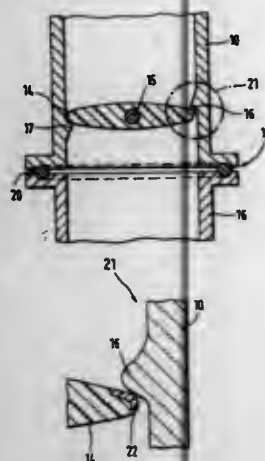
1. An engine and control system for an outboard motor, said engine having a plurality of cylinders each extending horizontally and disposed in vertically spaced relationship, an air fuel charging system for supplying an air fuel charge to said engine for combustion in said engine, an ignition system for igniting the air fuel



charge in said cylinders, each of said cylinders being served by at least one exhaust port, an exhaust system for collecting the exhaust gases from said exhaust ports and delivering them to the atmosphere through a common discharge, an engine protection system comprising a sensor for sensing an abnormal engine condition, and a control system for reducing the engine speed in response to the sensing of an abnormal condition by said sensor by controlling one of said systems for precluding combustion in certain of said cylinders, the cylinder in which combustion is precluded being selected depending upon the vertical orientation relative to the other cylinders.

5,669,350
THROTTLE DEVICE
Otto Altmann, Rosenheim, and Gerhard Brenner, Asperg, both of Germany, assignors to Filterwerk Mann & Hummel GmbH, Ludwigsburg, Germany
PCT No. PCT/EP94/02853, § 371 Date Mar. 4, 1996, § 102(e) Date Mar. 4, 1996, PCT Pub. No. WO95/06808, PCT Pub. Date Mar. 9, 1995
PCT Filed Aug. 29, 1994, Ser. No. 602,767
Claims priority, application Germany, Sep. 2, 1993, 43 29 527.4

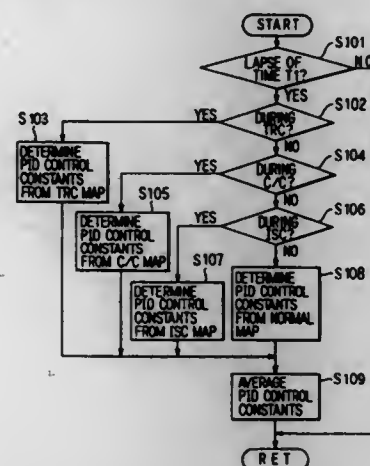
Int. Cl.⁶ F02D 9/10, F16K 1/22
U.S. Cl. 123—337



1. A throttle device comprising a throttle butterfly shaft extending concentrically to a central axis, and a throttle butterfly disposed on said shaft, said throttle butterfly being formed by the 2-K two component injection molding technique with butterfly flaps formed of a synthetic resin material and with butterfly sealing surfaces formed of another material integrated into said butterfly flaps, said throttle butterfly being received in a surrounding housing with said butterfly sealing surfaces facing mating sealing surfaces on said housing, said throttle butterfly being directly integrated into at least one of a filtered air outlet duct of an air filter and an inlet duct of an intake manifold.

5,669,351
ENGINE THROTTLE CONTROL WITH VARYING CONTROL CONSTANTS
Kazunari Shirai, Chita-gun; Hidemasa Miyano, Kariya; Shigeru Kamio, Nagoya, and Yoshimasa Nakaya, Nagoya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan
Filed Feb. 26, 1996, Ser. No. 607,138
Claims priority, application Japan, Mar. 28, 1995, 7-069294
Int. Cl.⁶ F02D 9/00
U.S. Cl. 123—339.21

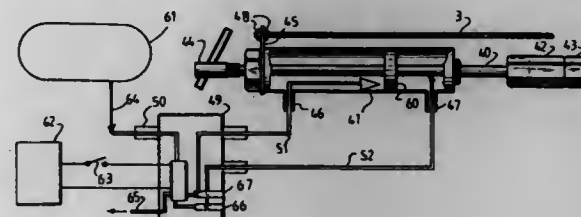
21 Claims



1. A throttle control apparatus for an internal combustion engine which controls a throttle valve opening through an electric actuator in accordance with accelerator pedal depression, said apparatus comprising:
target opening setting means for setting a target opening of said throttle valve in accordance with accelerator pedal depression;
deviation calculating means for calculating deviation of actual throttle valve opening from said target opening;
throttle valve control means for controlling said throttle valve through said electric actuator by performing a proportional, integral and derivative control on said calculated deviation; and
control constant determining means for determining control constants of said proportional, integral and derivative control in accordance with vehicle operating conditions, at least one of said constants of said proportional control and said derivative control being varied between a normal and a specified other vehicle operating condition.

5,669,352
THROTTLE CONTROL DEVICE, SYSTEM, AND METHOD
William E. Mitchell, 35 Trade Zone Dr., Ronkonkoma, N.Y. 11779
Filed Apr. 3, 1996, Ser. No. 627,028
Int. Cl.⁶ F02D 11/08
U.S. Cl. 123—342

17 Claims



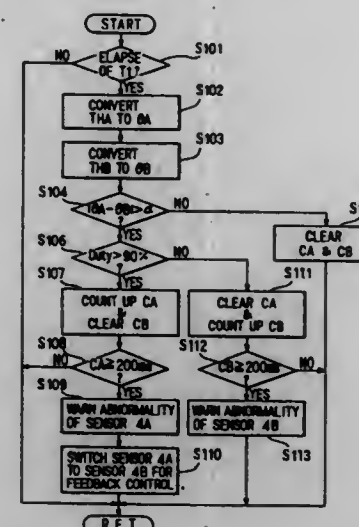
1. In an air/fuel control system for an automobile including an engine, an air/fuel means mounted on the engine for delivering fuel and air to said engine, a throttle valve means in said air/fuel means for controlling the flow of air and fuel to the engine, an accelerator

pedal, and throttle cable rod means for linking said accelerator pedal to said throttle valve means comprising:

- double acting pneumatic cylinder means having an elongated cylindrical housing with a slidable piston therein;
- shaft means extending through both ends of said cylindrical housing engaged to move with said piston, one end of said shaft means coupled to said throttle valve means so that slidable movement of said piston opens and closes said throttle valve means to increase and decrease, respectively, flow of air and fuel to said engine;
- rod means connecting said cylindrical housing to said accelerator pedal so that movement of said accelerator pedal causes said housing to move with respect to said piston therein; and
- gas control means for delivering gas under pressure selectively to each side of said slidable piston to either move said valve means to increase or decrease air and fuel flow to said engine while at the same time controlling the rate of exhaustion of gas from the opposite side of said slidable piston to control the rate of movement of said slidable piston thereby to vary power output of the engine to control the acceleration or deceleration of said automobile.

5,669,353
VALVE FEEDBACK CONTROL HAVING REDUNDANT VALVE OPENING SENSORS
Kazunari Shirai, Chita-gun; Hidemasa Miyano, Kariya; Shigeru Kamio, and Yoshimasa Nakaya, both of Nagoya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan
Filed Mar. 6, 1996, Ser. No. 611,405
Claims priority, application Japan, May 18, 1995, 7-119631
Int. Cl.⁶ F02D 7/00
U.S. Cl. 123—399

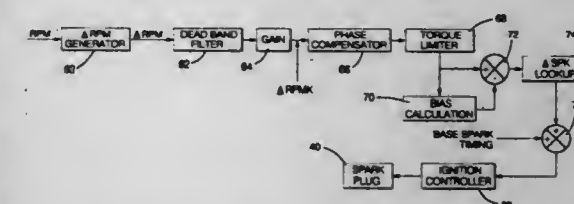
32 Claims



1. A throttle control apparatus for controlling the opening angle of a throttle valve by a direct current motor in accordance with the depression of an accelerator pedal, the apparatus comprising:
two throttle angle sensors operatively coupled with the throttle valve to detect its degree of opening;
abnormality determination means for determining that one of the two throttle angle sensors is abnormal when a difference between outputs of the two sensors is greater than a predetermined value; and
abnormal sensor determination means for using a throttle control parameter generated in response to the sensor currently being used to determine which one of the two sensors is abnormal when one has been determined to be abnormal.

5,669,354
ACTIVE DRIVELINE DAMPING
Robert Leonard Morris, Livonia, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Apr. 18, 1996, Ser. No. 634,322
Int. Cl.⁶ F02P 5/15; F02D 41/02
U.S. Cl. 123—419

12 Claims

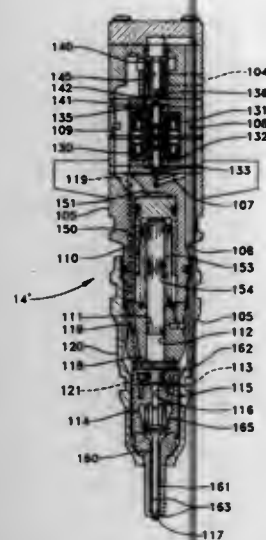


1. An internal combustion engine torque control method for varying engine output torque to reduce undesirable speed variation of an engine having a plurality of cylinders, each cylinder undergoing a torque producing combustion event in each of repeated engine cycles, comprising the steps of:
identifying an engine speed variation operating condition; and
varying the torque produced in engine cylinder combustion events to reduce engine speed variation when the engine speed variation operating condition is identified, by
(a) determining a current engine operating angle;
(b) estimating an undesirable engine speed variation at the current engine operating angle;
(c) phase compensating the estimated engine speed variation from the determined current engine operating angle to the engine operating angle at a next cylinder combustion event;
(d) calculating an engine cylinder output torque change value for the next cylinder combustion event as a predetermined function of the phase compensated engine speed change value; and
(e) controlling the torque produced at the next cylinder combustion event in accordance with the calculated engine cylinder output torque change value.

5,669,355
HYDRAULICALLY-ACTUATED FUEL INJECTOR WITH DIRECT CONTROL NEEDLE VALVE
Dennis H. Gibson, and Gregory W. Heffer, both of Chillicothe, Ill., assignors to Caterpillar Inc., Peoria, Ill.
Continuation-in-part of Ser. No. 668,552, Jun. 21, 1996, which is a continuation-in-part of Ser. No. 489,660, Jun. 12, 1995, which is a continuation of Ser. No. 283,232, Jul. 29, 1994, Pat. No. 5,463,996. This application Aug. 30, 1996, Ser. No. 705,393
Int. Cl.⁶ F02M 37/04; 47/02
U.S. Cl. 123—446

20 Claims

1. A hydraulically actuated fuel injector comprising:
an injector body having at least one actuation fluid inlet, a needle control chamber, a nozzle chamber and a nozzle outlet that opens to said nozzle chamber;
hydraulic means, within said injector, for pressurizing fuel in said nozzle chamber, said hydraulic means including an actuation fluid control valve having a first solenoid and being movable between an open position in which said at least one actuation fluid inlet is open and a closed position in which said actuation fluid inlet is closed;
a needle valve member positioned to reciprocate in said nozzle chamber between an opened position in which said nozzle outlet is open and a closed position in which said nozzle outlet is closed, said needle valve member including a closing hydraulic surface exposed to pressure in said needle control chamber;
a needle control valve having a second solenoid mounted within said injector body, and being movable between an off position in which said needle control chamber is opened to a source of



high pressure fluid and an on position in which said needle control chamber is opened to a low pressure passage.

5,669,356

CONTROL VALVE

Robin Christopher Wall, and Trevor Alan Fuller, both of Kent, England, assignors to Lucas Industries, England

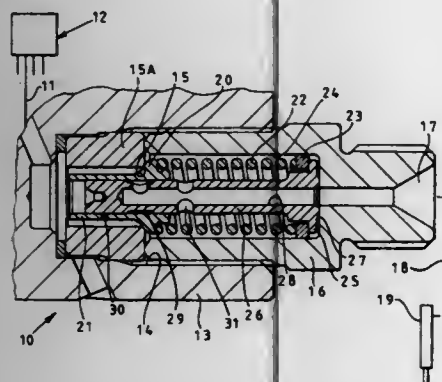
Filed Oct. 11, 1995, Ser. No. 540,687

Claims priority, application United Kingdom, Oct. 28, 1994, 9421723

Int. Cl.⁶ F02M 41/00

U.S. Cl. 123—467

6 Claims



1. A pressure unloading delivery valve for location between a pump outlet of a fuel injection pump and a pipeline connecting the outlet to a fuel injection nozzle of a compression ignition engine comprising an annular valve member biased into engagement with a valve seat formed about a flow channel through which fuel flows from the pump outlet to the pipeline, the valve member being lifted from the valve seat to allow fuel to flow to a delivery valve outlet connected to the pipeline, a plunger slidable in said valve member, resilient means biasing the plunger in a direction away from the seat, said plunger following delivery of fuel by the pump and closure of the valve member onto the valve seat, moving under the action of the resilient means to control said pressure, and damping means operable to damp the movement of said plunger after a predetermined movement of the plunger against the action of said resilient means, in which said damping means comprises a piston mounted on the plunger, said piston cooperating with a cylindrical surface to form on one side a dash pot chamber, said chamber being in communication with said pump outlet until the plunger has moved through said predetermined movement.

5,669,357

CYLINDER-SELECTIVE INJECTION SYSTEM

Helmut Denz, Stuttgart; Winfried Moser, Ludwigsburg; Wolfgang Höpner, Udingen; Helmut Gross, Gerlingen; Christian Klinke, Pleidelsheim; Karl-Heinz Gerlings, Salzgitter; Klemens Grieser, Langenfeld, and Klaus Bottcher, Oberriexingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

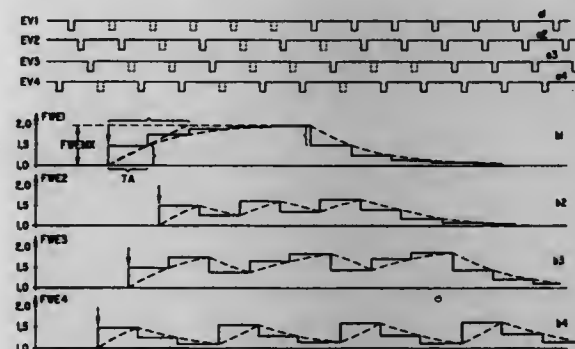
Continuation of Ser. No. 297,727, Aug. 29, 1994. This application Apr. 23, 1996, Ser. No. 636,710

Claims priority, application Germany, Aug. 27, 1993, 43 28 835.9

Int. Cl.⁶ F02D 7/00

U.S. Cl. 123—481

16 Claims



1. An apparatus for controlling a cylinder-selective fuel injection system for an internal combustion engine having cylinder-selective fuel injection suppression for providing a reduction in drive torque to effect at least one of traction control, deceleration fuel cutoff, and rotational speed limitation, comprising:

a control unit coupled to the fuel injection system, the control unit performing the steps of:
determining an added fuel quantity to be fed to each cylinder of the engine upon restoration of fuel injection to the respective engine cylinder;
initializing the added fuel quantity for each engine cylinder based upon a number of suppressed fuel injections for the respective engine cylinder;
decrementing the added fuel quantity for each engine cylinder to zero based upon a number of fuel injections to the respective engine cylinder taking place after the number of suppressed fuel injections; and
applying the added fuel quantity for each engine cylinder to the fuel injection system so that the fuel injection system injects a fuel injection quantity including the added fuel quantity into each respective engine cylinder.

5,669,358

ENGINE FUEL SUPPLY SYSTEM

Takayuki Osakabe, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Mar. 27, 1996, Ser. No. 622,962

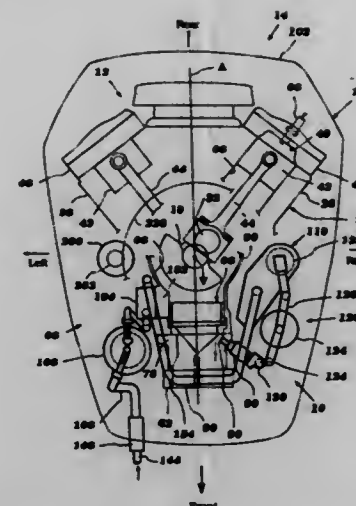
Claims priority, application Japan, Mar. 27, 1995, 7-068089

Int. Cl.⁶ F02M 37/04; F02B 33/04

U.S. Cl. 123—509

20 Claims

1. An engine comprising multiple cylinders and a plurality of crankcase chambers each communicating with a respective cylinder, an induction system attached to a crankcase member of said engine on a side opposite of the cylinders, said induction system comprising a plurality of intake passages which communicate with said crankcase chambers, and a fuel supply system including a low-pressure fuel transport subsystem located on one side of the



intake passages of said induction system and a high-pressure fuel delivery subsystem located on an opposite side of the intake passages of said induction system.

5,669,359

FUEL SUPPLY UNIT

Stephan Kleppner, Bretten, and Kurt Frank, Schorndorf, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

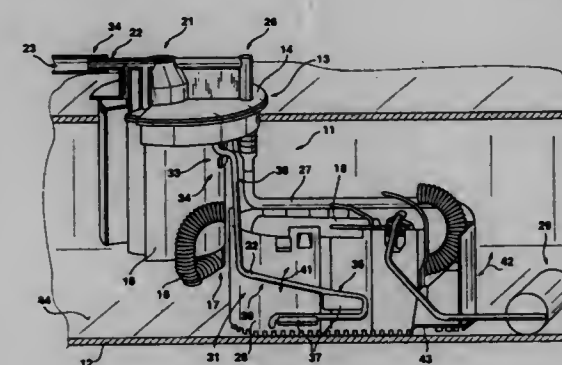
Filed May 13, 1996, Ser. No. 645,481

Claims priority, application Germany, Aug. 1, 1995, 195 28 182.9

Int. Cl.⁶ F02M 37/10

U.S. Cl. 123—509

8 Claims



1. A fuel supply unit for mounting in a fuel supply container to supply fuel to an internal combustion engine, comprising a tank flange arrangeable on the fuel supply container and provided with at least one hydraulic connection; a fuel supply aggregate arrangeable in the fuel supply container; a longitudinal and rotatably movable mechanical connection provided in said tank flange and said fuel supply aggregate; and a reservoir which receives said fuel supply aggregate, said mechanical connection being arranged on said tank flange and on said flow cap so that it receives said reservoir movable relative to said tank flange, said mechanical connection being formed as a rod-shaped spring element having one end fixedly connected with said tank flange and another end fixedly connected with said reservoir, said rod-shaped element having a vertical portion and a horizontal portion which is movable relative to said vertical portion.

5,669,360

FUEL-VAPOR EMISSION-CONTROL SYSTEM FOR CONTROLLING THE PRESSURE IN A SYSTEM

Yoshihiko Hyodo; Hiroki Matsuoka, both of Susono, and Takashi Ishikawa, Okazaki, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

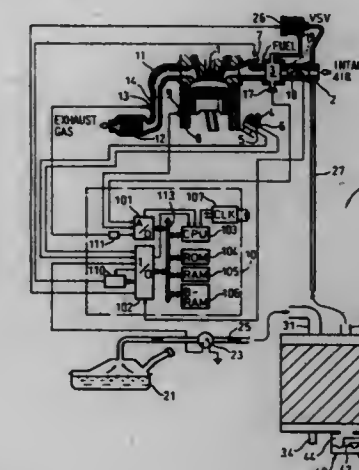
Filed Feb. 14, 1996, Ser. No. 601,639

Claims priority, application Japan, Feb. 17, 1995, 7-029624

Int. Cl.⁶ F02M 37/04

U.S. Cl. 123—520

11 Claims



1. A fuel-vapor emission-control system for an internal combustion engine wherein fuel vapor generated in a fuel tank is adsorbed and, while the engine is running, is subsequently returned to the intake manifold of an engine, said fuel-vapor emission-control system comprising:

refueling detection means for detecting refueling of the fuel tank;
a canister having a housing enclosing adsorbing material for adsorbing vaporized fuel, wherein a tank port, into which fuel vapor flows from the fuel tank, is located at one end of said housing, and wherein the canister includes a purge port from which fuel vapor is exhausted to said intake manifold, and wherein an atmospheric port is located on another end of said housing and is connected to the atmosphere;
an atmospheric release surface area changing mechanism including an electromagnetic valve provided at a prescribed position on said atmospheric port side of said canister for varying the atmospheric release surface area of said canister by varying an opening of the valve so that, when the internal pressure inside said fuel tank is large, the atmospheric release surface area is greater than when the internal pressure inside said tank is small; and
control means coupled to the refueling detection means and to the atmospheric release surface area changing mechanism for controlling the degree of opening of the valve so that the degree of opening of the valve is increased when the refueling condition is detected.

5,669,361

VEHICLE REFUELING VALVE

Peter G. Weissinger, Rock Falls; Tibor Baron, Decatur, and Manuel D. Rosas, Coleta, all of Ill., assignors to Borg-Warner Automotive, Inc., Sterling Heights, Mich.

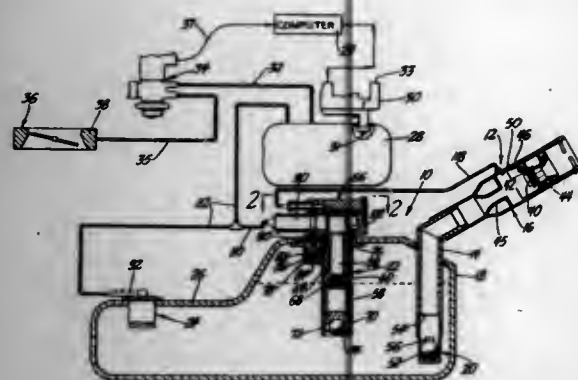
Filed Feb. 15, 1996, Ser. No. 601,814

Int. Cl.⁶ F02M 37/04

U.S. Cl. 123—520

13 Claims

1. A vapor recovery system for an automotive fuel tank having a refueling valve communicated with a vapor storage canister, a float valve in the refueling valve, a filler neck having a trap door for sealing the filler neck when a fuel nozzle is removed;
a liquid seal in said filler neck;



a pressure sensing port in said filler neck located between said trap door and said liquid seal and operative during fuel fill to sense a below atmospheric pressure condition in said filler neck;

a control valve comprising a valve body having a chamber;

a first passage connecting said chamber to the refueling valve;

a second passage connecting to said pressure sensing port;

a diaphragm separating said first and second passages and sealing said first and second passages from one another;

an outlet for connecting said chamber to a vapor storage canister;

a vent tube that has a first valve seat on one end thereof and a second valve seat on the other end thereof that cooperate respectively with said float valve and said diaphragm to control vapor venting from the fuel tank to the charcoal canister;

said diaphragm being moved in response to a predetermined pressure at said pressure sensing port to open communication between said first passage and said outlet for vapor flow out of the fuel tank during refueling.

5,669,362

DIAGNOSTIC DEVICE FOR AN EVAPORATIVE EMISSION CONTROL SYSTEM

Susumu Shinohara, Toyota, and Shisuke Kiyomiya, Seto, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

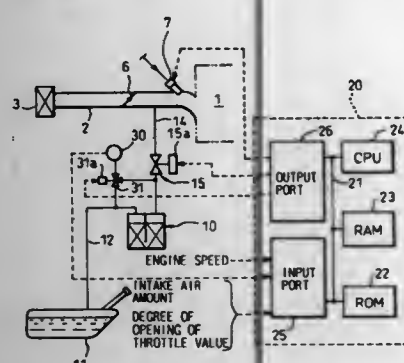
Filed Mar. 18, 1996, Ser. No. 617,252

Claims priority, application Japan, Mar. 20, 1995, 7-060858

Int. Cl.⁶ F02M 37/04

U.S. Cl. 123—520

4 Claims



1. A diagnostic device for an evaporative fuel emission control system, comprising:

a canister for adsorbing fuel vapor sent from a fuel tank for an internal combustion engine, a fuel vapor passage for connecting a space above a fuel level in the fuel tank to the canister, a purge gas passage for connecting the canister to an intake air passage of the engine, and a purge control valve for opening and closing the purge gas passage;

a pressure detecting device for detecting the internal pressure of the canister; and

a determining means for determining that the canister is normal if the difference between the internal pressure of the canister detected by the pressure detecting device and the atmosphere is greater than a reference value, when the purge control valve is closed and internal pressure is stable, wherein the determining means operates to determine whether the canister is normal only when one of the following condition is met: the engine is not running; and the purge control valve has been closed continuously since the engine was started.

5,669,363

TURBOCHARGER INTERCOOLER CONTROL MEANS

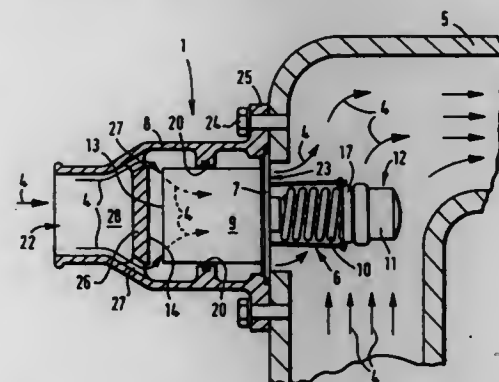
John Peter Francis, Edmunds, Great Britain, assignor to Amot Controls Limited, Suffolk, Great Britain

Filed Apr. 2, 1996, Ser. No. 626,548

Int. Cl.⁶ F02B 29/04

U.S. Cl. 123—563

9 Claims



1. Valve means to control the flow of charge air through a turbocharger intercooler by-pass, comprising a valve housing defining a valve passage having an inlet and an outlet and arranged wholly within said by-pass, a valve member movably mounted on the housing to close the by-pass, resilient means on the housing and urging the valve member into a position wherein the by-pass is open, actuating means for moving the valve member between open and closed positions and thermostatic means mounted on the valve housing and extending beyond said valve passage for sensing charge air temperature, said thermostatic means being operatively coupled to the valve actuating means to cause the valve member to close by-pass when the sensed temperature reaches a given value.

5,669,364

EXHAUST GAS RECIRCULATION VALVE INSTALLATION FOR A MOLDED INTAKE MANIFOLD

Gary Everingham, Chatham, Canada, assignor to Siemens Electric Limited, Chatham, Canada

Filed Nov. 21, 1996, Ser. No. 754,572

Int. Cl.⁶ F02M 25/07

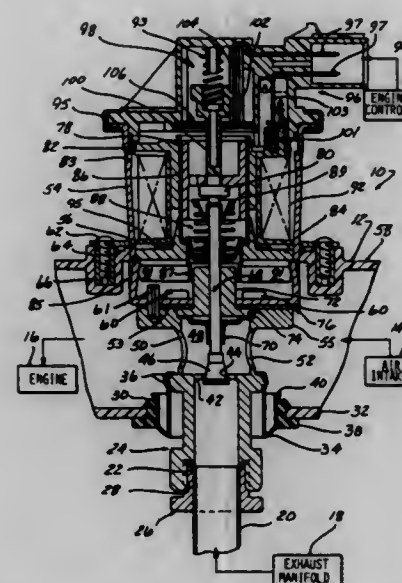
U.S. Cl. 123—568

18 Claims

1. An installation for an exhaust gas recirculation valve for an internal combustion engine having an intake manifold with air induction ducting, said installation including:

a tubular base piece mounted extending through an opening in one wall of said air induction ducting, said tubular base piece having one end protruding out of said opening in said one wall of said air induction ducting and connected to a pipe receiving exhaust gas from said internal combustion engine, said tubular base piece having an opposite end disposed within said air induction ducting;

a solenoid assembly mounted in an opening in an opposite wall of said air induction ducting, so as to be at least partially disposed within said air induction ducting, said solenoid



assembly including a solenoid coil and a housing therefore attached to said other end of said tubular base piece;

a valve seat in a chamber within said tubular base piece having an opening extending into said air induction duct, said valve seat able to establish fluid communication between said exhaust gas tube and said chamber;

a valve element movable onto said valve seat;

an operating rod attached to said valve element and extending towards said solenoid assembly, said solenoid coil when energized operable to move said valve element relative to said valve seat proportionately so as to control the volume of flow of exhaust gas from said pipe into said air induction ducting.

5,669,365

INTERNAL COMBUSTION ENGINE WITH EXHAUST GAS RECIRCULATION

Uwe Gärtner, Weinstadt, and Silvano Covini, Kern, both of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

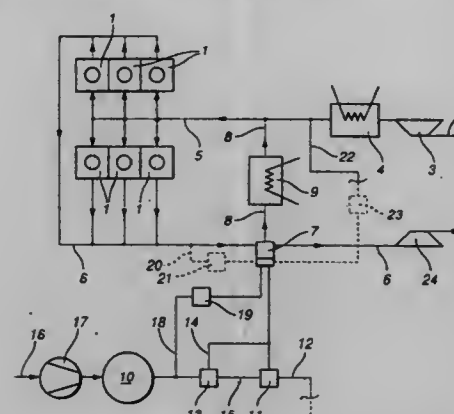
Filed Jun. 24, 1996, Ser. No. 669,232

Claims priority, application Germany, Jul. 6, 1996, 195 24 603.9

Int. Cl.⁶ F02M 25/07

U.S. Cl. 123—570

6 Claims



1. An internal combustion engine, particularly for a motor vehicle, with exhaust gas recirculation, said engine having a charge air intake pipe for supplying combustion air to said engine, an exhaust pipe for discharging exhaust gases from said engine, an exhaust gas recirculation valve disposed in said exhaust pipe, an exhaust gas recirculation line extending between the exhaust gas

recirculation valve of said exhaust pipe and said charge air intake pipe for returning exhaust gas from said exhaust pipe to said charge air intake pipe, a heat exchanger disposed in said exhaust gas recirculation line and a pressurized air supply arrangement for supplying air under pressure to said heat exchanger for cleaning said heat exchanger.

5,669,366

CLOSED CRANKCASE VENTILATION SYSTEM

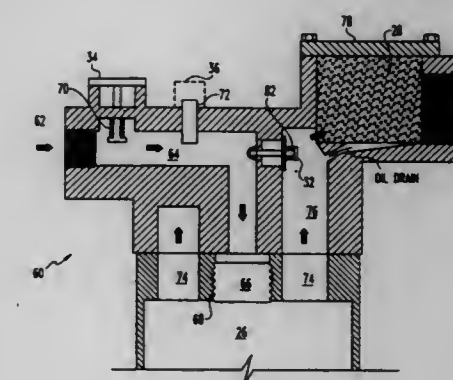
Donald W. Beach; Peter K. Herman; Alan Bounnakhom, all of Cookeville, Tenn.; David M. Ruch, Columbus, Ind.; John M. Partridge, Columbus, Ind., and J. E. Parlow, Columbus, Ind., assignors to Fleetguard, Inc., Nashville, Tenn.

Filed Jul. 10, 1996, Ser. No. 677,821

Int. Cl.⁶ F02M 25/06

U.S. Cl. 123—572

14 Claims



1. A closed crankcase ventilation system, comprising:

an inlet adapted to receive blow-by gases from an engine crankcase;

an outlet adapted to supply the blow-by gases to an air inlet of the engine;

a low pressure filter;

a coalescer/filter; and

a bypass valve coupled to the low pressure filter and to the coalescer/filter;

wherein the bypass valve has a first position which causes the blow-by gases to pass from the inlet, through the low pressure filter and into the outlet; and

wherein the bypass valve has a second position which causes the blow-by gases to pass from the inlet, through the coalescer/filter and into the outlet.

5,669,367

IGNITION APPARATUS FOR INTERNAL COMBUSTION ENGINE

Nobuyuki Sawazaki; Shigemi Murata, and Mitsuru Kotwa, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 8, 1996, Ser. No. 629,146

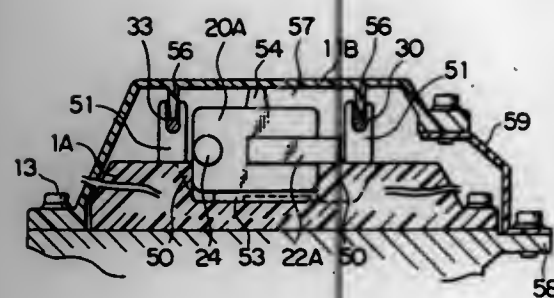
Claims priority, application Japan, May 25, 1995, 7-126774

Int. Cl.⁶ F02P 3/02

U.S. Cl. 123—635

9 Claims

1. An ignition apparatus for an internal combustion engine comprising a first cover adapted to be fixed to a cylinder head of the internal combustion engine and having plug holes defined therein, ignition coils mounted to said cylinder head and partly inserted into said plug holes for igniting a mixed gas in cylinders and a second cover for covering said ignition coils, wherein said ignition coils are directly held by said first cover composed of an



electrically insulating material and said second cover composed of an electrically insulating material.

5,669,368

FUEL METERING CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

Hidetaka Maki; Shusuke Akazaki, and Yoichi Nishimura, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

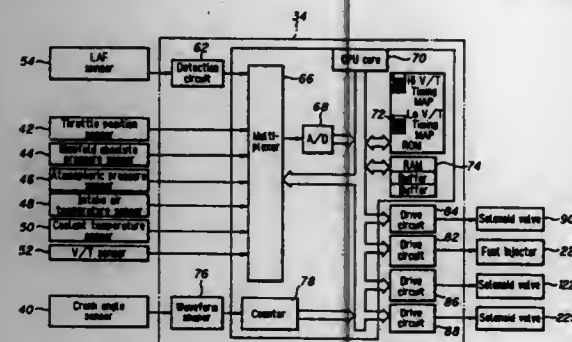
Filed Feb. 23, 1996, Ser. No. 606,097

Claims priority, application Japan, Feb. 25, 1995, 7-061659

Int. Cl.⁶ F02D 41/14

U.S. Cl. 123—681

60 Claims



1. A system for controlling fuel metering for a multi-cylinder internal combustion engine, comprising:
 - an air/fuel ratio sensor located in an exhaust system of the engine for detecting an air/fuel ratio in exhaust gas of the engine;
 - engine operating condition detecting means for detecting engine operating conditions including at least engine speed and engine load;
 - basic fuel injection quantity determining means coupled to said engine operating condition detecting means, for determining a basic quantity of fuel injection for a cylinder of the engine based on at least the detected engine operating conditions;
 - a feedback loop means coupled to said basic fuel injection quantity determining means, and having an adaptive controller and an adaptation mechanism coupled to said adaptive controller for estimating controller parameters, said adaptive controller calculating a feedback correction coefficient using internal variables that include at least said controller parameters, to correct the basic quantity of fuel injection to bring a controlled variable obtained based at least on the detected air/fuel ratio to a desired value;
 - feedback control region discriminating means for discriminating whether engine operation is in a feedback control region based on the detected engine operating conditions;
 - output fuel injection quantity determining means for determining an output quantity of fuel injection, said output fuel injection quantity determining means correcting the basic quantity of fuel injection using said feedback correction coefficient when the engine operation is discriminated to be in the feedback control region; and

fuel injection means coupled to said output fuel injection quantity determining means, for injecting fuel into the cylinder of the engine based on the output quantity of fuel injection; wherein: said feedback loop means determines the internal variables of the adaptive controller in response to the detected engine operating conditions, when the engine operation has shifted from an open-loop control region to the feedback control region.

5,669,369

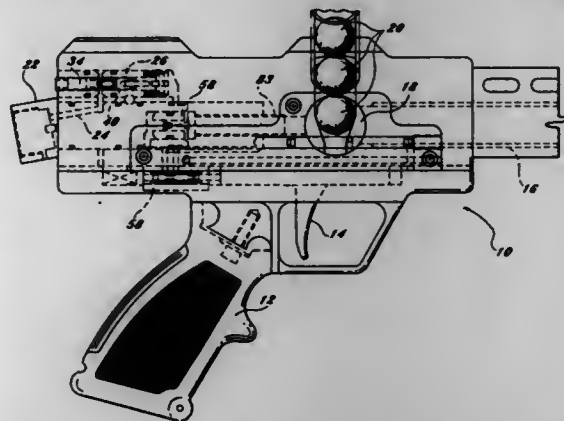
PAINT BALL GUN AND ASSEMBLIES THEREFOR

Eric Scott, 15695 92nd Way N., Jupiter, Fla. 33478
Continuation of Ser. No. 972,619, Nov. 6, 1992, Pat. No. 5,494,024. This application Feb. 26, 1996, Ser. No. 607,134

Int. Cl.⁶ F41B 11/32; 11/06

U.S. Cl. 124—73

9 Claims



1. An improved paint ball gun having a barrel and adapted to be coupled to a source of gas pressure, comprising:
 - means for regulating the gas pressure, said means for regulating including a laterally movable piston biased into an open position and being movable into a closed position in response to a predetermined operating gas pressure being attained for forcing said movable piston into said closed position, and means for regulating said operating gas pressure by adjusting the lateral location of the closed position for said piston;
 - means for coupling said gas pressure from said regulating means to a pressure chamber in a loading position;
 - means for loading a paint ball into the barrel, said means for loading said paint ball gun being operable to achieve said loading as a result of gas pressure applied thereto, and means for triggering said gas pressure from said pressure chamber into said barrel to propel said paint ball through said barrel directly as a result of said gas pressure thereon.
2. An improved gas regulator assembly mountable in a housing and adapted to be coupled to a source of gas pressure, comprising:
 - means for regulating the gas pressure including laterally movable piston biased into an open position and being movable into a closed position in response to a predetermined operating gas pressure being attained for forcing said movable piston into said closed position, and means for controlling said operating gas pressure by adjusting the lateral location of the closed position for said piston.

5,669,370

TELESCOPIC STABILIZER

Charles E. Breedlove, 1708 S. Fairview Rd., Columbia, Mo. 65203

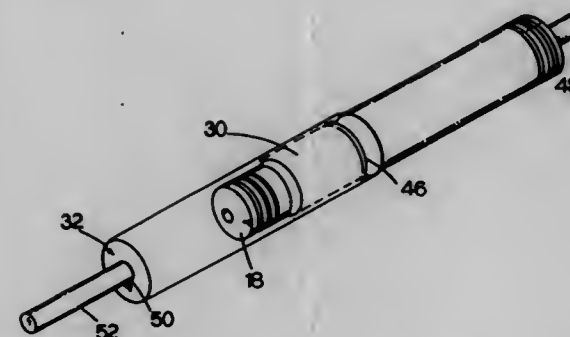
Filed Feb. 23, 1996, Ser. No. 606,083

Int. Cl.⁶ F41B 5/20

U.S. Cl. 124—89

22 Claims

1. An improved telescopic stabilizer comprising:



- a plurality of elongated tubes, said tubes slidably installed one over the other, each of said tubes having a first end, a second end, an inner surface having an inner diameter and an outer surface having an outer diameter, said tubes arranged with inner tube or tubes and outer tube or tubes, one of said inner tubes being an inner most tube, and one of said outer tubes being an outer most tube;
- centering means between said inner tube or tubes and said outer tube or tubes to maintain center alignment of said inner tubes within said outer tubes when said tubes are locked in a telescopic position;
- attachment means on said first end of said inner most tube and on said second end of said outer most tube, said attachment means having a center bore for attachment of said improved telescopic stabilizer to an archery bow and for attachment of weights, additional stabilizer, or a bow prop device to said improved telescopic stabilizer;
- a plug located at said second end on said inner tube, said plug having an eccentrically located threaded bore on a lateral face;
- an improved cylindrical locking member eccentrically and rotatably attached to said plug, said locking member locking said inner tube within said outer tube when said tubes are rotated about one another; and
- an internal interlock comprising an enlarged off center bore through said locking member and a bolt extending through said enlarged off center bore to attach said locking member to said eccentrically located threaded bore on said plug, said internal interlock locking said locking member onto said bolt when said inner and outer tubes are rotated about each other.

5,669,371

MASONRY SLITTING APPARATUS

Hans Rupprecht, München, and Leopold von Keudell, Eching, both of Germany, assignors to Hilti Aktiengesellschaft, Furstentum, Liechtenstein

Filed Mar. 25, 1996, Ser. No. 622,532

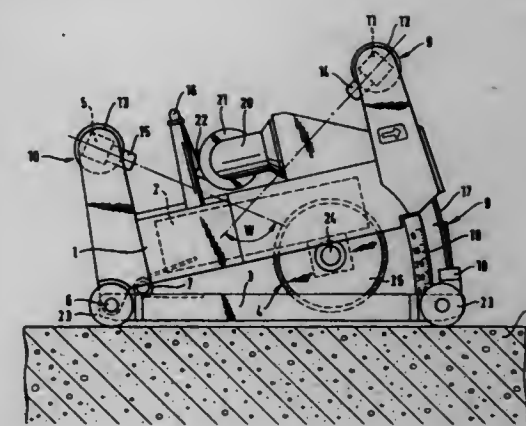
Claims priority, application Germany, Mar. 30, 1995, 195 11 721.2

Int. Cl.⁶ B28D 1/04

U.S. Cl. 125—13.01

7 Claims

1. Masonry-slitting apparatus comprising a housing (1) having a first end region a second end region and side regions extending between the end regions, a first handle (10) located in said first end region and a second handle (9) located in said second end region, a drive unit (2) mounted in said housing (1), an electric switch (5) for actuating said drive unit (2), a slitting member (4) connected to said drive unit for rotating at least one disk (25) for effecting a slit in a base material (U), said housing (1) being pivotally mounted on a trolley (3) about a rotary bearing (6) disposed in the first end region of said housing (1) and being pivotally displaceable against the biasing force of a spring element (7), said at least one disk (25) forming a disk plane extending between and transversely of said



5,669,372

SAFETY DEVICE FOR A COOKING RANGE

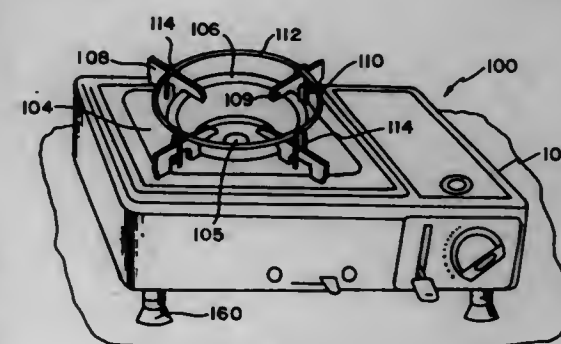
Doyce Humphrey, P.O. Box 405, Westport, Conn. 06881

Continuation of Ser. No. 243,227, May 13, 1994, which is a continuation-in-part of Ser. No. 50,891, Apr. 21, 1993, Pat. No. 5,323,757. This application Jul. 7, 1995, Ser. No. 499,166

Int. Cl.⁶ F24C 15/30

U.S. Cl. 126—24

14 Claims



1. A safety device for a cooking range having at least one burner grid with supporting radial bars, comprising an open top receiving member for encircling, without any positive locking means, a substantially flat bottom kitchen utensil having no projections extending therefrom other than handle means and/or spout means, and said receiving member having, a plurality of circumferentially spaced anchoring members extending downwardly from said receiving member, each said anchoring member positioned so as to engage said supporting radial bars to prevent lateral and rotational movement of the safety device, and wherein said receiving member comprises two receiving members with an innermost member thereof of a size smaller in diameter than that of the other receiving member.

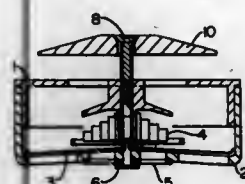
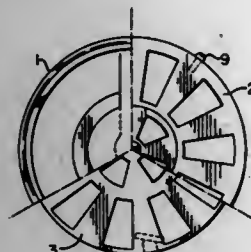
5,669,373
THERMOSTATIC REGULATED AIR FLOW
CONTROLLER

Björn Kamp Gulddal, Lindholmsvej 47, DK 2700 Brønshøj, Denmark
 PCT No. PCT/DK94/00070, § 371 Date Dec. 12, 1995, § 102(e)
 Date Dec. 12, 1995, PCT Pub. No. WO94/19635, PCT Pub.
 Date Sep. 1, 1994

PCT Filed Feb. 18, 1994, Ser. No. 505,308
 Claims priority, application Denmark, Feb. 18, 1993, 0187/93
 Int. Cl.⁶ F24H 3/00

U.S. Cl. 126—112

10 Claims

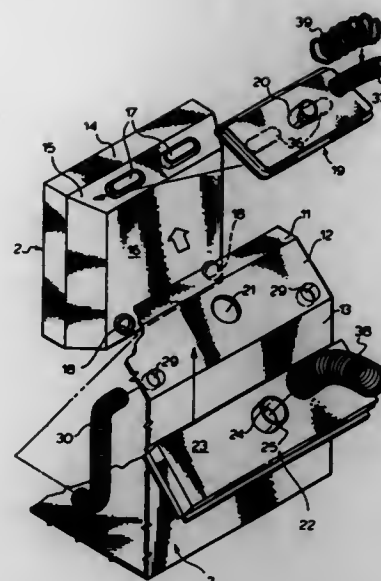


1. A thermostatic air flow controller for controlling the air flow from a source of air to a heated receiving vessel in response to temperature changes of the air flow, said controller comprising:

a plurality of air passage register plates supported between the source of air and the receiving vessel, at least one of said register plates being movably supported relative to the others, said register plates defining corresponding openings which can be aligned to open a main air passage and which can be realigned to constrict the area of the main air passage and the air flow therethrough, at least one of said register plates also defining a secondary air passage between the air source and the receiving vessel;

a temperature sensing element mounted in said secondary air passage such that the temperature of the secondary air flow through said secondary air passage will be sensed by said temperature sensing element, said temperature sensing element mounted adjacent to and in operative connection with said movable register plate to constrict said main air passage in response to an increase in the temperature of the air flow through said secondary air passage; and

a heat shield between said temperature sensing element and the heated receiving vessel for shielding said sensing element from the heat of the receiving vessel, said main and secondary air passages uniting in the area surrounding said temperature sensing element such that the flow of air sweeps the surfaces of said heat shield and cools said heat shield.



heat shield with the axis of said pipe being offset from the center of said inlet opening so that when a combustion air inlet duct is sleeved over said pipe and connected to said inlet opening a portion of the combustion air path between said pipe and duct which feeds into said combustion air expansion and distribution chamber is substantially widened to provide a space for the combustion air to expand outwardly rather than backing up the combustion air duct.

5,669,375
BREATHING MASK

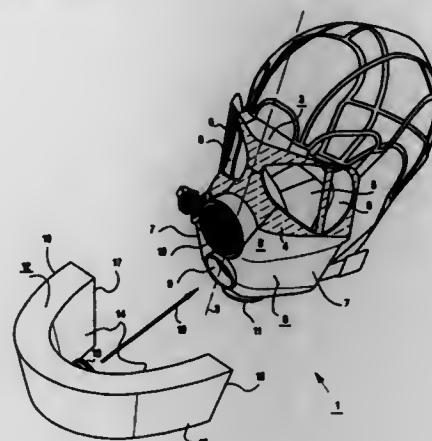
Klaus-Dieter Dahrendorf, Berlin; Joachim Schlobohm, Oldesloe; Günter Von Kopp, Berlin; Wolfgang Drews, Zarpfen, and Joachim W. Siegel, Ronsdeshagen, all of Germany, assignors to Drägerwerk Aktiengesellschaft, Lübeck, and Auergesellschaft GmbH, Berlin, both of Germany
 Filed Sep. 19, 1996, Ser. No. 716,476

Claims priority, application Germany, Sep. 21, 1995, 195 34 985.7

Int. Cl.⁶ A62B 18/02; 18/08

U.S. Cl. 128—206.17

11 Claims



1. A breathing mask, comprising:

a mask body provided as a full mask with a cheek area, a middle filter connection region and a field of vision region having a transparent, flexible elastomer section; individual, segmented eye-protective lenses made of a solid material, said lenses being inserted in said transparent, flexible elastomer section; and

5,669,374
DIRECT VENT FIREPLACE

Tim Valters, Burlington, and Dan Perz, Hamilton, both of Canada, assignors to GSW Inc., Hamilton, Canada
 Filed Aug. 18, 1995, Ser. No. 516,633

Int. Cl.⁶ F24C 3/00

U.S. Cl. 126—512

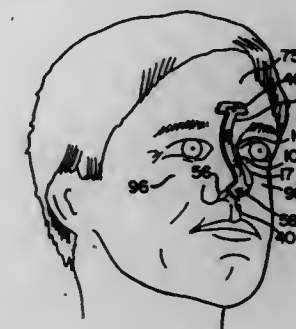
13 Claims

1. A direct vent fireplace having a firebox, an enclosure for said firebox spaced therefrom to provide an air passage therearound for the circulation of room air to be heated by a fire in the firebox, a heat shield mounted on and covering a substantial portion of the upper surface of said enclosure, and forming with said upper enclosure surface a combustion air heating and expansion and distribution chamber, said combustion air expansion and distribution chamber having a circular inlet opening in its upper surface and being in communication with the lower portion of the firebox, and an exhaust pipe having a substantially smaller diameter than said heat shield inlet opening in communication with the interior of the firebox for directing the products of combustion from the firebox out of the fireplace extending through said upper enclosure surface and out through said combustion air inlet opening in said

5,669,377
NASAL BAND AND METHOD FOR IMPROVED
BREATHING

Arthur C. Fenn, 5 Parkside Way, Greenbrae, Calif. 94904
 Continuation-in-part of Ser. No. 675,356, Jul. 5, 1996. This
 application Nov. 19, 1996, Ser. No. 752,603
 Int. Cl.⁶ A61F 5/08; A61M 29/00; 15/08; A62B 7/00
 U.S. Cl. 128—200.24

20 Claims



1. A nasal band, comprising:

a flexible nasal dilator for extending above a tip of a nose; said flexible nasal dilator having a lower end comprising a base for detachably engaging the tip of the nose and upper end positioned in registration with and operatively connected to said base for detachably engaging a portion of a patient's face above the tip of the nose; and said upper end cooperating with said base for lifting the tip of the nose to enlarge the patient's nostrils and decrease nasal resistance so as to enhance breathing.

5,669,376
AEROSOL ACTUATOR HAVING A LINEARLY
ARRANGED CANISTER RECEIVING CAVITY, VALVE
STEM RECEPTACLE, ORIFICE, AND
DEAGGLOMERATION CHAMBER

Constantinos Siontas, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

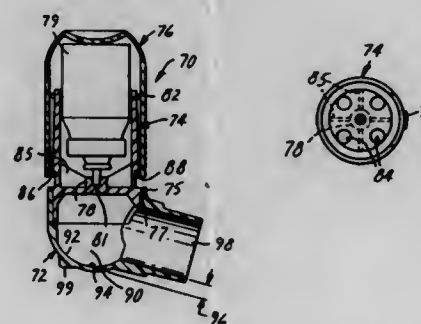
Division of Ser. No. 71,943, Jun. 2, 1992, Pat. No. 5,533,498, which is a continuation of Ser. No. 673,725, Mar. 22, 1991, abandoned, which is a continuation-in-part of Ser. No. 575,971, Aug. 19, 1990, Pat. No. 5,115,803. This application

Mar. 22, 1996, Ser. No. 620,615

Int. Cl.⁶ A61M 11/26; B65D 83/14

U.S. Cl. 128—200.23

1 Claim



1. An actuator having a housing comprising a section defining a cavity adapted to receive an aerosol canister having a hollow valve stem, comprising:

a nozzle block having walls defining a valve stem receptacle having a socket for receiving the hollow valve stem of the aerosol canister, the socket having walls defining an orifice having a longitudinal axis through the nozzle block; walls defining a deagglomeration chamber in open communication with the orifice;

at least one bleed hole in open communication with the deagglomeration chamber; and

walls defining an exit chamber in open communication with the deagglomeration chamber and having a longitudinal axis, wherein:

the orifice is in open communication along its axis with the deagglomeration chamber and the cavity; and

the cross-sectional area of the exit chamber in the plane normal to its axis is less than the greatest cross-sectional area of the deagglomeration chamber in the plane normal to the axis of the orifice;

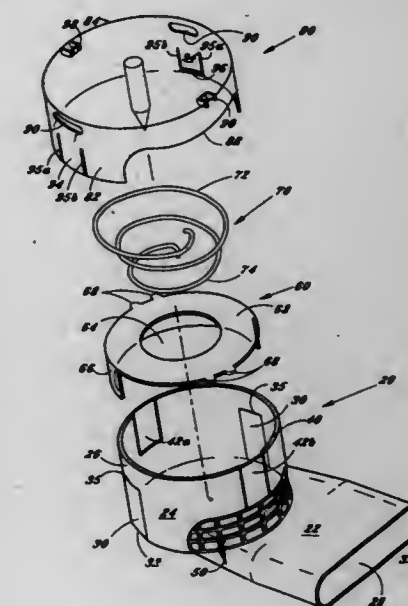
wherein respirable particles, resulting from discharge of an aerosol canister containing an aerosol formulation through the orifice, remain suspended in the deagglomeration chamber for a time sufficient to allow a patient to inhale the formulation after discharge of the canister.

5,669,378
INHALING DEVICE
 Ivo Pera, P.O. Box 9224, Hollywood, Fla. 33084; Francesco Merante, Via della Piaggia, Trevi, Italy, 06039, and Marco Cecchini, Via Gigliarelli #110, Perugia, Italy, 06100
 Filed Dec. 21, 1995, Ser. No. 576,816

Int. Cl.⁶ A61M 15/00

U.S. Cl. 128—203.21

19 Claims

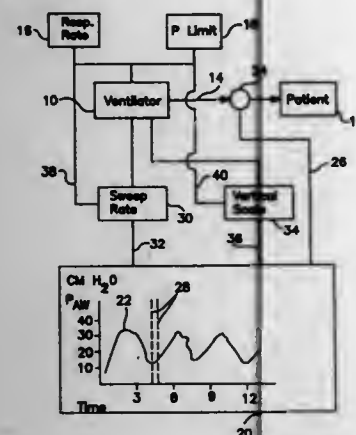


1. An inhaling device for delivering powdered medicaments to a patient, the powdered medicaments disposed within a capsule member, said inhaling device comprising:

a body member having a delivery portion and a medicament housing portion, said delivery portion in communication with said medicament housing portion, the capsule member containing the powdered medicaments being disposed within said housing portion; and means for releasing the powdered medicament into the delivery portion of said body member, said means for releasing including a button member releasably attached to said housing portion, said button member including a post member, said post member having a pointed first end, wherein pressing said button member causes the pointed first end of said post member to puncture the capsule member causing the powdered medicaments to be released within the delivery portion of said body member, said post member depending from approximately the center of said button member.

5,669,379
WAVEFORM DISPLAY FOR MEDICAL VENTILATOR
Steven K. Somerson, Madison; Kevin G. Tissot, Brooklyn, and James R. Homuth, DeForest, all of Wis., assignors to Ohmeda Inc., Liberty Corner, N.J.

Filed Mar. 29, 1996, Ser. No. 624,066
Int. Cl. A61B 5/08
U.S. Cl. 128—204.21 13 Claims

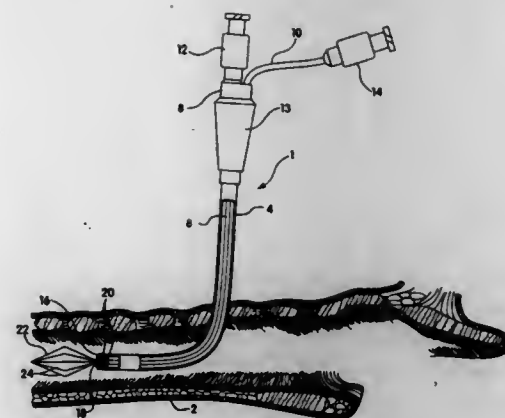


1. A system for controlling a waveform display of a parameter of a breathing gas delivered from a medical ventilator to a patient through a conduit, said system comprising an input device to enable a user to send a signal to the ventilator to establish a desired parameter in the gas delivered by the ventilator to the patient, a sensor for sensing in the gas delivered to the patient the desired parameter established by the user with said input device, said sensor providing a signal representative of such sensed parameter, a display for displaying the sensed parameter in the shape of a waveform, said display including an erase bar that erases old data and enters new data to modify the waveform as said erase bar moves across said display, and a processor to receive said signal from said input device to modify the sweep rate of the said erase bar in response to the desired parameter established by the user.

5,669,380
LARYNGEAL BYPASS
Brendan P. Garry, Westborough, and Peak Woo, Weston, both of Mass., assignors to New England Medical Center Hospitals, Inc., Boston, Mass.

Filed Apr. 26, 1996, Ser. No. 639,167
Int. Cl. A61M 6/00
U.S. Cl. 128—207.14 42 Claims

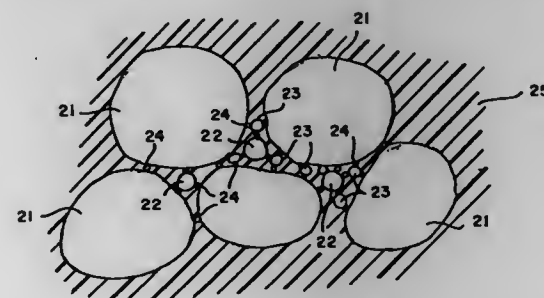
1. A laryngeal bypass device adapted for transcutaneous insertion into a human trachea, comprising:
a first tubular member having a first end and a second end, said first end couplable to an aspiration device, and said second



end comprising a barrier member maintaining said second end free of human tissue; and
a second tubular member having a first end and a second end, said first end couplable to an inspiration device; wherein said second tubular member injects air to the trachea and said first tubular member aspirates air from the trachea, transcutaneously.

5,669,381
ELECTRICAL OVERSTRESS PULSE PROTECTION
Hugh M. Hyatt, Camarillo, Calif., assignor to G & H Technology, Inc., Camarillo, Calif.

Continuation of Ser. No. 273,020, Nov. 18, 1988, Pat. No. 4,992,333. This application Nov. 14, 1990, Ser. No. 612,432
Int. Cl. B32B 5/16; H01C 7/10; H01B 1/00
U.S. Cl. 428—402 7 Claims

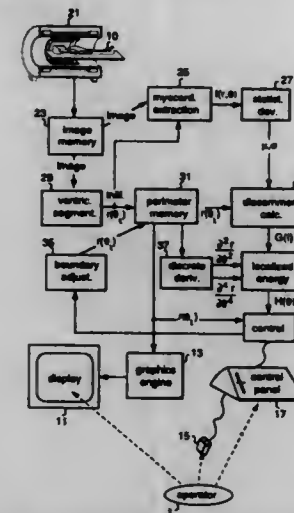


1. A material for placement between and in contact with spaced conductors to provide a non-linear resistance therebetween, said material comprising a matrix formed of a binder and only closely spaced conductive particles:

- said closely spaced conductive particles being homogeneously distributed, said particles being in the submicron range to hundred micron range in size and spaced by said binder to provide electrical conduction by quantum-mechanical tunneling therebetween; and
- said binder selected to provide the quantum-mechanical tunneling media between said conductive particles and predetermined resistance between said conductive particles in the absence of quantum-mechanical tunneling.

5,669,382
SYSTEM FOR MEASURING MYOCARDIUM IN CARDIAC IMAGES
Rupert William Meldrum Curwen, Ballston Lake, and Richard Ian Hartley, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 19, 1996, Ser. No. 751,345
Int. Cl. A61B 6/00
U.S. Cl. 128—653.1 3 Claims



- A method of determining epicardial boundary of myocardium of a subject's from a cardiac image having pixel intensities at (r, θ) of $I(r, \theta)$ comprising the steps of:
 - identifying a myocardium inner boundary of said image $r(\theta)$ at several discrete angles θ , from said image by conventional means;
 - determining a goodness function $G(I(r, \theta))$ being positive if pixel intensity $I(r, \theta)$ at (r, θ) is deemed to be myocardium, and negative is other tissue, for a plurality of (r, θ) coordinates;
 - calculating the second derivative and fourth derivatives of radial change due to change in angle

$$\frac{\partial^2 r}{\partial \theta^2} \cdot \frac{\partial^4 r}{\partial \theta^4}$$

respectively;

- calculating a localized energy function $H(\theta)$ from $G(I(r, \theta))$,

$$\frac{\partial^2 r}{\partial \theta^2} \cdot \frac{\partial^4 r}{\partial \theta^4}$$

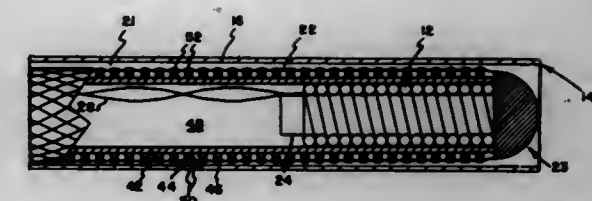
α, β, γ employing calculus of variation;

- determining $\delta r(\theta_i)$ from $-eH(\theta)$ where ϵ is selected to make the product $\epsilon H(\theta)$ less than a single pixel width;
- adding $\delta r(\theta_i)$ to each value of $r(\theta_i)$ to determine a new boundary; and
- repeating steps "c"—"f" for a plurality of iterations to result in an epicardial boundary $r(\theta)$.

5,669,383
POLYIMIDE SHEATH FOR A CATHETER DETECTOR AND METHOD
Theodore A. Johnson, St. Paul, Minn., assignor to SIMS Deltec, Inc., St. Paul, Minn.

Filed Jul. 28, 1994, Ser. No. 281,780
Int. Cl. A61B 6/00; A61M 25/00
U.S. Cl. 128—657 26 Claims

1. An apparatus for use within a catheter, the catheter having a distal end and a proximal end and a lumen therebetween, the apparatus capable of being located by a locator, the apparatus comprising:
a detector; and



a sheath including:

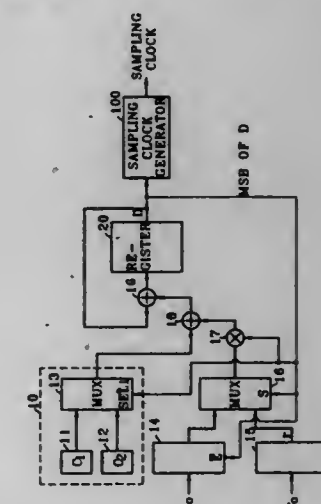
- a first sealing member having a proximal end and a distal end and a lumen therebetween, the detector received within the lumen at the distal end of the first sealing member, the detector secured to the first sealing member; and
- an outer sheath member mounted to the first sealing member and positioned over the distal end of the first sealing member, the outer sheath member having a polyimide outside surface so that the sheath may be removed from the catheter without damage.

5,669,384
REAL TIME DIGITAL RECEPTION FOCUSING METHOD AND APPARATUS ADOPTING THE SAME
Song Bai Park; Moo Ho Bae, and Ki Jeon, all of Seoul, Rep. of Korea, assignors to Medison Co., Ltd., Kangwon-Do, Rep. of Korea

PCT No. PCT/KR96/00016, § 371 Date Oct. 3, 1996, § 102(e) Date Oct. 3, 1996, PCT Pub. No. WO96/24288, PCT Pub. Date Aug. 15, 1996

PCT Filed Feb. 6, 1996, Ser. No. 718,353
Claims priority, application Rep. of Korea, Feb. 6, 1995, 95-2084

Int. Cl. A61B 8/00
U.S. Cl. 128—661.01 19 Claims



1. A real time digital reception focusing method for sampling a signal having image information on an object received via an array transducer having a plurality of transducing elements and for performing a digital reception focusing of the sample image information, the real time digital reception focusing method comprising the steps of:

- establishing an integer focusing reference distance and an integer focusing delay distance with respect to each of the transducing elements so that a rate of change of the focusing delay distance with respect to the focusing reference distance when a focal point is altered is within a predetermined boundary;
- updating the integer focusing reference distance and the integer focusing delay distance with respect to a second focal point according to a magnitude of a decision variable with respect to a first focusing point and coefficients for calculating the decision variable; and

(c) generating a sampling clock for focusing a signal having the image information input to each of the transducing elements into the second focal point by a sampling interval corresponding to the updated integer focusing delay distance.

5,669,385 ULTRASONIC SCANNING OF TISSUE MOTION IN THREE DIMENSIONS

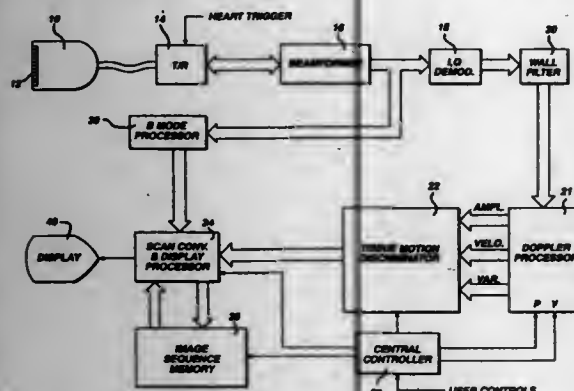
Patrick René Pesque, Bothell; Gary Allen Schwartz, and Jens Ulrich Quistgaard, both of Seattle, all of Wash., assignors to Advanced Technology Laboratories, Inc., Bothell, Wash.

Filed Mar. 13, 1996, Ser. No. 615,125

Int. Cl.⁶ A61B 8/06

U.S. Cl. 128—661.07

18 Claims



1. A method for producing three dimensional ultrasonic images of a moving organ or tissue within the body comprising the steps of:

- transmitting ultrasonic waves over a volumetric region of the interior of the body containing an organ or tissue which is to be imaged;
- receiving ultrasonic Doppler information signals from spatial locations within said organ or tissue;
- processing said ultrasonic Doppler information signals to determine the Doppler power intensity received from said locations within said organ or tissue where tissue is in motion; and
- displaying the Doppler power intensity received from said organ or tissue motion on a spatial basis in a three dimensional presentation.

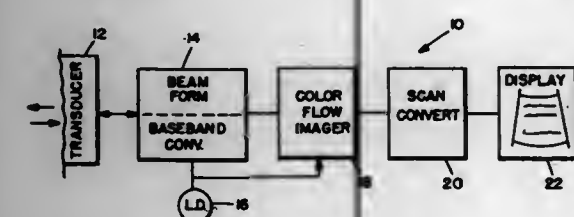
5,669,386 ULTRASONIC FLOW MEASUREMENT SYSTEM EMPLOYING CROSS-CORRELATION OF BASEBAND REFLECTION DATA

Karl E. Thiele, Andover, Mass.; Richard A. Hagar, Derry; David W. Clark, Windham, both of N.H., and Jerome F. Witt, Andover, Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 31, 1996, Ser. No. 692,789

U.S. Cl. 128—661.08

8 Claims



1. An ultrasound system for determining velocity of movement of ultrasound scatterers in a body, comprising:

transducer means for directing ultrasound beams, at 1st through nth succeeding transmit times, respectively, at said ultrasound scatterers;

detector means for sampling return reflections, at determined sample times, from said ultrasound scatterers to derive a group of 1st through jth sample values of each return reflection;

baseband conversion means for converting each group of sample values into 1st through jth complex data values;

cross correlation means for deriving

- (i) a first cross correlation value between a first set of complex data values, each complex data value thereof derived at a first common sample time over succeeding transmit times and a second set of complex data values, each complex data value of said second set derived at a common second sample time and exhibiting a first lag of at least one transmit time from said first common sample time, and
- (ii) a second cross correlation value between said first set of complex data values and a third set of complex data values, each complex data value of said third set derived at said common second sample time, but exhibiting a second lag that is different from said first lag;

oscillator means for producing an oscillation signal for synchronizing said transducer means, detector means, baseband conversion means and cross correlation means, said oscillation signal exhibiting a rate of change of phase per determined sample time; and

means for relating said rate of change of phase, said first cross correlation value and said second cross correlation value to derive said velocity of movement of said ultrasound scatterers.

5,669,387 ULTRASONIC DIAGNOSIS APPARATUS AND IMAGE DISPLAYING SYSTEM

Yoshitaka Mine, Tochigi-Ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa-Ken, Japan

Division of Ser. No. 130,834, Oct. 4, 1993, Pat. No. 5,622,174.

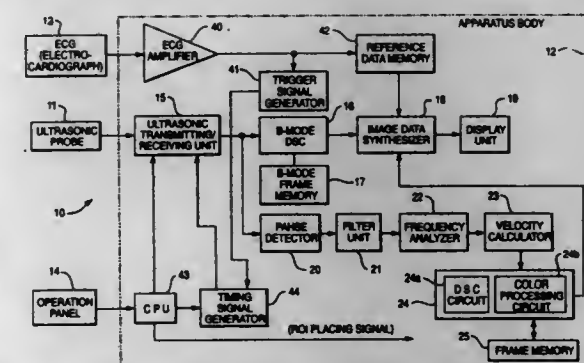
This application Jan. 5, 1996, Ser. No. 585,997

Claims priority, application Japan, Oct. 2, 1992, 4-265052; Mar. 31, 1993, 5-074448; Apr. 1, 1993, 5-075965; Apr. 7, 1993, 5-080931

Int. Cl.⁶ A61B 8/06

U.S. Cl. 128—661.09

15 Claims



1. An ultrasonic diagnosis apparatus in which a tissue in a cross section of an object being examined is imaged by means of an ultrasonic beam, the tissue including an organ being in motion, the apparatus comprising:

means for scanning the cross section by the ultrasonic beam to collect an ultrasonic echo signal reflected from the tissue in the cross section;

means for obtaining two-dimensionally mapped velocities of movement of the tissue in the cross section every frame on the basis of the ultrasonic echo signal; and

means for obtaining information of net movement of the organ with respect to a predetermined movement reference associ-

ated with the organ from the two-dimensionally mapped velocities of movement of the tissue in the cross section.

5,669,388 APPARATUS AND METHOD FOR AUTOMATIC PLACEMENT OF TRANSDUCER

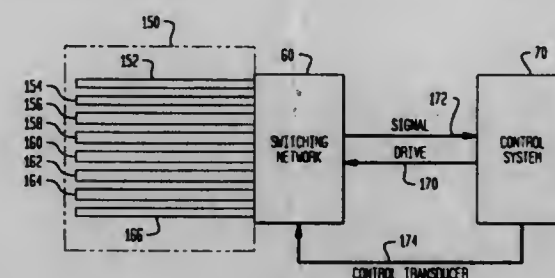
David Vilkomerson, Princeton, N.J., assignor to EchoCath, Inc., Monmouth Junction, N.J.

Filed Aug. 19, 1996, Ser. No. 699,228

Int. Cl.⁶ A61B 8/00

U.S. Cl. 128—661.09

21 Claims



1. An apparatus for locating a desired blood vessel within a predetermined volume of tissue, comprising: a plurality of transducers operable to be positioned over the volume of tissue, wherein each said transducer when driven produces an output signal indicative of a characteristic of a blood vessel located under each said transducer; and control means for selectively driving said transducers in order to produce a plurality of output signals and for comparing said plurality of output signals in order to determine the said output signal having the largest amplitude which corresponds to said transducer positioned over the desired blood vessel.

5,669,389 ENDOSCOPIC PROBE

Bart Joseph Rotteveel, Delft, Netherlands, and Pieter Derk Brommersma, Hamburg, Germany, assignors to B.V. Optische Industrie "De Oude Delft", Delft, Netherlands

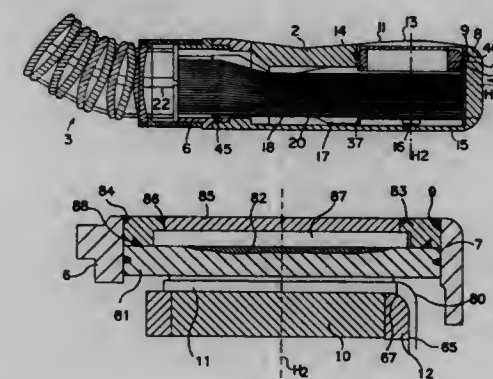
PCT No. PCT/NL91/00142, § 371 Date Feb. 22, 1993, § 102(e) Date Feb. 22, 1993, PCT Pub. No. WO92/02179, PCT Pub. Date Feb. 20, 1992

PCT Filed Jul. 31, 1991, Ser. No. 969,210
Claims priority, application Netherlands, Aug. 2, 1990, 9001755

Int. Cl.⁶ A61B 8/12

U.S. Cl. 128—662.06

22 Claims



1. An endoscopic probe, which comprises: a probe head having an aperture and including a cylindrically-shaped transducer housing rotatably disposed therein,

an ultrasonic transducer of the phase array type formed of a plurality of elongated transducer elements disposed within said transducer housing said ultrasonic transducer lying in plane substantially perpendicular to a rotatable axis of said transducer housing;

a lens having a concave cavity and a flat side, said flat side of said lens positioned on said ultrasonic transducer;

means for rotating said ultrasonic transducer in said transducer housing within a plane of said phase array of said ultrasonic transducer;

a loop-shaped flexible circuit board extending into said ultrasonic housing and connected to said plurality of elongated transducer elements;

a flexible tube connected to said probe head;

conductors extending through said flexible tube electrically connected to said flexible circuit board;

a cap member fixedly positioned within said aperture and comprised of a ring member sealed by a sealing substance to said aperture of said probe head in axial alignment with said ultrasonic transducer, said lens and cap member formed of an acoustically-compatible material and acoustically-coupled to one another; and

a disc-shaped member of an ultrasonic sound transmitting material sealed within said ring member.

5,669,390 SINGLE USE PROTECTIVE BARRIER MEDICAL ACCESSORY FOR ISOLATING A SPHYGMOMANOMETER CUFF FROM A PATIENT

David A. McCormick, and Martha S. McCormick, both of 9880 E. Palermo, Gold Canyon, Ariz. 85219

Filed Nov. 30, 1995, Ser. No. 564,913

Int. Cl.⁶ A61B 5/00

U.S. Cl. 128—686

7 Claims



1. A single use protective barrier medical accessory for isolating a sphygmomanometer cuff from a patient whose blood pressure is to be taken, said medical accessory comprising a tubular sleeve including a first portion fabricated from readily foldable, fluid impervious, non-transparent material, said tubular sleeve having a first open end and a second open end, said tubular sleeve being sufficiently long to extend from about the upper terminus of a patient's arm to a point below said patient's elbow, said tubular sleeve further including a second, transparent window portion extending from proximate said first end to a point intermediate said first open end and said second open end, said tubular sleeve having a circumference sufficient to admit of ready introduction of said tubular sleeve over said patient's arm and into a functional position extending from about the upper terminus of said patient's arm to a point below said patient's elbow, said first and second open ends of said tubular sleeve each being provided with a cinch means adapted to snugly close said first and second ends around said patient's arm to thereby maintain said tubular sleeve in position during use; whereby, sequentially, said tubular sleeve may be

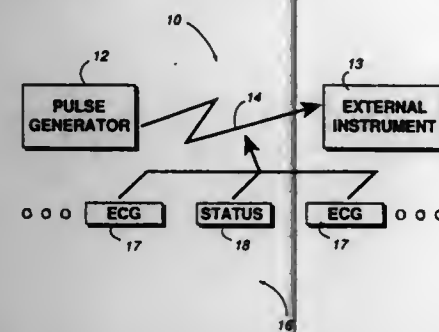
introduced over an arm of said patient and slid into position for use with said window portion facing generally outwardly, a sphygmomanometer cuff may be emplaced over said tubular sleeve above said patient's elbow, a segment of said tubular sleeve extending between said sphygmomanometer cuff and said first open end of said tubular sleeve may be folded over said sphygmomanometer cuff for complete coverage thereof, for a view of a gauge thereof through said window portion while permitting admission of a tube coupled to a bulb for pressurizing said sphygmomanometer cuff, said patient's blood pressure may be taken, said segment may be unfolded to its original position, said sphygmomanometer cuff may be removed and said tubular sleeve may be removed and disposed.

5,669,391
APPARATUS AND METHOD FOR PRESENTING
PATIENT ELECTROCARDIOGRAM AND IMPLANTABLE
DEVICE STATUS INFORMATION
Michael O. Williams, Sunnyvale, Calif., assignor to Ventrifex, Inc., Sunnyvale, Calif.

Division of Ser. No. 422,022, Apr. 13, 1995, abandoned, which is a continuation of Ser. No. 164,315, Dec. 9, 1993, Pat. No. 5,413,594. This application Jun. 21, 1996, Ser. No. 667,537
Int. Cl.⁶ A61N 1/37

U.S. Cl. 128—697

15 Claims



1. Apparatus for presenting patient electrocardiogram and implantable device status information, comprising:
 - an implanted cardiac therapy device including means for sensing a patient electrocardiogram signal and a processor for generating and collating device status information, said status information including cardiac event interval information, why a therapy was or was not applied, and patient response to therapy, and for storing said status information and said patient electrocardiogram signal;
 - output means in said implanted cardiac therapy device having an input for receiving said stored electrocardiogram signal and status information and for assembling and outputting a data frame therefrom;
 - an external display apparatus including a decoder for separating said data frame into said electrocardiogram signal and said status information; and
 - a display for presenting said electrocardiogram signal and said status information with portions of said status information presented in said display in proximity to portions of said electrocardiogram signal to which they relate.

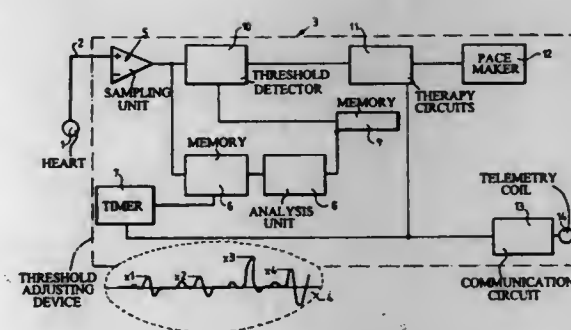
5,669,392
DEVICE FOR VARYING THE THRESHOLD DETECTION
LEVEL OF A SENSOR
Jan Ljungström, Hässelby, Sweden, assignor to Pacemaker AB, Solna, Sweden

Filed Jul. 1, 1996, Ser. No. 673,114
Claims priority, application Sweden, Jul. 4, 1995, 9502430
Int. Cl.⁶ A61B 5/0402

U.S. Cl. 128—704

38 Claims

1. A medical diagnostic device comprising:



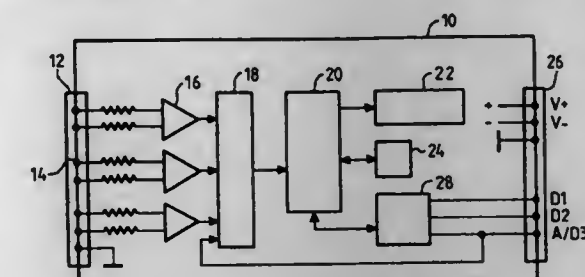
sensor means for sensing a periodic physiological signal, representing physiological events, from a living subject;
sampling means, connected to said sensor means, for collecting samples of said periodic physiological signal employing a threshold detection level;
memory means for storing said samples of said periodic physiological signal;
timer means for starting said sampling means and for stopping said sampling means after a predetermined time;
analysis means having access to said memory means for analyzing said periodic physiological signal using the samples stored in said memory means by estimating a number of said physiological events occurring in said periodic physiological signal during said time and for generating a set of values corresponding to said physiological events;
said analysis means including means for calculating at least one derived parameter from said set of values; and
said analysis means including means for automatically determining a new threshold detection level for said sampling means as a function of said at least one derived parameter and means for comparing said new threshold detection level with the samples stored in said memory means for determining how many of said physiological events would have been detected if said new threshold detection level had been used by said sampling means, and for changing said threshold detection level of said sampling means to said new threshold detection level if the number of physiological events which would have been detected differs by more than a programmable number from said estimated number of physiological events.

5,669,393
PROGRAMMABLE INTERFACE FOR A
PHYSIOLOGICAL SIGNAL RECORDING DEVICE
Yves Falsandler, Paris, France, assignor to ELA Medical S.A., Montrouge, France

Filed Nov. 22, 1995, Ser. No. 562,290
Claims priority, application France, Nov. 22, 1994, 94 13952
Int. Cl.⁶ A61B 5/04

U.S. Cl. 128—710

21 Claims



1. An apparatus (10) for recording a physiological signal, comprising:
 - a first analog signal input for accepting one or more first signals corresponding to said physiological signal;
 - a first set of plugs (14) adapted to receive one or more of said first signals, wherein said first signals are to be recorded;

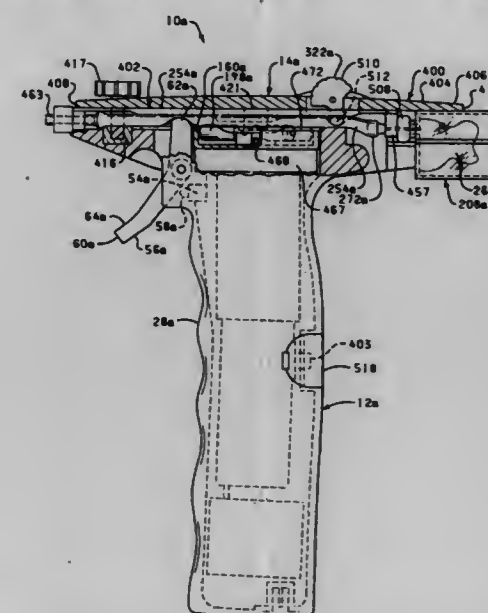
a processing circuit for recording data corresponding to said first signals; and
a programmable interface adapted for transferring one or more second signals comprising:
at least one voltage supply plug,
at least one ground plug,
at least one digital plug, operatively connected to the processing circuit,
at least one mixed input/output analog/digital (MAD) plug connected to said first analog signal input, and
a logic circuit operable to control a transfer of said second signals at the programmable interface, wherein the MAD plug is operatively connected to said logic circuit.

5,669,394
BIOSAMPLE ASPIRATOR
Karl H. Bergey, Norman, and William H. Diepenbrock, Bethany, both of Okla., assignors to The Board Of Regents of the Univ. of Oklahoma, Norman, Okla.

Continuation-in-part of Ser. No. 779,699, Oct. 21, 1991, Pat. No. 5,387,191, which is a division of Ser. No. 602,580, Oct. 24, 1990, Pat. No. 5,081,999, which is a continuation of Ser. No. 307,403, Feb. 6, 1989, Pat. No. 4,982,739. This application Dec. 22, 1994, Ser. No. 362,698
Int. Cl.⁶ A61B 10/00

U.S. Cl. 128—750

60 Claims



1. An aspirator adapted for use in collecting a biosample and for use with a needle having a first end and a second end with a needle opening extending therethrough intersecting the first and the second ends thereof, comprising:
 - a biosample collection system comprising:
 - a biosample collection section comprising a container compartment having a biosample container therein, the biosample container having a collection space sized to receive a biosample,
 - wherein the biosample collection section is separable from the biosample collection system;
 - a communication section for establishing fluidic communication between the needle opening and the biosample collection section comprising:
 - a card having a biosample connector, the biosample connector having an outer periphery, a first end and a second end with a connector opening extending therethrough intersecting the first and the second ends thereof, the first end of the biosample connector being connectable to the second end of the needle and the second end of the biosample connector being connected to the biosample

container with the connector opening being in fluidic communication with the needle opening and with the collection space in the biosample container, and wherein the communication section is separable from the biosample collection system;
suction means for generating and establishing a vacuum and being capable of continuous suction in the biosample collection system whereby a biosample received via the first end of the needle is movably transferred through the needle opening and the communication system and into the biosample collection section, comprising:
a pump connected to the biosample collection system for generating and establishing a vacuum generally within the needle opening and the connector opening whereby the biosample is sucked through the needle opening and through the connector opening and into the collection space in the biosample container in a driven condition of the pump;
drive means connected to the pump for activating the pump in the driven condition;
a pump housing having a first end, a second end and a pump housing component space formed generally between the first end and the second end of the pump housing, the pump housing having an upper surface comprising a hinged lid and a lower surface, the communication section being disposed in the pump housing component space and extending generally between the first end and the second end of the pump housing, the second end of the needle being connectable to the first end of the biosample connector in the communication section and the needle being extendable a distance generally from the first end of the pump housing, the biosample collection section being disposed in the pump housing component space near the second end of the pump housing, the biosample container therein being connected to the second end of the biosample connector generally near the second end of the pump housing, the pump being disposed in the pump housing component space; and
a handle housing adapted to be gripped by an individual when the aspirator is being used for obtaining a biosample, having an upper end and a lower end, a handle component space being formed in a portion of the handle, a portion of the drive means being disposed generally within the handle component space and a portion of the drive means extending from the handle component space a distance generally above the upper end of the handle housing and being connected with the pump in the pump housing component space.

5,669,395
DISPOSABLE PROTECTIVE WEAR FOR SUN TANNING
Yvonne Thompson, 237 Oakcrest La., Pittsburgh, Pa. 15236
Filed Sep. 30, 1996, Ser. No. 724,134
Int. Cl.⁶ A61F 5/37

U.S. Cl. 128—846

3 Claims

1. A protective tanning kit for a wearer, comprising:
 - a. a face mask, comprising:
 - i. a face cover, made as an oval shell of flexible, yet lightweight, opaque material having a front side and a reverse side and having an upper portion and a lower portion, and having two elliptical openings in said upper portion thereby forming openings for the wearer's eyes, and having a rectangular nose slit and a rectangular mouth slip in said lower portion with respect to said two elliptical openings;
 - ii. two eye piece viewing means, each made as elliptical, opaque pieces being disposed within said respective elliptical openings; and,
 - iii. a multitude of small adhesive means fastened to said face mask body reverse side whereby said small adhesive means are adhereable to said wearer;
 - b. a pair of breast covers, each comprising a breast emblem, made as a pattern of flexible, yet lightweight, opaque material

an upper portion including an upper chamber, said upper chamber including a wash basin, a hood movably attached to said upper portion and movable between an open position and a closed position, said hood sealing and enclosing said upper chamber when in said closed position, and a work area defined between said hood and said wash basin,

a lower portion including a clean solution holding tank for containing a non-contaminated, predetermined charge of the cleaning solution therein,

first pump means for transferring at least a portion of the cleaning solution in said clean solution holding tank to said wash basin,

discharge means at said upper portion for discharging the cleaning solution into said work area,

second pump means for transferring the cleaning solution in said wash basin to said discharge means,

heating means for heating the cleaning solution in said wash basin to produce vapors and to separate contaminants therefrom, said heating means including at least one heating element positioned and disposed in heat transferring relation to said cleaning solution in said wash basin,

condensing means for condensing the vapors to yield purified, condensed, liquid cleaning solution, and

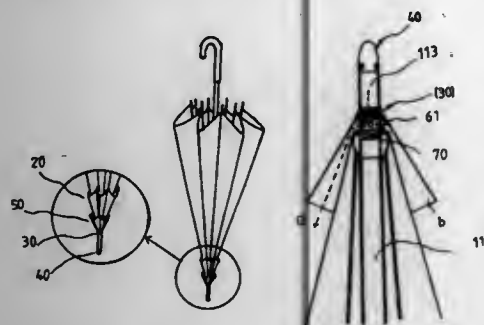
return means for returning the purified liquid cleaning solution from said condenser to said clean solution holding tank and including a receiving tank interconnected in fluid communication between said condensing means and said clean solution holding tank and being structured to contain a predetermined volume of the purified cleaning solution therein prior to transfer to said clean solution holding tank.

5,669,402
WATER COLLECTION DEVICE DERIVED FROM AN UMBRELLA

San-Shiung Sun, 3F, No.31, 141 Alley, 189 Lane, Kang-Ning Rd. Sec 3, Nei-Hu District, Taipei City, Taiwan
Continuation of Ser. No. 521,417, Aug. 30, 1995, abandoned.
This application Jun. 24, 1996, Ser. No. 669,125
Int. Cl.⁶ A45B 25/18

U.S. Cl. 135—33.2

3 Claims



1. A water collection device in combination with an umbrella comprising:
 - an umbrella having a tubular shaft and a plurality of ribs pivotally secured to a top portion of said shaft, a first canopy having a diameter and being mounted on said ribs and attached to said shaft by a finishing cap and a ferrule on top end of said shaft, a handle secured to a lower portion of said shaft;
 - a second canopy having a diameter of 1/2 of said diameter of said first canopy; said second canopy having a central bore co-axially wrapped and closed on the top of said shaft between said ferrule and said first canopy; said second canopy being circumferentially attached to said first canopy at equal intervals by a plurality of first connection spots; each of said first connection spots is positioned at the middle of a latitudinal line on each canopy section of said first canopy located between each pair of adjacent ribs;

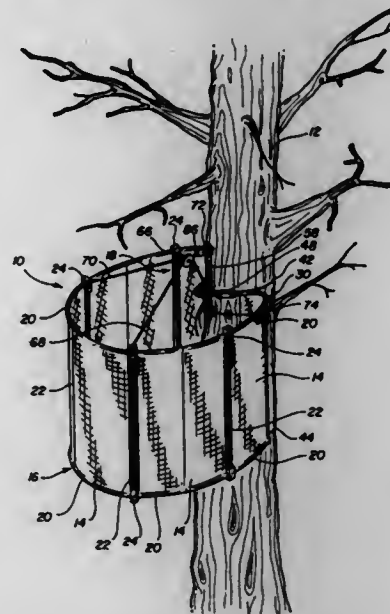
wherein a plurality of continuous openings, formed between each pair of adjacent first connection spots, are unified with a water receiving space which extends between said first and second canopies when said umbrella is closed.

5,669,403
HUNTING BLIND ADAPTED TO BE MOUNTED IN A TREE

Michael M. Belcher, 25238 Perch Lake Rd., and Patrick M. Saumier, 619 Lansing St., both of Watertown, N.Y. 13601
Filed Apr. 12, 1996, Ser. No. 631,419
Int. Cl.⁶ A01M 31/00

U.S. Cl. 135—90

20 Claims



1. A portable hunting blind mountable in an elevated position, to a vertically oriented object, said blind comprising:
 - a) a framework comprised of a lattice composed of a plurality of interconnected, elongated members, said framework defining a top, a bottom, and a continuous side of said blind;
 - b) at least one fabric sheet removably secured to said framework for enclosing said framework's side;
 - c) means for mounting said framework in said elevated position to said vertically oriented object; and
 - d) pulley means for adjusting the elevation of said blind when said blind is mounted to said vertically oriented object.

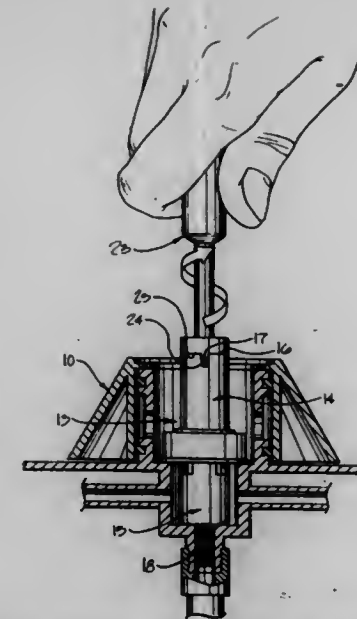
5,669,404
APPARATUS AND METHOD FOR REPLACING THE DIVERTER VALVE ASSEMBLY IN A FAUCET

Pedro M. Guillermo, 501 Mayo Rd., Glen Burnie, Md. 21061
Division of Ser. No. 306,380, Sep. 15, 1994, Pat. No. 5,586,571.
This application Sep. 25, 1996, Ser. No. 719,362
Int. Cl.⁶ F16K 43/00

U.S. Cl. 137—15

6 Claims

3. A method for removing a threaded-in diverter valve having a top portion, a bottom portion and an annular flat top accommodating two diametrically opposing slots therein comprising (1) inserting in registry with said annular flat top and said diametrically opposing slots the flat shoulder and tang of a tool, respectively, said tool having a first end portion and a second end portion; the first end portion has at right angles to the longitudinal axis of said tool a flat shoulder with a tang set at right angles to said flat shoulder, said flat shoulder and tang register with said annular flat top accommodating two diametrically opposing slots to supply balanced axial thrust load while unscrewing said diverter valve to



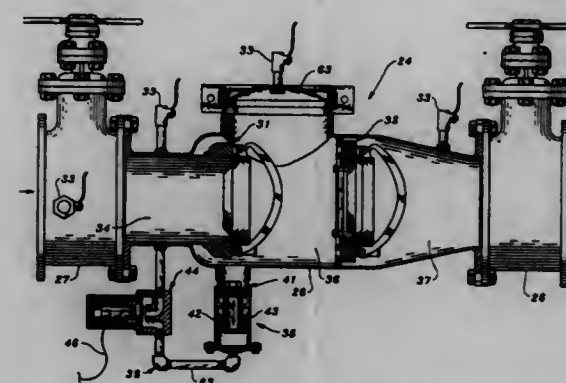
thereby prevent damaging and breaking the top of the diverter valve; said second end portion attaches a handle for applying axial thrust load; and (2) applying axial thrust load through said handle to said threaded in diverter valve to remove said diverter valve such that once the diverter valve is removed the top portion can be separated from the bottom portion for service and repair of the diverter valve.

5,669,405
APPARATUS AND METHOD FOR AUTOMATICALLY DISABLING PRESSURE RELIEF VALVE OF BACKFLOW PREVENTER

Lester B. Engelmann, Woodland, Calif., assignor to Ames Company, Inc., Woodland, Calif.
Filed Sep. 17, 1996, Ser. No. 713,884
Int. Cl.⁶ G05D 11/00

U.S. Cl. 137—115.07

25 Claims



1. In a backflow preventer within a water line, the preventer including a housing having an upstream check valve and a downstream check valve transversely positioned therein, the upstream check valve defining an upstream chamber and an intermediate chamber, and the downstream check valve further defining a downstream chamber, an apparatus for automatically disabling a pressure relief valve hydraulically connected across the upstream check valve between the upstream chamber and the intermediate chamber of the backflow preventer, said apparatus comprising:
 - a. water flow detector means, producing an output signal when water flows through the water line at a predetermined rate; and,
 - b. normally open electro-mechanical valve means on an upstream side of the pressure relief valve, said valve means

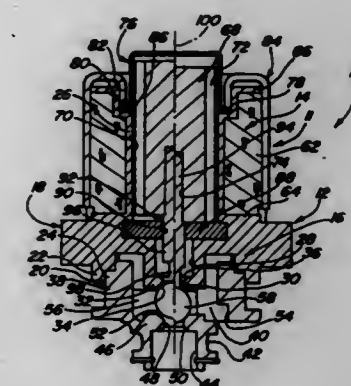
closing in response to said output signal and hydraulically isolating the pressure relief valve from the upstream chamber.

5,669,406
UNIVERSAL ON/OFF SOLENOID VALVE ASSEMBLY

Carl G. Gluf, Jr., Chesterfield, Mich., assignor to Lectron Products, Inc., Rochester Hills, Mich.
Filed Mar. 15, 1996, Ser. No. 617,480
Int. Cl.⁶ F16K 31/06

U.S. Cl. 137—270

4 Claims



1. An on/off solenoid valve assembly comprising:

a base assembly including a solenoid having a coil winding and an armature adapted to move from a first position to a second position in response to electrical energization of said coil winding, a valve body secured to said solenoid and defining an inlet port, a fluid chamber, a first flow passageway between said inlet port and said fluid chamber, a control chamber, and a second flow passageway between said fluid chamber and said control chamber, and a first valve member; and

a set of components adapted for use with said base assembly to provide one of a normally-open solenoid valve and a normally-closed solenoid valve, said set including a first rod, a second rod, a second valve member, and a valve actuator, in said normally-open solenoid valve said first rod is coupled to said armature and engages said first valve member positioned within said fluid chamber such that movement of said armature from said first position to said second position causes said first valve member to move from a normally open position whereat fluid flow between said inlet port and said fluid chamber is permitted to a closed position whereat fluid flow between said inlet port and said fluid chamber is inhibited, and in said normally-closed solenoid valve said second rod is coupled to said armature and engages said first valve member located within said control chamber, said second valve member is retained in said inlet port, and said valve actuator is retained in said fluid chamber and has a first projection engaging said first valve member and a second projection engaging said second valve member such that movement of said armature from said first position to said second position causes said second valve member to move from a normally closed position whereat fluid flow from said inlet port to said fluid chamber is inhibited to an open position whereat fluid flow from said inlet port to said fluid chamber is permitted.

5,669,407

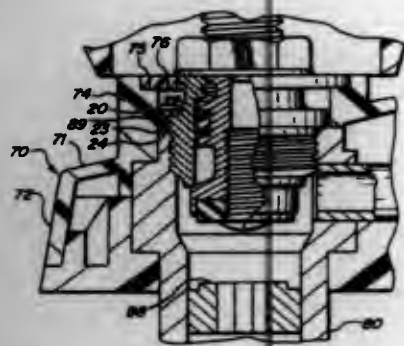
COMPRESSION CARTRIDGE FOR A FAUCET VALVE ASSEMBLY

Robert W. Bailey, London, Canada, assignor to Masco Corporation of Indiana, Indianapolis, Ind.
PCT No. PCT/US94/03200, § 371 Date Mar. 11, 1996, § 102(e)
Date Mar. 11, 1996, PCT Pub. No. WO95/25918, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 24, 1994, Ser. No. 549,845
Int. Cl.⁶ F16K 1/02

U.S. Cl. 137—359

6 Claims



1. An improved valve and cover plate construction comprising: a cover plate;
an underbody having an axial bore,
a top annular edge,
a valve seat disposed below said top annular edge, and
a valve assembly comprising a hollow bonnet and a stem movably disposed in said bonnet,
a valve disc disposed at the bottom of said stem adapted to cooperate with said valve seat to regulate the fluid flow through said valve seat,
said bonnet being fixedly disposed in said axial bore and said stem axially movable in said bonnet,
the improvement comprising said bonnet having a first annular flange extending circumferentially therearound, said first flange having an undercut therein and a sealing element disposed in said undercut, said undercut being generally U-shaped and forming a downwardly extending outer rim having an undersurface on a radially outer edge of said flange adapted to sealingly engage at least a portion of said top annular edge of said underbody, and a second flange having an abutment surface on the bottom thereof disposed above said first flange, and said cover plate having at least one flange having an opening therethrough adapted to receive said valve assembly, said flange having an annular seat circumscribing said opening and adapted to seat a retaining ring.

5,669,408

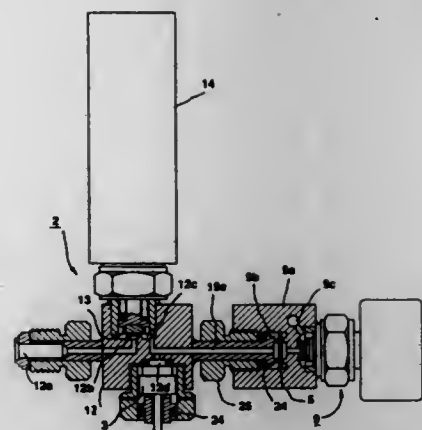
PRESSURE TYPE FLOW RATE CONTROL APPARATUS

Koji Nishino; Nobukazu Ikeda; Akihiro Morimoto; Yukio Minami; Koji Kawada; Ryosuke Dohi, and Hiroyuki Fukuda, all of Osaka, Japan, assignors to Fujikin Incorporated, Osaka, Japan
Filed Jun. 10, 1996, Ser. No. 661,181
Claims priority, application Japan, Jun. 12, 1995, 7-144722
Int. Cl.⁶ F16K 31/12

U.S. Cl. 137—487.5

5 Claims

1. A pressure type flow rate control apparatus for controlling flow rate of a fluid comprising:
means for forming an orifice;
means for maintaining a pressure P1 upstream of the orifice at more than twice a pressure P2 downstream of the orifice and for maintaining the pressure P2 downstream of the orifice at or less than atmospheric pressure;
a control valve positioned upstream of the orifice for controlling flow to the orifice;



- a pressure detector for measuring pressure P1 between the control valve and the orifice; and,
a calculation control means for receiving the measured pressure P1 and for calculating flow rate Qc through the orifice on the basis of the measured pressure P1 by a formula $Qc=KP1$, K being a constant, for receiving a flow rate command signal and for outputting a difference Qy between the flow rate command signal Qs and the calculated flow rate signal Qc to a drive unit for opening and closing the control valve;
wherein the pressure P1 upstream of the orifice is adjusted by opening and closing of the control valve, thereby controlling the flow rate downstream of the orifice;
wherein the calculation control means includes a temperature correction circuit for correcting the value of the calculated flow rate Qc depending on a gas temperature T1 at the upstream side of the orifice; and,
wherein the control valve is coupled to an output of an inverting amplifier for receiving an output signal therefrom, said inverting amplifier receiving detected values of the upstream side pressure P1 and the downstream side pressure P2.

5,669,409

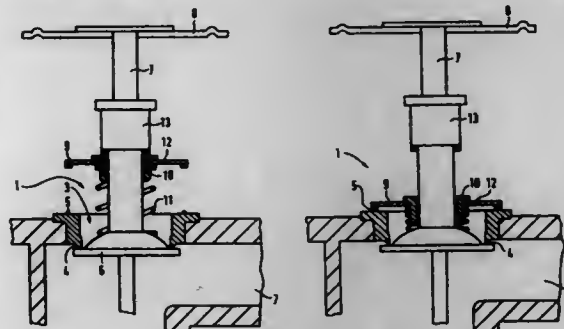
GAS-PRESSURE CONTROLLER

Thomas Kettner, Netzbach, and George Welker, Westhofen, both of Germany, assignors to Elster Produktion GmbH, Germany
PCT No. PCT/EP94/00723, § 371 Date Oct. 10, 1995, § 102(e)
Date Oct. 10, 1995, PCT Pub. No. WO94/24620, PCT Pub. Date Oct. 27, 1994
PCT Filed Mar. 9, 1994, Ser. No. 537,653

Claims priority, application Germany, Apr. 13, 1993, 43 11 826.7
Int. Cl.⁶ G05D 16/06

U.S. Cl. 137—494

7 Claims



1. A gas-pressure control apparatus comprising
an inlet means;
an outlet means;
a flow channel arranged between said inlet means and said outlet means and having a valve seat means disposed at the outlet means side of said flow channel;

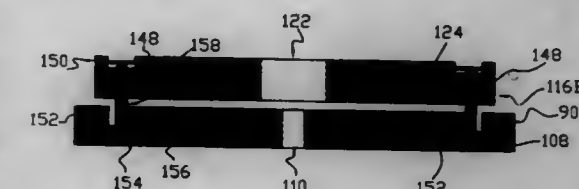
5,669,411

COMPRESSOR VALVE

Brian J. LeGros, 303 Shenandoah, Broussard, La. 70518, and
Bernard S. Smith, 202 Wood Oak Cir., Lafayette, La. 70506
Filed Dec. 14, 1995, Ser. No. 572,076
Int. Cl.⁶ F16K 15/00

U.S. Cl. 137—516.21

2 Claims



- a valve disc means for governing a gas flow through said flow channel;
a valve spindle means arranged for axial movement relative to said valve seat means;
positioning means connected to said valve spindle means for positioning said valve disc means;
an obturator disc means coupled to said valve spindle means for relative axial movement thereto, said obturator disc means providing a very small flow aperture; and
biasing means for biasing said obturator disc means into a first position in which said obturator disc means leaves said flow channel open,
said biasing means cooperating with said obturator disc means in such a way that said obturator disc means is moved into a second position in which the obturator disc means engages an obturator disc seat for substantially closing said flow channel when a gas-pressure in said outlet means falls below a predetermined minimum value,
said very small flow aperture defining a small fluid connection between said inlet means and said outlet means when said obturator disc means is in its second position.

5,669,410

AIR FLOW RATE REGULATION APPARATUS FOR AIR PUMP

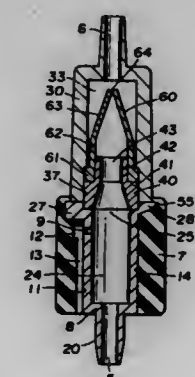
Shouichi Furuya, Yokohama, Japan, assignor to Toshio Shimizu, Yamanashi-ken, Japan
Filed Sep. 11, 1995, Ser. No. 526,399

Claims priority, application Japan, Sep. 22, 1994, 6-266032;
Mar. 7, 1995, 7-003142 U

Int. Cl.⁶ F16K 5/10

U.S. Cl. 137—511

9 Claims



1. An air flow rate regulation apparatus for regulating a flow rate of discharge air of an air pump used for keeping aquarium fishes, comprising:
a cylindrical control member having a hollow chamber therein-side and a regulation hole bored in an outer peripheral surface thereof, and
a cylindrical regulation member having a regulation recess overlapping with said regulation hole and made of a flexible material,

wherein said regulation member is rotatably fitted over the outer peripheral surface of said control member in such a manner as to be capable of adjustably covering said regulation hole, and said control member and said regulation member are rotated relative to each other so as to increase or decrease an overlapped area of said regulation hole and said regulation recess so that the overlapped area can be increased or decreased continuously over a range of the rotating angle of at least 90° of said control member and said regulation member.

4. An air flow rate regulation apparatus according to claim 1, wherein a back flow prevention device having a check valve is fitted to an outflow port side inside said control member.

5,669,412

TWO-PIECE CHECK VALVE ASSEMBLY

Daniel G. Scott, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

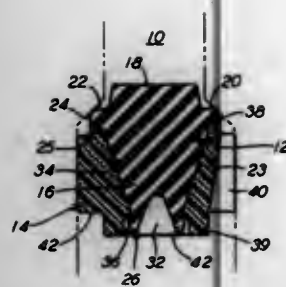
Filed Jan. 16, 1996, Ser. No. 585,839
Int. Cl.⁶ F16K 15/00

U.S. Cl. 137—533.31

15 Claims

1. For a poppet valve assembly including a valve seat in a fluid pressure passageway, a check valve device cooperatively arranged relative to said valve seat for establishing and interrupting flow of fluid under pressure in said passageway, said check valve device comprising:

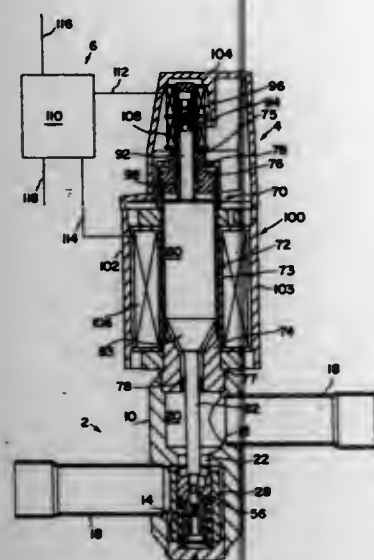
- a) an annular carrier member having opposing upper and lower surfaces and a through bore extending therebetween; and
b) an elastomeric seal element comprising a body having an annular shoulder extending laterally therefrom at one end of said body, a flexure portion at the other end of said body and an annular groove in the periphery of said body between an



underside of said shoulder and a confronting surface of said flexure portion, said upper surface of said carrier member engaging said underside of said shoulder and said lower surface of said carrier member engaging said confronting surface of said flexure portion, said shoulder having an upper surface with which said valve seat is engageable in a seal area having generally opposed relationship with said upper surface of said carrier member.

5,669,413
CONTROL VALVE HAVING AN ACTUATING DRIVE AND METHOD THEREFOR
Andreas Heggin, Reutlingen; Giuseppe Pulli, Stäfa, and Manuel Brühlmann, Zürich, all of Switzerland, assignors to Staefa Control System SCS AG, Switzerland
Continuation of Ser. No. 346,691, Nov. 30, 1994, abandoned.
This application Apr. 23, 1996, Ser. No. 636,680
Claims priority, application Switzerland, Jun. 21, 1994, 01961/94

Int. Cl.⁶ F16K 11/40
U.S. Cl. 137—554

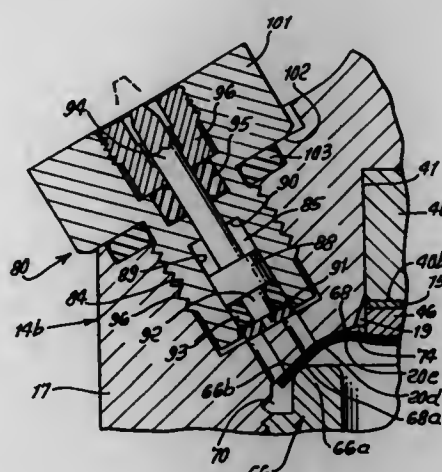


1. A valve apparatus for controlling fluid flow, comprising:
 - (a) a valve, including a substantially cylindrical valve casing having an inlet port and an outlet port for fluid and a shut-off piston slidable within said valve casing;
 - (b) a cylindrical elongated armature capsule arranged in coaxial and in fluid-tight relation with said valve casing;
 - (c) an electromagnetic drive element having an annular magnet coil surrounding said armature capsule in coaxial relation thereto;
 - (d) an armature coaxially located on said magnet coils and axially slidable with said armature capsule;
 - (e) a controller element having an annular sensing coil coaxially arranged on said armature capsule adjacent said magnet coil, and an armature insert coaxially located in said sensing coil and being axially displaceable within said capsule relative to

- (f) a tappet slideably supported in said armature capsule and extending into said valve casing for cooperation with said shut-off piston, said magnet armature, said armature insert and said tappet being rigidly interconnected with each other, to slideably drive said shut-off piston via said drive element and to correspondingly displace said armature insert, whereby a signal for the position of said slidable shut-off piston is obtained by said controller element via a coaxial displacement of said armature insert with respect to the shut-off piston.

5,669,414
POP-ALERT DEVICE
Robert F. Miller, Arcadia, Calif., assignor to Vemco Corporation, San Dimas, Calif.
Filed Jan. 11, 1996, Ser. No. 583,786
Int. Cl.⁶ F16K 1/34; 37/00
U.S. Cl. 137—557

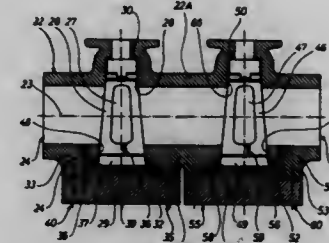
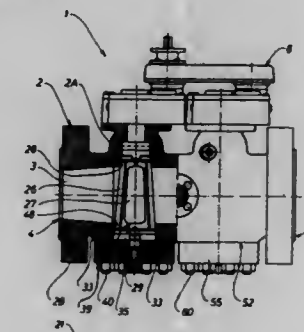
14 Claims



1. In a valve unit to control the flow of high-pressure fluid, the combination comprising
 - a) a housing having a fluid inlet and a fluid outlet,
 - b) a flow port in the housing communicating between the inlet and outlet, and a seat about said flow port,
 - c) stem structure in the housing, and a stopper carried by the stem structure to be moved therewith longitudinally axially toward and away from said seat,
 - d) a stack of metallic diaphragms connected to the stem structure and to the housing, to flex and seal off therebetween as the stem structure moves, there being a flow chamber in the housing on one side of the diaphragms, and a control chamber in the housing at the opposite side of the diaphragms,
 - e) control means carried by the housing and extending into the control chamber to effect said movement of the stem structure, the control means being movable relative to the housing,
 - f) signal means carried by the housing to signal presence or absence of pressurized fluid leakage from the flow chamber, and from the control chamber,
 - g) deformable cushion structure in said control chamber to cushion movement of the diaphragms in one direction, and to conform to diaphragm flexing,
 - h) said diaphragm having outer portions thereof concave toward said control chamber, said concave outer portions projecting generally radially outwardly of said cushion structure and also longitudinally,
 - i) said diaphragms having annular inner portions thereof retained between portions of said cushion structure and said stem structure.

5,669,415
SHUT-OFF DEVICE OF THE DOUBLE BLOCK-AND-BLEED TYPE
Werner Trunk, Naestved, Denmark, assignor to Brdr. Christensens Haner A/S, Haslev, Denmark
Filed Apr. 18, 1996, Ser. No. 634,567
Claims priority, application Denmark, Apr. 27, 1995, 9500167
Int. Cl.⁶ F16K 5/08
U.S. Cl. 137—613

11 Claims



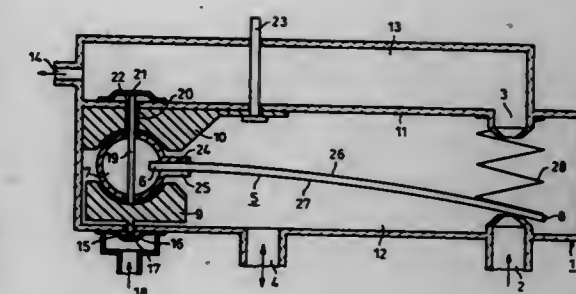
1. A shut-off device of the double block-and-bleed type, comprising first and second shut-off members provided with a through-going cavity and a drain means are provided in association with a flow passageway, the flow passageway having an inlet and an outlet, said shut-off members each being movable between a position in which the flow passageway is open and a position in which the flow passageway is closed, first and second auxiliary chambers respectively associated with the shut-off members, the auxiliary chambers being capable of communicating with the cavities of the shut-off members, the shut-off device further comprising a single undivided casing having first and second abutment faces, and the shut-off members being essentially truncated cone-shaped and respectively mounted in matching essentially truncated cone-shaped recesses in the casing, the auxiliary chambers forming part of these recesses.

5,669,416
SERVO-VALVE
Georg Nusche, Berlin, Germany, assignor to Siemens Aktiengesellschaft, München, Germany
PCT No. PCT/DE94/00685, § 371 Date Feb. 26, 1996, § 102(e)
Date Feb. 26, 1996, PCT Pub. No. WO95/00786, PCT Pub. Date Jan. 5, 1995
PCT Filed Jun. 10, 1994, Ser. No. 564,060
Claims priority, application Germany, Jun. 18, 1993, 43 20 909.2

Int. Cl.⁶ F15B 13/044; F16K 31/02
U.S. Cl. 137—625.44

17 Claims

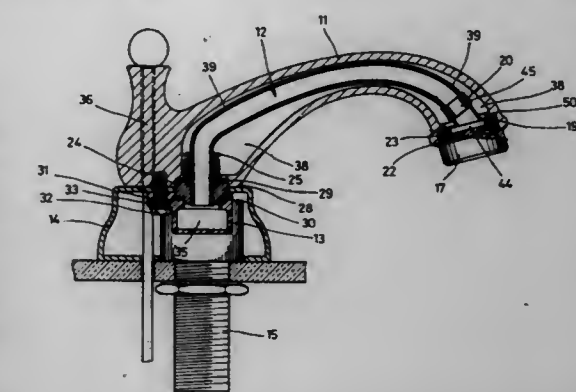
1. A servo-valve comprising:
 - a) an air inlet nozzle;
 - b) an air outlet nozzle;
 - c) a resetting spring;
 - d) a spindle;
 - e) a controllable securing device for securing the spindle;
 - f) a tongue-like piezo-ceramic flexible transducer having a first end firmly secured to the spindle which extends transversely to the flexible transducer, and having a second end that is



movable by application of an electric voltage from a first position blocking the air inlet nozzle of the servo-valve into a second position that blocks the air outlet nozzle, wherein said resetting spring opposes movement of the transducer from the first position to the second position; and
g) means for releasing the controllable securing device from the spindle when the application of the electric voltage is reduced.

5,669,417
WATER-GUIDE DEVICE IN A TAP
Kuo Lian-Jie, No. 69-76, Hsien-Shu Rd., Hsien-Chuang City, Taipei Hsien, Taiwan
Filed Aug. 30, 1996, Ser. No. 723,166
Int. Cl.⁶ E03C 1/04
U.S. Cl. 137—801

3 Claims



1. A water-guide device in a tap, in which a thread portion for mounting a bubble head on water outlet being furnished, and inside said thread portion, a positioning seat being provided; center of said tap having a through hole; water inlet of said tap having a concave seat and a through hole, and between said water inlet and said water outlet, a passage part being provided to have said water inlet and said water outlet become communicating each other; center of a H-shaped water valve seat having a concave seat and cylindrical hole; plane surface of said H-shaped water valve seat extended beside to form a plurality of fixing plates with round holes for receiving screws so as to have a body portion fastened in place; a guide assembly being mounted between said water inlet and said water outlet in said body portion, and said guide assembly including:
 - an outlet connector made of a metal piece punched into a form, and said outlet connector having a circular plate to be mounted on a positioning seat; said outlet connector having a cylindrical part extended therein, and said cylindrical part connected with a guide pipe, which being fixed in place with a fixing ring;
 - a said guide pipe made of a plastic material, being temperature-proof and having no poison, and one end of said guide pipe connected with said cylindrical part of said outlet connector, while other end thereof passing through a passage part of said body portion, and a cylindrical hole of a concave seat of said

water inlet, and then said guide pipe connected together with a snap connector and being mounted on a concave seat of said body portion;

a said snap connector, of which center cylindrical hole furnished with a guide cylindrical surface and an O-ring groove for mounting a fixing ring and an O-ring therein respectively; upon said guide pipe passing through said cylindrical hole, said guide pipe being fastened in place by means of claws of said fixing ring so as to prevent said guide pipe from moving; outer portion of said snap connector having a cylindrical part being smaller than a through hole of said water inlet, and having partitioning ring being slightly smaller than diameter of said concave seat of said tap; inner cylindrical part of said partitioning ring passing through a through hole of said water inlet of said body portion, and inner said of said partitioning ring mounted on said concave seat of said water inlet; outer end of said partitioning ring having a stud; said cylindrical part and said stud of said partitioning ring being connected with said concave seat and said cylindrical hole of said water valve seat.

5,669,418

AIR CHECK VALVE FOR AN AIR SPRING

Stefan Wode, Hannover, Germany, assignor to Continental Aktiengesellschaft, Hannover, Germany

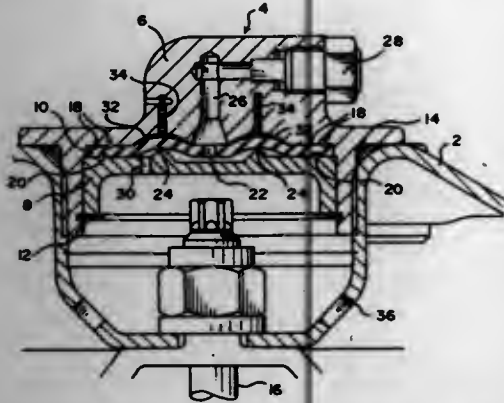
Filed Jul. 25, 1996, Ser. No. 685,828

Claims priority, application Germany, Jul. 29, 1995, 195 27 937.9

Int. Cl.⁶ F16K 15/14

U.S. Cl. 137—859

7 Claims



1. An air check valve for an air spring of a vehicle, the air check valve comprising:

a valve housing having a first surface;
a valve body having a second surface;
said valve body being mounted in said valve housing so as to cause said first and second surfaces to conjointly define a valve chamber and an interface extending peripherally around said chamber;

an elastic valve plate having a mid portion and a peripheral portion and being clamped at said peripheral portion between said valve housing and valve body at said interface thereby placing said mid portion in said chamber;

profile means formed at said interface for more securely holding said elastic valve plate between said valve housing and said valve body;

said valve body having a concentric ring edge formed on said second surface within said chamber to partition said second surface into an inner surface region within said concentric ring and an outer surface region outside of said concentric ring;

said elastic valve plate having a central bore communicating with a first compartment formed between said mid portion of said elastic plate and said inner surface region;

said valve body having a passage formed therein at said outer surface region so as to connect the interior of the air spring to a second compartment formed between said mid portion of said elastic plate and said outer surface region;

said valve housing having an air connection for receiving pressurized air and having a channel formed therein for conducting the pressurized air from said air connection into said chamber and through said central bore into said first compartment; and,

said elastic plate being movable between a first position wherein said mid portion is in contact engagement with said ring edge and a second position wherein said mid portion is in spaced relationship to said ring edge thereby permitting pressurized air passing through said control bore to pass from said first compartment to said second compartment and through said passage into the interior of the air spring.

5,669,419

APPARATUS FOR THE MEASUREMENT AND CONTROL OF GAS FLOW

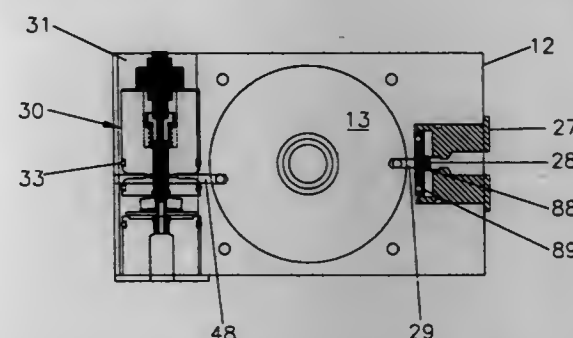
Jon H. Haas, Warrington, Pa., assignor to Keystone Machine and Tool Co., Harleysville, Pa.

Filed Jul. 11, 1996, Ser. No. 678,094

Int. Cl.⁶ F16K 21/00

U.S. Cl. 137—895

5 Claims



1. An apparatus for the measurement and control of gas flow into a liquid process system comprising a housing having a chamber therein and an inlet valve in said chamber for connection to a source of gas under pressure, a member reciprocable within said chamber and engageable with said inlet valve, means for subjecting said reciprocable member to a vacuum to actuate said member to open said inlet valve, a gas flow metering and sensing assembly in said housing having a flow passage therethrough and having an inlet connected to said chamber and further having an outlet, said flow passage having therein a metering valve at said inlet and a gas flow sensing means downstream of said metering valve, and a digital controller motor connected to said metering valve and responsive to said gas flow sensing means to regulate the position of said metering valve and thereby vary the gas flow therethrough to said outlet into a liquid process system, programmable electronic controller means on said housing and connected to said motor for regulating gas flow, said controller further comprises indicator means responsive to loss of vacuum, level of gas in the supply source and tilt detection of the gas source.

5,669,420

CASING AND FLEXIBLE TUBULAR CONDUIT COMPRISING SUCH A CASING AND PROCESS FOR PRODUCING IT

José Mallen Herrero, 29, Boulevard des Batignolles, 75008 Paris; Guy Le Bail, 29, rue Sacha Guitry, 76480 Yainville, and Jany Feret, 57, rue de Grasse Village, 78810 Feucherolles, all of France

PCT No. PCT/FR91/00626, § 371 Date Apr. 23, 1992, § 102(e) Date Apr. 23, 1992, PCT Pub. No. WO92/02751, PCT Pub. Date Feb. 20, 1992

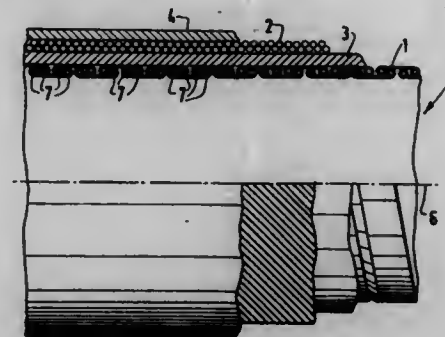
Continuation of Ser. No. 300,526, Sep. 6, 1994, abandoned, which is a continuation of Ser. No. 842,162, Apr. 23, 1992, abandoned. This PCT application Jul. 29, 1991, Ser. No. 606,873

Claims priority, application France, Jul. 27, 1990, 90 09656; WIPO, Jul. 29, 1991, PCT/FR91/00626

Int. Cl.⁶ F16L 11/16

U.S. Cl. 138—135

14 Claims



1. A flexible metallic tube having an axis, comprising at least one interlocking shaped strip having a continuous section and substantially constant thickness and being spirally wound around said axis, said at least one interlocking strip comprising a central part and two lateral interlocking parts, wherein said tube comprises two hollow closed channels spirally wound about said axis and formed by walls belonging to a same turn of said at least one shaped strip wherein said two hollow closed channels are defined by one of said two lateral interlocking parts.

5,669,421

METHOD OF CONTROLLING THE YARN TENSION IN A WEAVING MACHINE

Frank Lehnert, Rüti, and Godert De Jager, Benglen, both of Switzerland, assignors to Sulzer Ruti AG, Switzerland

Filed Oct. 2, 1995, Ser. No. 537,558

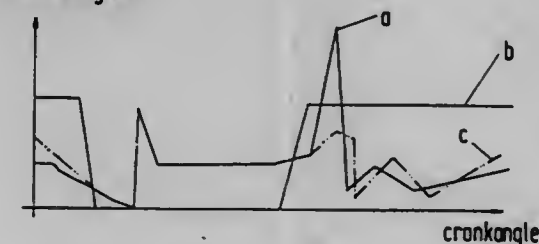
Claims priority, application European Pat. Off., Oct. 17, 1994, 94810604

Int. Cl.⁶ D03D 47/34; 49/18

U.S. Cl. 139—1 R

12 Claims

weft thread load control signal



1. Method for controlling weft yarn tension and warp yarn tension in a weaving machine having a drive shaft which rotates through discrete positions of shaft rotation to cause yarn being woven in the weaving machine to come under variable tension as a

function of shaft rotation, the method of controlling yarn tension comprising the steps of:

selecting at least one desired yarn tension value for yarn in the weaving machine;

measuring a first actual yarn tension data in the weaving machine as a function of shaft rotation and yarn tension at discrete positions of shaft rotation;

calculating a first tension control curve as a function of shaft rotation and yarn tension at discrete positions of shaft rotation by comparing the desired yarn tension value with the measured first actual yarn tension data to cause actual yarn tension in the weaving machine to approach the desired yarn tension value;

applying the first tension control curve to the weaving machine by varying at least one of the control parameters from the group consisting of: measured yarn tension, values of yarn breakage, braking force, time of braking force as a function of shaft rotation, beat up force of reed or shed, opening of the shed, through pass time of inserted weft yarn, fastener or clip inclination of warp yarn, warp let off, yarn rest, and cloth take off;

measuring a second actual yarn tension data in the weaving machine as a function of shaft rotation and yarn tension at discrete positions of shaft rotation with the first tension control curve applied to the weaving machine;

calculating a second tension control curve as a function of shaft rotation and yarn tension at discrete positions of shaft rotation by comparing the desired yarn tension value with the measured second actual yarn tension data to cause actual yarn tension in the weaving machine to further approach the desired yarn tension value;

applying the second tension control curve to the weaving machine by varying at least one of the control parameters from the group consisting of: measured yarn tension, values of yarn breakage, braking force, time of braking force as a function of shaft rotation, beat up force of reed or shed, opening of the shed, through pass time of inserted weft yarn, fastener or clip inclination of warp yarn, warp let off, yarn rest, and cloth take off; and,

weaving with the weaving machine having the second tension control curve applied to the weaving machine to further approach the desired yarn tension value.

5,669,422

SLOW START VALVE

Tetsunobu Tarusawa, Komaki, Japan, assignor to CKD Corporation, Japan

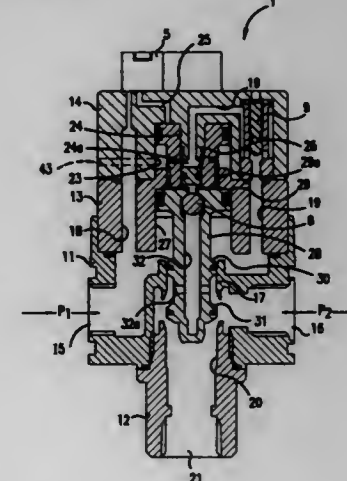
Filed Apr. 5, 1996, Ser. No. 628,339

Claims priority, application Japan, Apr. 7, 1995, 7-107877

Int. Cl.⁶ F15B 13/043; 21/10

U.S. Cl. 137—625.64

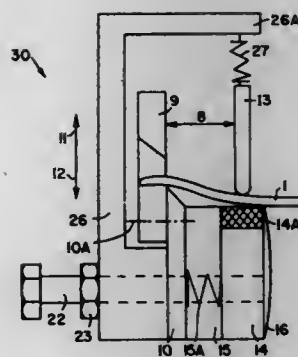
19 Claims



1. A slow start valve comprising:

a valve body having an inlet port, an outlet port and a secondary pressure exhaust port, and defining a main flow passage between the inlet port and the outlet port;
 a main valve for controlling fluid flow between said inlet, outlet and exhaust ports, slidably disposed within said valve body;
 a bypass flow passage diverging from the main flow passage in said valve body;
 a flow adjusting member disposed in said bypass flow passage; and
 a control valve for controlling flow of fluid directed in said bypass flow passage,
 said control valve controlling supply of a slight flow of fluid via the bypass flow passage to the outlet port for a predetermined period from a start of fluid supply via said inlet port to provision of fluid communication through the main flow passage by the main valve,

wherein said main valve is constructed of a first valve member for controlling opening and blocking of the main flow passage and a second valve member for controlling opening and blocking of the flow passage between the outlet port and the exhaust port, said first and second valve members being formed coaxially and integrally with each other.



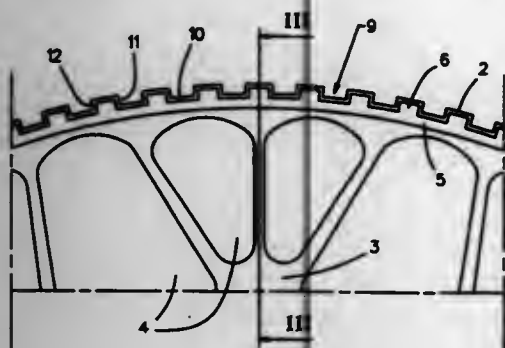
5,669,423

GEAR FOR DRIVING A RAPIER OF A LOOM
 Marc Adriaen, Hollebeke, Belgium, assignor to Picanol N.V., Belgium

Filed Jun. 26, 1996, Ser. No. 670,416
 Claims priority, application Belgium, Jun. 27, 1995, 9500572
 Int. Cl.⁶ D03D 47/12

U.S. Cl. 139—449

9 Claims



1. A gear for driving a rapier of a loom, said gear comprising:
 a pre-formed base body made of synthetic material, said base body including peripheral base teeth having leading and trailing edges relative to the driving direction of said gear;
 a band having wear-resistant band teeth for engaging said rapier, at least said leading and trailing edges being covered by said band teeth;
 said band being adhesively bonded to said base body to form gear teeth on said base body.

5,669,424

COMBINED AND RELATIVELY ADJUSTABLE WEFT THREAD CLAMP AND CUTTER
 Peter Schiller, Lindau, Germany, and Josef Hehle, Hoerbranz, Austria, assignors to Lindauer Dornier Gesellschaft mbh, Lindau, Germany

Filed Jun. 27, 1996, Ser. No. 671,059
 Claims priority, application Germany, Jun. 28, 1995, 19523458.8; Jun. 28, 1995, 2951046 U
 Int. Cl.⁶ D03D 47/34

U.S. Cl. 139—450

26 Claims

1. A combination weft thread clamp and cutter apparatus for an air jet loom, comprising a cutter including a fixed cutter element

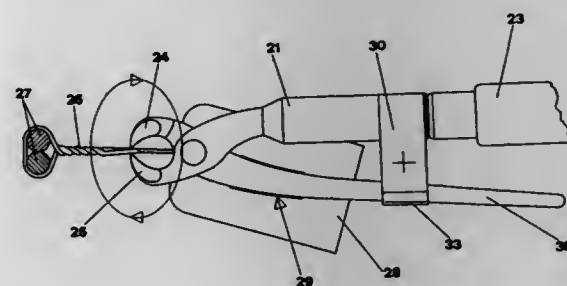
and a movable cutter element that is adapted to be movable relative to said fixed cutter element, a weft clamp including a first clamp element and a second clamp element arranged to selectively cooperate with one another wherein at least one of said clamp elements is adapted to be movable relative to another of said clamp elements, and an adjustment mechanism adjustably connecting said cutter with said weft clamp such that a spacing distance between said weft clamp and said cutter is adjustable, wherein said adjustment mechanism is arranged so that said adjustable spacing distance extends in a horizontal plane.

ROTATING PLIERS FOR FASTENING THE REINFORCEMENT RODS OF AN ARMATURE IN THE BUILDING INDUSTRY INVOLVING CONCRETE CASTING
 Giuseppe Veriato, Via Firenze, 151, Altavilla Vicentina (Venezia), Italy

Filed Feb. 14, 1996, Ser. No. 601,134
 Claims priority, application Italy, Feb. 20, 1995, VI95A0029; Jul. 31, 1995, VI95A0129
 Int. Cl.⁶ B21F 15/04

U.S. Cl. 140—119

2 Claims



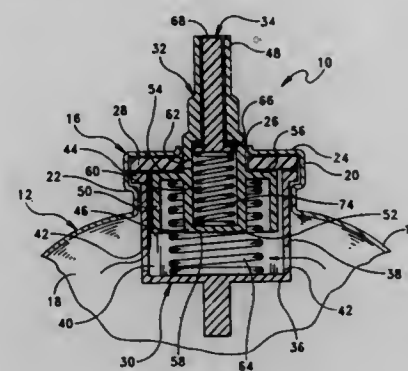
1. Wire twisting and cutting pliers comprising:
 a) a first arm having a jaw at a first end;
 b) a second arm having a jaw at a first end, said first and second arms being pivotally connected so that said jaws cooperate to form pliers to grip and cut a fastening wire for reinforcing rods;
 c) an elongate screw means mounted longitudinally on one of said first and second arms and having a longitudinally moveable sleeve thereabout engaged with said screw means so as to rotate said pliers when said sleeve is moved longitudinally; and
 d) means for adjustably fixing the position of said jaws to grip said fastening wire therebetween during rotation of said pliers, said means comprising a plate mounted on one of said arms so as to rotate thereabout and extending towards the other of said arms and having a hook-like bend at its free end adapted to engage said other of said arms to thereby fix the position of said jaws, said plate being adjustable laterally with respect to the arm on which it is mounted so as to adjustably vary the fixed grip position of said jaws;

whereby by the lateral adjustment of said plate, varying diameter fastening wires may be fixedly gripped between the jaws of said first and second arms by rotatably moving said plate so that said bend thereof engages the other of said arms and upon completion of rotation of said pliers, continued squeezing of said arms disengages the bend of said plate from the other of said arms and causes said jaws to cut said fastening wire.

DISPENSING DEVICE
 Walter G. Fontaine, Jr., Narragansett, R.I., assignor to Colibri Corporation, Providence, R.I.

Filed Jun. 21, 1996, Ser. No. 667,404
 Int. Cl.⁶ B65B 1/04; 3/24; 31/00; B67C 3/00
 U.S. Cl. 141—21

9 Claims



1. A dispensing device for dispensing pressurized gas from a canister of the type having a cylindrical wall and a formation at the upper end of the cylindrical wall for receiving and securing the dispensing device through an opening formed in the formation, said dispensing device comprising:

a housing having a wall that defines a chamber, said wall of the housing being attached to the formation of the canister;
 a first valve having a valve body disposed within the chamber of the housing and an annular valve stem extending away from the valve body; said first valve being movable between an open position in which fluid communication between the interior of the canister and the annular stem is achieved and a closed position in which fluid communication therebetween is blocked; and

means biasing the first valve to its closed position;
 a second valve disposed within the first valve, said second valve having a valve member and a valve stem extending away from the valve member, said valve stem of the second valve being disposed within the valve stem of the first valve and extending coaxially therewith, said second valve being movable between an open position in which the valve member of the second valve is moved relative to the valve stem of the first valve to allow fluid communication between the first valve and atmosphere, and a closed position;
 means biasing the second valve to its closed position, the arrangement being such that upon movement of the first valve to its open position and movement of the second valve to its open position, pressurized gas within the canister is exhausted from the canister to atmosphere.

5,669,427

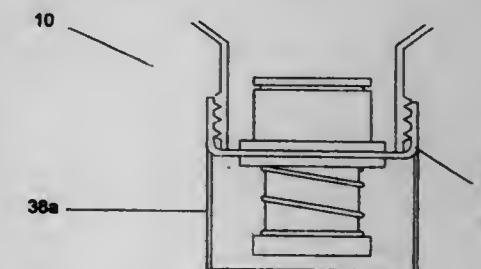
VALVE ASSEMBLY FOR USE WITH A BOTTLE OR A CONTAINER

Pat K. Hasper, and Wolfgang A. Hasper, both of 6060 Miller Landing Cove, Tallahassee, Fla. 32312
 Continuation-in-part of Ser. No. 216,502, Mar. 23, 1994, Pat. No. 5,402,836. This application Aug. 18, 1994, Ser. No. 292,013

Int. Cl.⁶ B65B 1/04

U.S. Cl. 141—364

10 Claims



1. A valve assembly to be used in combination with a bottle or a container comprising:

a cap, a shank, and a shaft;
 said cap includes an encompassing sidewall and is adapted to be removably secured to said bottle or said container and said cap further includes an opening;
 said shank is received in said opening and said shank is a hollow structure and includes an opened top and an opened bottom;
 said shaft is located in said shank for permitting said shaft to move axially within said shank;
 said shaft is a hollow structure and includes an opened end, an enclosed end, and at least one hole located between said opened end and said enclosed end;
 a first flange is peripherally aligned with said opened end of said shaft and extends perpendicularly from said opened end of said shaft;
 said shank includes a second flange peripherally aligned with said opened bottom of said shank and extends perpendicularly from said opened bottom;
 a spring is located on said shaft, between said first flange and said second flange; and
 said spring is biased for terminating downward axial movement of said shaft for providing said valve assembly to be in a closed position by rendering said shank to cover said at least one hole and said spring is unbiased for providing said valve assembly to be in an opened position by rendering said at least one hole to be exposed.

5,669,428

CONVEYOR SYSTEM FOR LOG DEBARKING AND CHIPPING

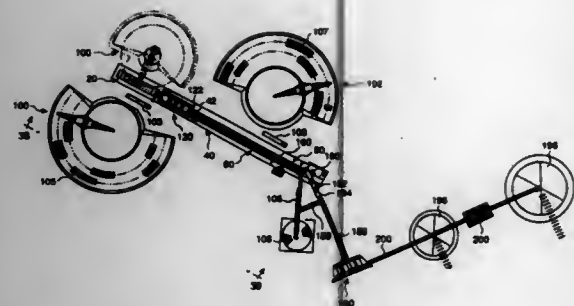
Larry Hoover, Wadley, Ga., assignor to Fulghum Industries, Inc., Wadley, Ga.
 Continuation of Ser. No. 380,988, Jan. 31, 1995, abandoned, which is a continuation-in-part of Ser. No. 303,870, Sep. 9, 1994, abandoned. This application Oct. 23, 1996, Ser. No. 735,492

Int. Cl.⁶ B27B 31/00; B27L 1/00

U.S. Cl. 144—245.2

49 Claims

1. A log conveyor comprising:
 a frame constructed and arranged to withstand loading and impacts associated with high volume log processing;
 a subframe disposed on the frame constructed and arranged to withstand loading and impacts associated with high volume log processing;
 a trough disposed on the frame, said trough having inclined sides for containing and guiding logs transported by the conveyor; and



a conveyor track having a plurality of links arranged in a closed loop movably disposed on the subframe, each of said plurality of links having a width sufficient to accommodate a breadth of at least one log, at least some of said links having at least one shoe member projecting therefrom thereby defining a beating surface upon which the logs are supported, said conveyor track being constructed and arranged to withstand loading and impacts associated with high volume log processing.

5,669,429

TIRE REMOVING MACHINE WITH BEAD EXTRACTOR

Tullio Gonzaga, Correggio, Italy, assignor to Butler Engineering & Marketing S.r.l., Rio Saliceto, Italy

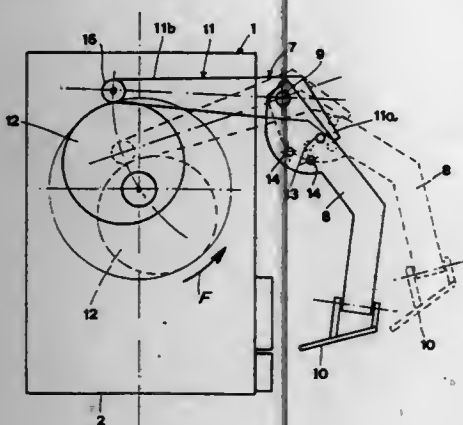
Filed May 9, 1996, Ser. No. 647,326

Claims priority, application Italy, May 23, 1995, VR950033 U

Int. Cl.⁶ B60C 13/00

U.S. Cl. 157—1.24

5 Claims



1. A tire removing machine, comprising a lateral bead extractor that is formed by an oscillating arm that oscillates about a fixed vertical pivot and supports a bead extractor flap and by means for the actuation of the oscillating arm, wherein said actuation means comprise an L-shaped lever that is pivoted about the fixed vertical pivot and has one arm that abuts against a stroke limiter on the oscillating arm and another arm that is provided with a cam follower roller, and an eccentric cam that slidably engages said another arm of the L-shaped lever and is kinematically connected to a source of rotary motion, so that the rotation of the eccentric cam imparts, by means of the L-shaped lever, a controlled oscillating motion to the oscillating arm.

LOW PROFILE VEHICLE AWNING WITH IMPROVED LATCH

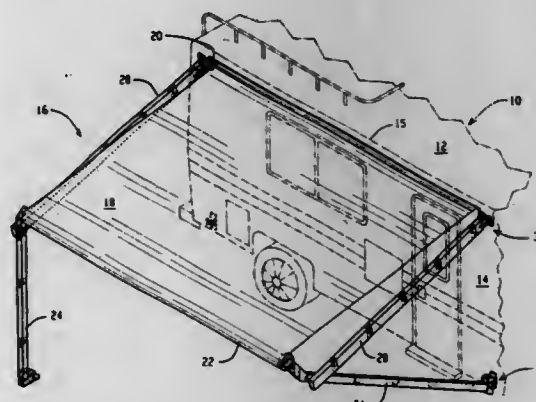
Dale G. Malott, Middlebury, Ind., assignor to White Consolidated Industries, Inc., Cleveland, Ohio

Filed Sep. 15, 1995, Ser. No. 529,146

Int. Cl.⁶ E04F 10/06

U.S. Cl. 160—67

29 Claims



1. An awning assembly installed on a wall, said wall defining a generally vertical plane, said assembly comprising:
an awning having a first edge attached to the wall and a second edge opposite the first edge;
an elongated roller having the second edge of the awning attached thereto; and
a pair of support arms pivotably mounted to the wall and rotatably supporting ends of the roller, said roller being movable between a stowed position adjacent the wall and an extended position spaced from the wall, said support arms each having an upper end extending past an upper edge of the wall in the stowed position, said upper end being bent so that the roller intersects the plane defined by the wall in the stowed position wherein the awning is rolled on the roller so that a line of contact from which the awning unrolls from the roller does not pass through the plane defined by the wall when the awning is retracted.

5,669,431

GARAGE DOOR PANEL

Frank C. Druzynski, Daytona Beach, and Ian J. Manser, Orlando, both of Fla., assignors to Aluma Shield Industries, Inc., Deland, Fla.

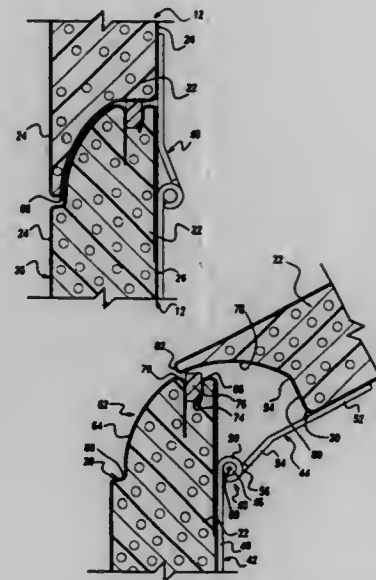
Filed Jan. 30, 1996, Ser. No. 593,859

Int. Cl.⁶ E06B 3/48

U.S. Cl. 160—229.1

19 Claims

1. An overhead door comprising:
a plurality of panels adjacent one another, said adjacent panels hinged with one another, each panel including a first and second side as well as a first and second edge, said first and second edges of adjacent panels being complementary with one another, said first edge including a convex portion adjacent said first side and projecting from said panel and an abutting portion substantially continuous with and tangential to an apex of said convex portion, said abutting portion adjacent said second side, said second edge including a concave portion adjacent said first side and complementary with said convex portion and an abutting portion substantially continuous with and extending from said concave portion, said abutting portion of said second edge adjacent said second side and opposing said abutting portion of said first edge forming a butt joint; a gap formed between said concave and convex portions of adjacent hinged panels, said gap having a thickness between said concave and convex portions such that



the thickness of said gap remains substantially constant as said adjacent panels are rotated with respect to one another about said hinge.

5,669,432

AUTOMATIC-LOCKING MECHANICAL DRIVE CONSTRUCTION

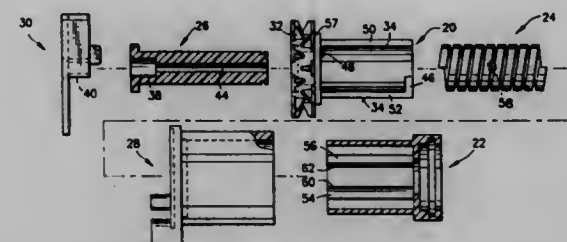
Jules Nisenson, 36 Treetop Ln., Poughkeepsie, N.Y. 12603, and Ronald E. Bischoff, 19 Central Ave., Wappingers Falls, N.Y. 12590

Filed Mar. 28, 1996, Ser. No. 623,416

Int. Cl.⁶ E06B 9/56

U.S. Cl. 160—307

20 Claims



1. An automatic-locking mechanical drive construction for raising and lowering a window blind, comprising in combination:
a) a fixed cylindrical shaft,
b) a rotary drive member mounted to rotate about an axis with respect to said shaft,
c) a rotary driven member turnable with respect to said shaft and about the axis of said drive member,
d) said drive and driven members having pairs of facing, abuttable walls effecting a two-directional, lost-motion rotary driving connection between the members,
e) helical coil spring means on and frictionally seizing and locking to said shaft, said spring means being thereby normally temporarily fixed on the shaft,
f) said spring means having a radially-projecting shoulder intermediate its ends,
g) spaced-apart shoulders on the driven member, individually engageable with said projecting shoulder on the spring means whereby said spring means normally prevents turning of the driven member in either of opposite directions, and
h) lugs on said drive member, respectively engageable with end portions of the spring means to unlock the grip of the latter on the shaft, thereby enabling the abuttable walls of the driven

and drive members to turnably drive the driven member in either of two directions as the drive member is turned in said directions.

5,669,433

METHOD FOR CREATING A FREE-FORM METAL THREE-DIMENSIONAL ARTICLE USING A LAYER-BY-LAYER DEPOSITION OF A MOLTEN METAL

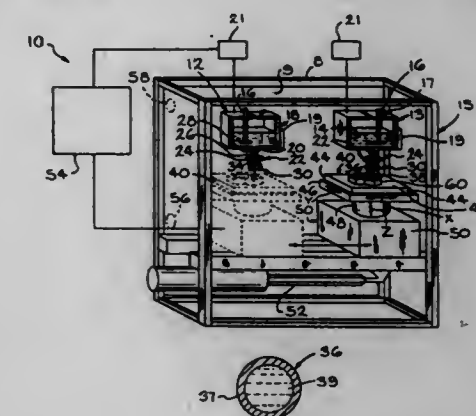
Robert A. Sterett, Jackson, and Atul M. Sudhakar, Ann Arbor, both of Mich., assignors to Aeroquip Corporation, Maumee, Ohio

Filed Sep. 8, 1995, Ser. No. 526,070

Int. Cl.⁶ B23D 23/00; 27/02; C21C 1/00

U.S. Cl. 164—46

10 Claims



1. A method for the accurate formation of a free-form metal three-dimensional article without the use of a mold of the three-dimensional article, the method comprising:
providing a supply of substantially uniform size molten or semi-molten metal droplets of a desired material, each droplet having the same positive or negative charge,
aligning each droplet in the supply of droplets into a substantially narrow stream, the droplets being aligned by allowing the droplets to pass through at least one alignment means having the same charge as the droplets wherein the alignment means repels each droplet toward an axis extending through the alignment means, and
depositing each of the aligned droplets in a predetermined pattern at a predetermined rate onto a target or a newly formed layer of the three-dimensional article to form the three-dimensional article.

5,669,434

METHOD AND APPARATUS FOR FORMING AN ALUMINUM ALLOY COMPOSITE MATERIAL

Yasuhiro Nakao, and Kunitoshi Sugaya, both of Sayama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Japan

Filed Oct. 25, 1995, Ser. No. 548,020

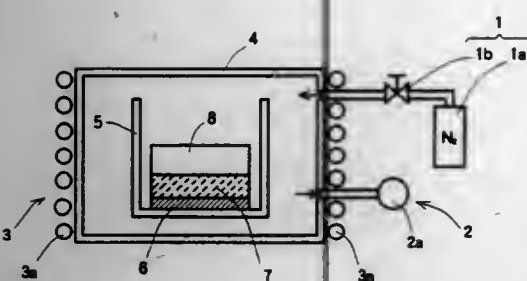
Claims priority, application Japan, Oct. 26, 1994, 6-262803; Dec. 6, 1994, 6-302349

Int. Cl.⁶ B22D 19/14

U.S. Cl. 164—97

13 Claims

1. A method for producing an aluminum alloy composite material in an atmospheric furnace accommodating a mold therein and having an atmospheric gas injector, a pressure reducing unit and a heating unit by spontaneously infiltrating a molten aluminum alloy into a preform under an atmospheric pressure, comprising the steps of:
disposing in the mold in sequence from bottom to top an infiltration enhancer containing Mg, a preform and an aluminum matrix alloy ingot;



turning the interior of the atmospheric furnace into an argon atmosphere by means of the atmospheric gas injector and the pressure reducing unit;

raising the internal temperature of the furnace up to a first predetermined temperature by means of the heating unit and maintaining the first predetermined temperature for a given period of time so that the infiltration enhancer sublimes to permit the Mg component thereof to infiltrate into the preform;

turning the interior of the furnace from the argon atmosphere into a nitrogen atmosphere by means of the atmospheric gas injector and the pressure reducing unit;

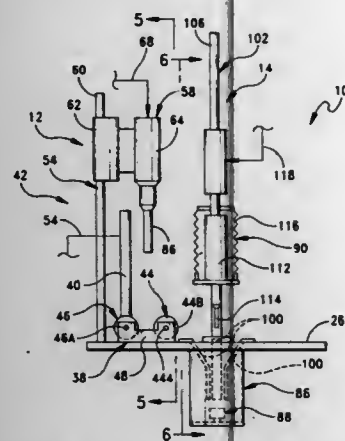
raising the internal temperature of the furnace up to a second predetermined temperature higher than the first predetermined temperature by means of the heating unit and maintaining the second predetermined temperature for a given period of time so that the ingot melts to permit the molten aluminum matrix alloy to infiltrate into the preform; and cooling the interior of the atmospheric furnace.

5,669,435 APPARATUS AND METHOD FOR REMOVING INVESTMENT MATERIAL FROM AN INVESTMENT CASTING

Douglas J. Goss, North Kingstown, R.I., assignor to Conley Casting Supply Corp., Warwick, R.I.
Filed May 3, 1996, Ser. No. 642,694
Int. Cl.⁶ B22D 29/00

U.S. Cl. 164—131

13 Claims



1. A two-stage investment removal apparatus for removing investment material from a tree-shaped investment casting having a central trunk and a plurality of cast parts attached to said trunk by gates, said investment casting being cast in an open-ended cylindrical flask having an investment mold therein, said apparatus comprising:

a first stage sub-assembly including means for rotating said investment flask about a longitudinal axis which extends through said trunk, and impact means in engagement with said investment flask for imparting impact energy to said investment flask while said flask is being rotated; and

a second stage sub-assembly including a spring-biased seating means for receiving a first end of said central trunk when said flask is disposed on said seating means, centering means for centering said trunk on said seating means, and vertical impact means in engagement with a second end of said central trunk for imparting vertical impact energy to said central trunk, said vertical impact means cooperating with said spring biased seating means to cause said investment casting to resiliently resonate and cause said investment material to disintegrate apart from said investment casting.

13. A two-step method for removing investment material from an investment flask comprising the steps of:

rotating the investment flask while simultaneously imparting impact energy to a side wall of the flask to loosen the investment material from the side wall of the flask; and imparting impact energy along a longitudinal axis of a casting trunk within the flask to resonate the casting trunk relative to the flask, whereby the investment material is disintegrated from the casting trunk.

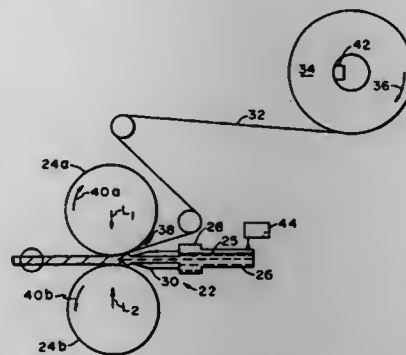
5,669,436 METHOD OF CONTINUOUSLY CASTING COMPOSITE STRIP

Kevin S. Papich, Lebanon; Ronald Bachowski, Murrysville; Stephen F. Baumann, Pittsburgh; Robert A. Cargnel, Export; Gerald E. Carlin, Tarentum; Donald J. Clements, Apollo; Ronald W. Gunkel, Lower Burrell; William H. Hoffman, Palmyra; Larry G. McKinney, Lebanon; A. Victor Pajerski, Upper Burrell Township, Westmoreland County; John J. Palko, Palmyra; Edward P. Patrick, Jr., Murrysville; Stephen J. Rennekamp, Irwin, all of Pa.; Phillip C. Scheble, Albemarle, N.C.; William R. Sharkins, Curtisville, Pa.; Frank P. Swigon, Lebanon, Pa., and William G. Truckner, Avonmore, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Division of Ser. No. 989,205, Dec. 10, 1992, Pat. No. 5,476,725, which is a continuation-in-part of Ser. No. 670,576, Mar. 18, 1991, Pat. No. 5,187,046. This application Jun. 7, 1995, Ser. No. 485,297
Int. Cl.⁶ B22D 11/06

U.S. Cl. 164—461

27 Claims



1. A method of making a roll cast, clad sheet material comprised of a cladding of filler material and an aluminum alloy core, comprising the steps, in a roll caster comprising two rolls arranged facing one another at a roll bite, of

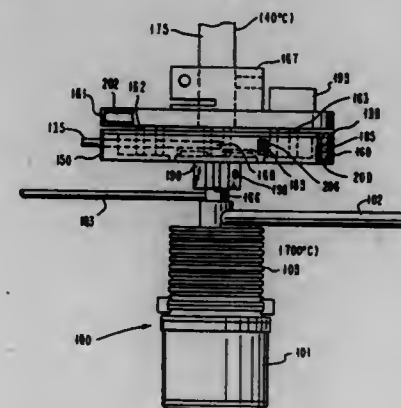
feeding a band of the filler material along one of the rolls into the roll bite, said band being fed under tension such that said band undergoes longitudinal deformation of greater than about 5%;

feeding aluminum alloy for the core, initially in molten state, toward the roll bite, to be solidified by heat extraction, and then hot working the solidified roll cast, clad sheet material.

5,669,437 HIGH EFFICIENCY THERMAL INTERPOSER

Bernardo Hernandez, Norwalk, Conn.; Raymond Robert Horton, Dover Plains, N.Y.; Ismail Cevdet Noyan, Peekskill, N.Y., and Michael Jon Palmer, Walden, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 784,135, Oct. 29, 1991, abandoned, which is a continuation of Ser. No. 474,978, Feb. 5, 1990, abandoned. This application Dec. 22, 1993, Ser. No. 172,674
Int. Cl.⁶ F28F 7/00; B23K 1/12
U.S. Cl. 165—47

18 Claims



1. A thermal isolation device comprising:
first and second thermally conductive members respectively placed in thermal communication with a heat source and an object being isolated from said heat source;
means for fastening said first and second members together and spacing said members apart wherein means for fastening and spacing thermally isolates said first and second members from each other;
said first member having a cavity;
a heat exchange means, contained within said cavity, placed in thermal contact with said first member, but not with said second member;
means for introducing a cooling fluid into said cavity and circulating said fluid between said heat exchange means;
means for substantially preventing said fluid from contacting said second member;
said means for substantially preventing said fluid from contacting said second member being spaced apart from said second member providing a space there between;
means for removing fluid that has circulated between said heat exchange means to effectively dissipate the heat communicated to the heat exchange means from said heat source;
said means for fastening and spacing further comprises a plurality of thermally isolating fasteners.

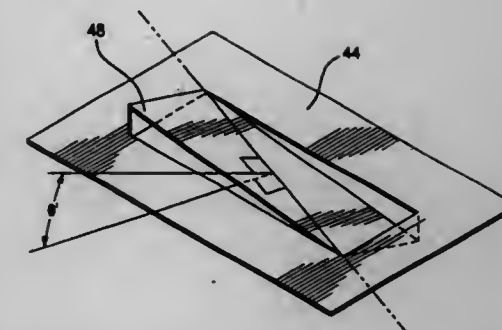
5,669,438 CORRUGATED COOLING FIN WITH LOUVERS

Duane Victor Beales, Gasport, and Henry Earl Beamer, Middleport, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.
Filed Aug. 30, 1996, Ser. No. 697,845
Int. Cl.⁶ F28D 1/02

U.S. Cl. 165—152

3 Claims

1. A corrugated heat exchanger fin (42) comprising a series of flat walls (44) integrally folded at alternating crests (46) with a predetermined fin wall width (W) measured between crests, said crests (46) being adapted to be bonded to parallel, flat heat exchanger tubes (20) so as to form fluid flow passages (F) enclosed between adjacent fin walls (44) and said tubes (20) through which a fluid is forced in a direction generally parallel to said crests (46) and with each fin wall (44) separating a pair of adjacent flow passages (F) from each other, each of said adjacent flow passages (F) also having a constricted area (C) within the inner surface of a



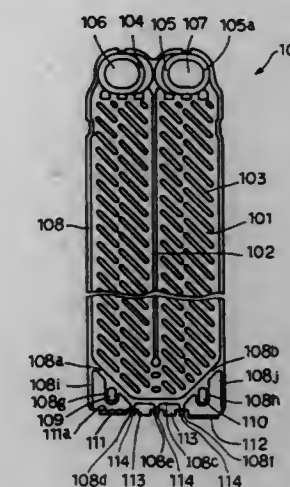
crest (46) and an opposed unconstricted area (O) between the outer surfaces of two adjacent crests (46), characterized in that, each fin wall (44) is formed with a series of integral, substantially planar louvers (48) bent out of said wall (44), each of said louvers (48) having a length generally parallel to said fin wall (W) width, each louver being tilted out of and through the plane of its fin wall (44) about an oblique axis so as to move one diagonal half of said louver (48) substantially entirely to one side of said fin wall (44) and concurrently move the other diagonal half of said louver (48) substantially entirely to the other side of said fin wall (44), thereby moving diagonally opposed corners of said louver (48) into the unconstricted (O) areas of, and out of the constricted (C) areas of the adjacent flow passages (F) respective to each of said fin walls (44).

5,669,439 LAMINATED TYPE HEAT EXCHANGER

Etsuo Hasegawa, Konan; Masatoshi Sudo, Kariya; Toshiya Nagasawa, Obu, and Kelichi Yoshii, Anjo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan
Filed Apr. 19, 1996, Ser. No. 635,006
Claims priority, application Japan, Apr. 21, 1995, 7-96945
Int. Cl.⁶ F28D 1/02

U.S. Cl. 165—153

5 Claims



1. A laminated type heat exchanger comprising:
a plurality of connecting bodies, each of which is formed by connecting a pair of pressed plates face-to-face to form a refrigerant passage therein;
an inlet tank portion protruding from said connecting body toward its top end side thereof for directing a refrigerant into said refrigerant passage, said inlet tank portions of each of said connecting bodies communicating with each other;
an outlet tank portion protruding from said connecting body toward its top end side thereof for discharging the refrigerant

from said refrigerant passage, said outlet tank portions of each of said connecting bodies communicating with each other;

a U-shaped tube formed within said connecting body for directing the refrigerant from said inlet tank portion to said outlet tank portion;

a bent portion partially provided on a bottom portion of said connecting body, said bent portion being bent nearly perpendicular to a bottom surface of said connecting body;

a fin provided between each adjacent pair of said connecting bodies at a lower side of said inlet tank portion and said outlet tank portion and at an upper side of said bent portion;

an extending portion provided on said bottom portion of said connecting body on a portion other than said bent portion so as to extend to a side lower than a bottom end portion of said fin a predetermined distance; and

guide means provided on a surface of said connecting body for guiding condensed water generated on a surface of said connecting body toward said extending portion while avoiding said bent portion.

5,669,440

HEAT EXCHANGER HAVING A WELDED PIPE WHICH HAS A REDUCED WALL THICKNESS AT LOCATION OF THE WELD SEAM

Dieter Bauer, Stuttgart; Ralf Bochart, Remseck; Herbert Damsohn, Aichwald; Werner Helms; Roland Hemminger, both of Esslingen; Herbert Hunzelmann, Marzell; Volker Kurz, Stuttgart; Roland Schirmacher, Ludwigsburg, and Walter Wolf, Oppenweiler-Zell, all of Germany, assignors to BEHR GmbH & Co., Stuttgart, Germany

Filed Dec. 22, 1995, Ser. No. 577,378

Claims priority, application Germany, Dec. 24, 1994, 44 46 563.7

Int. Cl.⁶ F28H 1/02

U.S. Cl. 165—177

20 Claims



5. A heat exchanger comprising a pipe having a weld seam which runs in a longitudinal direction of said pipe and which is formed from a welding together of strip edges of a strip material, wherein said pipe has, in a region of the weld seam, a recess running in the direction of the weld seam and along an inner surface of the pipe.

17. A process for the production of a welded pipe, in which a weld seam extends in a longitudinal direction of the pipe, comprising the steps of:

- shaping a strip material having at least two strip edges;
- reducing a wall thickness of at least one strip edge of the strip material;
- welding the strip edges together; and
- shaping the pipe into a plane-oval form.

5,669,441

HEAT TRANSFER TUBE AND METHOD OF MANUFACTURE

Steven J. Spencer, Liverpool, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

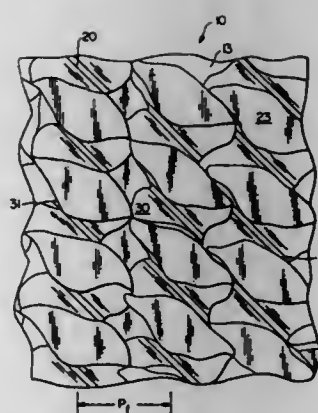
Continuation-in-part of Ser. No. 341,235, Nov. 17, 1994, abandoned. This application Apr. 29, 1996, Ser. No. 639,568

Int. Cl.⁶ F28H 1/36

U.S. Cl. 165—184

2 Claims

1. An improved evaporator heat transfer tube (10) having a longitudinal axis (A₁) in which the improvement comprises:



a plurality of adjacent helical fins (20) disposed about the external surface of said tube forming a plurality of circumferentially extending grooves therebetween;

notches (30) impressed radially into and transversely through said fins at intervals about the circumference of said tube each of said notches having a base axis that is at an oblique angle (α) with respect to the longitudinal axis of said tube;

said fins comprising circumferentially adjacent fin spikes formed between circumferentially adjacent notches, each of said spikes having a base portion of width W₁, a tip axis angle β and an upper portion having a flattened distal tip of maximum width W₂, wherein said tip axis angle (β) is oblique to said notch base axis, W₂ is greater than W₁, and said tips of said spikes of axially adjacent fins overlap in the axial direction to form nucleation sites within said grooves.

5,669,442

NON-ROTATING PITLESS ADAPTER

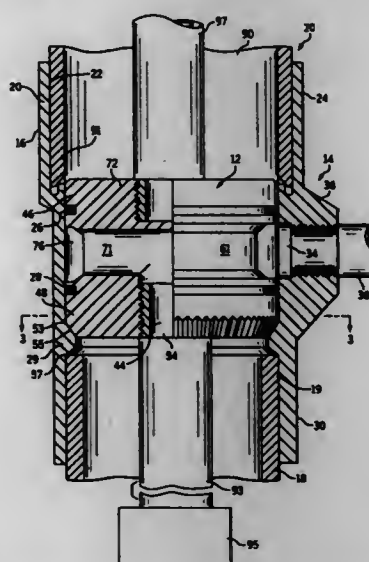
Richard D. Gibson, Verona, Wis., assignor to Baker Manufacturing Company, Evansville, Wis.

Filed Nov. 28, 1995, Ser. No. 563,322

Int. Cl.⁶ E21B 43/00

U.S. Cl. 166—85.2

15 Claims



1. A well construction having a vertical well casing and a spool, the spool being insertible into the well casing so that both the spool and well casing are oriented around a central casing axis, the spool forming at least one keyed spool surface, the well casing forming at least one keyed casing surface, the keyed surfaces defined by recesses and protrusions, the keyed spool surface being at least partially complementary to the keyed casing surface, the keyed

spool and casing surfaces arranged and the spool positionable within the well casing in an operating position such that the recesses and protrusion of the at least partially complementary portions of the keyed spool and casing surfaces are interlocked, the interlocked recesses and protrusions preventing the spool from rotating about the central casing axis with respect to the well casing.

5,669,443

SHOE FOR USED IN THE CONSTRUCTION OF OIL AND GAS WELLS

Peter Budde, Vlaardingen, and Gnuus Versteeg, Poortugaal, both of Netherlands, assignors to Weatherford/Lamb, Inc.

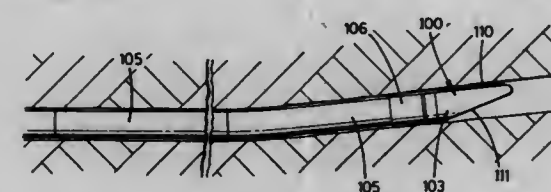
Filed Jan. 16, 1996, Ser. No. 586,370

Claims priority, application United Kingdom, Sep. 4, 1995, 9517975

Int. Cl.⁶ E21B 17/05

U.S. Cl. 166—242.8

15 Claims



1. A shoe for attachment to a length of casing for use in a wellbore which shoe comprises a body portion attachable to said casing, and a nose portion which is rotatably mounted on said body portion and is shaped to facilitate rotation of said nose portion when said nose portion encounters an obstruction while said casing is being introduced into said wellbore, wherein said body portion and said nose portion are mounted on a pipe in and extending through said body portion and said nose portion to allow fluid to flow directly between the interior of said casing and the interior of the wellbore.

5,669,444

CHEMICALLY INDUCED STIMULATION OF COAL CLEAT FORMATION

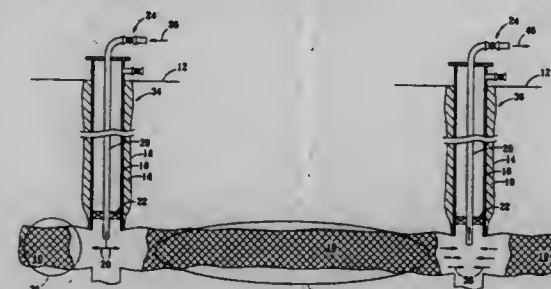
Walter C. Riese, Katy, and Stephen V. Bross, Sugar Land, both of Tex., assignors to Vastar Resources, Inc., Houston, Tex.

Filed Jan. 31, 1996, Ser. No. 594,725

Int. Cl.⁶ E21B 43/17; 43/26; 43/27; 43/40

U.S. Cl. 166—263

19 Claims



1. A method of enhancing the permeability to methane of a water-containing subterranean coal formation having a low permeability to methane penetrated by at least one well, the method consisting essentially of:

- a) injecting an aqueous oxidant solution into the coal formation;
- b) maintaining the aqueous oxidant solution in the coal formation for a selected time to stimulate the formation of cleats in the coal formation;
- c) producing methane from the coal formation at an increased rate.

19. A method for increasing the production of methane from a water-containing subterranean coal formation penetrated by at least one injection well and at least one production well, the method comprising:

- a) injecting an aqueous oxidant solution into the coal formation through the injection well until water is recovered from the production well at an increased rate; and
- b) producing methane from the coal formation through the production well at an increased rate.

5,669,445

WELL GRAVEL PACK FORMATION METHOD

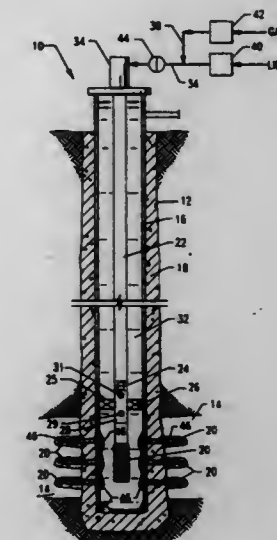
Peter J. Edwards, North Adelaide, Australia, assignor to Halliburton Energy Services, Inc., Duncan, Okla.

Filed May 20, 1996, Ser. No. 650,509

Int. Cl.⁶ E21B 43/04

U.S. Cl. 166—278

20 Claims



1. An improved method of forming a gravel pack in a well and in a subterranean formation penetrated by the well comprising the steps of:

- (a) placing a pipe string in said well having a selectively operable shut-off valve and gravel pack forming tools comprising a packer, a crossover and a sand screen connected thereto, said crossover and sand screen being positioned below said packer and adjacent to said formation;
- (b) setting the packer to seal the annulus between the well and the pipe string;
- (c) introducing a pressurized fluid into said pipe string with said shut-off valve closed so that the pressure of the fluid in said pipe string is greater than the pressure of said formation;
- (d) opening said shut-off valve so that said pressurized fluid surges into said well below said packer and into said formation thereby cleaning gravel blocking debris from said well and formation; and
- (e) introducing gravel below said packer into said well and said formation to form a gravel pack therein around said sand screen.

5,669,446

METHODS FOR BREAKING VISCOSIFIED FLUIDS

Michael L. Walker, Duncan; Chris E. Shuchart, Norman; John M. Terracina, Duncan; Billy F. Slabaugh, Marlow, and Michael A. McCabe, Duncan, all of Okla., assignors to Halliburton Energy Services, Inc., Duncan, Okla.

Filed Apr. 1, 1996, Ser. No. 625,957

Int. Cl.⁶ E21B 43/26

U.S. Cl. 166—300

20 Claims

1. A method of treating a zone of a subterranean formation penetrated by a wellbore wherein the static temperature of the zone of the formation is above about 100° F. comprising:

injecting into the wellbore and into contact with said formation an aqueous fluid comprising (i) an aqueous liquid containing potassium ions, (ii) a viscosity increasing amount of a gelling agent comprising at least one member selected from the group of galactomanans, modified or derivatized galactomanans and cellulose derivatives, (iii) a crosslinker for said gelling agent, (iv) a breaker comprising at least one member selected from the group of alkali metal chlorites and hypochlorites present in an amount sufficient to effect a controlled reduction in the viscosity of said fluid and (v) a breaker activator comprising ammonium ion or a compound capable of producing ammonium ion in said aqueous liquid upon dissolution present in an amount sufficient to activate said breaker.

5,669,447

METHODS FOR BREAKING VISCOSIFIED FLUIDS

Michael L. Walker, Duncan; Chris E. Shuchart, Norman, and John M. Terracina, Duncan, all of Okla., assignors to Halliburton Energy Services, Inc., Duncan, Okla.

Filed Apr. 1, 1996, Ser. No. 627,597

Int. Cl.⁶ E21B 43/26

U.S. Cl. 166—300

17 Claims

1. A method of treating a zone of a subterranean formation penetrated by a wellbore wherein the static temperature of the zone of the formation is above about 100° F. comprising:

injecting into the wellbore and into contact with said formation an aqueous fluid comprising (i) an aqueous liquid, (ii) a viscosity increasing amount of a gelling agent comprising at least one member selected from the group of galactomanans, modified or derivatized galactomanans and cellulose derivatives, (iii) a crosslinker for said gelling agent, (iv) a breaker comprising at least one member selected from the group of alkali metal chlorites and hypochlorites present in an amount sufficient to effect a controlled reduction in the viscosity of said fluid and (v) a breaker activator comprising thioglycolate ion or a compound capable of producing thioglycolate ion in said aqueous liquid upon dissolution present in an amount sufficient to activate said breaker.

5,669,448

OVERBALANCE PERFORATING AND STIMULATION METHOD FOR WELLS

James W. Minthorn, Mount Pleasant, Mich.; Kevin T. Berscheidt, Duncan, Okla.; Brian R. White, Traverse City, Mich.; Ronald E. Savage, Duncan, Okla.; Merlin F. Anderson, Shreveport, La.; Dudley Vann, Tyler, Tex.; Flint Raymond George, Flower Mound, Tex.; Joseph A. Henke, Lewisville, Tex., and Joseph M. Prudhomme, Shreveport, La., assignors to Halliburton Energy Services, Inc., Duncan, Okla.

Filed Dec. 8, 1995, Ser. No. 569,822

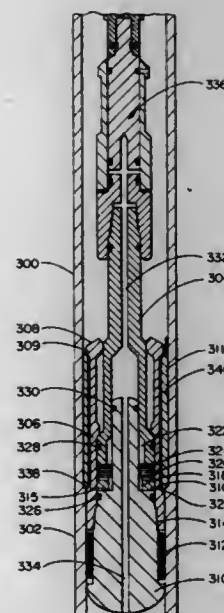
Int. Cl.⁶ E21B 43/26

U.S. Cl. 166—308

36 Claims

1. A method of stimulating fluid flow in a subterranean formation around a well having perforated casing fixed therein, the casing extending at least partially through the formation and having at least one perforation in the casing opposite the formation comprising:

placing a fluid in said casing opposite said perforation;



setting a bridging means in the casing above the perforations and said placed fluid in the casing to seal the casing above the perforation from the formation;

injecting a stimulation fluid into the casing above the bridging means in an amount such that when pressure in the casing is released by activation of a pressure release means in said bridging means, the fluid pressure in the well at the depth of the perforation is greater than the fracture pressure of the formation,

activating pressure release means in said bridging means such that pressure of said stimulation fluid is substantially instantaneously applied to the formation through said perforation whereby at least one fracture is formed in said formation; and at a time before pressure at the perforation has dropped substantially below the fracturing pressure of the formation, injecting stimulation fluid into said formation at an effective rate to extend the created fracture in said formation.

5,669,449

DIRECTIONAL SPRINKLERS

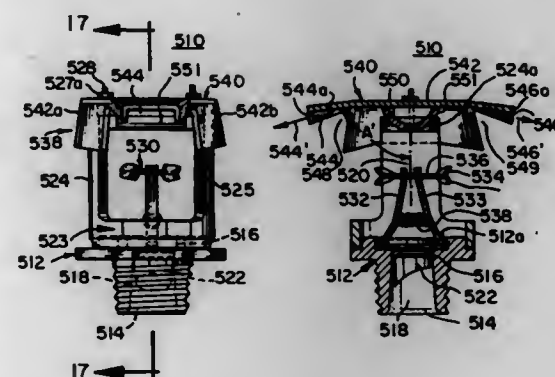
George S. Polan, Perkiomenville; James E. Golinveaux, North Wales, and Stephen J. Meyer, Malvern, all of Pa., assignors to Central Sprinkler Co., Lansdale, Pa.

Filed Feb. 28, 1995, Ser. No. 395,270

Int. Cl.⁶ A62C 35/68

U.S. Cl. 169—16

34 Claims



1. A bidirectional sprinkler comprising: a tubular body having an inlet, an outlet with a central axis and a waterway coupling the inlet and the outlet;

5,669,451

ADJUSTABLE GUIDE RIG STRUCTURE FOR AN AGRICULTURAL IMPLEMENT

James Thomas Noonan, Johnston; Terry Lee Lowe, Ankeny, and David Carl Winter, Johnston, all of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Dec. 6, 1995, Ser. No. 569,325

Int. Cl.⁶ A01B 65/02

U.S. Cl. 172—624.5

8 Claims

a plug releasably received in the outlet at least essentially closing the outlet;

a temperature responsive trigger releasably retaining the plug in the outlet; and

a water directing structure coupled with the tubular body so as to receive water flowing from the outlet when the plug is released by the trigger, the water directing structure having at least two distinct and separate water directing channels configured and positioned to direct water outwardly from the sprinkler simultaneously in at least two distinct and different directions, the water directing structure dividing water from the tubular body substantially equally among all of the water directing channels, each channel having a water directing surface generally facing the tubular body, a tangential line projecting from a central point on each water directing surface most remote from the central axis intersecting the central axis at an acute angle of greater than 45° and less than 90°.

5,669,450

QUICK MOUNT FRONT END SCARIFIER

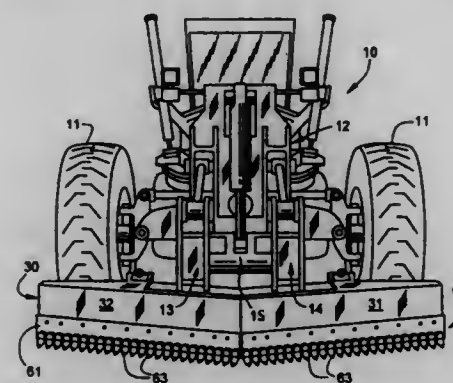
George A. Wacaser, Morton, Ill., assignor to Martin Equipment of Illinois, Inc., Goodfield, Ill.

Filed Dec. 20, 1995, Ser. No. 575,226

Int. Cl.⁶ A01B 51/00

U.S. Cl. 172—273

4 Claims



1. A quick mount scarifier attachment for use with a vehicle having an hydraulic power mechanism for raising and lowering a four-bar linkage carrying plate means the form of a chevron at the front end of said vehicle, comprising: a frame including first and second vertical moldboards mounted in the form of a chevron when viewed from above with the point of the chevron being located generally on the fore-to-aft center line of said vehicle and being the forwardmost point of said attachment, and reinforcing means for strengthening said moldboards to form a rigid frame said reinforcing means including a lower horizontal reinforcing plate welded to said moldboards for bracing the same, said frame including first and second angle channels extending rearwardly respectively of said first and second moldboards and above said lower reinforcing horizontal plate and cooperating therewith to define a sock for receiving said scarifier mount of said four-bar linkage, said first and second channels each including a horizontal plate having a rearward end, said lower horizontal reinforcing plate of said attachment frame further including first and second extensions located respectively beneath the rearward ends of said horizontal plates of said first and second channels respectively, each of said first and second horizontal plates of said first and second channels and said rearward extensions of said horizontal reinforcing plate defining aligned apertures, cooperating pairs of said apertures receiving a vertical locking pin for locking said attachment to said mount of said four-bar linkage; first and second scarifier plates; means for removably mounting said first and second scarifier plates respectively to said first and second moldboards; quick mount means for removably mounting said scarifier frame to said four-bar linkage of said vehicle; and pin locking means for releasably locking said attachment to said four-bar linkage.

1. In a row crop implement adapted for forward movement through a field planted in parallel rows of crop, the implement having a tubular tool-supporting frame of rectangular cross section with front and rear faces, tools transversely spaced on the tubular frame and adapted to run between the rows of crop, rig and guidance structure for following a preexisting groove in the soil and maintaining the tools transversely positioned with respect to the rows, the rig and guidance structure comprising:

a guide wheel adapted to run in the groove;

a wheel support fixed to the frame, the wheel support including flanged members having transversely extending flanges positioned against an aft face of the frame and rearwardly directed transversely spaced flanges, the flanged members extending downwardly to a lower end connected directly to and supporting the guide wheel for rotation about a transverse axis located a preselected distance below the frame;

a fore-and-aft extending linkage having a rearward end, and a forward end embraced by and pivotally connected to the rearwardly directed flanges for vertical movement of the rearward end relative to the frame behind the wheel support;

a tool support extending downwardly from and movable vertically with the rearward end between an upward tripped position and a lowermost field-working position;

an earthworking tool connected to the tool support for working the soil directly behind the guide wheel; and

means for adjusting the lowermost position of the tool support relative to the frame to thereby adjust the working depth of the earthworking tool.

5,669,452

BLADE PLOW WITH VERTICALLY RECIPROCATING BLADES

James A. Wright, Oakley; Henry F. Erikson, Victoria; Glenn A. Wolf, and James A. Boone, both of Quinter, all of Kans., assignors to Quinstar Corporation, Quinter, Kans.

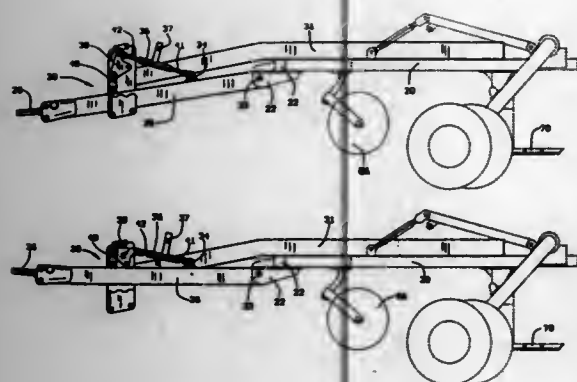
Division of Ser. No. 483,922, Jun. 7, 1995, abandoned. This application Aug. 6, 1996, Ser. No. 689,238

Int. Cl.⁶ A01B 49/00

U.S. Cl. 172—685

8 Claims

1. A blade plow comprising: a middle frame carried by a plurality of middle support wheels, said middle frame including:



said middle, left and right first and second sweep blades all concurrently vertically settable relative to each other.

5,669,453

POWER CARVING TOOL

Shumi Akazawa, Fuchu, Japan, assignor to Ryobi Limited, Tokyo, Japan

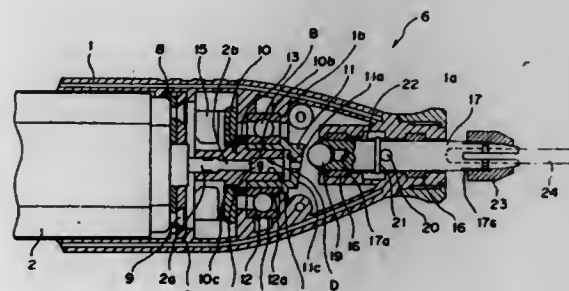
Filed Oct. 5, 1995, Ser. No. 539,675

Claims priority, application Japan, Oct. 7, 1994, 6-243576

Int. Cl.⁶ B23Q 5/10

U.S. Cl. 173—205

13 Claims



1. A power carving tool, which comprises:
 - a) a housing in which a ball bearing is supported;
 - b) a rotary driving device;
 - c) a cam shaft which is engaged with a driving shaft of the rotary driving device so as to be rotated together with the driving shaft;
 - d) a cam sleeve which is rotated with the cam shaft, which is inserted into an inner ring of the ball bearing as to be rotated together with the inner ring, and which has, at a front face thereof, a cam surface; and
 - e) an output shaft which is disposed in such a manner that an axis of the output shaft is deviated from an axis of a united rotary driving shaft comprising the driving shaft of the rotary driving device, the cam shaft and the cam sleeve, wherein the output shaft has, at a rear end thereof, a contact portion for contacting the cam surface to be moved reciprocally in accordance with rotation of the united rotary driving shaft, and holds detachably a carving cutter at a front end thereof.

5,669,454

DRIVE POINT DEVICE

Kent E. Cordry, 308 Mountaire Pkwy., Clayton, Calif. 94517
Division of Ser. No. 418,144, Apr. 5, 1995, Pat. No. 5,570,747,
which is a continuation-in-part of Ser. No. 206,000, Mar. 4,
1994, Pat. No. 5,449,045. This application Sep. 6, 1996, Ser.
No. 706,658

Int. Cl.⁶ E21B 7/20

U.S. Cl. 175—20

17 Claims

- first and second middle sweep blades vertically extending from said middle frame; and
- a middle centerflex mechanism coupled to said middle frame between said first and second middle sweep blades and movable independent of said middle frame and middle sweep blades, said middle centerflex mechanism including a middle ground wheel and a third middle sweep blade variably vertically settable relative to said middle centerflex mechanism to variably set penetration depths of said third middle sweep blade within the ground, said middle centerflex mechanism allowing said third sweep blade to vertically follow vertical movement of said middle ground wheel while maintaining a vertical setting of said third middle sweep blade relative to said middle centerflex such that said third middle sweep blade maintains penetration depth thereof within the ground;
- a left frame hingedly coupled to the left side of said middle frame and carried by a plurality of left support wheels, said left frame including;
- first and second left sweep blades vertically extending from said left frame; and
- a left centerflex mechanism coupled to said left frame between said first and second left sweep blades and movable independent of said left frame and left sweep blades, said left centerflex mechanism including a left ground wheel and a third left sweep blade variably vertically settable relative to said left centerflex mechanism to set variably penetration depths of said third left sweep blade within the ground, said left centerflex mechanism allowing said third left sweep blade to vertically follow the vertical movement of said left ground wheel while maintaining a vertical setting of said third left sweep blade relative to said left centerflex such that said third left sweep blade maintains penetration depth thereof within the ground; and
- a right frame hingedly coupled to the right side of said middle frame and carried by a plurality of right support wheels, said right frame including;
- first and second right sweep blades vertically extending from said right frame; and
- a right centerflex mechanism coupled to said right frame between said first and second right sweep blades and movable independent of said right frame and right sweep blades, said right centerflex mechanism including a right ground wheel and a third right sweep blade variable vertically settable relative to said right centerflex mechanism to variable set penetration depths of said third right sweep blade within the ground, said right centerflex mechanism allowing said third right sweep blade to vertically follow a vertical movement of said right ground wheel while maintaining the vertical setting of said third right sweep blade relative to said right centerflex such that said third right sweep blade maintains penetration depth thereof within the ground;

5,669,456

PROCESS AND WATER-BASE FLUID UTILIZING HYDROPHOBICALLY MODIFIED CELLULOSE DERIVATIVES AS FILTRATE REDUCERS

Annie Audibert, Le Vesinet; Jean-Francois Argillier, Suresnes, both of France; Louise Bailey, Comberton, and Paul I. Reid, Cambridgeshire, both of Great Britain, assignors to Institut Francais du Petrole, Rueil-Malmaison, France, and Dowell Schlumberger, Inc., Sugar Land, Tex.

Continuation of Ser. No. 400,102, Mar. 3, 1995, abandoned.

This application Jul. 1, 1996, Ser. No. 673,478

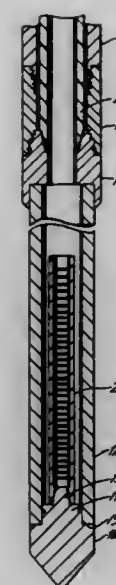
Claims priority, application France, Mar. 3, 1994, 94 02572

Int. Cl.⁶ C09K 7/02; E21B 33/138; 43/25

U.S. Cl. 175—72

16 Claims

1. A process for controlling the permeability of the walls of a well drilled through at least one geologic formation, comprising adding a predetermined amount of at least one water-soluble hydrophobically modified cellulose derivative to a volume of water-base fluid employed in the well during well drilling, well completion or well workover.



means removably located within the sealing body bore for flow of fluids either from the ground to be sampled at the ground surface or from the ground surface to be injected into the ground.

5,669,457

DRILL STRING ORIENTING TOOL

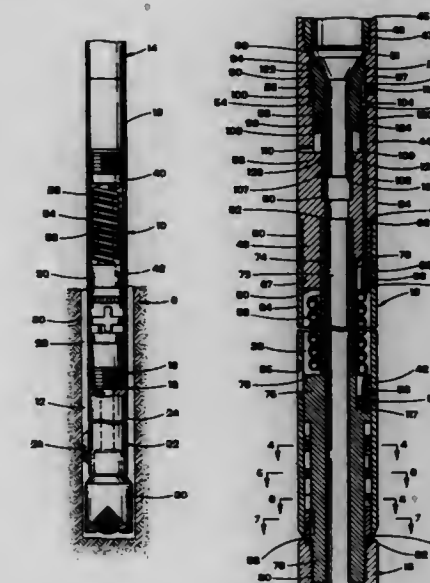
Danny S. Sebastian, Houston, and Thomas R. Beasley, Katy, both of Tex., assignors to Dailey Petroleum Services Corp., Conroe, Tex.

Filed Jan. 2, 1996, Ser. No. 581,772

Int. Cl.⁶ E21B 7/04

U.S. Cl. 175—73

14 Claims



5,669,455

BI-ROTATIONAL COUPLING SYSTEM

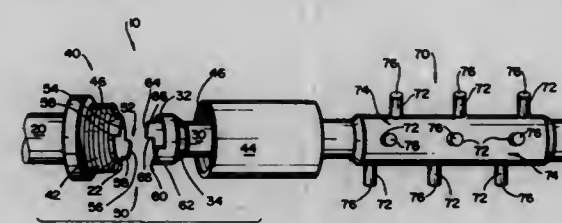
Rainer Dietrich, Wernerstr. 35, D-29227 Celle, Germany

Filed Jan. 31, 1996, Ser. No. 594,774

Int. Cl.⁶ F16D 1/10

U.S. Cl. 175—57

12 Claims



1. A bi-rotational coupling system comprising:
 - a first rotating member;
 - a second rotating member;
 - weight support means for providing vertical connection of said first rotating member and said second rotating member;
 - torque support means for transferring torque between said first rotating member and said second rotating member;
 - said weight support means functionally independent from said torque support means so that said weight support means transfers substantially no torque forces and said torque support means transfers substantially no weight forces; and
 - said first rotating member and said second rotating member capable of rotating either direction without decoupling.

1. A tool for effectuating relative rotational movement between two spaced apart sections of a bottomhole assembly, comprising:
 - a housing;
 - a mandrel having a first end disposed within said housing, said mandrel and said housing defining an annular chamber; and
 - flexible metallic coiled tube disposed within said annular chamber and containing a fluid, said tube having a first end coupled to said housing and a second end coupled to said mandrel, said tube being operable to selectively rotate said mandrel relative to said housing in response to a change in the pressure of said fluid.

5,669,458

ROTARY JAR

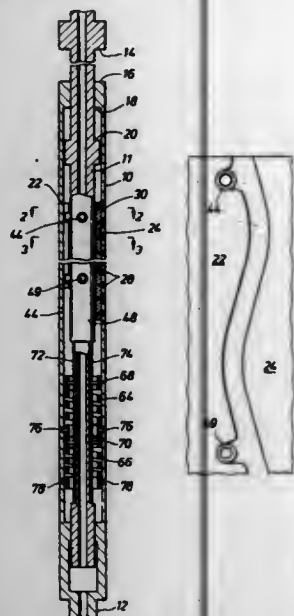
Edward O. Anders, 106 Saint Andrews Loop, Kerrville, Tex. 78028

Filed Mar. 1, 1996, Ser. No. 609,536

Int. Cl.⁶ E21B 11/107

U.S. Cl. 175—299

5 Claims



1. In a rotary jar for connecting in a pipe string to produce a sharp upward or downward force on the pipe string when the pipe string becomes stuck in a well bore said jar comprising, an inner tubular mandrel member and an outer tubular anvil member for connecting in a pipe string for limited longitudinal movement relative to each other, impact shoulders on the members limit the relative longitudinal movement of the members, a plurality of laterally spaced rollers attached to the outer surface of the mandrel, longitudinally extending grooves on the inner surface of the anvil, each groove intersecting a U-shaped laterally extending notch formed with curved outwardly flaring walls on the inner surface of the mandrel, and resilient means urging the tubular members to rotate relative to each other in the direction to move the rollers into the U-shaped notches and to allow the roller means to move out of the U-shaped notches when a longitudinal force is imposed on the jar sufficient for the flared walls of the U-shaped notches to provide a lateral component of force on the rollers that will overcome the force of the resilient means and move the rollers out of the U-shaped notches into the longitudinally extending grooves allowing the mandrel to move longitudinally relative to the anvil until the impact shoulders engage and produce a sharp increase in the force exerted by the string when the string is stuck in the hole, the improvement comprising longitudinally extending serpentine grooves that convert a portion of the relative longitudinal motion of the mandrel and the anvil into angular motion tending to rotate the anvil back and forth relative to the mandrel.

5,669,459

NOZZLE RETENTION SYSTEM FOR ROCK BITS

James L. Larsen, Spring, and Michael A. Siracki, The Woodlands, both of Tex., assignors to Smith International, Inc., Houston, Tex.

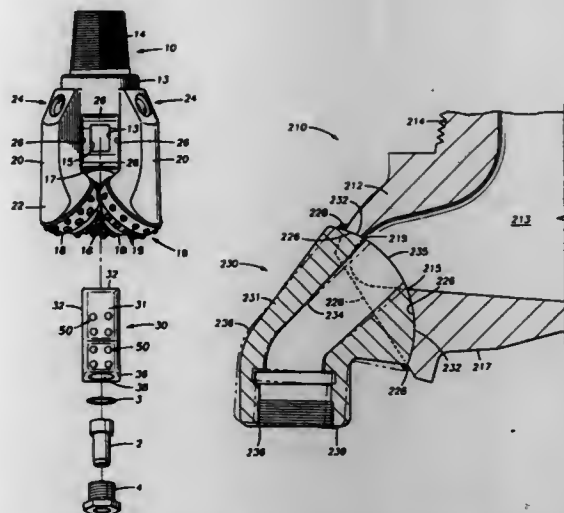
Filed Oct. 23, 1995, Ser. No. 547,123

Int. Cl.⁶ E21B 9/08

U.S. Cl. 175—340

11 Claims

1. A rock bit body rotating about an axis having an interior plenum for allowing fluid to pass through further comprising; a nozzle retention body having an upper end for attachment to the rock bit body and a lower end for retaining a nozzle, the nozzle retention body having an interior channel passing



therethrough, the upper end, when attached to the rock bit body, forming a portion of the interior plenum, the rock bit body further including an interface surface and the nozzle retention body further including an interface surface which mates with the interface surface of the rock bit body, the upper end of the nozzle retention body forming an interface surface that is a convex radial curved surface that encompasses a fluid entrance port forming part of the interior channel, the rock bit body further forming a complimentary concave radial curved interface surface, the convex radial curved surface at the upper end of the nozzle retention body protruding into the plenum formed by the rock bit body, the radial curved interface surfaces enable the nozzle retention body to be angled radially with respect to the axis of the rock bit.

5,669,460

AUTOMOTIVE TORQUE TRANSFER CASE WITH REDUCED ANGLE FORWARD OUTPUT SHAFT

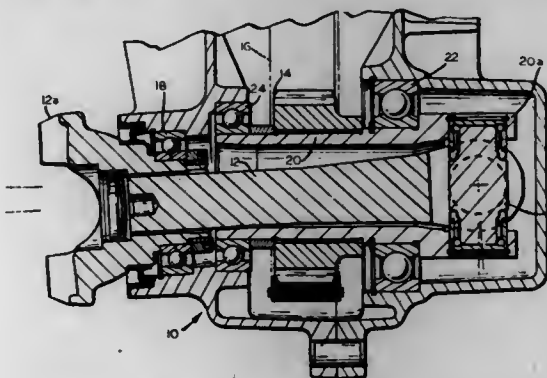
Dan Joseph Showalter, Plymouth, Mich., assignor to Borg-Warner Automotive, Inc., Sterling Heights, Mich.

Filed Apr. 4, 1995, Ser. No. 416,254

Int. Cl.⁶ B60K 17/344

U.S. Cl. 180—233

12 Claims



1. A transfer case (10) comprising: a drive shaft (12) having a free end portion (12a) that is adapted to drive an axle of a vehicle; first bearing means (18) for permitting said drive shaft to rotate with respect to said transfer case; a sleeve (20) surrounding at least a portion of said drive shaft, said at least a portion not including said free end portion; a chain sprocket (14) disposed on said sleeve for rotatably driving said sleeve; universal joint means (26) connecting said sleeve to said drive shaft for rotatably driving said drive shaft, said chain sprocket

being positioned between said universal joint means and said free end portion of said drive shaft; and second bearing means (22, 24) disposed between said universal joint means and said first bearing means for permitting said sleeve to rotate with respect to said transfer case.

5,669,461

AUTOMOTIVE HYDRAULIC SYSTEM AND METHOD

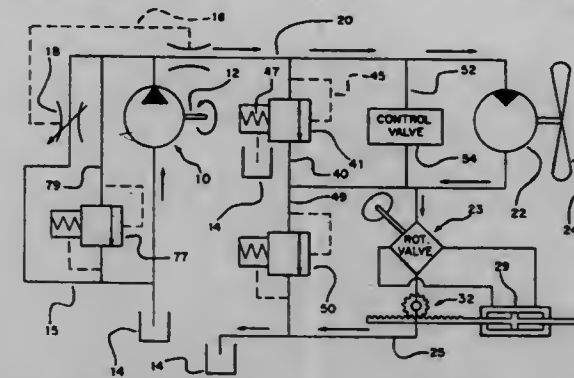
Jeffrey J. Buschur, Bellbrook, Ohio, assignor to ITT Automotive Electrical Systems, Inc., Auburn Hills, Mich.

Continuation of Ser. No. 400,927, Mar. 9, 1995, Pat. No. 5,535,845. This application Jul. 15, 1996, Ser. No. 680,482

Int. Cl.⁶ B62D 5/07

U.S. Cl. 180—417

25 Claims



1. A method for prioritizing a plurality of hydraulic components in a hydraulic steering system; said method comprising the steps: hydraulically coupling a plurality of components together; providing a priority component from said plurality of hydraulic components; providing a low priority component from said plurality of hydraulic components said priority component and said low priority component being situated in a series arrangement; sensing a pressure in said hydraulic system; and directing hydraulic power to said priority component when said sensed pressure exceeds a predetermined pressure.

member being a channel U-shaped in cross section having a width slightly wider than the width of each side rail so as to fit up against the side rail;

c) means for retaining each said slider member to each of the side rails of the ladder comprising in each rail a plurality of holes therethrough vertically arranged and spaced apart at the lower end thereof, each said slider member having a plurality of vertical spaced apart apertures therethrough, staggered and in two vertical rows, matching up with said holes in the side rail, two bolts passing through two apertures in each slider member and two holes in the side rail, and a wing nut for each of said bolts threaded into the end of each bolt for locking each bolt in place;

d) a self leveling shoe on the bottom of each slider member comprising a rectangular plate with a central lug extending upwardly therefrom and an anti-skid pad affixed to the underside of each plate, each said slider member having a lower central bore therethrough, a bolt for each slider member fitted through each central bore and the central lug with a nut threaded onto one end of each bolt allowing each said shoe to pivot; and

e) each self leveling shoe having a pair of stakes extending therethrough on opposite sides of the central lug to enter an uneven terrain for helping to keep the shoe stationary, each stake having an enlarged flat head at the top thereof above the top of said shoe and including a bias spring between said flat head and the top surface of said shoe to normally keep said stake in an upward position on said shoe when said stake is not driven into the uneven terrain, and a permanently mounted stop pin transversely driven through a lower end of said stake extending out of the bottom side of said shoe to prevent said stake from leaving said shoe when in the upward position, said flat head being large enough to allow the stake to be easily pulled out from the uneven terrain.

5,669,463

TRUCK MECHANIC'S WORKSTAND

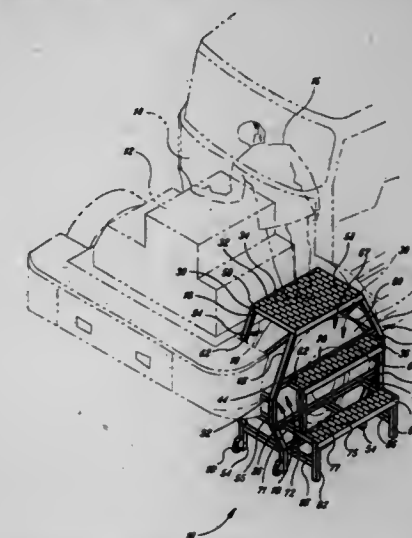
Dale A. Robertson, Sedro Wooley, Wash., assignor to PACCAR Inc., Bellevue, Wash.

Filed Oct. 13, 1995, Ser. No. 542,948

Int. Cl.⁶ E06C 7/16

U.S. Cl. 182—116

23 Claims



1. A workstand for use with a vehicle having a wheel assembly, comprising: first and second sides each having front and back portions, said first and second sides being spaced apart from each other and defining a wheel receiving area therebetween, said wheel receiving area having an open back between said back side portions, said first side including a first inner leg portion and a first outer leg portion separate and spaced apart from each

5,669,462

LADDER LEVELING APPARATUS

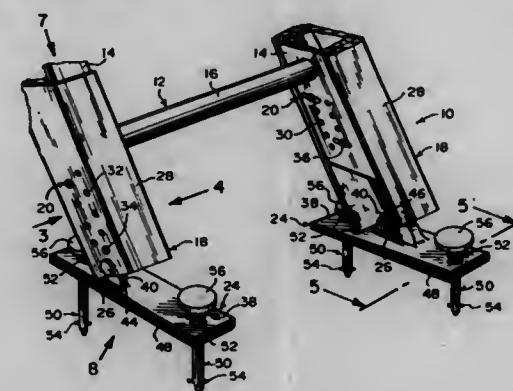
Paul J. Jennings, 28 Loyola Pl., Oakland, N.J. 07436

Filed Mar. 19, 1996, Ser. No. 617,645

Int. Cl.⁶ E06C 7/44

U.S. Cl. 182—111

1 Claim



1. A ladder comprising: a) a pair of spaced and parallel side rails with a plurality of spaced connecting rungs; b) a slider member fitted on each of the side rails of the ladder at a lower end thereof in an adjustable manner, each said slider

other, and said second side including a second inner leg portion spaced apart from said first inner leg portion and a second outer leg portion separate and spaced apart from said second inner leg portion, each of said first and second inner and outer leg portions having top and bottom portions;

a top support platform extending between said first and second sides and being attached to said top portions of said first and second inner and outer leg portions, said top support platform defining a top of said wheel receiving area, said wheel receiving area being shaped and sized to receive the wheel assembly therein through said open back; and

a step attached to said front portions of said first and second sides below said top support platform.

5,669,464

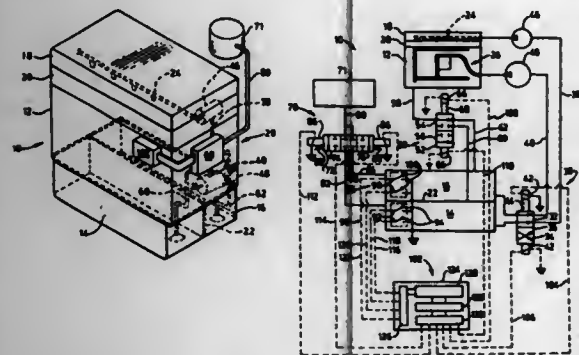
SYSTEM FOR AUTOMATICALLY CONTROLLING ENGINE LUBRICATING FLUID FLOW
Walter E. Earleson, Morton, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Dec. 10, 1996, Ser. No. 763,966

Int. Cl.⁶ F16C 3/14

U.S. Cl. 184—1.5

16 Claims



1. A system for automatically controlling the flow of lubricating fluid in an internal combustion engine having an intake oiling system and an engine bearing lubricating system; comprising:
 - a first reservoir and a second reservoir each having a lubricating fluid carried therein, said lubricating fluids being separate from one another;
 - a first fluid control means for passing fluid flow from said second reservoir to the engine bearing lubricating system and from the said first reservoir to the intake oiling system;
 - a first sensing means for sensing the lubricating fluid level in the first reservoir and delivering a first signal in response to said lubricating fluid being at a preselected low level;
 - a control means for receiving said first signal and responsively conditioning said first fluid control means to swap reservoirs and deliver fluid flow from said second reservoir to the intake oiling system and from the first reservoir to the engine bearing lubricating system.
7. A system for automatically controlling the flow of lubricating fluid in an internal combustion engine having an intake oiling system and an engine bearing lubricating system; comprising:
 - a first reservoir having a lubricating fluid therein;
 - a second reservoir having a lubricating fluid therein, said lubricating fluids in said first and second reservoirs being separate from one another;
 - a first sensor connected to the first reservoir and sensing a level of the lubricating fluid therein, said first sensor delivering a first fluid level signal in response to the lubricating fluid in the first reservoir being at a predetermined low level;
 - a second sensor connected to the second reservoir and sensing a level of the lubricating fluid therein, said second sensor delivering a second fluid level signal in response to the lubricating fluid in the second reservoir being at a predetermined low level;

a first valve having first and second fluid directing positions and being movable therebetween, said first valve being connected to the first and second reservoirs and the intake oiling and engine bearing lubricating systems, said first valve passing fluid flow from the second reservoir to the engine bearing lubricating system and from the first reservoir to the intake oiling system at the first position, and passing fluid flow from the second reservoir to the intake oiling system and from the first reservoir to the engine bearing lubricating system at the second position;

a second valve having first and second fluid directing positions and being movable therebetween, said second valve being connected to the engine lubricating system and the first and second reservoirs, said second valve passing fluid flow from the engine lubricating system to the first reservoir at the second position and from the engine lubricating system to the second reservoir at the first position;

a controller connected to the first and second sensors and being adapted to receive said first and second fluid level signals, said controller being connected to said first and second valves and delivering a valve control signal to said first and second valves in response to receiving one of said first and second fluid level signals, said first and second valves moving to said second position in response to said controller receiving said first fluid level signal and to said first position in response to said controller receiving said second fluid level signal.

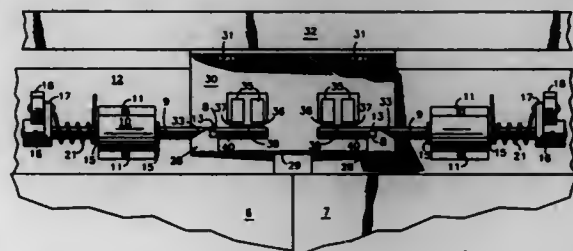
5,669,465

ELEVATOR HOISTWAY DOOR BOLT LOCK
Richard E. Kulak, Bristol; Thomas M. McHugh, Farmington, both of Conn.; Edward E. Ahlgren, Chicago, Ill.; Jerome F. Jaminet, South Windsor, Conn.; Thomas He, Unionville, Conn.; Richard E. Peruggi, Glastonbury, Conn.; Thomas M. Kowalczyk, Farmington, Conn., and David W. Barrett, East Hartland, Conn., assignors to Otis Elevator Company, Farmington, Conn.

Continuation-in-part of Ser. No. 223,522, Apr. 6, 1994, Pat. No. 5,454,447. This application Jul. 28, 1995, Ser. No. 508,936
Int. Cl.⁶ B66B 13/02

U.S. Cl. 187—331

7 Claims



1. In an elevator hoistway door assembly having a first hoistway door with a first door hanger at the top thereof and a second hoistway door with a second door hanger at the top thereof, a door lock assembly for directly locking both the first and second hoistway doors to the hoistway comprising:
 - a first lock assembly having a first rotatable latch mounted on said first door hanger, a first catch mounted on said hoistway for engagement with said first latch, a first cam follower fastened to said first latch and movable between a first position in which said first latch engages said first catch in a locked position and a second position in which said first latch is disengaged from said first catch in an unlocked position so that said first hoistway door may be moved to an open position and a first pair of electrical contacts for electrically indicating a locked condition of said first door when said contacts are electrically connected and
 - a second lock assembly having a second rotatable latch mounted on said second door hanger, a second catch mounted on said hoistway for engagement with said second latch, a second cam follower fastened to said second latch and movable

between a first position in which said second latch engages said second catch in a locked position and a second position in which said second latch is disengaged from said second catch in an unlocked position so that said second hoistway door may be moved to an open position and a second pair of electrical contacts for electrically indicating a locked condition of said second door when said contacts are electrically connected;

said first catch comprises a first lip disposed on a hoistway in the vicinity of said first hoistway door, at an elevator landing doorway;

said first latch comprises a first rod journaled for rotation on the first hoistway door in the vicinity of said first lip and a first pin extending laterally outward from said first rod in a position so as to be able to engage said first lip when said first hoistway door is in the closed position and thereby prevent said first hoistway door from moving toward the open position;

said first cam follower being fastened to said first rod and movable between a first position in which said first rod is rotated to a locked position in which said first pin engages said first lip and an unlocked position in which said first pin clears said first lip so that said first hoistway door may be moved toward an open position, said first cam follower being disposed in a position adjacent to the position at which a retiring cam of an elevator car will appear when the elevator car is within a landing zone of a landing to which said first hoistway door corresponds, whereby, when an elevator car is within the landing zone of the related landing, the retiring cam may actuate said first cam follower to rotate said first rod into said unlocked position;

said second catch comprises a second lip disposed on a hoistway in the vicinity of said second hoistway door at an elevator landing doorway;

said second latch comprises a second rod journaled for rotation on the second hoistway door in the vicinity of said second lip and a second pin extending laterally outward from said second rod in a position so as to be able to engage said second lip when said second hoistway door is in the closed position and thereby prevent said second hoistway door from moving toward the open position; and

said second cam follower being fastened to said second rod and movable between a first position in which said second rod is rotated to a locked position in which said second pin engages said second lip and an unlocked position in which said second pin clears said second lip so that said second hoistway door may be moved toward an open position, said second cam follower being disposed in a position adjacent to the position at which a retiring cam of an elevator car will appear when the elevator car is within the landing zone of the landing to which said second hoistway door corresponds, whereby, when an elevator car is within the landing zone of the related landing, the retiring cam may actuate said second cam follower to rotate said second rod into said unlocked position.

5,669,466

FRONT WHEEL FOR A HANDCART
Chin-chang Cheng, No. 20, Lane 327, Sec. 2, Chungshan Rd., Chungsho City, Taipei Hsien, Taiwan

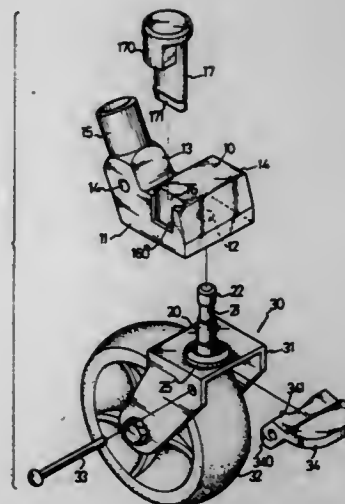
Filed Jan. 30, 1996, Ser. No. 593,832

Int. Cl.⁶ B60B 33/02

U.S. Cl. 188—112

5 Claims

1. A front wheel structure for a handcart comprising:
 - a link block comprising an extension portion with a first hole vertically defined in a bottom thereof, a protrusion portion formed on a rear end thereof, the protrusion portion defining a second hole transversely extending therethrough and a sleeve extending upwardly and obliquely from the protrusion portion for being fixedly attached to a frame of the handcart at a first end thereof;



a wheel assembly having a wheel attachment means pivotally coupled to a second end of the link block, and a wheel rotatably retained in the wheel attachment means;

a brake means operably connected to a first end of the wheel attachment means to selectively engage with the wheel and brake it; and arresting means operably received in the link block and the link block further including a slot vertically defined near a first face thereof for receiving the arresting means, and an opening defined in the first side and in communication with the slot,

thereby the arresting means being selectively movable between a lowermost position, at which a bottom end of the arresting means engages with the wheel attachment means to thereby prevent the wheel assembly from freely pivoting relative to the link block, and an uppermost position, at which the arresting means disengages from the wheel attachment means to free the wheel from being constrained.

5,669,467

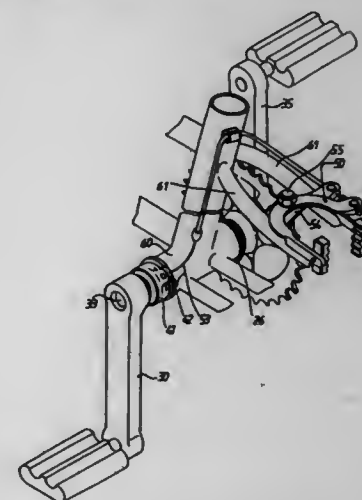
BICYCLE BRAKE ASSEMBLY
Douglas Chiang, 6F-6, 186, Setiou 1, Wen Hsin Rd., Taichung, Taiwan

Filed Dec. 9, 1996, Ser. No. 762,142

Int. Cl.⁶ B62L 1/02

U.S. Cl. 188—24.12

2 Claims



1. A bicycle brake assembly comprising:
 - a pair of brake arms pivotally attached to a bicycle frame which has a bottom bracket, said bottom bracket having an axle rotatably received therein and said axle having a first end and a second end, said first end of said axle having a first threaded

portion defined in an outer periphery thereof and having a first threaded hole defined therein, said second end of said axle having a second threaded hole defined therein for attachment with two cranks respectively;

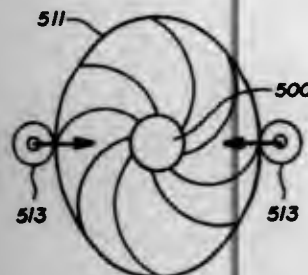
an activating member having a first hole defined therethrough which has a threaded inner periphery for engagement with said first threaded portion of said axle, said activating member having a tubular portion extending from one of two sides thereof and said tubular portion having a second threaded portion defined in an outer periphery thereof, a plurality of ratchets extending from said activating member and located on the same side where said tubular portion extends;

a casing having a second hole defined centrally therethrough and a plurality of ratchet gears extending radially from an inner periphery defining said second hole, a lug extending radially from an outer periphery of said casing and having a third hole defined therethrough, said activating member rotatably received in said second hole with said ratchets contacting said ratchet gears of said casing;

a ring having an inner threaded hole defined therein for engagement with said second threaded portion of said activating member, and

a brake cable connected between said pair of arms and said third hole of said lug of said casing.

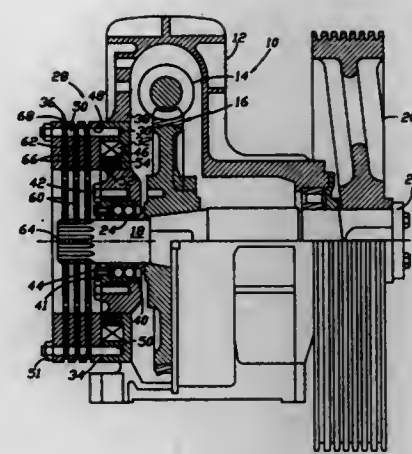
5,669,468
BRAKING METHOD AND APPARATUS
Max Densow, 3577 Galena, Auburn, Calif. 95603
Filed Oct. 27, 1995, Ser. No. 549,030
Int. Cl.⁶ F16D 63/10
U.S. Cl. 188—75



1. The method of braking a rotating mechanism carrying a deformable cylindrical rotor comprising moving a first roller into contact with an exterior surface of the deformable cylindrical rotor; exerting pressure on the roller against the exterior surface of said deformable cylindrical rotor causing the deformable cylindrical rotor to deform thus braking the rotating mechanism due to reduced ability of the deformed cylindrical rotor to continue normal rotation.

5,669,469
INTEGRATED ELEVATOR DRIVE MACHINE AND BRAKE ASSEMBLY
Richard J. Ericson, Southington, and Anthony Cooney, Unionville, both of Conn., assignors to Otis Elevator Company, Farmington, Conn.
Filed Apr. 3, 1995, Ser. No. 415,829
Int. Cl.⁶ B66B 11/04
U.S. Cl. 188—171

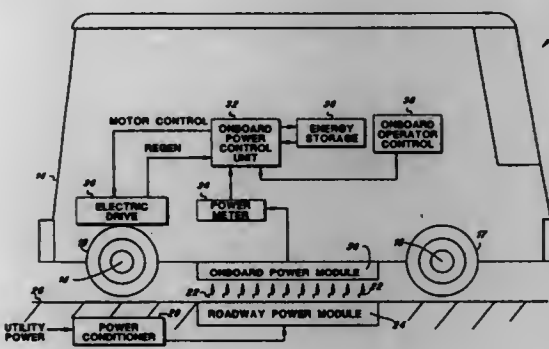
14 Claims
1. An elevator drive machine comprising:
a machine housing having an outer wall;
a rotatable output shaft mounted in said machine housing;
a sheave mounted on said output shaft and rotatable therewith; and
a brake assembly configured for braking said output shaft, said brake assembly having a base integrally formed with said



outer wall of said machine housing adjacent said output shaft, wherein said outer wall of said machine housing is a casting and said base of said brake assembly is cast within said outer wall, and wherein said base comprises material having a higher magnetic permeability than said casting of said outer wall.

5,669,470
ROADWAY-POWERED ELECTRIC VEHICLE SYSTEM
Howard R. Ross, Richmond, Calif., assignor to H. R. Ross Industries, Inc., Richmond, Calif.
Filed May 5, 1994, Ser. No. 238,990
Int. Cl.⁶ B60L 9/00
U.S. Cl. 191—10

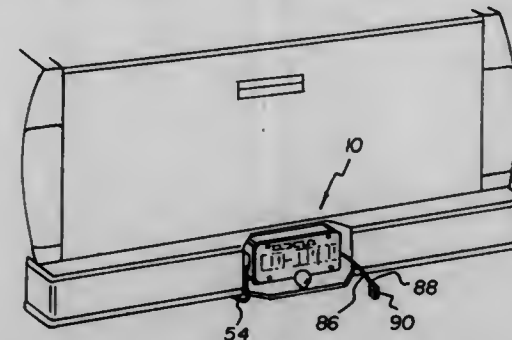
26 Claims



1. A roadway-powered electric vehicle (EV) comprising:
a vehicle frame supported by front and rear suspension systems, including front and rear wheels;
an onboard power receiving module mounted on an underneath side of said vehicle frame that receives electrical power coupled thereto from a roadway power transmitting module embedded in a roadway over which the EV travels, wherein a first ac electrical current passing through the roadway power transmitting module has a frequency of from between 1 and 10 kHz;
an onboard energy storage means for storing and delivering electrical energy;
an electric drive means coupled to at least one of said front or rear suspension systems for driving at least one of said front and rear wheels; and
an onboard power controller means for receiving electrical power from said onboard power receiving module and directing it to said onboard energy storage means, and for selectively delivering electrical energy from said energy storage means to said electric drive means in order to provide operating power for said EV.

5,669,471
TRAILER WIRE RECOIL DEVICE
Brian H. Unze, 1245 Miller St., Shakopee, Minn. 55379
Filed Aug. 15, 1996, Ser. No. 698,354
Int. Cl.⁶ H02G 11/02
U.S. Cl. 191—12.2 R

1 Claim

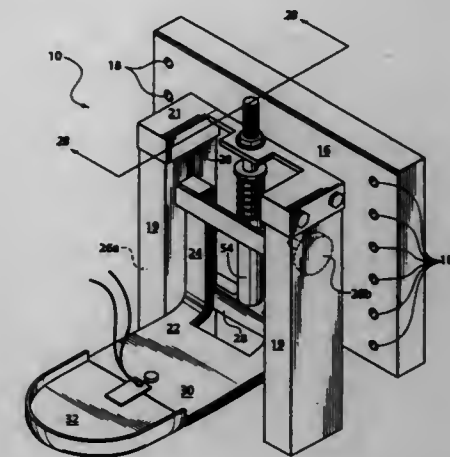


1. A new and improved trailer wire recoil device for storage of a trailer's electrical hook-up wires comprising in combination:
a rectangular housing being sized for mounting behind a vehicle's license plate, the housing having a front wall, a rear wall and peripheral edges therearound, the peripheral edges having a right side edge and a left side edge, the peripheral edges having an upper edge and a lower edge, a connector block being attached to the rear wall and internal the housing, the connector block having a plurality of bushings, the housing having a plurality of mounting holes within the front wall being axially extended horizontally through the rear wall, each of the mounting holes being capable of receiving a screw for mounting the housing behind the vehicle's license plate;
a receptacle being positioned within a slot of the left side edge of the housing, the receptacle having an internal wire positioned within the connector block of the housing, the internal wire being fastened with the plurality of bushings of the connector block of the housing, the receptacle coupling with a vehicle plug when the housing is mounted onto the vehicle;
a rotatable member having a flange fixedly attached to a cylinder, the flange having teeth around a peripheral edge thereof for engaging a pawl, the pawl having a release arm and being positioned within the housing, the release arm of the pawl being extended through the right side edge of the peripheral edges of the housing, the rotatable member functioning as a ratchet mechanism when turned;
an axle rod being fixedly attached within the housing to the rear wall and front wall and between the upper edge and a lower edge of the peripheral edges, the axle rod having a disc member being adjacent the rear wall of the housing, the disc member providing fixed mounting for a plurality of contact points on a top surface thereof, the plurality of contact points on the top surface thereof being in connection with the bushings of the connector block, the rotatable member being positionable over the axle rod and in contact with the disc member thereof, the flange of the rotatable member being spaced from the disc member of the axle rod and the front wall of the housing, the rotatable member being cable of spinning about the axle rod with the disc member remaining stationary;
an elongated trailer wire having a first end with a trailer plug extending from the right side of the housing for coupling with a trailer receptacle, the trailer wire having a second end being coupled with the contact points of the disc member of the axle rod when the trailer wire is wrapped around the rotatable member positioned within the housing;
a spring member being attached to the axle rod and the rotatable member so that unwinding the trailer wire from the rotatable member causes the rotatable member to wind the spring member, the spring member being released at a control rate by the pawl engaging the teeth of the flange when the rotatable member being rotated by pulling the trailer wire; and
whereby when in use the trailer wire can be rapidly deployed off the rotatable member within the housing for coupling with the

trailer receptacle by pulling the trailer plug out and away from the housing to extend the trailer wire for coupling and when not in use, the trailer plug can be uncoupled to allow the trailer wire to be rewound onto the rotatable member within the housing by a restoring torsional force created by the spring member.

5,669,472
CONTACT SHOE ASSEMBLY FOR A TRAIN
Ghassan H. Azzouni, 47-31 48th St., Woodside, N.Y. 11377
Filed Jun. 4, 1996, Ser. No. 658,226
Int. Cl.⁶ B60L 5/39
U.S. Cl. 191—49

6 Claims



1. A contact shoe assembly for a train movable along a support track having an electrically-energized power rail extending substantially in parallel with the support track comprising:
a support member having two vertically-oriented, spaced-apart guide channels and adapted for mounting to the train in operative relationship to the power rail wherein each guide channel comprises two spaced-apart, vertically-oriented parallel plates;
a bracket arm disposed in between said guide channels and coupled to said guide channels for vertical movement, said bracket arm including:
(i) two sets of ball bearings for rolling engagement with said plates of respective guide channels,
(ii) a support portion for supporting said ball bearings, and
(iii) a cantilevered portion having a groove, wherein said support portion is approximately perpendicular to said cantilevered portion;
a contact shoe having a planar contact surface and connected to said bracket arm, said contact shoe including a tongue configured and dimensioned for selective receipt in the groove, so that said planar contact surface can be configured to face either upwardly or downwardly; and
biasing means selectively mounted between said support member and said bracket arm and supported by said support portion, for biasing said contact shoe into yielding engagement with the power rail so that during vertical movement of said bracket arm responsive to a varying height of the power rail, said planar contact surface remains horizontal and parallel to the power rail.

5,669,473
HYDRAULIC CONTROL WITH LINE PRESSURE MODULATION

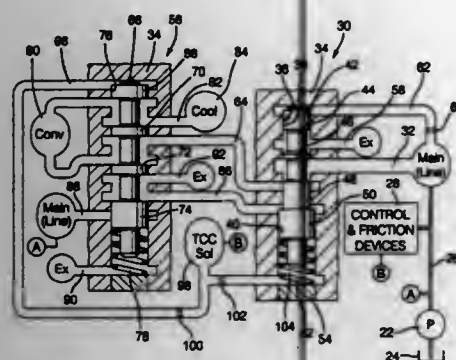
Charles Francis Long, Pittsboro, and Martin Robert Dadel, Indianapolis, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed May 6, 1996, Ser. No. 642,982

Int. Cl.⁶ F16H 41/02

U.S. Cl. 192—3.3

3 Claims



1. A power transmission and control having a torque converter and a torque converter clutch selectively engageable to limit the operation of the torque converter, the control comprising:

- a source of fluid;
- a main pressure regulator for establishing the pressure output of said fluid source at a main pressure level;
- a torque converter control valve having first and second positions for establishing the engagement and disengagement of the torque converter clutch, respectively;
- said main regulator having first and second regulating areas which when subjected to fluid pressure will limit the pressure level of the main pressure and a third regulating area which when supplied with a control pressure will increase the limit of the main pressure level;
- said torque converter clutch control valve being operable in said second position to exhaust fluid pressure at said second regulating area and being operable in said first position to direct fluid pressure to said second regulating area; and
- a torque converter clutch control solenoid operable to present a variable fluid pressure to said torque converter control valve to establish said torque converter control in the first position thereof to present a control pressure to said third regulating area of said main pressure regulator valve to enforce an increase in the main pressure level.

5,669,474
HYDRODYNAMIC TORQUE CONVERTER WITH LOCK-UP CLUTCH

Uwe Dehrmann, Würzburg; Peter Volland, Rannungen, and Hans-Wilhelm Wienholt, Dortmund, all of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Germany

Filed Sep. 13, 1995, Ser. No. 527,760

Claims priority, application Germany, Sep. 14, 1994, 44 32 624.6

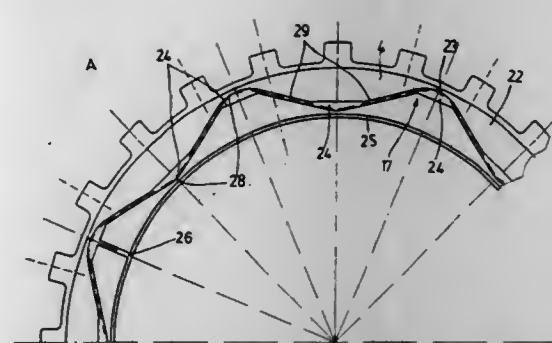
Int. Cl.⁶ F16H 45/02; F16D 13/72

U.S. Cl. 192—3.29

20 Claims

1. A hydrokinetic torque converter, said hydrokinetic torque converter including a lockup clutch, said hydrokinetic torque converter comprising:

- a torque input shaft defining a rotational axis;
- a torque output shaft;
- a converter housing, said converter housing comprising means for being driven by said torque input shaft;
- a pump wheel disposed within said converter housing and comprising means for being driven by said converter housing;



- a turbine wheel disposed within said converter housing and in spaced opposition to said pump wheel along said rotational axis, said turbine wheel comprising means for driving said torque output shaft;
- a piston in spaced opposition to said converter housing along said rotational axis;
- at least one friction lining disposed between said piston and said converter housing;
- said piston being displaceable along said rotational axis to abut said at least one friction lining;
- a first fluid chamber containing a substantially viscous fluid, said first fluid chamber being disposed between said converter housing and said piston;
- a second fluid chamber containing said substantially viscous fluid, said second fluid chamber being disposed within said converter housing and surrounding said pump wheel and said turbine wheel;
- at least one fluid passage for the flow of said substantially viscous fluid between said first and second fluid chambers, through said at least one fluid passage, said at least one fluid passage extending adjacent said at least one friction lining;
- said at least one fluid passage having an inflow portion for the inflow of said substantially viscous fluid thereto;
- said at least one fluid passage having an outflow portion for the outflow of said substantially viscous fluid therefrom;
- said at least one fluid passage having a longitudinal direction along its length;
- said longitudinal direction of said at least one fluid passage having a corresponding radial component substantially aligned along a radius of said rotational axis;
- said at least one fluid passage having at least one change of said longitudinal direction between said inflow portion and said outflow portion wherein said corresponding radial component undergoes a reversal of direction.

5,669,475
TORQUE CONVERTOR

Yoshihiro Matsuoka, Neyagawa, Japan, assignor to Exedy Corporation, Osaka, Japan

Filed Apr. 1, 1996, Ser. No. 625,855

Claims priority, application Japan, Apr. 7, 1995, 7-082192

Int. Cl.⁶ F16H 45/02

U.S. Cl. 192—3.29

8 Claims

1. A torque convertor comprising:

- a torque convertor main body having a front cover, an impeller fixed to said front cover, said impeller and said front cover defining a hydraulic oil chamber, and a turbine disposed within said hydraulic oil chamber opposed to said impeller;
- a lockup clutch disposed between said front cover and said turbine, said lockup clutch including: an annular first plate disposed between said front cover and said turbine; an elastic member which couples said first plate and said front cover in a circumferential direction; an annular piston plate disposed between said turbine and said first plate, said piston plate being engaged with said turbine for rotation therewith and movable in the axial direction with respect to said turbine; and an annular second plate disposed between said front cover and said first plate and fixed to said turbine;

5,669,477
FREE-WHEEL HUB TRANSMISSION MECHANISM OF A BICYCLE

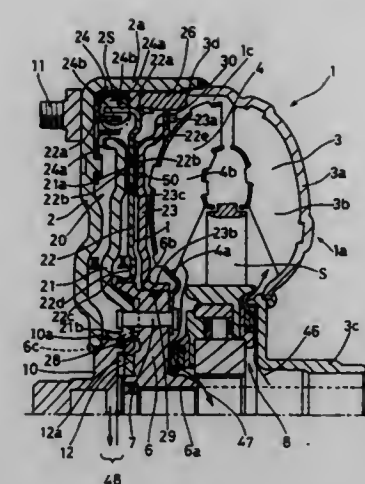
Kun-Teng Chen, No.269, Sec.3, Min Sheng Road, Taya Hsiang, Taichung Hsien, Taiwan

Filed Feb. 1, 1996, Ser. No. 595,377

Int. Cl.⁶ F16D 41/24

U.S. Cl. 192—64

1 Claim



- a hydraulic pressure control device, controlling hydraulic pressure in said hydraulic oil chamber for controlling coupling and uncoupling of said first plate, said second plate and said piston plate;
- an annular weight member fixed to an outer circumferential portion of said first plate for rotation therewith and for limited relative rotation with respect to said torque convertor main body.

5,669,476
ROLLER CLUTCH WITH SECURE SPRING TO CAGE MOUNT

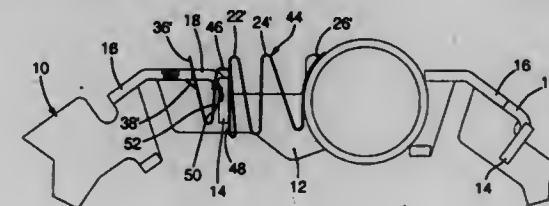
Frederick Edward Lederman, Sandusky, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed May 14, 1996, Ser. No. 645,978

Int. Cl.⁶ F16D 41/064

U.S. Cl. 192—45

1 Claim



1. In a one way roller clutch of the type having a cage defining roller pockets, each pocket having a generally radially extending cage cross bar with a flat front face facing into said pocket and an oppositely facing flat rear face with a predetermined thickness measured between said cross bar faces, and a plurality of accordion type roller energizing springs with radially opening active folds, a spring having an improved means for mounting to said cross bar, comprising:

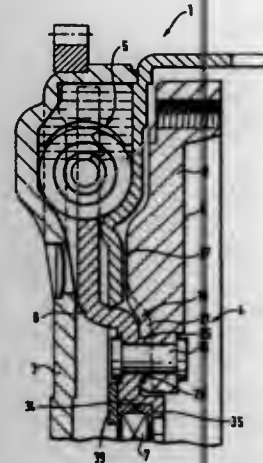
- a mounting fold having a flat front leaf shared with an adjacent active fold and a flat rear leaf, said front and rear mounting fold leaves having a predetermined free state separation substantially equal to said cross bar thickness, and
- a spreading wedge on said flat rear leaf comprising a structural feature stamped integrally into said flat rear leaf and extending toward said front leaf by less than said free state separation and having a leading edge that is sloped radially outwardly, whereby said spring is mounted to said cage by pushing said spring mounting fold radially over said cross bar, thereby engaging said spreading wedge leading edge with said cross bar rear face and spreading said mounting fold front and rear leaves resiliently apart and tensioning said front leaf into the front face of said cross bar, whereby said spring is more solidly mounted to said cage and said spring active folds are more securely retained within said pocket.

- 1. A free-wheel hub transmission mechanism, comprising
 - a threaded axle;
 - a hub barrel, an end part of said hub barrel having an inside annular flange, an inner diameter of said hub barrel gradually increasing from said inside annular flange to the other end;
 - a driving barrel, said driving barrel having a hollow threaded body with a hollow threaded head of bigger diameter for placing around said axle, said hollow threaded body being received in said hub barrel, a part of said hollow threaded body adjoining said hollow threaded head being fitted to an end of said hub barrel near said inside annular flange with a ball bearing;
 - a lock nut, said lock nut being engaged with the axle and being received in the driving barrel to press against an inner wall of said hollow head adjacent to said hollow body with another ball bearing;
 - a sprocket with an internal thread, said sprocket being secured to the threaded head on said driving hub;
 - a movable coupling socket with an end section of bigger outer diameter, said end section having an internal thread to engage with the driving barrel in the hub barrel;
 - a conical bushing, said conical bushing having a central threaded hole to engage with the axle and being located at the other end of said hub barrel;
 - an annular cup, said cup enclosing said conical bushing and being fitted to said conical bushing with a further ball bearing;
 - a coil spring, said coil spring being placed around the coupling socket, an end of said coil spring pressing against an edge of said end section on the coupling socket, the other end of said coil spring pressing against said cup; and
 - a further lock nut, said further lock nut being engaged with the axle and pressing against said cup with a still further ball bearing at the other end of said hub barrel;
- whereby, when said sprocket turns said driving barrel to rotate clockwise, said coupling socket moves toward said inside annular flange in said hub barrel so that said inside annular flange is pressed by said coupling socket to result in said hub barrel and said axle synchronously rotating clockwise either; when said sprocket turns said driving barrel to rotate counterclockwise, said coupling socket moves far from said inside annular flange so that said hub barrel and said axle are unable to rotate synchronously with said driving barrel counterclockwise.

5,669,478
AIR-COOLED FLYWHEEL AND A FRICTION CLUTCH FOR A TRANSMISSION OF A MOTOR VEHICLE, THE FLYWHEEL HAVING TWO CENTRIFUGAL MASSES
 Bernhard Schierling, Kürnach; Rudolf Baerlein, Schweinfurt; Cora Carlson, Hambach, and Hilmar Göbel, Grafenrheinfeld, all of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Germany

Filed Jul. 20, 1995, Ser. No. 504,848
 Claims priority, application Germany, Jul. 20, 1994, 44 25 570.5

Int. Cl.⁶ F16F 15/12; 15/16, F16D 13/60
 U.S. Cl. 192—70.17 17 Claims

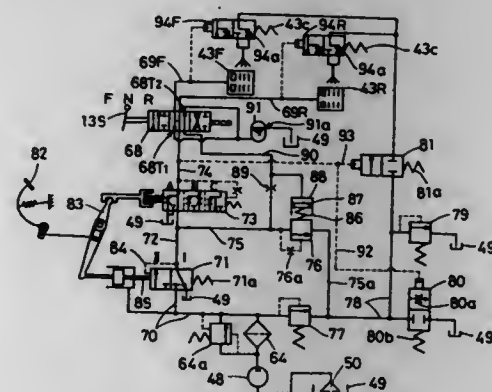


1. An internal combustion engine flywheel, said internal combustion engine flywheel comprising:
 a two-mass flywheel, said two-mass flywheel being rotatable about an axis of rotation and defining an axial direction parallel to the axis of rotation;
 said two-mass flywheel comprising:
 a first flywheel mass and a second flywheel mass disposed adjacent one another;
 said first flywheel mass comprising means for non-rotationally connecting said first flywheel mass to a crankshaft of an internal combustion engine;
 damping means for transmitting rotational torque from said first flywheel mass to said second flywheel mass, for rotating said second flywheel mass with said first flywheel mass;
 said second flywheel mass comprising a first part and a second part;
 said first part comprising a plurality of areas for being connected to said second part;
 said second part comprising a plurality of areas for being connected to said first part;
 said areas of said first part and said areas of said second part together forming a plurality of connection areas wherein said first part and said second part are connected to one another;
 a plurality of connecting elements for connecting said first part and said second part to one another, each of said connecting elements being disposed at a corresponding one of said plurality of connection areas;
 means for permitting air to flow between said first part and said second part for cooling at least said first part and said second part, said means for permitting being disposed adjacent said plurality of connection areas;
 said means for permitting comprising means for holding said first part and said second part in a spaced-apart relationship with respect to one another;
 said means for permitting further comprising a plurality of passage means extending in a substantially radial direction with respect to the axis of rotation;

each of said plurality of passage means being disposed circumferentially between two adjacent ones of said plurality of connection areas;
 said second flywheel mass comprising means for being connected to a friction clutch;
 said second part of said second flywheel mass comprising a friction surface for being disposed towards a friction clutch and for engaging with a friction clutch;
 said first part of said second flywheel mass comprising an inner circumference and an outer circumference, said inner circumference being disposed nearer to the axis of rotation than said outer circumference;
 a bearing disposed adjacent said inner circumference of said first part;
 said inner circumference of said first part of said second flywheel mass comprising a flange disposed substantially parallel with respect to the axis of rotation and disposed radially inside said connecting elements, said flange extending from said first part towards said second part;
 said flange comprising a shoulder being configured for fixing said bearing in the radial direction; and
 said flange comprising an edge portion extending from said flange towards the axis of rotation, said edge portion being configured for fixing said bearing in the axial direction.

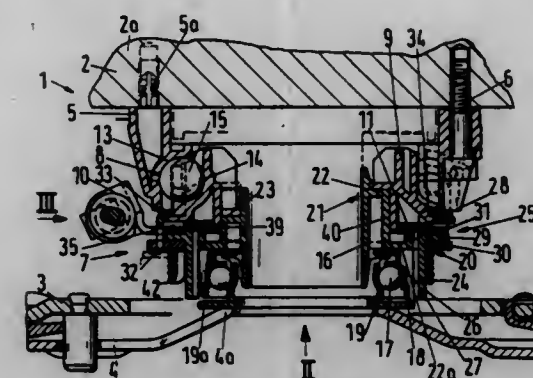
5,669,479
OIL SUPPLY SYSTEM FOR WORKING VEHICLES
 Mizuya Matsufuji, Sanda, Japan, assignor to Kanzaki Kokyukoki Mfg. Co., Ltd., Amagasaki, Japan
 Filed Mar. 15, 1996, Ser. No. 616,619

Claims priority, application Japan, Apr. 4, 1995, 7-102998
 Int. Cl.⁶ F16D 25/10
 U.S. Cl. 192—87.15 7 Claims



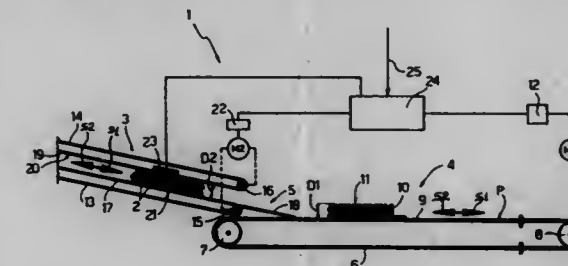
1. In a working vehicle which comprises: a vehicle body, oil-operated means, an oil pump for supplying oil to said oil-operated means, and a control valve means for controlling the operation of said oil-operated means, a lower portion of the interior of said vehicle body being employed as an oil sump for reserving oil supplied to said oil-operated means by said oil pump, an oil supply system characterized in:
 that an oil reservoir chamber (91) having an overflow opening (91a) is provided, said overflow opening being arranged such that the oil level in said oil reservoir chamber is kept higher than the oil level in said oil sump (49) due to the overflow of oil from said reservoir chamber into said oil sump through said overflow opening; and
 that an oil-drain port (68T₁; 68T₂) of said control valve means (68) is communicated into said oil reservoir chamber (91) at a level lower than said oil level in said oil reservoir chamber.

5,669,480
CLUTCH OPERATING APPARATUS
 Ad Kooy, Lauf, and Norbert Mebus, Bülhertal, both of Germany, assignors to LuK Lamellen und Kupplungsbau GmbH, Bülhertal, Germany
 Continuation-in-part of Ser. No. 467,521, Jun. 6, 1995, abandoned. This application Mar. 8, 1996, Ser. No. 613,184
 Int. Cl.⁶ F16D 13/75; 23/14
 U.S. Cl. 192—89.21 33 Claims



1. Apparatus for actuating an engageable and disengageable clutch having an axis of rotation and a useful life expectancy, particularly a friction clutch for operation between a prime mover and a transmission, comprising actuating means operable to actuate the clutch; a support; an intermediate part movable in the direction of said axis; means for operating said actuating means, said operating means being carried by said intermediate part and being rotatable about and movable in the direction of said axis and comprising at least two components including a driven part arranged to act upon said intermediate part in the direction of said axis and a driving part arranged to receive motion from an actuating arrangement; a first ramp assembly operative between said support and said driven part to effect movements of said actuating means in the direction of said axis; a second ramp assembly operative between said driven part and said intermediate part to compensate for axial movements, during the useful life of the clutch, of at least one portion of said actuating means which is engageable by said operating means; and coupling means operative between said intermediate part and said driving part to establish a non-rotary connection between said intermediate part and said driven part during actuation of the apparatus.

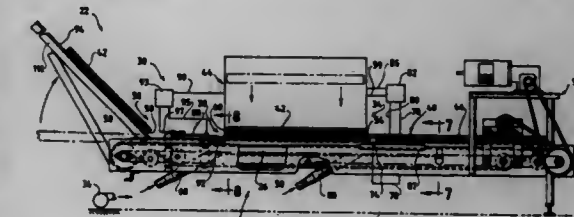
5,669,481
METHOD OF BULK CONVEYING CIGARETTES
 Armando Neri, Bologna, and Mario Turra, Casalecchio di Reno, both of Italy, assignors to G.D. Società per Azioni, Bologna, Italy
 Filed Jun. 13, 1996, Ser. No. 662,494
 Claims priority, application Italy, Jun. 22, 1995, B095A0315
 Int. Cl.⁶ B65G 1/00
 U.S. Cl. 198—347.3 7 Claims



1. A method of bulk conveying cigarettes (2), the method comprising feeding a mass of cigarettes (2) along a path (P) defined by a reversible conveying line (1) comprising a first conveyor (3) and

a second conveyor (4) for masses of cigarettes (2); the first conveyor (3) defining a closed-top channel (20) for a stream of cigarettes (2), and being operated at a first speed (V₂); the second conveyor (4) being an open-top conveyor, and being operated at a second speed (V₁); operating both the conveyors (3, 4) in a first direction (S1) to transfer the cigarettes (2) from the first conveyor (3) to the second conveyor (4), and in a second direction (S2) to transfer the cigarettes (2) from the second conveyor (4) to the first conveyor (3); and regulating said two speeds (V₁, V₂) so that, when the two conveyors (3, 4) are operated in the first direction (S1), said second speed (V₁) is at least equal to the first speed (V₂); whereas, when the two conveyors (3, 4) are operated in the second direction (S2), said second speed (V₁) is at most equal to the first speed (V₂), the speeds of the first and second conveyors being different from one another in one of said directions so that in said second direction, the stream of cigarettes being transferred from the second conveyor to the first conveyor will have the same thickness on both conveyors.

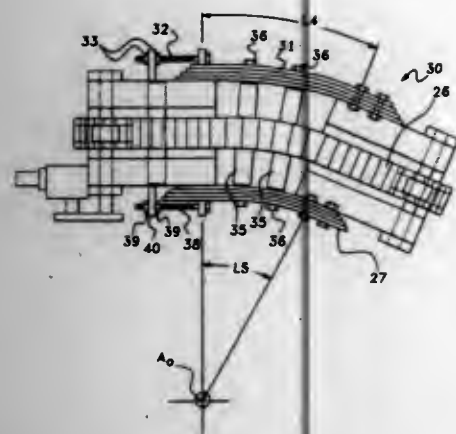
5,669,482
TRAILING END AIR HOLD-UP ASSEMBLY
 Andrew E. Mojden, Hinsdale, and Paul M. Ross, Riverside, both of Ill., assignors to Fleetwood Systems, Inc., Romeoville, Ill.
 Filed Oct. 10, 1995, Ser. No. 541,612
 Int. Cl.⁶ B65G 47/22
 U.S. Cl. 198—380 20 Claims



1. An article hold-up assembly for use with an article handling apparatus having an elongated lane defining an axis of elongation for merging a finite series of articles defining a group of articles with a generally continuous series of articles defining an outfeed stream, said article handling apparatus having a conveyor for moving said group of articles and a portion of said generally continuous series of articles through at least a portion of said lane, said article hold-up assembly comprising:
 an air supply device providing positive air flow;
 a plenum chamber communicating with said air supply, said plenum chamber being positioned spaced away from said axis of elongation; and
 a plurality of apertures in said plenum chamber said apertures in said plenum chamber being arranged for emitting a directional, generally angular air flow against a trailing end of said group of articles for maintaining at least one article defining said trailing end of said group of articles in an abutting orientation with said group of articles as said group of articles is moved by said conveyor along said elongated lane.

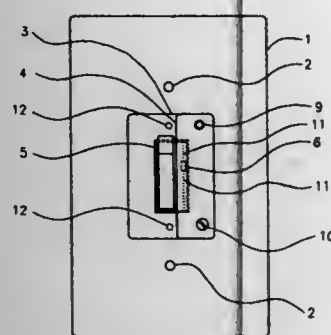
5,669,483
CONVEYOR FOR TRANSPORTING A WORKPIECE ALONG A CURVED PATH
 John Nolan, 39283 E. Archer, Harrison Township, Mich. 48045
 Filed Feb. 15, 1995, Ser. No. 389,175
 Int. Cl.⁶ B65G 21/14; 21/16
 U.S. Cl. 198—812 6 Claims

1. A conveyor for use in transporting a workpiece along a curved path comprising:
 a frame, said frame including a supporting structure having opposite and parallel spaced side members interconnected by cross supports;



a drive roller attached to said side members at one end thereof;
a take up roller attached to said side members at an end opposite said drive roller;
a belt engaging said drive and take up rollers, such that movement of said drive roller causes movement of said belt;
said side members formed of a plurality of individual members arranged in adjacent layers such that individual members may move in a longitudinal direction relative to adjacent individual members to change the length of the side member;
means for interconnecting the individual members together while allowing for relative longitudinal movement between the individual members;
and means for adjusting the overall length of the side members to adjust the configuration of the conveyor.

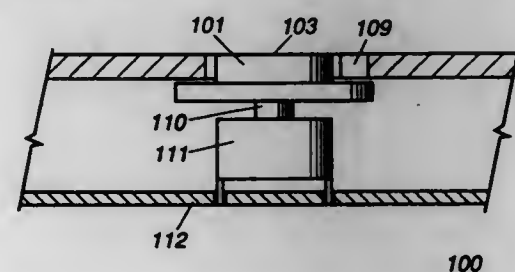
5,669,484
PROTECTIVE COVER FOR THE MINI-SLIDE KNOB OF DIMMERS WITH MINI-SLIDE KNOBS
Tom J. Paulson, 14721 27th Ave. NE., Seattle, Wash. 98155
Filed Jan. 24, 1996, Ser. No. 590,953
Int. Cl.⁶ H01H 9/28
U.S. Cl. 200—43.22 4 Claims



1. A cover for a switch wherein the switch has a toggle actuator and a mini slide knob adjacent to the toggle actuator for adjusting an illumination level of a light to be actuated by the toggle actuator comprising:
a wall plate adapted to be attached to the switch and having an opening therethrough for receiving the toggle actuator and the mini slide knob when the wall plate is attached to the switch;
a base plate mounted to said wall plate and having an opening therethrough which is aligned with said opening in said wall plate for enabling a user to have access to the toggle actuator and the mini slide knob;
a protective cover plate pivotally attached to one end of said base plate and adapted to cover the mini slide knob when in a first position and enable a user to have access to the mini slide knob when in a second position; and

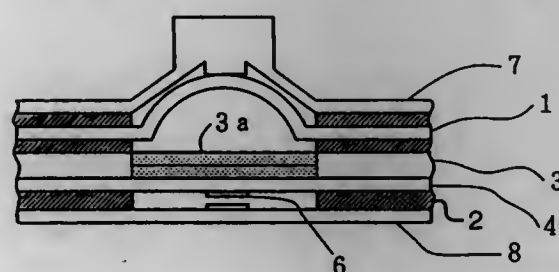
a securing means positioned on another end of said base plate for securing said protective cover plate in said first position to thereby prevent a user from gaining access to the mini slide knob.

5,669,485
ROTARY SWITCH KNOB ASSEMBLY WITH INTERSPERSED RADIAL LABELING
Paige M. Painter, Bartlett, and Martin E. Holmes, Hoffman Estates, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Jan. 2, 1996, Ser. No. 581,898
Int. Cl.⁶ H01H 9/00
U.S. Cl. 200—308 13 Claims



1. A rotary switch knob assembly comprising:
a circular knob for attachment to an electronic switch having a plurality of interspersed labeling configured radially at least partially about the knob, the interspersed labeling having a first set of characters and a second set of characters each configured at a predetermined angle;
a first viewing window positioned over the interspersed labeling; and
wherein either the first set of characters or the second set of characters are displayed through the viewing window depending on an angular position of the viewing window.

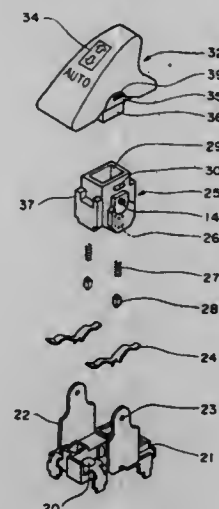
5,669,486
ILLUMINATED SWITCH
Mitsunori Shima, Tokyo, Japan, assignor to Fuji Polymeritech Co., Ltd., Tokyo, Japan
Filed May 16, 1996, Ser. No. 648,564
Claims priority, application Japan, Aug. 7, 1995, 7-219450
Int. Cl.⁶ H01H 9/00
U.S. Cl. 200—314 18 Claims



15. An illuminated switch comprising:
a display layer;
spring means including a click type transparent resin dome embossed into a dome shaped spring portion with a transparent thermoplastic resin, said dome shaped spring portion being part of a spring layer and being disposed adjacent to said display layer with no structural element disposed between said display key layer and said transparent resin dome;

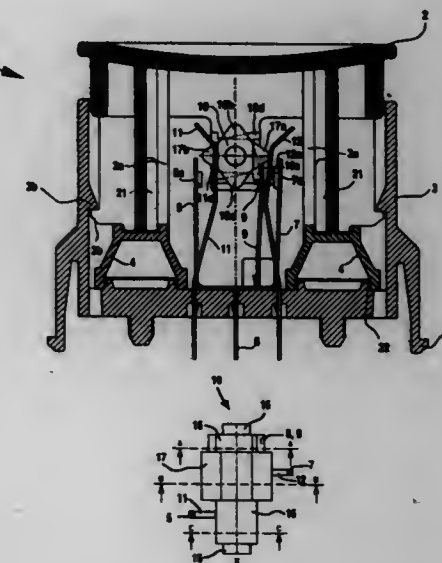
an illumination source consisting of an elastic surface illuminant layer providing substantially uniformly distributed illumination over a surface area, said illuminant layer being disposed adjacent to said dome shape spring portion with no structural element disposed between said spring layer and said illuminant layer;
an insulating frame layer in contact with said illuminant layer; and
a conductive portion layer provided on said insulating layer on a side of said insulating layer which is opposite said elastic surface illuminant layer, said dome shaped spring portion being disposed just above said conductive portion.

5,669,487
KEY TOP MOUNTING STRUCTURE FOR A VEHICULAR SWITCH
Masashi Sakata, Furukawa, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan
Filed Jun. 21, 1996, Ser. No. 667,572
Claims priority, application Japan, Jun. 23, 1995, 7-181114
Int. Cl.⁶ H01H 3/00
U.S. Cl. 200—339 2 Claims



1. A key top mounting structure for mounting a key top to a switch body of a vehicular switch, the key top mounting structure including:
an operating lever having a wall surrounding an opening, the operating lever including a pivot shaft for pivotally connecting the operating lever to the switch body;
a key top having an engaging protrusion and a frame member surrounding the engaging protrusion such that a gap having a predetermined width is provided between the engaging protrusion and the frame member;
a first stepped portion formed on an outer surface of the engaging protrusion, the first stepped portion extending in a longitudinal direction of the key top;
a hole formed in the frame member adjacent the first stepped portion;
a second stepped portion formed on an inner surface of the wall of the operating lever; and
a projection formed on an outer surface of the wall of the operating lever, the projection being snap-coupled into the hole;
wherein the key top is engaged to the operating lever such that the wall of the operating lever is held in the gap located between the frame member and the engaging protrusion, and the engaging protrusion is received in the opening; and
wherein the first stepped portion formed on the engaging protrusion abuts the second stepped portion formed on the wall.

5,669,488
PUSH BUTTON SWITCH WITH STAR WHEEL ARRANGEMENT
Stefan Burger, Ernstfeld, Germany, assignor to Cherry Mikroschalter GmbH, Auerbach, Germany
Filed Mar. 22, 1996, Ser. No. 621,828
Claims priority, application Germany, May 15, 1995, 195 17 779.7
Int. Cl.⁶ H01H 13/58
U.S. Cl. 200—528 9 Claims

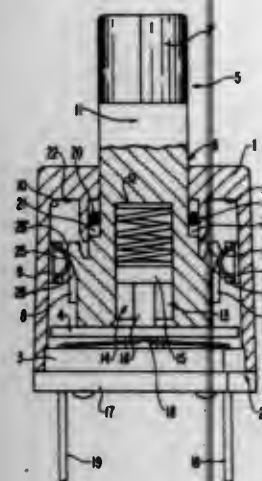


1. A push button switch comprising: a socket having a base and side walls, a push button disposed in said socket so as to be movable in a linear direction between a normal outwardly extending rest position and inward end position, at least one pair of contact elements each comprising a contact arm and a contact spring projecting from the base of said socket and being actuable by said push button for engagement with one another, a trip cam member having at least two bearing structures by which it is supported in said push button so as to be rotatable about an axis which extends normal to the direction of movement of said push button into, and out of, said socket, said trip cam member comprising at least a first segment having opposite first cams extending in a first radial direction with respect to said axis, and having flattened surface areas on opposite sides of said first cams in planes which are spaced from said axis and extend parallel to said first radial direction, said first contact spring being disposed adjacent said first segment such that said first contact spring is forced into engagement with an associated contact arm when said first contact spring is flexed outwardly by a respective first cam and into contact with said contact arm to establish contact therebetween and that said contact spring is permitted to flex back from said contact arm into abutment with said flat area when said flat area is disposed adjacent said contact spring, and at least another segment having ratchet projections extending radially in a plane including the axis of said trip cam member and extending essentially centrally between an axial plane through the radial projections and an axial plane normal thereto and to said flattened surfaces, at least one stationary rotation latch mounted in said socket so as to be adjacent said trip cam member and having an unlatching structure adapted to catch said ratchet projections for rotating said trip cam member when said push button is actuated, said trip cam member being dimensioned and arranged such that, upon movement of said push button to said end position, said trip cam member is rotated essentially by 90° whereby contact between the contact spring and the contact arm is either established or interrupted, and resilient means disposed in said socket so as to be compressed by said push button when it is actuated for returning said push buttons to said original rest position.

5,669,489
CODING DEVICE
 Hermann von Ende, Nürnberg, Germany, assignor to Fritz Hartmann Gerätebau GmbH & Co. KG, Baiersdorf, Germany
 Continuation of Ser. No. 230,244, Apr. 20, 1994, abandoned.
 This application Jul. 26, 1996, Ser. No. 687,768
 Claims priority, application Germany, Apr. 20, 1993, 9305865 U

Int. Cl.⁶ H01H 19/20
 U.S. Cl. 200—570

27 Claims



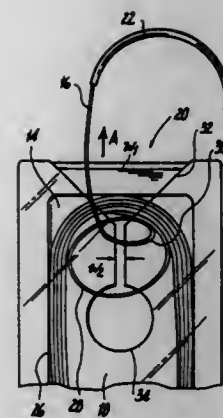
1. A coding device, comprising:
 a contact carrier;
 a coding disk which cooperates with the contact carrier to set codes;
 mounting means for mounting the coding disk for rotary movement with respect to the contact carrier, the coding disk being rotatable through a plurality of rotary positions which correspond to the codes, and for mounting the coding disk for linear movement between an inactive position, wherein the coding disk is spaced apart from the contact carrier, and an active position, where the coding disk engages the contact carrier to set a code corresponding to a rotary position to which the coding disk was rotated while in the inactive position, said mounting means comprising a rotatable shaft to which the coding disk is coaxially connected; and
 indexing means for latching the coding disk in at least one of the rotary positions, said indexing means comprising a ring of teeth, and at least two stop springs configured as leaf springs, said stop springs cooperating with said ring of teeth.

5,669,490
SUTURE RETAINER
 Francis D. Colligan, New Haven, and Ronald H. Belcourt, Jr., Meriden, both of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.
 Filed Jun. 7, 1995, Ser. No. 474,694
 Int. Cl.⁶ B65D 85/00

U.S. Cl. 206—63.3

28 Claims

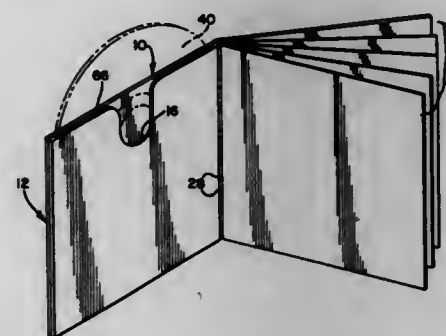
1. A loading unit for use with a surgical suturing apparatus comprising:
 a) a surgical needle secured to a length of coiled suture having: an innermost coiled portion;
 b) a body portion defining an inner cavity;
 c) a cover plate affixed to the body portion for removable retention of the coiled length of suture therebetween, the cover plate having an exit area configured to prevent kinking of the coils of the suture upon removal, the exit area including an open generally Y-shaped notched portion configured to release the innermost coiled portion of the suture from the inner cavity prior to kinking of the suture; and



- d) a mounting member positioned on the body portion and configured to releasably hold the surgical needle;
 12. A loading unit for use with a surgical suturing apparatus comprising:
 a) a surgical needle secured to a length of coiled suture;
 b) a body portion defining an inner cavity;
 c) a cover plate affixed to the body portion for retention of the length of suture therebetween, the cover plate exposing a portion of the inner cavity to facilitate removal of the suture from the cavity;
 d) a mounting member positioned on the body portion and configured to releasably hold the surgical needle; and
 e) apparatus receiving structure formed in the body portion wherein the apparatus receiving structure is configured to receive at least a distal end portion of the surgical suturing apparatus in operative alignment with the mounting member to facilitate mounting of the surgical needle in the surgical suturing apparatus.
 18. A suture package comprising:
 a) a length of suture;
 b) a body portion defining an inner cavity; and
 c) a cover plate affixed to the body portion for retention of the length of suture therebetween, the cover plate having an exit area which includes an open generally Y-shaped notched portion configured to prevent kinking of the suture upon removal from the exit area of the suture package.

5,669,491
COMPACT DISC FOLDER BOOKLET
 Thomas J. Pettey, Wayne, Ill., assignor to Glenbard Graphics, Carol Stream, Ill.
 Filed Nov. 21, 1996, Ser. No. 753,221
 Int. Cl.⁶ B65D 85/57
 U.S. Cl. 206—232

18 Claims



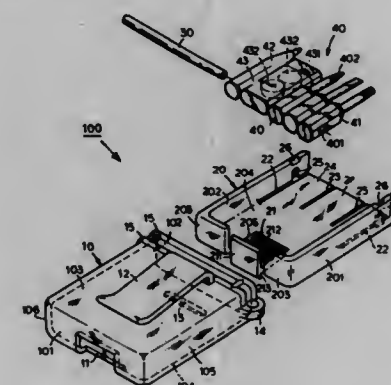
1. A compact disc folder having a booklet shape, comprising: a cover portion and an internal booklet portion, the booklet portion having a plurality of pages and the cover portion enclosing the booklet pages, the cover portion including a front panel, a rear panel and an interior panel, the front and rear panels being inter-

connected together along by a first foldline and said front and interior panels being interconnected together along a second foldline, the first and second foldlines being arranged generally perpendicular to each other, said cover portion further including a pair of flaps formed on said interior panel and interconnected thereto by respective third and fourth foldlines disposed generally parallel to said first foldline and generally parallel to said second foldline, said flaps being interconnected to said front panel to define a pocket between said front and interior panels; the pocket being dimensioned to receive therein a compact disc, said booklet portion pages being attached to said cover portion along said first foldline.

5,669,492
PORTABLE HANGING TYPE TOOL KIT STRUCTURE
 Li Ming Chao, No. 20, F2, Lane 21, Wang-An Street, Taipei, Taiwan

Filed Sep. 5, 1996, Ser. No. 708,623
 Int. Cl.⁶ B65D 69/00; B25G 1/08; B26B 11/00
 U.S. Cl. 206—234

2 Claims



1. A portable hanging type tool kit structure comprising an outer box, an inner box, a transverse pin and several tools, wherein the outer box is a hollow box body for receiving the inner box, while the tools are received in the inner box, said tool kit structure being characterized in that:

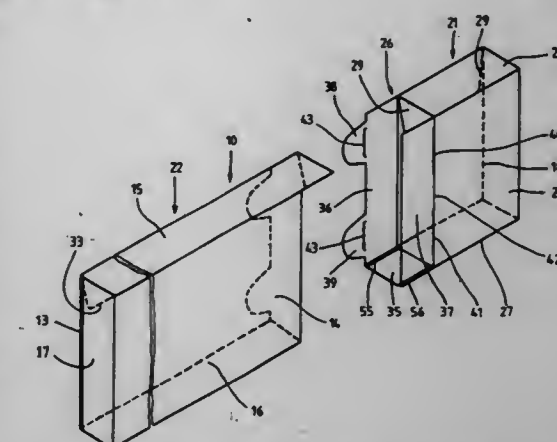
the outer box has a rear closed end formed with a rectangular opening and a front open end, a lower side of the outer box being formed with a slot adjacent to the open end;
 the inner box includes two lateral walls, a rear wall and a bottom board, the rear wall being formed with a notch in which a resilient latch block is located, the latch block including a vertical plate and a horizontal plate, a front end of the horizontal plate being connected with an edge of the notch of the inner box, a latch hook downwardly extending from a lower edge of the vertical plate, the bottom board being formed with several slits at front end to divide the front end of the bottom board into several resilient plates, two symmetrical recesses being formed on front ends of the two lateral walls, the transverse pin being horizontally fixed in the recesses, a slope dent being disposed above each recess, whereby the transverse pin can be easily guided into the recess;
 each tool is formed with a through hole at rear end for the transverse pin to pass therethrough, serving as a rotary shaft; and
 a clip member is disposed on an upper side of the outer box and a first or a second lateral side of the outer box is disposed with a hanging lug, a periphery of the open end being disposed with slipproof stripes for achieving slipproof effect.

5,669,493
CARTON FOR CIGARETTE PACKS
 Heinz Focke, Verden, and Henry Buse, Visselhövede, both of Germany, assignors to Focke & Co. (GmbH & Co), Germany

Filed May 18, 1995, Ser. No. 444,037
 Claims priority, application Germany, May 31, 1994, 44 18 821.8

Int. Cl.⁶ B65D 85/10; 5/54
 U.S. Cl. 206—271

13 Claims



1. A cigarette carton (10) containing a plurality of cigarette packs (11), the carton formed from thin foldable cardboard and having front and rear walls (13, 14), top and bottom walls (15, 16), a closure strip (33) extending from the top wall and bonded to the rear wall, all of said walls defined by longitudinal fold lines, and sealed end walls (17, 18), the carton further comprising:
 (a) a first transverse fold line (54) extending across the front and rear walls (13, 14) and the intermediate bottom wall (16) and spaced inwardly from one of said end walls of the carton a distance equal to the width of one of said cigarette packs;
 (b) a first transverse perforated parting line (20) extending across the front and rear walls (13, 14) and intermediate bottom wall (16) and spaced inwardly of the carton from the first transverse fold line a distance equal to the width of one of said end walls;
 (c) punch-cut lines (55, 56) extending between the first transverse fold line (54) and first perforated parting line (20) and along longitudinal fold lines defining the bottom wall;
 (d) a push-in tongue (38 or 39) defined by perforations in the carton rear wall (13), the push-in tongue extending inwardly toward the center of the carton from the first perforated parting line (20);
 (e) a slit (40 or 41) in the first fold line (54) on the front wall and positioned for receiving the push-in tongue (38 or 39);
 (f) a second perforated parting line extending across the top wall (15) and closure strip (33) aligned with the first fold line (54); and
 (g) a third perforated parting line extending between the first and second perforated parting lines and coincident with the longitudinal fold line between the front and top walls (14, 15), whereby the carton is separable along the perforated parting lines into a residual carton section and a resealable box section.

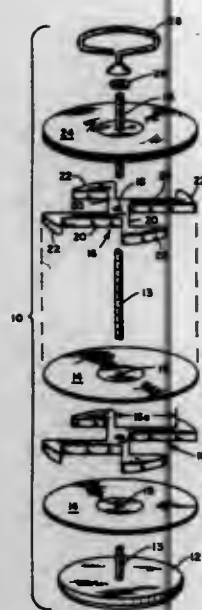
5,669,494
STORAGE CAROUSEL FOR COMPACT DISKS AND THE LIKE
 Benjamin Geffen, San Francisco, Calif., assignor to Full Circle Company, San Francisco, Calif.

Filed Aug. 11, 1994, Ser. No. 289,194
 Int. Cl.⁶ B65D 85/57; 85/575

U.S. Cl. 206—308.1

18 Claims

1. Apparatus for storage of boxes comprising:
 a base turntable having a central aperture;



- extending vertically upward from and attached to said base turntable, an elongated rod for purpose of retaining all parts of said apparatus in place centered around axis of said rod, and stationary relative to said base turntable;
- a plurality of substantially identical circular dividers that are LP phonograph record albums, each divider having a central aperture for accommodation of said rod, and each held in place by said rod in planes parallel to and concentrically above said base turntable;
- a plurality of spacers, each spacer having a central aperture for accommodation of said rod, each spacer including a plurality of radially outwardly extending walls, each spacer held in place by said rod between said dividers concentrically above said base turntable to define a plurality of storage tiers, each storage tier defining a plurality of compartments;
- a handle having a central aperture for the purpose of attaching said handle to a top of said rod and for the purpose of clamping all of said dividers, spacers, and boxes to be stored in stationary position relative to said base turntable.
10. Apparatus for storage of CD jewel boxes, audio cassette boxes and video cassette boxes, the apparatus comprising:
- a circular base turntable having a central aperture;
- a rod extending vertically upward from and attached to the base turntable, the rod stationary relative to said base turntable;
- a plurality of substantially identical circular dividers, each one of the plurality of circular dividers having a central aperture for accommodation of the rod, each one of the plurality of dividers disposed on the rod in planes parallel to and concentric with the base turntable;
- a plurality of spacers, each one of the plurality of spacers having a central aperture for accommodation of the rod and a plurality of radially outwardly extending walls, each one of the plurality of spacers disposed on the rod between respective ones of the plurality of circular divider platters to define a plurality of compartments, at least one of the plurality of spacers comprising a notch with means for enclosing classification labels; and
- a handle having means for attaching the handle to a top of said rod and for clamping the pluralities of circular dividers, spacers, and boxes to be stored in stationary position relative to said base turntable.
16. Apparatus for storage of CD jewel boxes, audio cassette boxes and video cassette boxes, the apparatus comprising:
- a circular base turntable having a central aperture;
- a rod extending vertically upward from and attached to the base turntable, the rod stationary relative to said base turntable;
- a plurality of substantially identical circular dividers, each one of the plurality of circular dividers having a central aperture for accommodation of the rod, each one of the plurality of

- dividers disposed on the rod in planes parallel to and concentric with the base turntable;
- a plurality of spacers, each one of the plurality of spacers having a central aperture for accommodation of the rod and a plurality of radially outwardly extending walls, each one of the plurality of spacers disposed on the rod between respective ones of the plurality of circular divider platters to define a plurality of compartments;
- a handle having means for attaching the handle to a top of said rod and for clamping the pluralities of circular dividers, spacers, and boxes to be stored in stationary position relative to said base turntable; and
- a classification labeling bar having means for attaching the classification labeling bar to the outer edges of the plurality of spacers.

5,669,495

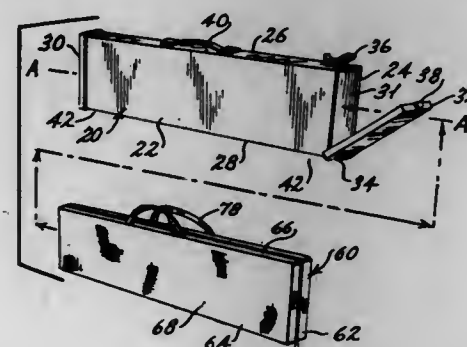
DUAL UTILITY CARRYING CASE

David T. West, 1925 Maplewood Dr., Hagerstown, Md. 21740
Filed Apr. 26, 1996, Ser. No. 639,925

Int. Cl. B65D 85/00

U.S. Cl. 206—317

18 Claims



1. A dual utility carrying case for protectively supporting an object being transported, comprising:
- an elongated outer rigid housing defining an interior chamber and outer ends oriented along an elongated axis of the outer housing, at least one of said outer ends being open;
- a lid for selectively closing said at least one opened end of said housing;
- said housing have a first cross-sectional configuration taken perpendicular to said elongated axis;
- an inner lightweight case of a size and having a cross-section similar to said first cross-sectional configuration to be selectively cooperatively and slidably received within said chamber of said outer housing by being inserted through said open end;
- an outer protective cover which encloses said inner case and said inner case including at least one article-conforming support member having a recess formed therein of a configuration so as to cooperatively receive the object therein;
- means for closing said protective cover so as to retain an object within said recess of said at least one article-conforming support member; and
- a means for latching said lid to said outer housing when said inner case is contained within said chamber.

5,669,496

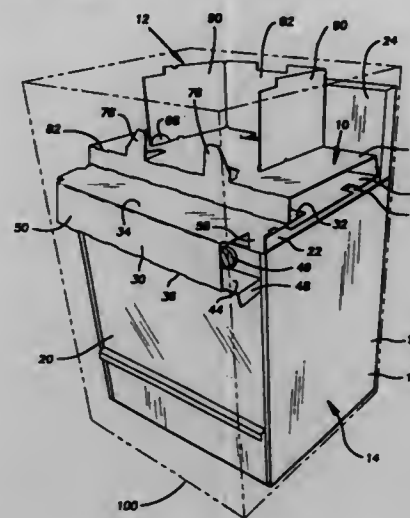
MAIN-TOP PACKAGE

Joseph C. Daniels, Ashland City, Tenn., assignor to White Consolidated Industries, Inc., Cleveland, Ohio
Filed Jul. 10, 1995, Ser. No. 500,431

Int. Cl. B65D 85/00

U.S. Cl. 206—320

7 Claims



1. A shipping restraint in combination with a domestic appliance, said appliance having a cabinet and a movable panel, said shipping restraint comprising:
- a first end received between said cabinet and said movable panel;
- a second end opposite said first end and operable to space a portion of said shipping restraint a distance from said appliance;
- a main section intermediate said first and second ends and including said portion, said main section including means for releasably retaining an appliance accessory on said main section during shipment.

5,669,497

BICYCLE PACKAGING FIXTURE ASSEMBLY

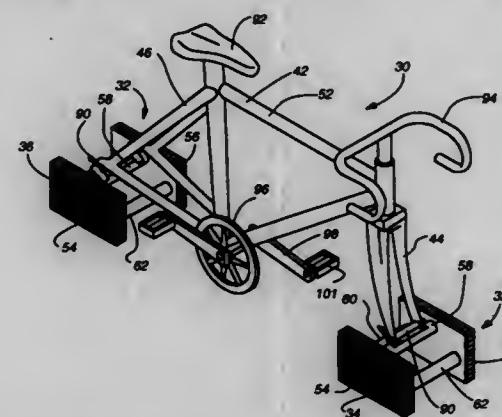
Marc P. Evans, Reno, Nev., and Peter M. Cazalet, Campbell, Calif., assignors to Endurance Sport Technology Group, Inc., Chappaqua, N.Y.

Filed Feb. 2, 1996, Ser. No. 597,494

Int. Cl. B65D 85/68

U.S. Cl. 206—335

9 Claims



1. Bicycle packaging fixture assembly for packing a bicycle in a cardboard shipping container, the bicycle having a frame, a front and rear wheel, the frame having a top-tube, and a pair of front and rear forks, the container having outer walls connected by end

walls, a floor attached between lower portions of the outer and end walls, and an opening defined by upper portions of the outer and end walls, said assembly comprising:

- a front support fixture having opposing outer end members spaced apart by and affixed to a cross member, the cross member defining a wheel seat, and a clamping device for releasably securing the front forks attached to said cross member;
- a rear support fixture having opposing outer end members spaced apart by and affixed to a cross member, the cross member defining a wheel seat, and a clamping device for releasably securing the rear forks attached to said cross member;
- a top support fixture having opposing outer end members spaced apart by and affixed to a wheel guide, the wheel guide defining a downwardly facing center groove and two downwardly facing outer grooves, and a releasable retention member associated with each of said grooves;
- wherein said front forks are attached to the clamping device on said front fork support fixture, said rear forks are attached to the clamping device on said rear fork support fixture, said top-tube is positioned in said center groove and restrained therein by said retention member, said front wheel is positioned in said wheel seat in said front fork support fixture and attached thereto, and also positioned in one of said outer grooves in said top support fixture and attached thereto, said rear wheel engages said wheel seat in said rear fork support fixture and is attached thereto, and is also positioned in the other one of said outer grooves in said top support fixture and attached thereto, all forming a unitary assemblage; and
- said assemblage is positioned in said container such that said front and rear fork support fixtures engage said sidewalls, end walls and floor, and said top support fixture engages said sidewalls.

5. A stand for supporting a bicycle frame on a support surface, the frame having a pair of front forks and rear forks, said stand comprising:
- a front fork support fixture having a clamping device, said clamping device adopted for releasably securing the pair of front forks;
- a rear fork support fixture having a clamping device, said clamping device adopted for releasably securing the pair of rear forks; and
- said front and rear fork support fixtures each comprising:
- a pair of opposing end members;
- three cross members rigidly attached to and join said pair of opposing end members, said cross members each defining a longitudinal axis, and wherein said longitudinal axes are parallel to one another and form a triangular orientation, said plurality of cross members having an axis orthogonal to said end members, said cross members rigidly affixed to and joining said pair of opposing end members, said clamping device rigidly affixed to one of said cross members; and
- wherein said front and rear fixtures engage the support surface and support the frame thereupon.
6. A stand for supporting a bicycle frame on a support surface, the frame having a pair of front forks and rear forks, said stand comprising:
- a front fork support fixture having a clamping device, said clamping device adopted for releasably securing the pair of front forks;
- a rear fork support fixture having a clamping device, said clamping device adopted for releasably securing the pair of rear forks; and
- said front and rear fork support fixtures each comprising:
- a pair of opposing end members, said end members being planar and each comprising an inner rigid plate to which the cross member attaches, and an outer cushioning structure;
- a plurality of cross members rigidly attached to and join said pair of opposing end members, said plurality of cross members having an axis orthogonal to said end members, said plurality of cross members rigidly affixed to and join-

ing said pair of opposing end members, said clamping device rigidly affixed to one of said plurality of cross members; and

wherein said front and rear fixtures engage the support surface and support the frame thereupon.

7. A bicycle transport system, for shipping a bicycle having a front and rear wheel and a frame with a pair of front and rear forks, comprising:

a cardboard shipping container having a floor and four sides with flaps, said four sides defining a top opening for receiving a bicycle for shipment, and said flaps suitable for closing said top opening;

a front fixture having a clamping device and a base portion, said clamping device securing the front forks, and said base portion having opposing sides rigidly connected to said clamping device said opposing sides defining outer and lower surfaces for stabilizing the bicycle frame within said cardboard shipping container;

a rear fixture having a clamping device and a base portion, said clamping device securing the rear forks to the rear fixture and said base portion having opposing sides rigidly connected to said clamping device said sides defining outer and lower surfaces for stabilizing the bicycle frame within said cardboard shipping container;

said clamping device of said front fixture and said rear fixture being a quick-release; and

a top support fixture having a wheel guide, and a base portion, said wheel guide having a lower surface defining three parallel grooves for receiving respectively said front wheel, said frame, and said rear wheel, and for securing the front and rear wheel to the frame of said bicycle and said base portion having opposing sides rigidly connected to said wheel guide, said opposing sides defining outer and upper surfaces for stabilizing the bicycle frame and wheels within the cardboard shipping container.

5,669,498

TRAY ORGANIZER

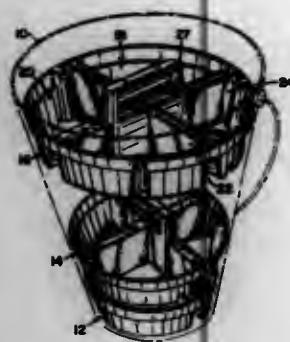
Robert W. Fierck, and David P. Fierck, both of Duluth, Minn., assignors to Fiskars Inc., Madison, Wis.

Continuation of Ser. No. 377,980, Jan. 25, 1995, abandoned, which is a continuation of Ser. No. 27,649, Aug. 26, 1994.

This application Jul. 3, 1996, Ser. No. 674,983

Int. Cl.⁶ B65D 21/02; 85/20

U.S. Cl. 206—373



1. A tray organizer adapted to stack and nest with another tray organizer of identical configuration, the tray organizer comprising: a bottom connected to a surrounding side wall extending upwardly therefrom and defining a central cavity therewith, the side wall having an upper rim; a plurality of outwardly facing cavities formed at spaced intervals along the side wall and extending substantially from the bottom to the upper rim, each cavity having an open end proximate the bottom, an opposed end bounded by a guiding surface projecting inwardly from the rim, the guiding surface terminating in a lower surface stepped down therefrom; and

a plurality of recesses formed in a region of the side wall proximate the bottom; the cavities and recesses being arranged and configured so that in a first stacked position the bottom of an upper tray organizer rests on the lower surfaces of a lower tray organizer, and in a second stacked position the recesses of the upper tray organizer removably engage the lower surfaces of the lower tray organizer.

5,669,499

CASSETTE FOR SUPPORTING AN AUDIO TAPE IN A COMPACT DISC RACK

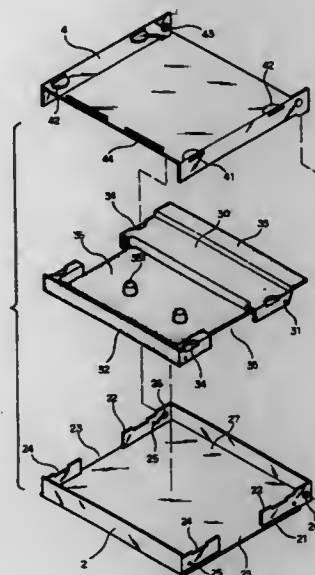
Tsong-Hsien Chen, P.O. Box 63-99, Taichung, Taiwan

Filed Mar. 11, 1996, Ser. No. 613,899

Int. Cl.⁶ B65D 79/00

U.S. Cl. 206—387.1

1 Claim



1. A cassette for supporting an audio tape in a compact disc rack, said cassette comprising:

a base including two sides each having a flange laterally extended outward and each having a side wall extended upward, said side walls each including a middle portion having a first notch and each including an upper portion having at least one depression, said side walls each including at least one hole and each including a rear portion having an aperture, said base including a chamber,

an insert engaged in said chamber of said base and including two side portions each having at least one projection for engaging with said holes of said base and for securing said insert to said base, said insert including a front wall and including a rear panel and including at least one recess formed in said side portion for aligning with said depressions of said base, said insert including a cavity for receiving an audio tape, said side portions of said insert each including at least one second notch for aligning with said first notches of said base and for allowing the audio tape to be removed from said insert, said insert including a tapered bottom for horizontally supporting the audio tape, and

a cap including a rear portion having two bulges for engaging with said apertures and for allowing said cap to be rotated relative to said base about said bulges, said cap including two side portions each having at least one protrusion extended inward for engaging with said recesses and said depressions and for retaining said cap in place, said cap including a front portion having at least one rib for engaging with said front wall of said insert and for securing said cap to said insert.

5,669,500

CARRIER FOR STACKED BOTTLES

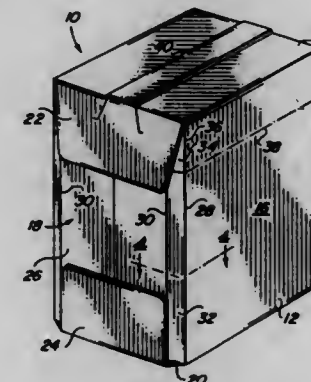
Robert L. Sutherland, Kennesaw, Ga., assignor to Riverwood International Corporation, Atlanta, Ga.

Filed Jan. 19, 1996, Ser. No. 588,797

Int. Cl.⁶ B65D 65/00; B65B 5/10; 35/50

U.S. Cl. 206—427

8 Claims



1. A package comprised of an article carrier containing upper and lower layers of similar adjacent articles arranged in upright position, each article having a relatively narrow top connected by a tapered portion to a relatively wide body, the carrier comprising: a top panel, a bottom panel, opposite side panels and opposite end panels connected together to form an enclosure for the layers of articles;

each end panel being comprised of two relatively long major end panel flaps, each major end panel flap being connected by a first fold line to a different one of the opposite side panels, two relatively short minor end panel flaps, each minor end panel flap being connected by a second fold line to a different one of the opposite side panels, an upper end panel flap connected by a fold line to the top panel and a lower end panel flap connected by a fold line to the bottom panel;

each second fold line being located above an associated first fold line and each minor end panel flap being located entirely above an associated major end panel flap, the minor end panel flaps being separate from and unconnected to the major end panel flaps;

each of the first fold lines having an upper end and each major end panel flap including a third fold line lying in a plane which substantially extends through the upper ends of the first fold lines;

each major end panel flap including a further flap connected to the third fold line, said further flap being spaced from and unconnected to the first fold line, said further flap forming part of the associated outwardly tapered end panel portion;

each lower end panel flap overlapping portions of the associated major end panel flaps and being adhered thereto;

each upper end panel flap overlapping portions of the associated major and minor end panel flaps and being adhered thereto; and the second fold lines and portions of the end panels located above the first fold lines tapering outwardly from the top panel.

4. A method of forming a package comprised of an article carrier containing a plurality of layers of similar adjacent articles arranged in upright position, each article having a relatively narrow top connected by a tapered portion to a relatively wide body, the upper layer containing three rows of articles extending parallel to the length of the carrier, comprising:

providing a carrier including a top panel, a bottom panel, opposite side panels and opposite ends, at least one of the ends being open, two relatively long major end panel flaps connected by first fold lines to the opposite side panels at the open end of the carrier, two relatively short minor end panel flaps connected by second fold lines to the opposite side panels at said open end, an upper end panel flap connected by a fold line to the top panel at said open end and a lower end panel flap connected by a fold line to the bottom panel at said

open end, each second fold line being located above an associated first fold line and each minor end panel flap being located above an associated major end panel flap; providing a recess in each minor end panel flap adjacent an associated major end panel flap; inserting a plurality of layers of articles into the carrier; folding the major end panel flaps to form a portion of an end panel of the carrier; holding adjacent end articles in position by a restraining rail aligned with the recesses in the adjacent minor end panel flaps; and folding the adjacent minor end panel flaps to form another portion of said end panel while the restraining rail remains in place, the recesses in the minor end panel flaps permitting the minor end panel flaps to pivot inwardly past the restraining rail; portions of the end panels located above the first fold lines tapering outwardly from the top panel.

5,669,501

PACKAGE AND METHOD FOR DELIVERING A MEDICAL IMPLANT

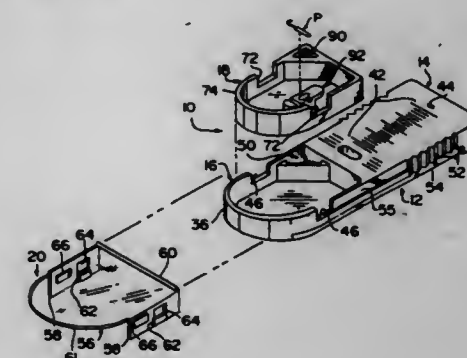
James B. Hissong, Jacksonville, Fla., and John E. Studer, Morris Plains, N.J., assignors to Xomed Surgical Products, Inc., Jacksonville, Fla.

Filed Jun. 5, 1996, Ser. No. 658,283

Int. Cl.⁶ A61B 19/00

U.S. Cl. 206—438

16 Claims



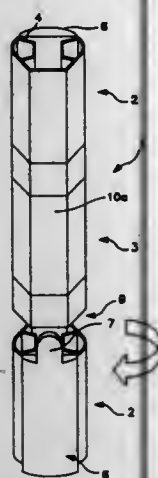
1. In combination, a medical implant and a package for sterile delivery of said medical implant, said package comprising a tray defining a compartment having a bottom wall and at least one wall extending upwardly from said bottom wall when said tray is oriented horizontally; a lid configured to cover said compartment; and means for holding said medical implant in a specified position above said bottom wall of said compartment during transport and removal;

wherein at least a portion of said at least one wall is lower than said medical implant in said specified position and wherein a longitudinal axis of said medical implant in said specified position is aligned with said lower portion of said at least one wall to permit said medical implant to be grasped with a forceps positioned along said lower portion of said at least one wall and having a longitudinal axis substantially aligned with said longitudinal axis of said medical implant.

5,669,502
VIAL HOLDER
 Holly Ong, Redwood City; Paul Schmid, San Francisco, both of Calif.; Cliff Wood, Pound Ridge, and David G. Bragin, Brooklyn, both of N.Y., assignors to Berlex Laboratories, Inc., Cedar Knolls, N.J.
 Filed Apr. 17, 1995, Ser. No. 422,829
 Int. Cl.⁶ B65D 1/09

U.S. Cl. 206—528

33 Claims

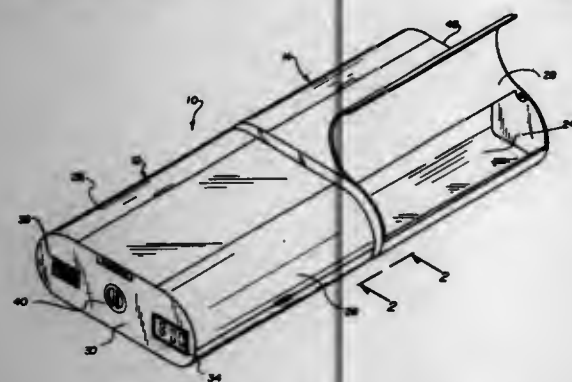


1. A vial holder comprising:
 a handle portion having a longitudinal axis, a first end and a second end, wherein at least said first end of said handle portion is closed by a wall member;
 a hollow vial retention section having a hollow interior, attached to said first end of said handle portion, said vial retention section having a longitudinal axis, a substantially cylindrically shaped internal wall, a first open end adjacent said first end of said handle portion, and a second open end;
 at least one retention member for preventing passage of a vial, when positioned within said vial retention section, through said second open end of said vial retention section; and
 means for displacing said wall member of said handle portion and said vial retention section from one another whereby access is provided into the hollow interior of said vial retention section for introduction of a vial.

5,669,503
MEDICATION DOSE CONTROL SYSTEM
 Brian Abe Robin, 3626 Kings Hwy. 2D, Brooklyn, N.Y. 11234
 Filed Apr. 5, 1996, Ser. No. 630,941
 Int. Cl.⁶ B65D 21/00

U.S. Cl. 206—528

5 Claims



1. A new and improved medication dose control system comprising, in combination:
 a housing including a main unit and an attachable unit, each unit being formed in an elongated generally cylindrical configura-

tion with an upper surface, a lower surface and an essentially hollow interior, each unit including two outer sections and a central section, each outer section including a pivotally coupled rounded storage door affixed therearound, a user storing various objects within the outer sections, the main unit having a front wall and a coupling wall, the front wall including a liquid crystal display clock alarm, the clock alarm including means to be set so that the alarm rings at a predetermined time, a speaker being positioned in the front wall and operatively coupled to the clock alarm, the main unit including a central axle extending from the approximate center point of the front wall to the approximate center point of the coupling wall, a rotatable handle being positioned in the front wall and operatively coupled to the axle to permit rotation of the axle by a user, the coupling wall of the main unit including four arrow shaped projections extending therefrom, the coupling wall further including an extension member operatively coupled to the axle of the main unit;

the attachable unit having a coupling wall and a rear wall, the coupling wall including four arrow shaped recesses and an extension member aperture, in an operative orientation the arrow shaped projections and extension member being coupled within the arrow shaped projections and extension member aperture of the attachable unit, respectively;

the central section of each unit including a dispensing cylinder positioned around the central axle, the dispensing cylinder including eight separate dispensing chambers, a generally rectangular shaped lid being pivotally coupled to the upper surface of the central section of each unit, each dispensing chamber including a rack with twelve compartments separated by notches, the notches being positioned adjacent to each side wall of each rack; and

a medication pouch having a rigid upper region and a soft lower region, the lower region formed in an elongated generally semispherical configuration with a hollow interior, the upper region formed in a generally rectangular configuration with a central aperture and being affixed to the lower region, the upper region including two semirigid side brackets, each side bracket having a central outer depression positioned therein, the upper region including a label tab and a lid including a thumb lift affixed thereto, each medication pouch being positionable in a compartment of a dispensing chamber, the medication to be taken by a user at a specific time of the day being positioned in the lower section of the pouch and accessed by a user with the alarm being sounded.

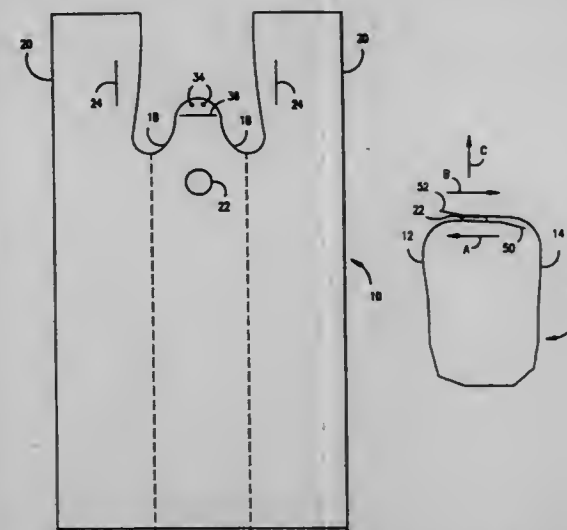
5,669,504
THERMOPLASTIC BAG CLOSURE
 Richard E. Leone, Newark, and William J. Randolph, Palmyra, both of N.Y., assignors to Tenneco Plastics Company, Evanston, Ill.
 Filed Jul. 20, 1995, Ser. No. 504,880
 Int. Cl.⁶ B65D 33/14; 33/18

U.S. Cl. 206—554

12 Claims

1. A pack of thermoplastic bags, the bags being in at least approximate registration, each bag comprising:

- (a) a front wall having an exterior surface;
 (b) an adhesion zone located on the exterior surface of the front wall;
 (c) a rear wall having an exterior surface, wherein at least a portion of the rear wall exterior surface is free of corona discharge treatment, the portion being in substantial alignment with the adhesion zone of a following bag in the pack;
 (d) gusseted side walls connecting the front and rear walls;
 (e) an open bag mouth defined by the front wall, rear wall and side walls; and
 (f) a first closure integral with the front wall and positioned at the bag open mouth and a second closure integral with the rear wall and positioned at the bag open mouth,

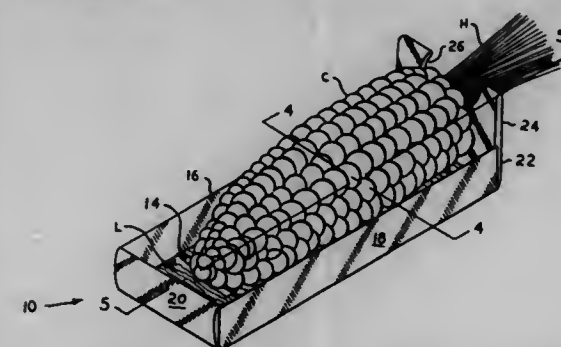


whereby the first closure and the second closure are adapted to close the open bag mouth by the engagement of the second closure with the adhesive zone.

5,669,505
DISPOSABLE SERVING TRAY
 Calvin M. Mayer, P.O. Box 456, Casselton, N. Dak. 58012
 Filed Apr. 8, 1996, Ser. No. 629,411
 Int. Cl.⁶ B05B 5/20

U.S. Cl. 206—565

20 Claims



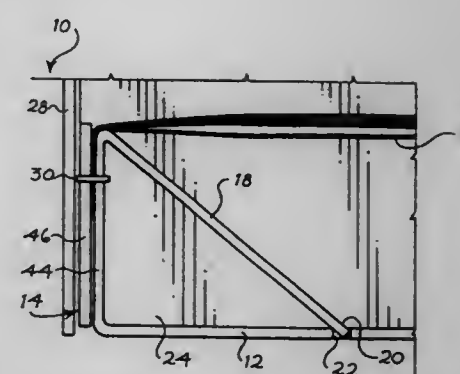
1. A disposable, single service food serving tray, comprising:
 a single thin, planar sheet of material folded to form a rectangular bottom portion with a first and an opposite second side wall and a first and an opposite second end wall extending upwardly therefrom;
 said bottom portion and each said end wall being formed of at least two thicknesses of said sheet of material, and;
 said second end wall including a folded handle support portion extending upwardly above said side walls and said first end wall, whereby;
 said tray serves to hold and retain an article of food placed therein to preclude spillage therefrom, and is further adapted to provide for the economical disposal of said tray after a single use.

5,669,506
SUSPENSION PACKAGE
 Lewis C. Lofgren, and Noel M. Phillips, both of Chicago, Ill., assignors to Ade, Inc., Chicago, Ill.
 Filed Jul. 31, 1996, Ser. No. 690,486
 Int. Cl.⁶ B65D 81/07

U.S. Cl. 206—583

18 Claims

1. A suspension package comprising:
 a base comprising first and second ends;



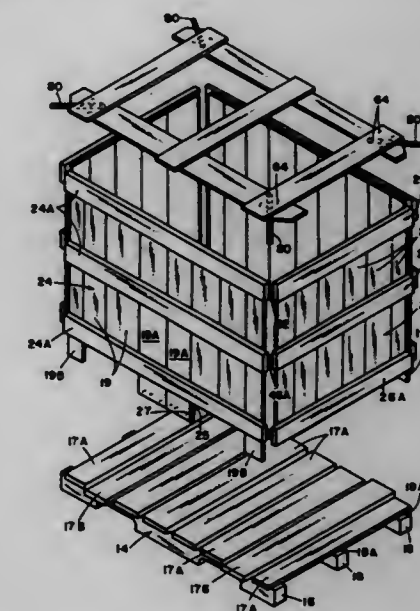
first and second end panels, each end panel secured to a respective end of the base;
 a product-supporting hammock connected to the end panels; and
 a brace extending between the first end panel and the base, said brace securing the first end panel in an operational position in which the hammock is held away from the base by the first end panel, said brace interposed between the hammock and the base.

10. A suspension package comprising:
 a base comprising first and second ends and first and second sides;
 first and second end panels, each end panel secured to a respective end of the base to extend outwardly therefrom;
 a product-supporting hammock connected to the end panels;
 first and second side panels, each side panel secured to a respective side of the base;
 a first fold line extending across the base and the side panels, said first fold line oriented such that folding the base and the side panels at the first fold line to move the end panels toward one another reduces tension on the hammock.

5,669,507
PALLET BOX CONTAINER
 John F. Pruitt, Jr., 2140 Audobon, SW, Wyoming, Mich. 49509
 Filed Apr. 17, 1996, Ser. No. 633,622
 Int. Cl.⁶ B65D 19/00

U.S. Cl. 206—600

11 Claims



1. A collapsible pallet container comprising:

a support pallet having a horizontal platform and undergirders secured beneath said platform;

a plurality of two opposite, upright side panels and two opposite, upright end panels, arranged in a polygon to also form polygon corners;

said side panels and end panels having vertical end edges;

said side panel vertical end edges being adjacent said end panel vertical end edges;

flexible material mounted to said panels and extending between said side panels and said end panels in a manner to secure said panels together in a continuum capable of extension into a rectangular polygon or collapsing into a flattened parallelogram;

said panels having upper and lower portions;

said lower portion of at least two opposite ones of said panels being removably interengageable with said platform;

the improvement comprising:

a removable stabilizer grid having four corners and including compression members for placement between two opposite ones of said upright panels to rigidify said polygon, transverse connectors between said compression members, and interconnectable hook and loop fasteners on said grid and on said polygon for securing said grid in position and thereby forming a stable pallet container, but capable of purposeful disconnection of said hook and loop fasteners for removal of said grid and collapsing of said polygon.

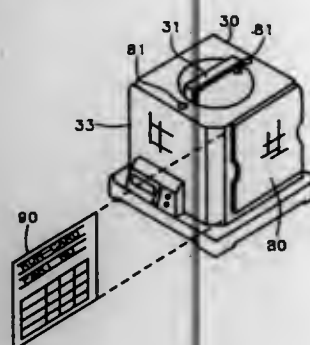
5,669,508
POD CARRIER FUNCTION EXPANSION BY ADDING A FIXTURE

Chen-Chin Chen, Tou-Feng, and Kuei-Lung Chou, Hsin-Chu, both of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed May 28, 1996, Ser. No. 654,518
Int. Cl.⁶ B65D 95/48

U.S. Cl. 206—710

30 Claims



1. An apparatus for carrying articles to be processed in a substantially clean environment free of contaminant particles comprising:

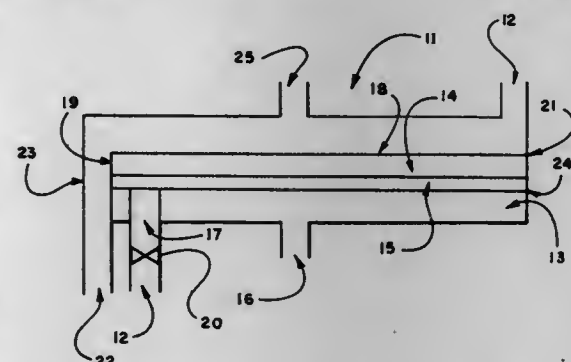
- a box for storing said articles;
- said box having a clean environment inside; said box having a handle on top;
- said box having a door on frontal side; said box having a card-holder on a side adjacent to said frontal side; and
- said card-holder comprising a U-shaped attachment with the legs hugging the sides of the box and with each leg forming a curved slot having a looped section.

5,669,509
DRY SEPARATION OF FINE POWDER FROM COARSE CONTAMINANT IN A VIBRATING FLUID BED
Larry G. Sherman, Edmond, Okla., assignor to Kerr-McGee Chemical Corporation, Oklahoma City, Okla.

Filed Feb. 28, 1996, Ser. No. 608,349
Int. Cl.⁶ B07B 4/00

U.S. Cl. 209—2

8 Claims



1. A method for separating coarse particles from TiO_2 powder in a fine powder composition comprising the steps of:
- (a) providing a system wherein a source of said fine powder composition communicates with a minimally fluidizable bed of said fine powder composition within the system;
 - (b) delivering said fine powder composition from the source to said bed;
 - (c) continuously imparting energy into said bed to disaggregate the fine powder composition and delivering a concurrent flow of a fluidizing gas to said bed at a rate to cause the TiO_2 powder and coarse particles of the fine powder composition to separate into a TiO_2 powder phase and a concurrent coarse particle phase;
 - (d) removing the TiO_2 powders from the system; and
 - (e) removing the coarse particles from the system.

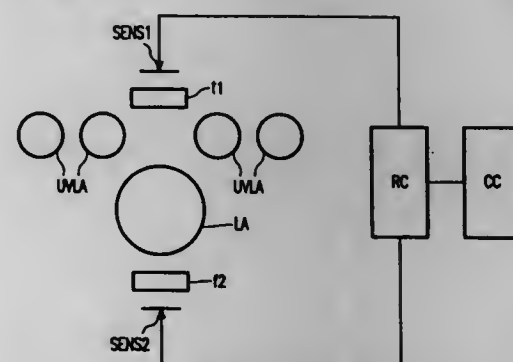
5,669,510
METHOD AND DEVICE FOR SELECTING LOW-PRESSURE MERCURY DISCHARGE LAMPS
Petrus C. Lauwerijssen, Roosendaal; Johannes T. W. De Haer, Eindhoven; Lukas Kastelein, Roosendaal, and Henricus C. G. Verhaar, Eindhoven, all of Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.

Filed Feb. 29, 1996, Ser. No. 607,959
Claims priority, application European Pat. Off., Mar. 10, 1995, 95200589

Int. Cl.⁶ B07C 5/00

U.S. Cl. 209—578

6 Claims



1. A method of selecting low-pressure mercury discharge lamps each comprising a discharge vessel provided with a luminescent layer on an inside surface thereof, said luminescent layer being excited and the low-pressure mercury discharge lamps being

selected in dependence on the emission spectrum of the light emitted by the luminescent layer, said method comprising the steps of:

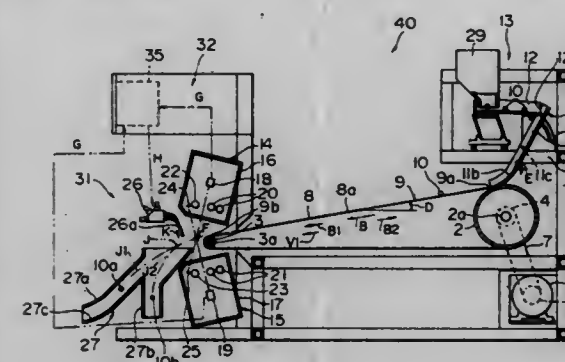
- exciting the luminescent layer by ultraviolet radiation having a wavelength above 300 nm by directing the ultraviolet radiation to the discharge vessel from a location outside the low-pressure mercury discharge lamp,
- measuring the intensity of the light emitted by the luminescent layer in a predetermined wavelength range; and
- associating each said lamp to a particular lamp group from among a plurality of lamp groups having respectively different luminescent layer compositions on the basis of the measured light intensity of said each lamp.

5,669,511
GRAIN SORTING APPARATUS
Satoru Satake, Tokyo; Yasuharu Mitoma, Higashihiroshima, and Takafumi Ito, Mihara, all of Japan, assignors to Satake Corporation, Tokyo, Japan

Filed Sep. 14, 1995, Ser. No. 528,148
Claims priority, application Japan, Oct. 7, 1994, 6-270543
Int. Cl.⁶ B07C 5/342

U.S. Cl. 209—580

10 Claims



1. A grain sorting apparatus for sorting grains having a shape that tends, upon application of a force, to roll over on a conveying surface before sliding, said apparatus comprising:
- conveyor belt means comprising a pair of rollers and an endless belt extending between said pair of rollers, for carrying grains on an upwardly facing conveying surface of the endless belt;
 - feed means for feeding the grains separately onto the conveying surface at an upstream region of said conveyor belt means with respect to a conveying direction;
 - discriminating means for discriminating the grains carried by said conveyor belt means to drop, along a predetermined path, from a downstream end of the conveyor belt means defined by a downstream roller of said pair of rollers; and
 - sorting means for sorting the grains according to a result of discrimination by said discriminating means,
- wherein said conveying surface of said conveyor belt means is disposed at an angle of inclination such that the conveying surface declines toward the downstream end of the conveyor belt means, said downstream end being at a elevation lower than the upstream region to prevent the grains being carried by said belt means from rolling in the upstream direction on said conveying surface of said belt means, said angle of inclination is such that the grains being carried by said belt means are stationary relative to the conveying surface when said belt means is stationary and when said belt means is moving at a predetermined velocity.

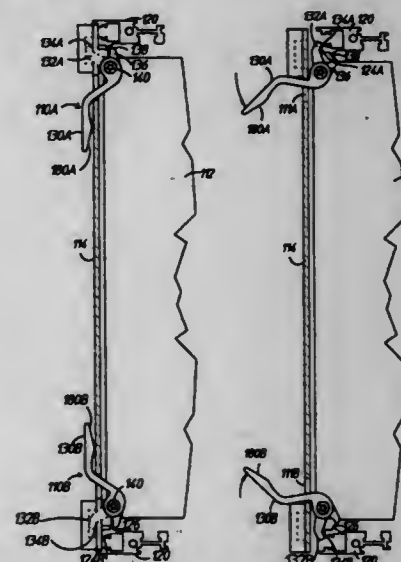
5,669,512
INJECT-EJECT SYSTEM FOR RACK MOUNTED PLUG-IN MODULES

Arnold L. Joslin, Loveland, Colo., assignor to Hewlett-Packard Co., Palo Alto, Calif.

Filed Jan. 5, 1995, Ser. No. 369,070
Int. Cl.⁶ A47F 5/00

U.S. Cl. 211—41

4 Claims



1. A device for injecting and ejecting a printed circuit board module into and out of a mainframe having an injection bearing surface and an ejection bearing surface, said bearing surfaces being manufactured from a material, said injecting/ejecting device comprising:

- a grasping member having a first end, a middle portion and a second end, said grasping member having an upper side and a lower side, said grasping member having a first side and a second side, said lower side of said grasping member being wide at said middle portion and narrowing toward said first end;
- a lever arm for operating said injecting/ejecting device, said lever arm having a first end and a second end, said first end being integral with said second end of said grasping member and extending therefrom;
- a pivot member having a first section and a second section, said first section of said pivot member being integrally connected to said second end of said lever arm, said second section of said pivot member being integral with and adjacent to said first section of said pivot member, said pivot member having a bore hole permitting an interconnection of said injecting/ejecting device to said printed circuit board module, and permitting pivotal movement of said injecting/ejecting device about said interconnection to said printed circuit module;
- an injection finger extending from a lower portion of said second section of said pivot member and integrally connected thereto, said injection finger defining an injection surface on a lower end thereof for contacting said injection bearing surface of said mainframe during insertion of said printed circuit module into said mainframe;
- an ejection finger extending from an upper portion of said second section of said pivot member and integrally connected thereto, said ejection finger defining an ejection surface on a lower end thereof for contacting said ejection bearing surface of said mainframe during extraction of said printed circuit module from said mainframe;
- a front panel adapted to be fixedly attached to a front end of said printed circuit module and perpendicular thereto, said front panel having a notch along an edge thereof and a slot in close proximity to said notch;
- a mounting block adapted to be fixedly attached to said printed circuit module and to said front panel; and
- a connection member extending through said bore hole of said pivot member of said injecting/ejecting device and adapted to

be attached to said printed circuit module, said connection member permitting pivotal movement of said injecting/ejecting device, said injecting/ejecting device adapted to be attached to said printed circuit module in such a manner that said pivot member of said injecting/ejecting device is on a back side of said front panel, said lever arm and said grasping member extend through said notch in said front panel toward a front side of said front panel, said ejection finger extends through said slot in said front panel toward said front side of said front panel when said printed circuit module is in its fully inserted position within said mainframe, said ejection finger being rotated toward said back side of said front panel and coming into contact with said ejection bearing surface during ejection.

5,669,513

WAFER CARRIAGE

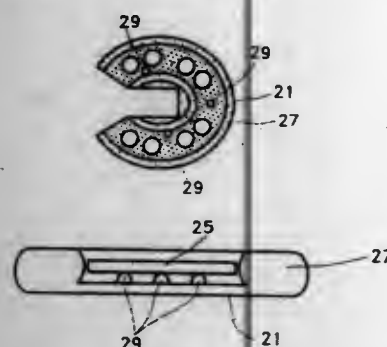
Jae-young Oh; Suk-yong Jeong; Han-sung Kim, and Jin-ho Park, all of Kyungki-do, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Feb. 23, 1996, Ser. No. 604,782

Claims priority, application Rep. of Korea, Sep. 25, 1995, 95-31664

Int. Cl.⁶ A47F 7/00

U.S. Cl. 211—41

10 Claims



1. A wafer carriage having:
a main surface, the outer dimensions of which define a border;
a guide that protrudes from said main surface along portions of said border; and
an entrance provided along a remaining portion of said border through which a wafer is loaded on said wafer carriage, said main surface adjacent said entrance having edges against which said wafer collides when being loaded on said wafer carriage, said edges being rounded.

5,669,514

GOLF CLUB HOLDER

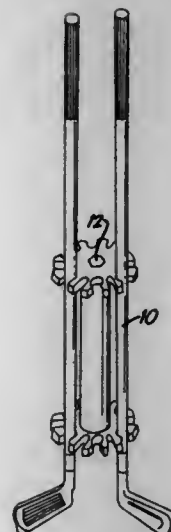
Joseph Massetti, 132 Radigan Ave., Staten Island, N.Y. 10309
Filed May 30, 1996, Ser. No. 655,745

Int. Cl.⁶ A47F 7/00

U.S. Cl. 211—70.2

4 Claims

1. A golf club holder comprising:
a top holder disc shaped plate having flat top and bottom surfaces, with a partially imbedded hole on the top surface, and a smaller hole going through the remainder of the disc, and having a plurality of alternate radial "U" shaped pressure cutouts and golf club holder cutouts which are substantially circular with a flared outward opening;
a bottom holder disc shaped plate having flat top and bottom surfaces, with a partially imbedded hole on the bottom surface, and a smaller hole going through the remainder of the disc, and having a plurality of alternate radial "U" shaped pressure cutouts and golf club holder cutouts which are substantially circular with a flared outward opening;



- a tubular separator having a lengthwise hole passing through its central axis;
a lower nut;
a connector bolt, having a central cylinder, with a flat head at the top and threads at the bottom, with the flat head passing through the partially imbedded hole in the top surface of the top holder plate, the central cylinder passing through the smaller hole in the disc, the lengthwise hole in the tubular separator, the smaller hole of the bottom holder and the thread portion secured by the lower nut, which is inside the imbedded hole of bottom holder.

5,669,515

TOOL HANGER

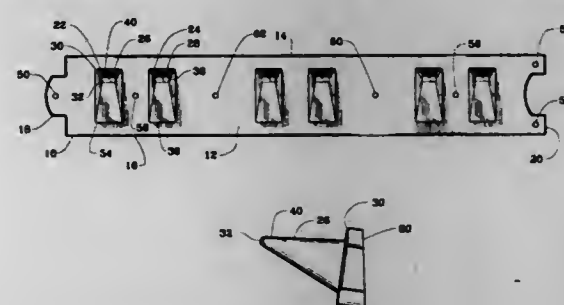
Thomas A. Tisbo, Barrington Hills, and Stephen P. Whitehead, Elgin, both of Ill., assignors to Suncoast Corporation, Batavia, Ill.

Filed Aug. 11, 1995, Ser. No. 513,382

Int. Cl.⁶ A47F 7/00

U.S. Cl. 211—70.6

14 Claims



1. A tool rack comprising:
a support base having a rectangular shape with a first end, a second end, a front surface, a rear surface, and first and second side edges;
said front surface of said support base having a plurality of outwardly extending support members, said first side edge of said support base having a width less than a width of said second side edge for positioning said outwardly extending support members and said front surface at an inclined angle relative to said rear surface;
means for coupling said support base to a similarly shaped support base;
wherein said tool rack is secured to a wall and expandable in length by the juxtaposition of an adjoining tool rack to form a continuous rack by interlocking said first and second ends of an adjoining tool rack.

5,669,516

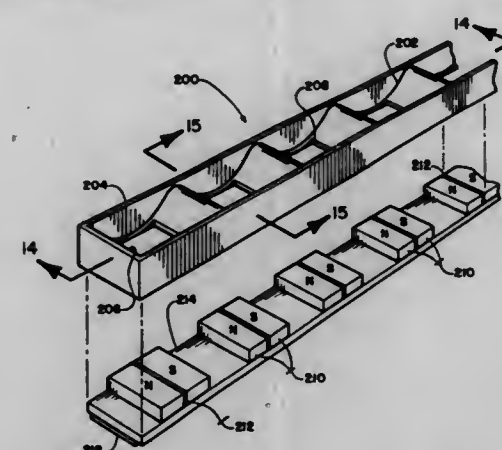
MAGNETIC HOLDERS FOR CYLINDRICAL OBJECTS

Billy Lee Horn, 1313 Greenbrier, Rapid City, S. Dak. 57701
Continuation-in-part of Ser. No. 394,591, Feb. 27, 1995, Pat. No. 5,544,747, which is a continuation-in-part of Ser. No. 232,369, Apr. 25, 1994, Pat. No. 5,456,359, which is a continuation-in-part of Ser. No. 959,117, Nov. 12, 1992, Pat. No. 5,316,143. This application Apr. 22, 1996, Ser. No. 636,125

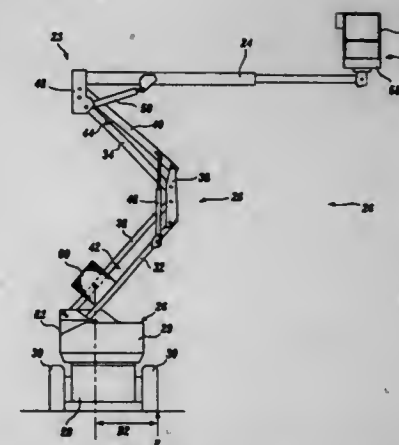
Int. Cl.⁶ A47F 7/00

U.S. Cl. 211—70.6

8 Claims



1. A holder for magnetic metal cylinders of regularly varying diameters which comprises:
an elongated member having a plurality of closely spaced partial-cylindrical transverse recesses along a first surface;
said partial-cylindrical recesses increasing in diameter along at least a portion of said first surface, said recesses having an inner surface;
separate pairs of magnets mounted on a magnetic metal sheet and positioned adjacent to outer surfaces of said recesses, each magnet pair having a north and a south pole region transverse to said elongated member with an interface between each pair of regions;
said interface between adjacent surface north and south pole regions lying substantially in a plane including the axis of each recess and perpendicular to said elongated member; and
a non-magnetized region at said interface between each adjacent pair of north and south poles; and
a magnet layer on the surface of said sheet opposite said magnet pairs;
whereby a cylindrical object placed in a recess of corresponding diameter will be closely adjacent to said magnet along said interface between adjacent north and south poles and retained in said recess and said magnet layer will releasably secure said holder to a magnetic metal structure.



- an upper section having first and second ends, the first end of the upper section being hingedly attached to the second end of the central section, the second end of the upper section forming the load-supporting end of the articulated boom; and
a counterweight mounted on the lower section of the articulated boom between the first end of the lower section and the second end of the lower section.

5,669,518

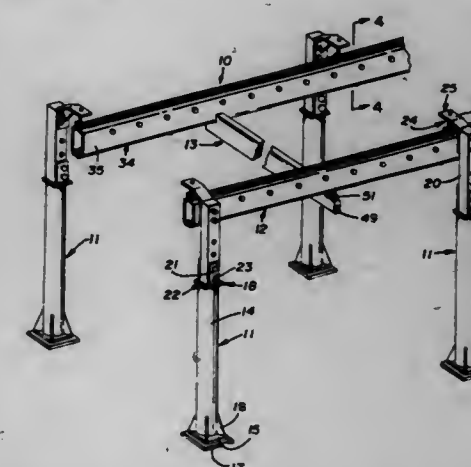
MODULAR LIFT RAIL SYSTEM

Robert Kundel, P.O. Box 4210, Warren, Ohio 44482
Filed Feb. 26, 1996, Ser. No. 607,161

Int. Cl.⁶ B66C 5/04

U.S. Cl. 212—315

6 Claims



1. A lifting rail apparatus for lifting and transporting a work piece comprises, a plurality of adjustable ground engaging support members, modular rails secured to said ground engagement support members, a trolley assembly within said modular rails, said trolley assembly comprises, a trolley support frame, a pair of flexible wheel assemblies on said support frame, said wheel assemblies comprising a tie rod rotatably positioned on its longitudinal axis within said trolley support frame, an axle and bearing assembly extending from said respective tie rods in 90 degree relation thereto and wheels rotatably positioned thereon in oppositely disposed relation to one another, a lift beam movably laterally along said rails, said modular rails and said lift beam comprised of pairs of identical interconnected rail sections defining a trolley guide track therebetween, said rail sections being longitudinally staggered from one another, for overlapping end to end engagement with adjacent rail sections, rail support brackets removably securing said modular rails to said support members in pivoted spaced parallel relation thereto, said rail support brackets comprising, a threaded support element, a pin removably extending through said support element.

5,669,517

ARTICULATING BOOM INCORPORATING A LINKAGE COUNTERWEIGHT

James A. Donaldson, Puyallup, and Matthew S. Fearon, Issaquah, both of Wash., assignors to Genie Industries, Inc., Redmond, Wash.

Filed Jun. 11, 1996, Ser. No. 661,925

Int. Cl.⁶ B66C 23/76

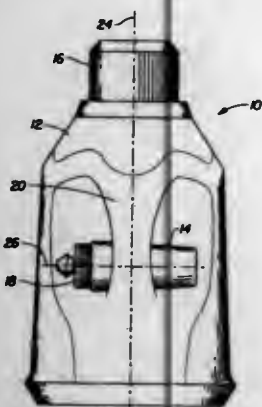
U.S. Cl. 212—196

14 Claims

1. An articulated boom crane comprising:
a base;
an articulated boom for supporting a load at an end comprising:
a lower section having first and second ends, the first end of the lower section being hingedly attached to the base;
a central section having first and second ends, the first end of said central section being hingedly attached to the second end of the lower section;

support element, apertured aligned legs extending from a support tube, and oppositely disposed rail engagement flanges on said tube.

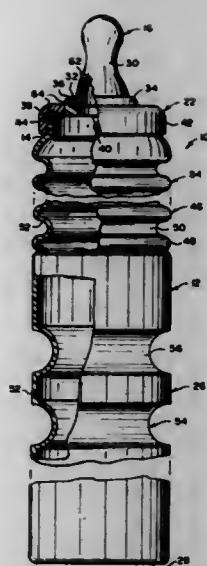
5,669,519
JUG HAVING A SECONDARY BOTTLE IN THE HANDLE OPENING
 Robert R. Notz, Jerome P. Cappel, and Gregory A. Zimmer, all of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
 Filed Mar. 28, 1996, Ser. No. 623,307
 Int. Cl.⁶ B65D 23/12; B65D 23/10
 U.S. Cl. 215—10 3 Claims



3. A two container assembly comprising:
- a first container for containing a fluid, said first container having a handle integrally formed therein, a handle opening, and a top-to-bottom axis, said handle opening being used as a finger hole for said first container; and
 - a second container for containing a fluid, said second container having a resilient sidewall, a top end and a bottom end, said resilient sidewall being dimensioned to be inserted into said handle opening of said first container as said resilient sidewall is partially flexed, insertion occurring to a point where a concave portion in said second container engages said handle, said engagement resulting in a snap-fit, said top end and said bottom end of said second container extending outwardly from opposite sides of said handle opening, and said second container having a top-to-bottom axis being substantially perpendicular to said top-to-bottom axis of said first container when said second container is snap-fit into said handle opening, said second container only partially filling said handle opening so that said first container may be lifted by said handle opening with said second container therein.

5,669,520
FLEXIBLE NECK BABY BOTTLE
 Bernice Simpson, P.O. Box 1031, Hillsborough, N.C. 27278
 Filed Mar. 25, 1996, Ser. No. 622,579
 Int. Cl.⁶ A61J 9/00; 11/00; B65D 23/10
 U.S. Cl. 215—11.1 1 Claim

1. A flexible neck baby bottle comprising:
- a nursing container having a neck at an open end, to hold a liquid therein;
 - a nipple assembly adapted to be received in a mouth of a baby comprising an artificial teat having an annular lip and a cylindrical connector having an annular socket at one end to receive said annular lip of said teat and a flange at the other end of said connector;
 - means for mounting in a watertight sealed manner said nipple assembly to said neck of said nursing container comprising external threads on said neck, an annular cap nut having internal threads at one end of said nut for engaging said external threads and the opposite end of said nut having



- means for clamping the flange of said connector onto a rim of said neck as said annular cap nut is tightened on the neck of said nursing container;
- means in said nursing container directly below said neck for allowing bending of said neck by the baby with said mounting means and said nipple assembly freely in any direction without inhibiting a flow of the liquid from said nursing container out through said nipple assembly and into the mouth of the baby comprising a corrugated circular bellows integral with said nursing container between said cylindrical body and said neck, said bellows including a plurality of annular, circular ridges with a plurality of annular, circular recesses between said annular ridges made out of a plastic sufficiently soft and pliable to permit both bending in any direction by movement of the baby as well as compression and expansion when bent, so that the baby can easily maneuver and orient said nipple assembly at any angle when nursing; and
 - means in said nursing container directly below said bending means comprising a plurality of annular grooves formed in said nursing container to receive the fingers of a hand of the baby for allowing a better gripping of said nursing container.

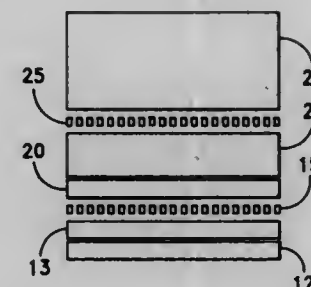
5,669,521
SEALING COVER HAVING A SEPARATION LAYER FOR RELEASING AND ALUMINUM FOIL FROM AN OPENING OF A CONTAINER

Heinz-Rudolf Wlenig, Alfeld OT Gerzen, and Horst Trombach, Bremen, both of Germany, assignors to Alfelder Kunststoffwerke Herm. Meyer GmbH, Alfeld/Leine, Germany

PCT No. PCT/EP94/00777, § 371 Date Sep. 8, 1995, § 102(e) Date Sep. 8, 1995, PCT Pub. No. WO94/21524, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 14, 1994, Ser. No. 513,940
 Claims priority, application Germany, Mar. 15, 1993, 9303786 U

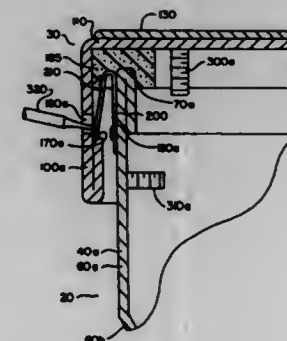
- Int. Cl.⁶ B65D 51/00 12 Claims
1. In a sealing cover for an opening of a container, the sealing cover comprising:
- a first foil that seals the opening of the container;
 - a metallic foil for the inductive sealing of the first foil on the edge of the opening;
 - a removable sealing lid that is releasably secured over the opening of the container;
 - a first adhesive layer between the first foil and the metallic foil that enables the metallic foil to be detached from the first foil after the sealing lid has been removed;
 - an elastic layer between the sealing lid and the metallic foil; and



a second adhesive layer between the elastic layer and the metallic foil, wherein the improvement comprises a separation layer disposed between the metallic foil and the elastic layer, said separation layer becoming liquid at induction temperatures, and a suction layer, wherein the suction layer absorbs the liquified matter of the separation layer during the induction process, the first adhesive layer containing a material which after the inductive sealing process forms a permanent yet manually releasable connection, said first adhesive layer further lacking an adjoining suction layer.

5,669,522
FASTENER ARRANGEMENT FOR AN ENCLOSURE
 James F. Millon, Columbus, and Raymond J. Ichrist, Galena, both of Ohio, assignors to Mettler-Toledo, Inc., Worthington, Ohio

Filed Mar. 1, 1996, Ser. No. 609,884
 Int. Cl.⁶ G01G 21/28
 U.S. Cl. 220—4.02 16 Claims



1. An enclosure comprising:
- a base having a side wall,
 - a cover having a top surface and a side wall facing said base side wall when said cover is positioned on said base,
 - means defining a ledge on said cover side wall,
 - a restraining clip having a fixed leg and a flexible leg movable toward and away from said fixed leg,
 - means connecting said fixed leg to said base side wall so that said flexible leg extends toward said cover side wall in position to resiliently contact said ledge when said cover is positioned on said base and whereby said flexible leg urges said cover side wall away from said base side wall,
 - a resilient member fastened to said top surface of said cover and positioned to be compressed when said cover is positioned on said base and whereby said flexible leg is maintained by said resilient member in resilient contact with said ledge to secure said cover to said base, and
 - said cover side wall includes a hole defined therethru positioned above said ledge and opposite said flexible leg when said cover is secured to said base, said hole being of predetermined size to allow an implement to pass therethru to move

said flexible leg towards said fixed leg to disengage said flexible leg from said ledge and release said cover from said base.

6. An enclosure comprising:
- a base having a plurality of side walls,
 - a cover having a top surface and a plurality of side walls, each said cover side wall facing a base side wall when said cover is positioned on said base,
 - means defining a ledge on a first and second cover side walls,
 - four restraining clips, each having a fixed leg and a flexible leg movable toward and away from said fixed leg, the fixed legs of a first and second clip being connected to a first base side wall at spaced apart locations, the fixed legs of a third and fourth clip being connected to a second base side wall at spaced apart locations, each said flexible leg extending toward a cover side wall in position to resiliently contact said ledge when said cover is positioned on said base and whereby each said flexible leg urges a cover side wall away from its respective base side wall,

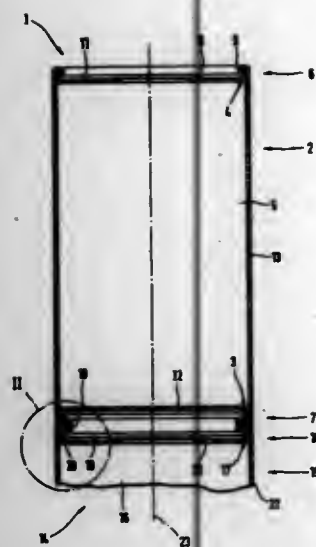
a resilient member fastened to said top surface of said cover and positioned to be compressed when said cover is positioned on said base and whereby said flexible legs are maintained by said resilient member in resilient contact with said respective ledges to secure said cover to said base, and

said first cover side wall includes two holes defined therethru, said two holes being positioned above said ledge, one of said holes being opposite said flexible leg of said first clip when said cover is secured to said base and the other said hole opposite said flexible leg of said second clip when said cover is secured to said base, both said holes being of predetermined size to allow an implement to pass therethru to move each said flexible leg towards said respective fixed leg to disengage said flexible leg from said ledge and release said cover from said base.

13. An enclosure comprising:
- a base having a side wall,
 - a cover having a top surface and a side wall facing said base side wall when said cover is positioned on said base,
 - means defining a ledge on said cover side wall,
 - a restraining clip having a fixed leg and a flexible leg movable toward and away from said fixed leg,
 - means connecting said fixed leg to said base side wall so that said flexible leg extends toward said cover side wall in position to resiliently contact said ledge when said cover is positioned on said base and whereby said flexible leg urges said cover side wall away from said base side wall,
 - a resilient member fastened to said top surface of said cover and positioned to be compressed when said cover is positioned on said base and whereby said flexible leg is maintained by said resilient member in resilient contact with said ledge to secure said cover to said base, and
 - said restraining clip includes a projection of predetermined height between said fixed and flexible legs to prevent over-travel of said flexible leg when said flexible leg is moved towards said fixed leg to release said cover from said base.

5,669,523
NON-METALLIC STACKABLE CONTAINERS WITH SPACED SUPPORTING SURFACES
 Berthold Mueller, Suessen, and Werner Stahlecker, Stuttgart, both of Germany, assignors to Ruediger Haaga GmbH, Germany
 Continuation of Ser. No. 452,147, May 26, 1996, abandoned.
 This application Sep. 25, 1996, Ser. No. 720,171
 Claims priority, application Germany, Jul. 9, 1994, 44 24 244.1

- Int. Cl.⁶ B65D 21/036 3 Claims
1. A container, comprising a tube-shaped container body, a bottom, a lid for closing the container, and at least one first supporting surface arranged at a first long end of the container body and at least one second supporting surface arranged at a



second long end of the container body, wherein at least one of the first and second supporting surface are configured such that, when the container is stacked on a second container having at least one complementary supporting surface, the container body of the first-mentioned container projects into a container body of the second container with the bottom of the first-mentioned container spaced from a lid of the second container to prevent horizontal and vertical displacement of the stacked containers while permitting the containers to be easily separated, wherein the at least one of the first and second supporting surfaces extend at least approximately perpendicular to a longitudinal axis of the container body to prevent vertical displacement, wherein the at least one first supporting surface is arranged on a front border of the container body, and the second supporting surface is arranged on a web projecting from the container body.

5,669,514

ENCLOSURES

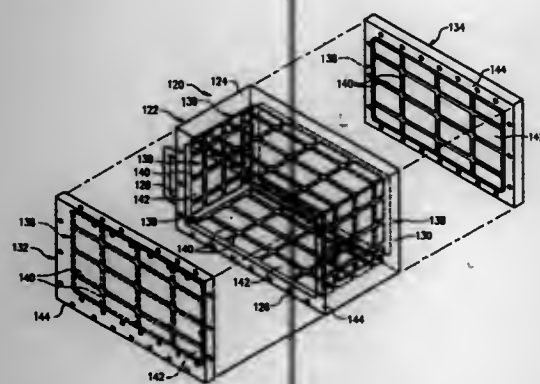
Chris W. Loedel, San Diego, Calif., assignor to Chem-Tronics, Inc., Cajon, Calif.

Filed Jul. 11, 1994, Ser. No. 273,355

Int. Cl.⁶ B65D 25/14

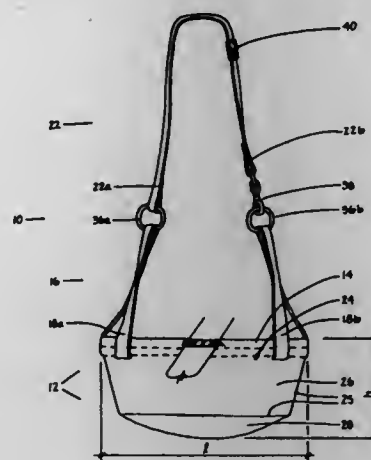
U.S. Cl. 220—9.1

10 Claims



1. A lightweight, structurally integral housing which has walls bounding a defined space, said walls being fabricated entirely of a metallic material and each of said walls being a chemically milled component which has a skin and an array of integral reinforcing ribs on one side of said skin, said ribs being fabricated from the same material as said skin.

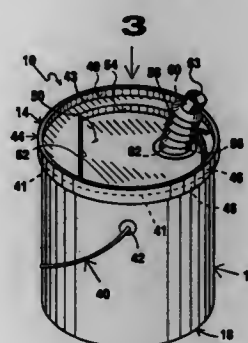
5,669,525
COLLAPSIBLE BUCKET
Rachel Theora Sapyta, 15415 Triple Creek, San Antonio, Tex. 78247
Continuation of Ser. No. 289,369, Aug. 11, 1994, abandoned.
This application Jun. 19, 1996, Ser. No. 663,868
Int. Cl.⁶ B65D 30/10
U.S. Cl. 220—9.1 4 Claims



1. A collapsible bucket comprising:

- a flexible, generally rectangular-forming, waterproof fabric body comprised of coated vinyl and having heat-sealed seams, said body having four walls depending from a perimeter and a flat bottom surface;
- a rigid rectangular frame engaging the perimeter of said body to define a rectangular opening thereto;
- a pair of support straps, each of said pair comprising a pair of arms, the pair of support straps engaging said body adjacent said frame, each of said support straps having skirt members extending between the arms thereof for substantially sealing against the perimeter of said body and extending above the perimeter between the ends of the support straps only to help prevent spillage of the contents of the collapsible bucket; and
- a carrying strap engaging said pair of support straps, said carrying strap having two ends, one end attached to one of said pair of support straps, the other attached to the second of said pair of support straps, said carrying strap being adjustable in length.

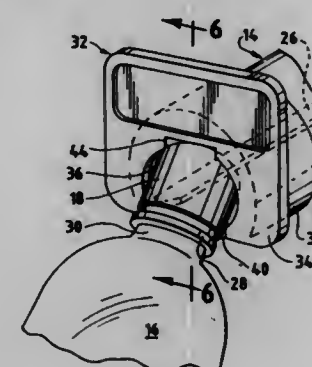
5,669,526
STACKABLE SPILL PROOF PAINT CAN
Terry L. Keyfauver, 1621 T St. NW. #806, Washington, D.C. 20009-3359
Filed Mar. 28, 1996, Ser. No. 625,576
Int. Cl.⁶ B65D 25/40
U.S. Cl. 220—696 15 Claims



1. A stackable spill proof paint can, comprising:

- a) a hollow, partially opened-top, closed-bottom, and generally cylindrically-shaped container having a partially opened-top with a perimeter and an outer surface, and a closed bottom; said partially opened-top of said hollow, partially opened-top, closed-bottom, and generally cylindrically-shaped container having a through aperture with a shape, and a ledge, so that excess paint can be wiped off from a paint brush that was previously dipped into paint contained in said hollow, partially opened-top, closed-bottom, and generally cylindrically-shaped container; said through aperture of said partially opened-top of said hollow, partially opened-top, closed-bottom, and generally cylindrically-shaped container being a substantially D-shaped through aperture with a straight side and an arcuate side;
- b) a removable, resealable, and generally circular-shaped lid having a generally circular-shaped main portion with a perimeter and a depression; said depression of said generally circular-shaped main portion of said removable, resealable, and generally circular-shaped lid having a depth, a through aperture, and a shape substantially equivalent to said shape of said through aperture of said partially opened-top of said hollow, partially opened-top, closed-bottom, and generally cylindrically-shaped container, so that when said removable, resealable, and generally circular-shaped lid is placed on said partially opened-top of said hollow, partially opened-top, closed-bottom, and generally cylindrically-shaped container said depression of said generally circular-shaped main portion of said removable, resealable, and generally circular-shaped lid enters said through aperture of said partially opened-top of said hollow, partially opened-top, closed-bottom, and generally cylindrically-shaped container and prevents relative rotation between said removable, resealable, and generally circular-shaped lid and said hollow, partially opened-top, closed-bottom, and generally cylindrically-shaped container while providing a seal therebetween; and
- c) a pouring spout disposed in said depression of said generally circular-shaped main portion of said removable, resealable, and generally circular-shaped lid and being in fluid communication with said through aperture of said depression of said generally circular-shaped main portion of said removable, resealable, and generally circular-shaped lid, so that the paint contained in said hollow, partially opened-top, closed-bottom, and generally cylindrically-shaped container can be readily poured therefrom.

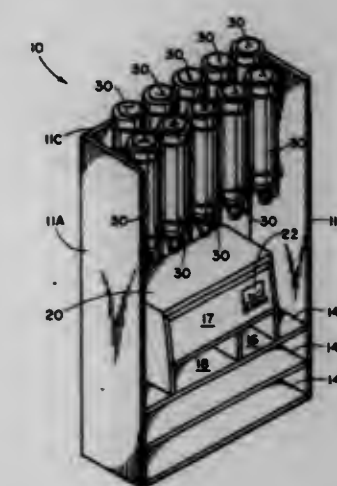
5,669,527
GRAVITY FEED DISPENSER
Stephen N. Hardy, Wadsworth, Ohio, assignor to RTC Industries, Inc., Chicago, Ill.
Filed Mar. 18, 1996, Ser. No. 618,244
Int. Cl.⁶ B65H 3/00
U.S. Cl. 221—191 15 Claims



1. A gravity feed merchandise dispensing system comprising a track support means, at least one longitudinally extending track assembly secured to said support means having front and rear ends,

each track assembly including a pair of transversely spaced apart rails for supporting a row of similar bottles each having a closure secured thereto and an annular flange on the neck of the bottle with the underside of each bottle neck flange engaging and supported by the rails for movement relative to said rails, said track support means retaining the track in a downwardly inclined direction toward the front end of the track so the suspended bottles are gravity fed to the front end of the track as the lead bottle in a track is successively unloaded, the front end of each track assembly includes a stop means for said bottle closure and an opening having height and width dimensions whereby the closure will be prevented from exiting said opening when supported by said track assembly, but can be removed from said track through said opening when tilted with respect to said track assembly.

5,669,528
VACUUM STORAGE AND DISPENSING CONTAINER
Johnie Romero, Greenwell Springs, La.; Andrew R. Weber, Chatham, N.J.; Douglas B. Leeds; Helene Paulson, both of New York, N.Y., and Arthur T. Sempliner, Douglaston, N.Y., assignors to Community Coffee Company, Inc., Baton Rouge, La.
Filed Apr. 20, 1995, Ser. No. 425,932
Int. Cl.⁶ B67D 5/08
U.S. Cl. 222—53 1 Claim



- 1. A storage and dispensing container, comprising:
 - means for storing product to be dispensed, said storing means having a top end and a bottom end;
 - an upper enclosure attached to said top end of said storing means;
 - a lower enclosure attached to said bottom end of said storing means; wherein said lower enclosure further comprises:
 - a lower chassis plate, said lower chassis plate being mounted within the lower enclosure;
 - a collar integrally molded to an inner wall of the lower enclosure;
 - a bearing housing integrally molded to the inner wall of the lower enclosure;
 - a rotary shaft, said shaft having a first end and a second end, said first end extending through said collar, said second end residing within said bearing housing;
 - a handle attached to said first end of said shaft;
 - a portion control bin attached to said shaft, said portion control bin having an opening;
 - a dump valve cam lobe attached to said shaft, said cam lobe activating a dump valve; and
 - a vacuum-line shut off valve cam lobe attached to said shaft, said cam lobe activating a vacuum-line shut off valve;

means for releasing and creating a vacuum in said storing means, said upper enclosure, and said lower enclosure; and means for removing said product from said storing means.

5,669,529

RUNNER'S WRIST-BORNE WEIGHT AND WATER DISPENSER

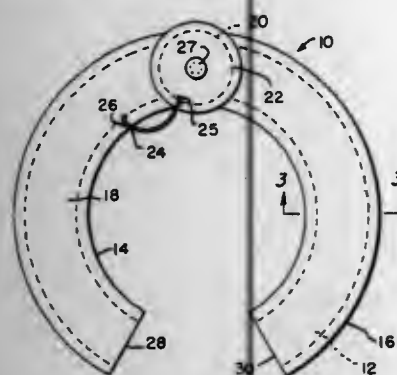
Hiram B. Levit, 224 Warwick Ave., S. Orange, N.J. 07079

Filed May 22, 1995, Ser. No. 445,541

Int. Cl.⁶ B67D 3/00

U.S. Cl. 222-78

1 Claim



1. A runner's wrist-borne weight and water dispenser, comprising:

- a reservoir; wherein said reservoir has a flat top, with terminal ends, of arcuate conformation in plan;
- said reservoir has a flat bottom, with terminal ends, of arcuate conformation in plan; and
- said reservoir has accordion-pleated sides; wherein said top, bottom and sides comprise means for self-supportingly encircling a portion of a wrist of a user;
- said means comprise (a) inside diametrical surfaces of said top, bottom and sides, and (b) a gap obtaining between said terminal ends of said top and bottom; wherein said gap comprises means for accommodating a lateral insertion of such wrist portion into said self-supporting means;
- said reservoir has an outlet; and
- a closure removably secured over said outlet.

5,669,530

MOUNTING SYSTEMS ACCOMODATING A MANUALLY ACTUATABLE PUMP FOR FIXED OR VARIABLE DOSE OPERATION

Ralph J. Cichon, Crystal Lake, Ill.; David G. Moore, Roach, Mo., and Peter J. Walters, Barrington, Ill., assignors to AptarGroup, Inc., Crystal Lake, Ill.

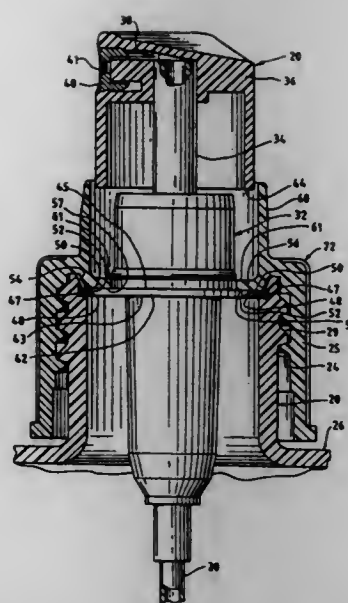
Filed Aug. 18, 1995, Ser. No. 516,931

Int. Cl.⁶ G01F 11/00

U.S. Cl. 222-153.09

30 Claims

1. A system for securing together a container having an opening and a finger-operable pump that has (1) a body, (2) a hollow stem extending from, and in fluid communication with the interior of, said body for reciprocation relative to said body, and (3) an actuator on, and in fluid communication with, said stem from which product can be dispensed, said system comprising:
 - a peripheral mounting flange extending from said pump body;
 - a pump support structure defined by said container around said opening for supporting said pump body flange, said support structure including a support surface against one side of said flange and a snap-fit lip engaging the other side of said flange to retain said flange in a snap-fit engagement so that said stem and actuator project from said container;
 - a thread defined by said container around said opening; and



- a collar that is rotatably mounted on said container and that defines a thread engaged with said container thread, said collar having an abutment surface facing said actuator whereby said collar can be rotated on said container to establish a selected distance between said collar abutment surface and said actuator which defines the stroke length of said pump.

5,669,531

CONVEYOR FOR PARTICULATE MATERIAL

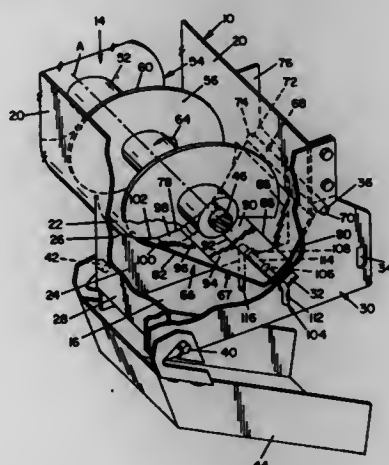
Roland L. Hagemeier, Rochelle, Ill., assignor to The Louis Berkman Company, Steubenville, Ohio

Filed Mar. 29, 1995, Ser. No. 412,969

Int. Cl.⁶ B67D 5/32

U.S. Cl. 222-153.14

33 Claims



33. A device for dispensing particulate material comprising:
 - trough means;
 - means providing said trough means with end edge means;
 - auger means having flight means for moving said material along said trough in a flow direction toward said end edge means;
 - said flight means extending across said end edge means; and
 - said means providing said trough means with end edge means having a first position relative to said trough means wherein said end edge means is an edge normal to said flow direction and a second position wherein said end edge means is an edge extending at an acute angle with respect to said flow direction.

5,669,532

PRESSURE PUMP FOR DISPENSING LIQUID

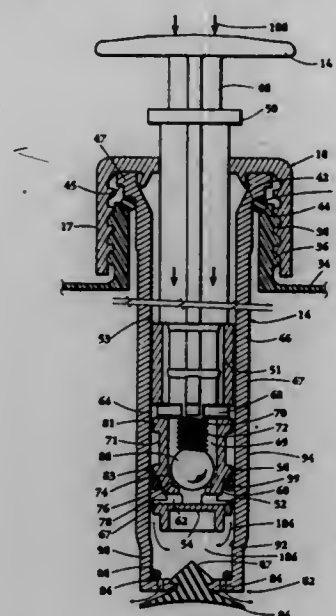
Glen Dorow, Glencoe; Steve Hill, Chesterfield, and Dean Maune, Washington, all of Mo., assignors to United Industries Corporation, St. Louis, Mo.

Filed Apr. 7, 1995, Ser. No. 418,517

Int. Cl.⁶ B65D 83/00

U.S. Cl. 222-401

7 Claims



7. A pressure pump unit comprising:
 - a pressure vessel having at least a first opening;
 - a pressure pump having a piston with a space above it and inserted into said vessel through said first opening;
 - a liquid within said vessel;
 - means to seal the unit to maintain said liquid in said vessel and exterior of the space above the piston of said pressure pump during transportation thereof;
 - a wand attached to said vessel;
 - said wand including a flexible tube at least partially insertable in said vessel and in sealing relationship therewith;
 - a wand valve unit including a pinch valve in contact with said tubing and having a handle;
 - a depression bar contacting said pinch valve such that when in one position the pinch valve crimps the tubing just inside the wall of the handle and the flow of the fluid is restricted and when in a second position flow is permitted;
 - biasing means for urging said valve toward said tubing;
 - stop means for holding said depression bar in a position holding said biasing means in a compressed state.

5,669,533

RESEALABLE FLUID DISPENSER CAP ASSEMBLY

Matthew F. Kelley, Westport, Conn., and Wayne Young, Brewster, N.Y., assignors to Creative Products, Inc., Westport, Conn.

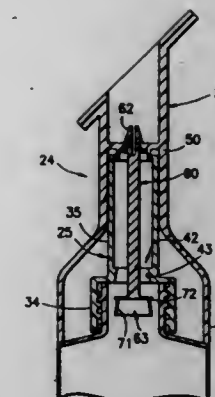
Filed May 6, 1996, Ser. No. 643,615

Int. Cl.⁶ B67D 3/00

U.S. Cl. 222-525

10 Claims

1. A fluid product holding and dispensing system constructed for enabling the product to be repeatedly sealed when not in use, and easily accessed whenever use is desired, comprising a fluid product retaining bottle incorporating a dispensing portal and a product dispensing trigger assembly, said trigger assembly comprising:
 - A. a first member comprising
 - a. a bottle engaging portion mountable to the bottle in cooperating relationship with the dispensing portal and defining an internal cavity,



- b. an elongated, guide portion mounted to the bottle engaging portion in cooperating association with the internal cavity thereof, and defining an internal fluid delivery channel, and
 - c. a portal zone formed at the juncture of the fluid delivery channel of the guide portion with the cavity of the bottle engaging portion; and
- B. a second member cooperatively associated with the first member and comprising
 - a. a body constructed for cooperative association with the guide portion of the first member for movement relative thereto between at least two alternate positions,
 - b. a central passageway extending substantially the entire length of the body and constructed for co-axial alignment with the fluid delivery channel of the guide portion, and
 - c. portal zone closure means mounted to the body for movement therewith and movable between a first portal zone sealing position and a second portal zone open position;
- whereby a fluid product holding and dispensing system is attained which is capable of being repeatedly moved between a product sealed position and a product dispensing position.

5,669,534

UNDERSLUNG MOUNTING FOR A SPARE TIRE

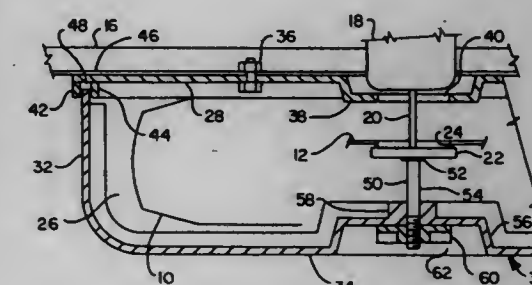
John W. Edgerley, 661 Meadow Dr., Newark, Ohio 43055

Filed May 16, 1996, Ser. No. 648,950

Int. Cl.⁶ B62D 9/00; 11/00

U.S. Cl. 224-42.23

12 Claims



1. A support and storage compartment for a spare wheel of a vehicle, having a frame secured to the underside of said vehicle said compartment being attachable to the frame to support said wheel in a generally horizontal orientation, said compartment including a vertical sidewall, an upper plate and a bottom wall, said wheel including a hub and a tire, said tire being mounted on the periphery of said hub, said upper plate being adapted to be secured to said frame and including a central opening to accommodate the vertical movement of a support strand, said strand having an upper end secured to a wheel lifting mechanism and a lower end secured to a lug, said lug engaging the lower side of a hub to support said wheel,

said lug including a downwardly extending threaded stud, said stud extending downwardly through a central aperture in said bottom wall,
a threaded nut threaded to said stud and pressing upwardly against said bottom wall to press said bottom wall, sidewall and upper plate together to form a liquid impermeable compartment except for said central opening in said plate.

5,669,535

Patent Not Issued For This Number

5,669,534

DEVICE FOR LOCATING SHACKLE LOCK ON BICYCLE FRAME

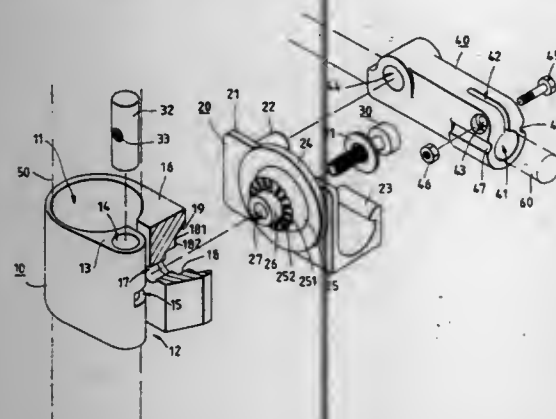
Lopin Wang, 5F, No. 1, Lane 85 Kwang Fu North Rd., Taipei City, Taiwan

Filed Jul. 9, 1996, Ser. No. 680,544

Int. Cl.⁶ B62J 11/00

U.S. Cl. 224-443

3 Claims



1. A device for locating a shackle lock on a bicycle frame, said device comprising:

- a first member having an axial hole and opposing side walls defining a slot penetrating a side of said axial hole, said first member having a C-shaped cross section such that said axial hole can be fitted over a bicycle frame tube and that said first member can be adjusted in the angular range of 360 degrees;
- a second member having a protruded portion and a hooked portion;
- a locking member of a long rod-shaped construction and disposed in such a manner that said locking member fastens said second member with said first member by penetrating said second member and each of said opposing side walls of said slot of said first member along a direction perpendicular to a center axis of said axial hole of said first member, said second member capable of being rotated on said locking member in a range of 360 degrees, said second member capable of being tightened to said first member by said locking member to locate securely said first member and said second member on said bicycle frame tube; and
- a third member adapted to be fastened with one end of a shackle of a shackle lock and provided with a connection hole and a recessed portion, said connection hole being engageable with said protruded portion of said second member, and said recessed portion being engageable with said hooked portion of said second member.

PORTABLE MULTI-POSITION VEHICLE STORAGE UNIT

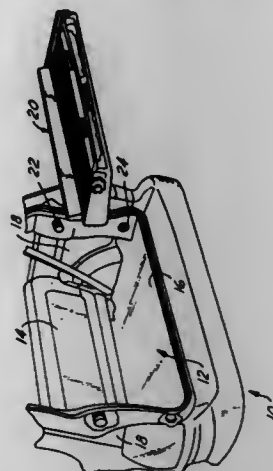
Abbas A. Saleem, Dearborn Heights; William C. Bauer, Farmington Hills; John M. McGuckin, Ann Arbor; Mathew A. Demars, Canton, and David H. Grandinett, Livonia, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jun. 3, 1996, Ser. No. 660,220

Int. Cl.⁶ B60R 7/02

U.S. Cl. 224-539

18 Claims



1. A storage unit for an automotive vehicle having a storage area defined by a floor bounded by generally vertically extending vehicle panels, the storage unit comprising:
 - a base member;
 - a pair of opposed side members hingedly attached on opposite ends of the base member for pivotal movement onto an upper surface of the base member;
 - a track system comprising at least one laterally aligned generally vertical track on each of the storage area facing surfaces of the side members and at least one vertically aligned generally horizontal track on each of the storage area facing surfaces of the side members;
 - removable shelf means cooperative with the track means for alternately dividing the storage area into generally vertical and horizontal compartments; and
 - lock means for securing the storage unit to the vehicle panels.

BOTTOM CLOSURE WITH AUTOMOBILE DRINK-HOLDER ADAPTOR FOR A SLEEVE-TYPE BEVERAGE INSULATOR

William M. Ward, 303 S. 123rd. E. Place, Tulsa, Okla. 74128

Filed Sep. 10, 1996, Ser. No. 709,825

Int. Cl.⁶ B60R 7/00

U.S. Cl. 224-539

12 Claims

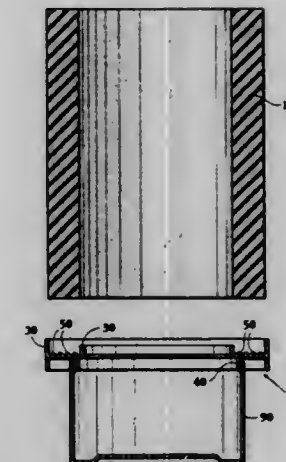
1. A sleeve-type insulated foam beverage holder comprising:
 - (a) a tubular foam insulating member having an open top and open base, an inner surface and an outer surface, and an inner radius and an outer radius;
 - (b) a bottom closure, having an upper surface and a lower surface, said bottom closure being circular in shape and having a radius conformable with the outer radius of the base of said insulating member;
 - (c) a plurality of circular ridges disposed on the upper surface of said bottom closure, said circular ridges being coaxial with said bottom closure, each of said circular ridges having a bottom end disposed on the upper surface and an upper end vertically spaced from said bottom end, each of said circular ridges containing an inside bevel so as to form an overhang over the upper surface of said bottom closure such that said upper end is laterally spaced from said bottom end; and

MECHANISM FOR DRAWING SUPERIMPOSED WEBS FOR ROTARY PRESS

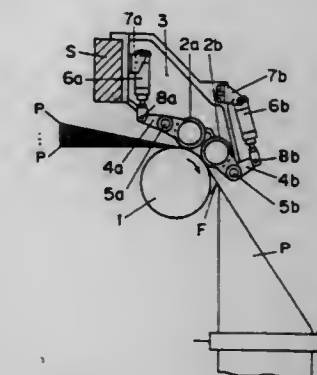
Tkashi Iijima, Yokosuka; Yuhji Iizumi, Kawasaki, and Toshio Kobayashi, Yokosuka, all of Japan, assignors to Tokyo Kikai Seisakusho, Ltd., Tokyo, Japan
Continuation of Ser. No. 493,289, Jun. 21, 1995, abandoned.
This application Nov. 20, 1996, Ser. No. 754,202
Claims priority, application Japan, Jan. 9, 1995, 7-016377
Int. Cl.⁶ B65H 20/02; 20/28

U.S. Cl. 226-177

2 Claims



(d) means for attaching the upper surface of said bottom closure to the base of said insulating member with said ridges in contact with said base.



METHODS AND APPARATUS FOR FEEDING SHEET

Jeffrey Mallows; Richard William Easton; David George Hare, all of Hertfordshire; Steven James Rust, Buckinghamshire, and Gary Stamp, Bedfordshire, all of United Kingdom, assignors to Crosfield Electronics Limited, Herts, United Kingdom

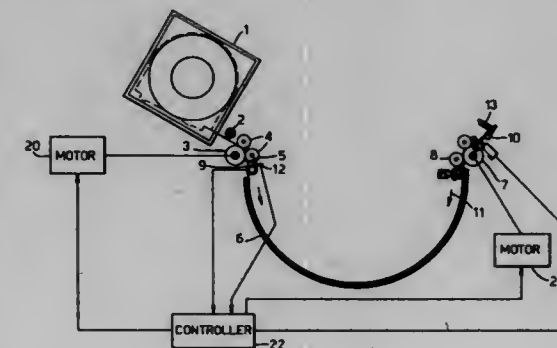
Filed May 3, 1996, Ser. No. 642,605

Claims priority, application United Kingdom, May 4, 1995, 9509064

Int. Cl.⁶ B23Q 16/00

U.S. Cl. 226-24

7 Claims



7. An imagesetter including a drum defining an inwardly facing curved surface defining input and output sides; and apparatus for feeding film onto the inwardly facing curved surface of the drum, the apparatus comprising a feed system for feeding said sheet from said input side onto and along said surface towards said output side, said feed system also being adapted to exert a force in the plane of said sheet to cause said sheet to flex into conformity with said surface and to buckle to form a ridge near one side selected from said input side or said output side; monitoring means for monitoring for formation of said ridge as an indication that said sheet conforms to the curved surface; and indication means, responsive to said formation of said ridge, for providing an indication of the conformity of said sheet with said surface.

RELEASE MECHANISM WITH SAFETY DEVICE FOR COMPRESSED-AIR NAIL FIRING TOOLS

Marco Ronconi, Bologna, Italy, assignor to Fasco S.p.A., Cadriano Di Granarolo Emilia, Italy

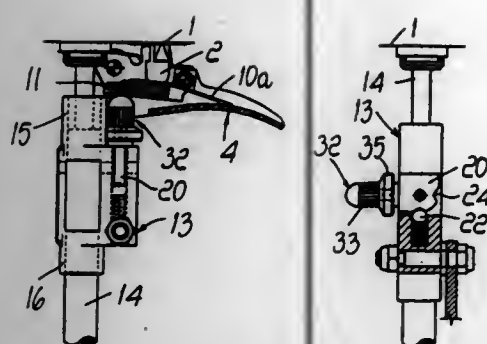
Filed Feb. 14, 1996, Ser. No. 601,661

Claims priority, application Italy, Apr. 19, 1995, B095A0174
Int. Cl.⁶ B25C 1/04

U.S. Cl. 227-8

8 Claims

5. A release mechanism for a compressed-air nail firing tool which includes a pivoting trigger for activating a pilot valve shutter



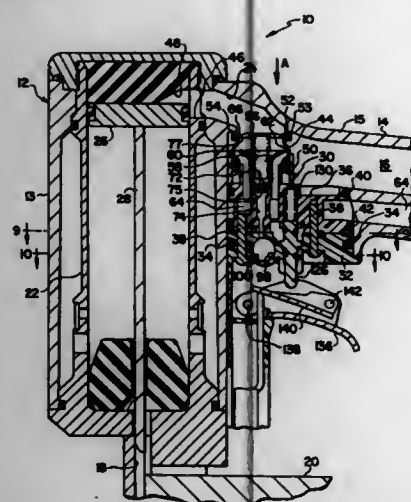
and a sliding probe for allowing the trigger to activate the shutter when the probe contacts, in an activation configuration, a part to be treated by the firing tool, the release mechanism comprising:

- a slider connected with said sliding probe;
- a lever pivoted to said trigger for activation engagement with said shutter and being spring biased in a direction for making contact with said slider;
- a stem rotatably supported by said slider and movable into at least two releasably fixed positions;
- a cap portion connected with said stem such that said cap portion makes contact with said lever instead of said slider when said probe is in said activation configuration and when said stem is in one of said fixed positions, and such that said slider makes contact with said lever when said stem is in another of said fixed positions and said probe is in said activation configuration.

5,669,542
FASTENER DRIVING DEVICE HAVING FULL CYCLE VALVE
 Brian M. White, Riverside, R.I., assignor to Stanley-Bostitch, Inc., East Greenwich, R.I.
 Filed May 17, 1996, Ser. No. 650,142
 Int. Cl.⁶ B25C 1/04

U.S. Cl. 227—8

18 Claims



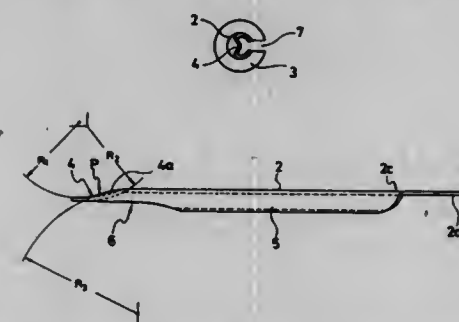
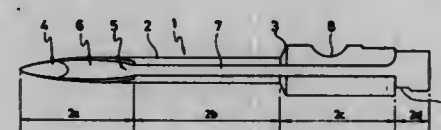
1. A pneumatically operated fastener driving device comprising:
 - a housing assembly including a cylinder therein, said housing assembly defining a fastener drive track,
 - a drive piston slidably mounted in said cylinder for movement through an operative cycle including a drive stroke and a return stroke,
 - a fastener driving element operatively connected to said piston and mounted in said fastener drive track for movement therein through a drive stroke in response to the drive stroke of the piston and a return stroke in response to the return stroke of the piston,

- a fastener magazine assembly carried by said housing assembly for feeding successive fasteners laterally into the drive track to be driven therefrom by said fastener driving element during the drive stroke thereof,
- a piston chamber defined at one end of said cylinder and communicating with said drive piston,
- an air pressure reservoir communicating with said piston chamber,
- an exhaust path defined in said housing assembly communicating the piston chamber with the atmosphere when the exhaust path is in an opened condition,
- a pilot pressure operated main valve movable from a normally closed position into an opened position closing the exhaust path and allowing a supply of air under pressure from the air pressure reservoir to be communicated with the piston chamber to initiate and effect the movement of the piston and fastener driving element through the fastener drive stroke thereof, said main valve having a first pressure responsive surface defining with a portion of said housing assembly a pilot pressure chamber, and a second pressure responsive surface in opposing relation to said first pressure responsive surface, said second pressure responsive surface being exposed to the supply of air under pressure,
- a feed orifice communicating the air pressure reservoir with the pilot pressure chamber,
- an actuator mounted for movement with respect to an exhaust port for controlling pressure in the pilot pressure chamber, said actuator being (1) normally disposed in an inoperative position closing the exhaust port such that pressure within said air pressure reservoir may communicate with said pilot pressure chamber as pilot pressure therein, and (2) movable in response to a manual actuating procedure into an operating position opening the exhaust port and exhausting the pilot pressure in said pilot pressure chamber through the exhaust port to atmosphere,
- a trigger member mounted with respect to said housing assembly for manual movement from a normal inoperative position to an operative position for moving the actuator to its operating position,
- first passage structure between the pilot pressure chamber and the exhaust port,
- a pressure responsive secondary valve member movable between a normally opened position and a closed position,
- second passage structure communicating said piston chamber with said secondary valve member, said second passage structure communicating with said exhaust path when said exhaust path is in the opened condition, said secondary valve member being mounted with respect to said first passage structure so as to be movable between an opened position biased by said air under pressure via said first passage structure permitting communication between said pilot pressure chamber and said exhaust port, and a closed position biased by air over the drive piston communicated from said piston chamber via said second passage structure preventing communication between said pilot pressure chamber and said exhaust port,
- an operative cycle being initiated upon movement of said trigger member to its operative position which moves said actuator to its operating position exhausting pilot pressure in said pilot pressure chamber through said exhaust port and causing said main valve to move to its opened position thereby initiating the fastener drive stroke, pressure over said drive piston in said piston chamber and said second passage structure communicating with said secondary valve member to move said secondary valve member from the opened position thereof to the closed position thereof causing said main valve to move to its closed position thereby completing one said operative cycle while said trigger member remains in the operative position thereof,
- said secondary valve member being constructed and arranged to return to the opened position thereof when said trigger member is permitted to move to the normal inoperative position thereof.

5,669,543
HOLLOW NEEDLE FOR TAG ATTACHER
 Hideyuki Ueno, Yokohama, Japan, assignor to Kotec's Co., Ltd., and Toska Co., Ltd., both of Tokyo, Japan
 Filed Nov. 7, 1995, Ser. No. 554,803
 Claims priority, application Japan, Dec. 16, 1994, 6-313796
 Int. Cl.⁶ B25C 1/00

U.S. Cl. 227—67

12 Claims

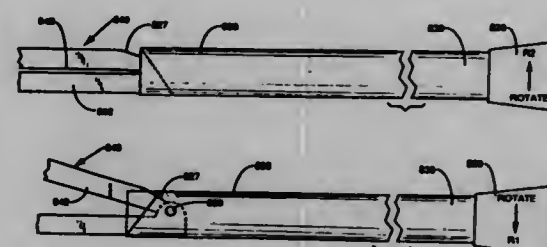


1. A hollow needle for tag attachers, comprising a blade made by press working of a thin metal plate and a shank of a synthetic resin integrally secured at a rear end part of the blade; the blade including a front end part formed with an opening and having a point, and an intermediate part formed with a slit in a side wall thereof, the slit in the intermediate part being connected to the opening of the front end part; the front end part further having in a middle part thereof a semicircular shape in cross section, the front end part being formed in an outer surface portion thereof on a side opposite the opening with a resistance reducing part provided by partly depressing an outer periphery thereof.

5,669,544
SURGICAL INSTRUMENT
 Dale R. Schulze, Lebanon; Joseph Paraschac, Cincinnati; William D. Fox, New Richmond, all of Ohio; Michael E. Setser, Burlington, Ky.; Kenneth S. Wales, Mason, and Mark S. Zeiner, Millford, both of Ohio, assignors to Ethicon Endo-Surgery, Inc., Cincinnati, Ohio
 Division of Ser. No. 359,107, Dec. 19, 1994. This application Oct. 2, 1996, Ser. No. 725,683
 Int. Cl.⁶ A61B 17/068

U.S. Cl. 227—176.1

4 Claims



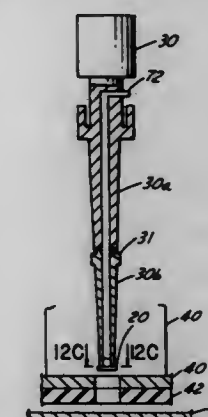
1. A surgical instrument for applying one or more surgical fasteners to tissue, comprising a fastener applying assembly, a handle, and a shaft connecting the handle to the fastener applying assembly:
 - said fastener applying assembly including fastener holding means for holding one or more said surgical fasteners, driver means for driving said surgical fasteners into the tissue, means for forming said surgical fasteners about the tissue including an anvil, and closure means for closing said anvil

- and said fastener holding means with respect to one another, and for clamping tissue therebetween;
- said instrument further including means for actuating said closure means, said handle further including means for actuating said driver means and firing said surgical fasteners into the tissue, said handle being mounted to the proximal end of said shaft;
- said closure means including a closure tube rotatably mounted to said shaft and including means for rotating said closure tube with respect to said anvil, said closure tube including means for opening said anvil with respect to said fastener holding means when said closure tube is rotated in a first direction, and for closing said anvil with respect to said fastener holding means when said closure tube is rotated in a second direction opposite said first direction.

5,669,545
ULTRASONIC FLIP CHIP BONDING PROCESS AND APPARATUS
 C. V. Pham, Northville; Brian J. Hayden, Royal Oak, and Bethany J. Wallis, Birmingham, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.
 Division of Ser. No. 494,217, Jun. 23, 1995, which is a continuation-in-part of Ser. No. 239,106, May 6, 1994, Pat. No. 5,427,301. This application Nov. 4, 1996, Ser. No. 743,580
 Int. Cl.⁶ B23K 20/10; H01C 21/607

U.S. Cl. 228—1.1

10 Claims



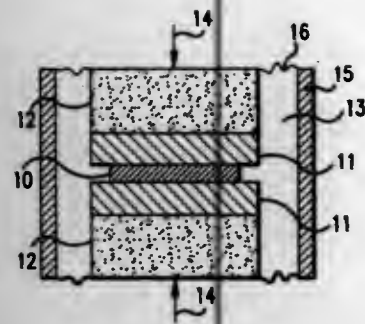
1. An apparatus for bonding a flip chip to a substrate comprising:
 - a base;
 - an ultrasonic horn which is movable in a vertical direction with respect to said base, said ultrasonic horn including at a distended end thereof a vacuum channel which, when operatively coupled to a vacuum source, holds the flip chip against said distended end thereof; and
 - a work holder, secured to the base, for supporting a substrate to which the flip chip may be bonded upon application of static pressure and delivery of oscillating energy by said ultrasonic horn in a direction normal to the substrate.

5,669,546
APPARATUS FOR MANUFACTURING SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SEMICONDUCTOR DEVICE USING THE SAME
 Fumiaki Kirihata, Kawasaki, Japan, assignor to Fjnl Electric Co., Ltd., Kawasaki, Japan
 Filed Mar. 13, 1995, Ser. No. 402,172
 Claims priority, application Japan, Mar. 17, 1994, 6-046259; Feb. 15, 1995, 7-026421
 Int. Cl.⁶ B23K 1/18

U.S. Cl. 228—123.1

16 Claims

1. A jig for manufacturing a semiconductor device including a plurality of semiconductor chips, a common electrode plate for the



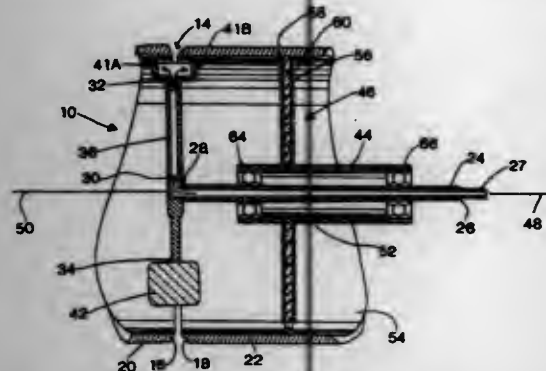
semiconductor chips situated under the semiconductor chips, terminal plates situated on the semiconductor chips, and solder sheets for connecting the semiconductor chips to at least one of the common electrode plate and the terminal plates, said jig comprising:

- a pair of flat heater plates facing each other;
- a pair of flat heat spreading means fixed to said heater plates to face each other for sandwiching and uniformly heating an assembly for said semiconductor device, said assembly being placed between the heat spreading means such that the common electrode plate and the terminal plates contact the heat spreading means; and
- enclosing means for surrounding the assembly, said enclosing means including a hollow case surrounding said heater plates, said heat spreading means and said assembly, and sealing means connected to the hollow case for sealing the same so that the assembly can be compressed between the heat spreading means.

5,669,547
APPARATUS AND METHOD FOR SUPPLYING INERT GAS TO A WELDING LOCATION
 Frank W. Spring, Etobicoke, Canada, assignor to Praxair Technology, Inc., Danbury, Conn.
 Filed Sep. 27, 1995, Ser. No. 534,283
 Int. Cl.⁶ B23K 9/16

U.S. Cl. 228—219

12 Claims



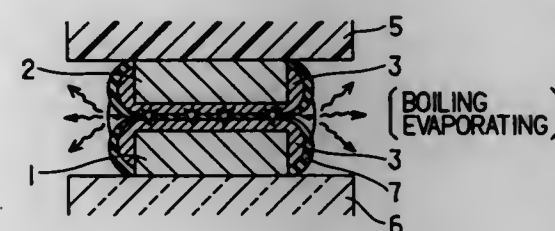
1. In combination, a pair of pipes having butt ends spaced from one another to define a root-gap therebetween, and having respective substantially circular cylindrical interior surfaces defining predetermined diameters thereof, and an apparatus providing inert gas to a desired location along the root-gap between the spaced butt ends of pipes which are rotated for a welding operation to weld the butt ends together, the combination comprising:

- a gas feed line separate from and disposed in one of the pipes to be welded for feeding inert gas from an inert gas source into said one pipe, said gas feed line extending substantially axially and centrally through said one pipe to said spaced butt ends with said gas feed line extending a predetermined distance in and along the length of said one pipe, the predetermined distance being much greater than the predetermined pipe diameter;

- a locating member for mounting the feed line to extend substantially axially, centrally and horizontally in a first direction in said one of said pipes and rotatable relative thereto with the feed line remaining fixed and not rotating with the pipes as they are rotated during welding, said locating member engaging only said interior cylindrical surface of said one of said pipes at a plurality of locations about said interior to maintain said feed line spaced from said interior surface;
- a gas locator tube communicating with the gas feed line to direct inert gas from the gas feed line in a second direction different from the first direction towards the space between the pipe butt ends to be welded, the locator tube being rigidly connected to the gas feed line and capable of continually directing inert gas in the second direction as the pipe is rotated during a welding operation; and
- a small trailing shield which accumulates and concentrates inert gas from the feed line and locator tube in a small area defined in the shield allowing for rapid purging of oxygen in the atmospheric air therefrom and providing a substantially inert atmosphere on the underside of the root-gap between the pipe butt ends to be welded.

5,669,548
SOLDERING METHOD
 Toshihiro Miyake, Inuyama; Koji Kondo, Toyohashi; Takashi Kurahashi, Okazaki; Nozomu Okumura, Nagoya, and Makoto Takagi, Okazaki, all of Japan, assignors to Nippon-denso Co., Ltd., Kariya, Japan
 Filed Mar. 22, 1996, Ser. No. 620,212
 Claims priority, application Japan, Mar. 24, 1995, 7-091862; Dec. 18, 1995, 7-348710
 Int. Cl.⁶ H05K 3/34; B23K 35/363
 U.S. Cl. 228—224

10 Claims



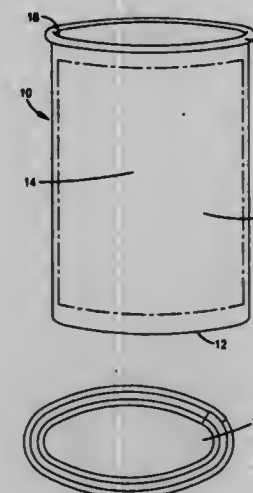
1. A soldering method comprising the steps of:
- disposing a main connecting material composed of a soldering or brazing material and an auxiliary connecting material of an insulating material between a base member and a connected member; and
 - heat treating said main connecting material to be fused while at the same time causing said auxiliary connecting material to be cubically expanded or vaporized so that an oxide film grown on a surface of said main connecting material is destroyed, whereby said base member and said connected member are electrically and mechanically connected by means of said main connecting material.

5,669,549
NON-ROUND CONTAINER HAVING AN OFFSET SIDE SEAM
 Ronald D. Robertson, Kansas City, Mo., assignor to Sealright Co. Inc., DeSoto, Kans.
 Filed Aug. 22, 1995, Ser. No. 517,643
 Int. Cl.⁶ B65D 3/28

U.S. Cl. 229—4.5

15 Claims

1. A container for storing and packaging dry, semi-dry or liquid goods, said container having a longitudinal axis and comprising:
- a closed bottom;

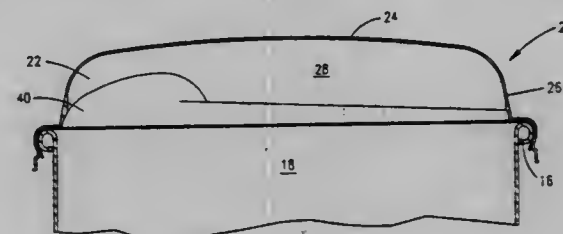


- an upstanding sidewall wrapped about said longitudinal axis of the container and extending from the closed bottom to form a storage cavity, wherein said sidewall forms a curvilinear and oblong perimeter about the container storage cavity when viewed transversely of the longitudinal axis of said container, said perimeter being defined by a major axis a of greater length than a minor axis b and said sidewall comprising a broad front panel connected to a broad back panel by curved side panels, wherein each of said curved side panels has a smaller radius of curvature than said broad front and back panels; and
- an offset side seam extending longitudinally along said upstanding sidewall such that said side seam is positioned within one of said curved side panels remote from a line of intersection between said major axis a and said sidewall.

5,669,550
NON-ROUND CONTAINER HAVING MULTIPLE STORAGE COMPARTMENTS
 Kirk Klemme, Liberty, and Ronald D. Robertson, Kansas City, both of Mo., assignors to Sealright Co., Inc., DeSoto, Kans.
 Continuation-in-part of Ser. No. 42,338, Aug. 8, 1995, and a continuation of Ser. No. 42,339, Aug. 8, 1995, and a continuation of Ser. No. 517,643, Aug. 22, 1995. This application Dec. 15, 1995, Ser. No. 573,532
 Int. Cl.⁶ B65D 5/42

U.S. Cl. 229—4.5

21 Claims



1. A container for storing and packaging one or more dry, semi-dry and/or liquid goods, the container having a longitudinal axis and comprising:
- a closed bottom;
 - a continuous sidewall wrapped about said longitudinal axis and extending upwardly from said closed bottom to an upper rim, wherein said sidewall forms a curvilinear and oblong shaped perimeter about the container when viewed transversely of its longitudinal axis and wherein said closed bottom and said sidewall together form a main storage cavity in which said one or more goods may be stored and which is accessible through an open top bounded by said upper rim; and

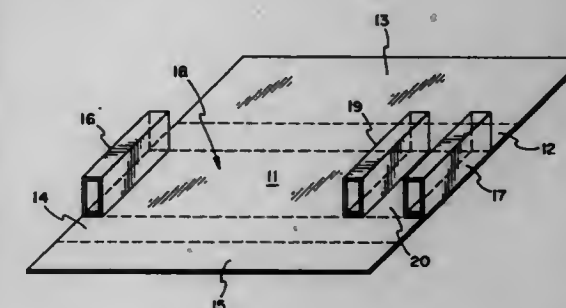
a closure lid adapted to releasably close said open top wherein said closure lid forms a lid compartment in which said one or more goods may be stored.

5,669,551
PACKAGING FOR BOOKS AND/OR OTHER PRODUCTS AND METHOD AND APPARATUS OF THE PRODUCTION THEREOF

Helmut Sigloch, Kuenzelsau, Germany, assignor to Sigloch Verlag Service GmbH, Blaufelden, Germany
 Continuation of Ser. No. 336,124, Nov. 4, 1994, abandoned.
 This application Dec. 4, 1996, Ser. No. 759,934
 Claims priority, application Germany, Nov. 13, 1993, 43 38 799.3

Int. Cl.⁶ B65D 5/48; 5/32
 U.S. Cl. 229—103.2

7 Claims



1. A machine producible, fillable and closable parallelepiped container for packaging products comprising:

- a) a sheathing member formed from a first uniform rectangular blank to produce container walls adjoining each other in one direction including a bottom wall, a first sidewall, a second sidewall a cover and a tab to overly said cover, each of said container walls are foldable with respect to each other about parallel fold lines formed on said first blank;
- b) said first sidewall and said second sidewall extending from said bottom wall at opposite ends thereof and being extended by said cover and by said tab, respectively;
- c) two end pads formed from identical second uniform rectangular blanks each of which is folded to produce a four sided open tube member having a rectangular cross-section, said two end pads forming two separate container walls including a third sidewall to provide a product compartment therebetween;
- d) each of said second blanks comprising four sides and a projection foldable with respect to each other about parallel fold lines formed thereon with said projection adapted for gluing to one of said four sides, one side of each of said four sided tube members forming said two separate container walls matching the height of said container and the side opposite to said one side together with said container cover and said container bottom functions to limit said product compartment of said container; and
- e) said end pads adapted to be glued directly to said container bottom wall prior to filling said product compartment and glued to said container cover after filling thereof while said tab is folded onto said container cover and affixed thereto by gluing.

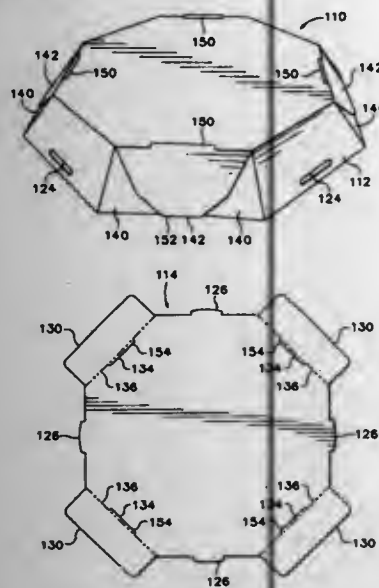
5,669,552 CONTAINER FOR TEMPORARY STORAGE OF FOOD ITEMS

Michael E. Watanabe, Nampa, Id., assignor to Boise Cascade Corporation, Boise, Id.

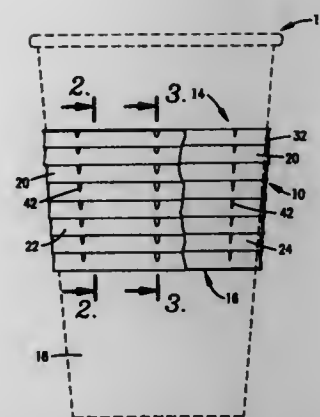
Filed Aug. 28, 1995, Ser. No. 520,105
Int. Cl.⁶ B65D 5/66; 5/68

U.S. Cl. 229—114

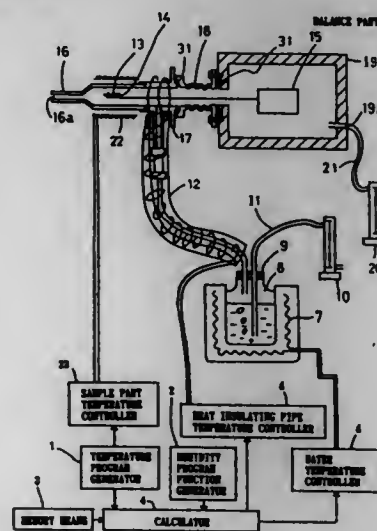
3 Claims



a plurality of vents formed within the sleeve to enable air and/or vapor flow between said channels and to enable said air and/or vapor to be vented outwardly away from the sleeve.



5,669,554
HUMIDITY CONTROL THERMAL ANALYZER
Nobutaka Nakamura, and Ryoichi Kinoshita, both of Chiba, Japan, assignors to Selko Instruments, Inc., Tokyo, Japan
Filed Nov. 21, 1995, Ser. No. 561,194
Claims priority, application Japan, Nov. 21, 1994, 6-286961
Int. Cl.⁶ G01N 25/00; B01F 3/02
U.S. Cl. 236—44 C 15 Claims



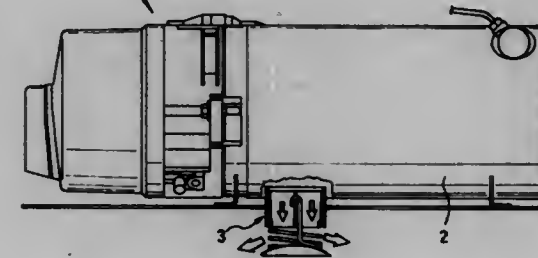
1. A humidity control thermal analyzer comprising:
a detector for detecting and measuring a physical characteristic of a sample;
a sample chamber for housing the sample and which is provided with a vapor inlet and a vapor outlet for water vapor and which is capable of controlling the temperature of the sample housed in said sample chamber;
a heat insulating pipe with heating means for preventing dew condensation, said pipe being connected to said vapor inlet of said sample chamber;
a warm water container for generating water vapor, said container having a gas inlet and having a gas outlet which is connected to said pipe and which is capable of controlling the temperature of water in said container;
a temperature program function generator for outputting a target temperature value of said sample chamber as a function of time;
a humidity program function generator for outputting a target humidity value of said sample chamber as a function of time;
a memory means for storing a temperature-saturated water vapor pressure curve; and

5,669,553
INSULATING CUP SLEEVE
Ernest L. Smith, Kansas City, Mo., assignor to Sealright Co., Inc., DeSoto, Kans.
Filed Aug. 8, 1996, Ser. No. 689,361
Int. Cl.⁶ B65D 1/22
U.S. Cl. 229—403 15 Claims

1. A sleeve adapted to slidably receive and engage the outer sidewall of a container, wherein said sleeve comprises:
a plurality of concentric ring-like bands aligned one above the other around a central longitudinal axis of the sleeve wherein each band is connected to a next adjacent band by an associated peripheral ridge extending from a bottom edge of the band to a top edge of the next adjacent band, each band and associated peripheral ridge defining a channel between the band and a corresponding portion of the sidewall when the container is received within the sleeve; and

a calculator connected to said function generators and said memory means for calculating a control target temperature for the water in said container for generating a saturated water vapor pressure on the basis of the sample chamber target temperature output from the temperature program function generator, the sample chamber target humidity value of the sample chamber output from the humidity program function generator and the temperature-saturated water vapor pressure curve, wherein the temperature of the sample and the humidity of the atmosphere contacting the sample are program controlled.

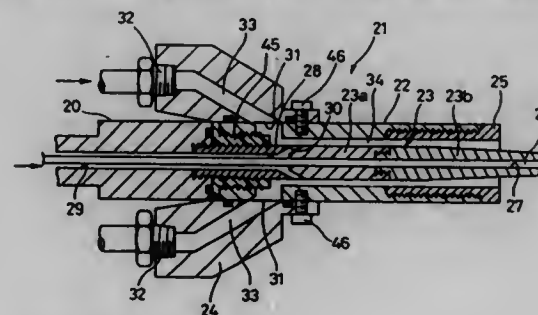
5,669,555
MOTOR VEHICLE HEATING DEVICE WITH EXHAUST CONNECTION PIECE AND BAFFLE PLATE
Ernst Mosig, Penzberg, Germany, assignor to Webasto Thermo-systeme GmbH, Stockdorf, Germany
Filed May 6, 1996, Ser. No. 642,843
Claims priority, application Germany, May 6, 1995, 195 16 688.4
Int. Cl.⁶ B60H 1/02
U.S. Cl. 237—12.3 C 14 Claims



1. Motor vehicle heating device having a burner for combusting a mixture of fuel and air, and with an exhaust connection piece for discharging an exhaust gas flow from the burner out of the heating device, and a baffle plate located near an exhaust gas exit opening of the exhaust connection piece; wherein the baffle plate is arranged at a distance outwardly from the exhaust gas exit opening of the exhaust connection piece by means of a spring element.

5,669,556
NOZZLE FOR A WELDING TORCH HAVING SPUTTER BUILD-UP REDUCING CONFIGURATION
Yoshiichi Yoshida, Nabari, Japan, assignor to Exedy Corporation, Osaka, Japan
Filed May 24, 1995, Ser. No. 448,952
Claims priority, application Japan, Jul. 6, 1994, 6-155008; Jul. 6, 1994, 6-155009; Jul. 6, 1994, 6-155010; Jul. 6, 1994, 6-155011; Sep. 2, 1994, 6-210295; Sep. 2, 1994, 6-210296
Int. Cl.⁶ B05B 1/24; 1/28
U.S. Cl. 239—83 25 Claims

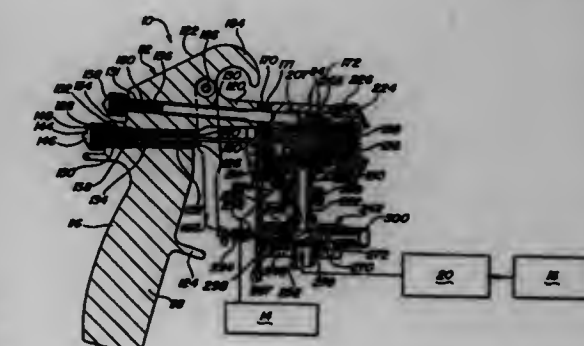
1. A nozzle for a gas-shielded arc welding machine comprising:



a cylindrical nozzle main body,

a filler metal support section having welding filler wire feeding means, disposed within said cylindrical nozzle main body, wherein an annular passage is defined between said filler metal support section and said cylindrical nozzle main body which extends to an open end of said cylindrical nozzle main body, and
a fluid passage adaptor attached to an outer side of said nozzle main body, said fluid passage adaptor formed with a fluid passage open to said annular passage, said fluid passage intersecting said annular passage adjacent to said filler metal support section, and said fluid passage being configured to direct fluid flow directly toward said filler metal support section and through said annular passage towards said open end of said cylindrical nozzle main body.

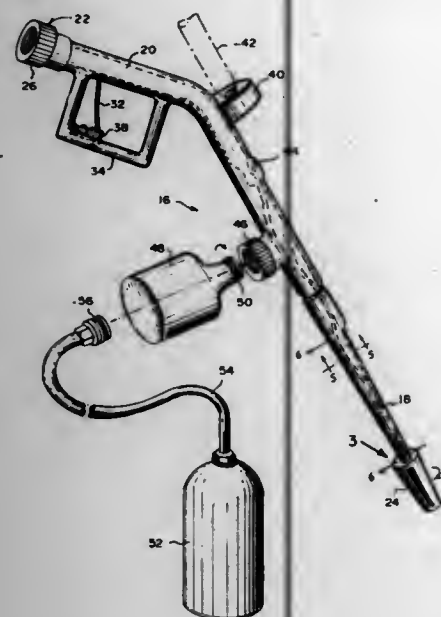
5,669,557
SYSTEM AND PROCESS FOR SPRAYING AIR-DRYABLE LIQUID MATERIALS
Mark C. Barrett, New Hudson, and Coy Barrett, Canton, both of Mich., assignors to Tram-7 Precision, Inc., Redford, Mich.
Filed Dec. 14, 1994, Ser. No. 355,837
Int. Cl.⁶ B05B 1/24; 1/30
U.S. Cl. 239—135 25 Claims



1. A system for spraying liquid materials, said system comprising:

a spray gun having a liquid material channel for carrying liquid material and a hot pressurized air channel for carrying hot pressurized air, said gun further including an air routing insert having a long axis, said air routing insert further including an outer peripheral wall, said wall having a channel defined thereon which forms at least a part of said hot pressurized air channel, said insert having an axially-defined throughbore, said gun further including a nozzle, said nozzle being disposed substantially within said throughbore of said insert, said nozzle having a long axis, said nozzle having an axially-defined throughbore, said liquid material channel being continuous with said throughbore of said nozzle, said insert further including a plurality of air passageways axially defined in an array around said throughbore of said insert, said air passageways being continuous with said hot pressurized air channel, said throughbore of said nozzle and said passageways opening in proximity with one another such that said liquid material discharging from said throughbore of said nozzle is atomized in an air-liquid stream by said hot pressurized air discharging from said passageways surrounding said throughbore of said insert, said spray gun further having incorporated therewith a control valve operatively associated with said insert for selectively controlling the flow of hot air through said insert;
a source of hot pressurized air;
an air line connecting said source of hot pressurized air with said hot pressurized air channel of said gun;
a source of liquid material; and
a liquid material line connecting said source of liquid material with said liquid material channel of said gun.

5,669,558
WATERPOWER PRESSURE WASHER
 Glenn K. Ichel, 21 Winslow La., Smithtown, N.Y. 11787
 Filed Jul. 31, 1995, Ser. No. 509,513
 Int. Cl.⁶ B05B 7/26; 7/30
 U.S. Cl. 239—311



1. A waterpower pressure washer comprising:

- a) an elongated tapered barrel;
- b) a hollow cylindrical body integral with and fluidly connected at a slight angle to said elongated tapered barrel;
- c) means for coupling said hollow cylindrical body to a source of pressurized water, so that the pressurized water can travel through said hollow cylindrical body and said elongated tapered barrel;
- d) a nozzle at a distal end of said elongated tapered barrel, so that the pressurized water can be sprayed from said nozzle to clean a surface of an object; and
- e) means on said elongated tapered barrel for introducing air therein to help accelerate the flow of water therethrough, said air introducing means selected from the group consisting of:
 - i) an air inlet assembly including a collar mounted on said elongated tapered barrel and a plurality of one-way air valves radially placed into said elongated tapered barrel on said collar to introduce the air therein;
 - ii) an air inlet assembly including a plurality of air valves radially placed into said elongated tapered barrel and a collar having a plurality of apertures, said collar rotatively positioned on said elongated tapered barrel over said air valves, so that when said apertures are in alignment with said air valves, air will be introduced into said elongated tapered barrel;
 - iii) a hand pump built into said elongated tapered barrel;
 - iv) a handgrip pump built into said elongated tapered barrel;
 - v) a battery operated pump built into said elongated tapered barrel; and
 - vi) an air pressure control unit including a plurality of radially placed air holes in said elongated tapered barrel and a sleeve having a plurality of orifices, said sleeve revolvable on said elongated tapered barrel over said air holes, so that when said orifices are in alignment with said air holes, air will be introduced into said elongated tapered barrel.

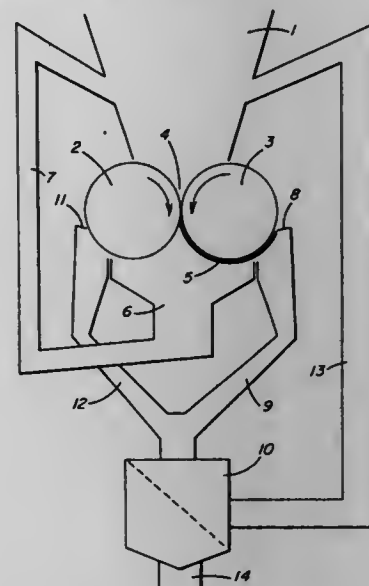
30 Claims

5,669,559
PROCESS FOR PULVERISING POLYURETHANE, POLYUREA AND/OR POLYURETHANE/POLYUREA MATERIALS IN A ROLLER MILL
 Joachim Wagner, Leverkusen; Karl Peltzer, Leichlingen, and Jürgen Wirth, Köln, all of Germany, assignors to Bayer Aktiengesellschaft, and Maschinenfabrik Hennecke GmbH, both of Leverkusen, Germany
 PCT No. PCT/EP94/02360, § 371 Date Jan. 24, 1996, § 102(e)
 Date Jan. 24, 1996, PCT Pub. No. WO95/03926, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 18, 1994, Ser. No. 591,613
 Claims priority, application Germany, Jul. 30, 1993, 43 25 654.6; May 13, 1994, 44 16 749.0
 Int. Cl.⁶ B02C 19/12

U.S. Cl. 241—23

8 Claims



1. A process for pulverizing polyurethane, polyurea and/or polyurethane/polyurea materials in a roller mill in which at least two rollers rotate at different circumferential speeds comprising:

- a) passing precomminuted material to be milled into a roll slit formed by the rollers to form a coarse fraction and a separate sheet of fine fraction;
- b) collecting said coarse fraction falling freely downstream from said roll slit;
- c) returning said coarse fraction to said roll slit; and
- d) scraping said sheet from one of said rollers so as to produce a plurality of discrete particles for further processing.

5,669,560
NON-PULPABLES COLLECTION CHAMBER WITH REMOVABLE BASKET FOR SOLID WASTE PULPERS
 William K. Upton, III, Chester, Md.; William E. Schneider, White Pine, Tenn.; Stuart H. Brown, Severna Park, Md.; Steven A. Stetz, Stevensville, Md.; Emily J. Gotich, Crofton, Md., and Jack L. McCrea, Pittsburgh, Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 312,948, Sep. 30, 1994, Pat. No. 5,551,641.
 This application May 8, 1996, Ser. No. 646,570

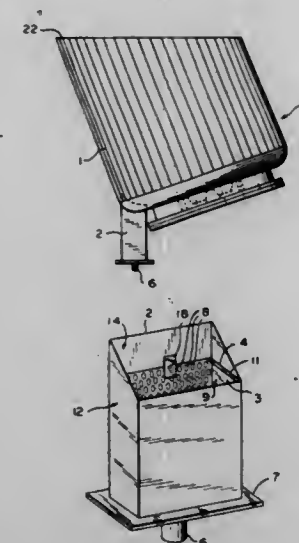
Int. Cl.⁶ B02C 23/08

U.S. Cl. 241—69

13 Claims

1. A collection chamber for a pulper of the type having a pulping chamber containing a pulping mechanism for processing pulpable material into a pulp, said collection chamber being for collecting non-pulpable material in an area outside of the pulping chamber so as not to interfere with circulation around the pulping mechanism, said collection chamber comprising:

- a container having openings at first and second ends;



a basket disposed inside said container and having an opening at a first end for permitting non-pulpable material to pass downward from the pulper into said basket via said opening in said first end of said container, said basket including perforations in at least a bottom portion of said basket, said bottom portion positioned proximate said second end of said container; a pipe connection located at said second end of said container for permitting a fluid to flow upward into said container and via said perforations into said basket to prevent pulp from settling into said collection chamber; means for removing said basket from said container; and means for preventing material from entering a space between said basket and said container.

5,669,561
BASKET FOR MACHINES USED TO MIX AND GRIND A NUMBER OF SUBSTANCES FOR THE PRODUCTION OF UNIFORM MIXTURES, SUCH AS THOSE EMPLOYED IN PAINTS

Renato Viteili, Via del Casaleto, 521, IT 00151 Rome, Italy
 PCT No. PCT/IT94/00154, § 371 Date Mar. 27, 1996, § 102(e)
 Date Mar. 27, 1996, PCT Pub. No. WO95/09043, PCT Pub. Date Apr. 6, 1995

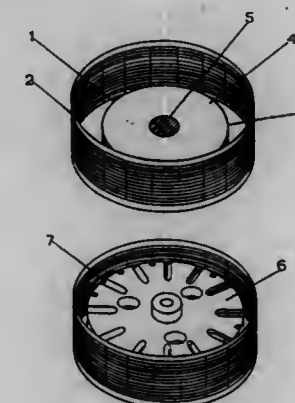
PCT Filed Sep. 26, 1994, Ser. No. 619,550

Claims priority, application Italy, Sep. 30, 1993, RM93AO663

Int. Cl.⁶ B02C 17/02; 17/16

U.S. Cl. 241—74

5 Claims



1. A basket for mixing and grinding substances to produce uniform mixes, comprising in combination:
 a basket comprising an internal circular ring shaped channel having a closed bottom wall, inner and outer micro-perforated side wall means, and an open top;

micro-spheres within said ring shaped channel;
 a rotary drive shaft;
 a disc attached to said drive shaft for coaxial rotation with said ring shaped channel, said disc having micro-sphere rotating elements comprising a plurality of mixing elements perpendicular thereto extending downwardly into said channel and mixing slots in said disc; and
 a cover for closing the open top of said basket and passing said drive shaft therethrough;
 whereby rotation of said disc forcefully passes said mixes into and out of the basket through the side wall means to thereby encounter the rotation micro-spheres.

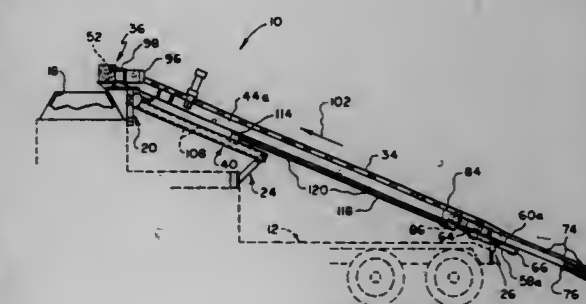
5,669,562
TELESCOPING INFEED CONVEYOR
 Mark A. Smith, Sarasota, Fla., assignor to Columbus McKinnon Corporation, Amherst, N.Y.

Filed Feb. 28, 1996, Ser. No. 608,442

Int. Cl.⁶ B02B 5/02

U.S. Cl. 241—101.74

11 Claims



1. A conveyor mechanism adapted for use in transporting material from a loading station upwardly for discharge downwardly into a charging opening of a shredder mechanism, said conveyor mechanism comprising:

- a first conveyor section having a discharge end;
- a second conveyor section having a loading end, said second conveyor section being supported by said first conveyor section for telescopic movement with said discharge and loading ends being remotely disposed in relation to one another;
- means for defining a limit of contracting telescopic movement of said second conveyor section relative to said first conveyor section;
- means for supporting said first conveyor section for movement along a vertically inclined path of travel between spaced positions in which said discharge end is disposed in overlying relation to said charging opening and removed from overlying relation to said charging opening;
- a driven conveyor belt trained about said first and second conveyor sections for transporting material from said loading end to said discharge end;
- a belt accumulator mechanism for varying the effective length of said belt incident to said telescopic movement;
- a drive means for moving said second conveyor section in opposite directions along said vertically inclined path of travel; and
- latch means for releasably latching said first conveyor section to said second conveyor section for conjunctive movement.

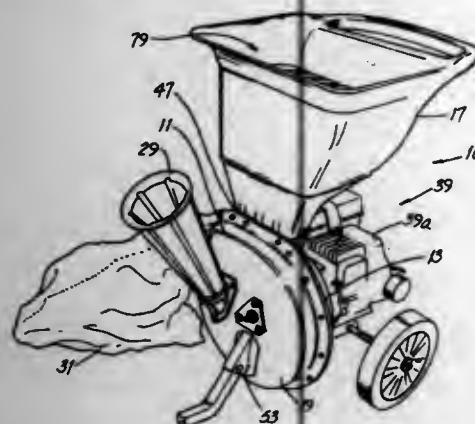
5,669,563
CHIPPER SHREDDER WITH USE-ENHANCING FEATURES

Thomas W. Gearing, Wauwatosa, and Andrew W. Haver, West Bend, both of Wis., assignors to The Patriot Company, Milwaukee, Wis.

Continuation-in-part of Ser. No. 97,174, Jul. 23, 1993, Pat. No. 5,385,308. This application Jan. 24, 1995, Ser. No. 377,396 Int. Cl.⁶ A01D 55/00

U.S. Cl. 241—101.78

2 Claims



1. In a machine for comminuting lawn refuse and including (a) a housing containing a chipper plate, (b) a hopper mounted atop the housing, and (c) a tube for feeding branches toward the chipper plate, the improvement comprising:

a vacuum adapter mounted to the hopper;
a hose attached to the vacuum adapter; and
a generally U-shaped vacuum nozzle attached to the hose, such nozzle having a fanned-out portion for insertion into an eaves trough and a rigid leg portion attached to the hose, whereby the machine is configured to vacuum leaves and debris from an eaves trough.

5,669,564
SPIRALS FOR TRAVERSING A STRAND DURING WINDING AND WINDING APPARATUS INCLUDING THE SAME

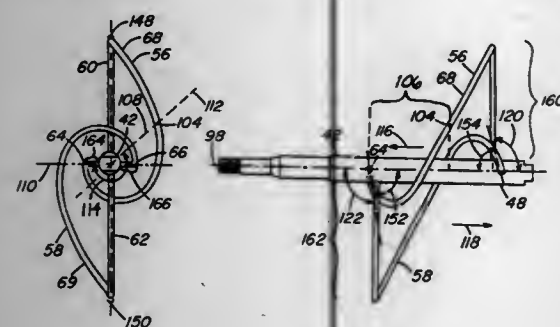
Edwin C. Keller, Greensboro; Nellie Gailther Benoist, Lexington; David N. Durrell, Lexington; Ronald D. Eaton, Lexington; Linda F. Huffman, Lexington; Vickie L. Kinney, Lexington; John M. Muraco, Clemmons; Peggy S. Perry, Lexington; Arville K. Phillips, Lexington; Michael S. Ramsey, Lexington; Guy Rogers, Lexington; Steven M. Shaw, Lexington; Steve R. Shipton, Denton; Darrues W. Sutton, Lexington; Stephen M. Walser, Lexington; and Foy A. Warford, Jr., Lexington, all of N.C., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 9, 1996, Ser. No. 599,002

Int. Cl.⁶ B65H 54/28; 57/28

U.S. Cl. 242—43 R

30 Claims



1. A spiral for traversing a strand along the length of an axis of rotation of a rotatable collector during winding of the strand about a surface of the collector, comprising:

(a) a shaft having an outer surface, a first portion, a second portion and a length therebetween, the length having a midpoint; and
(b) a first wing and a second wing, each wing projecting radially from the outer surface of the shaft and comprising a first end, a second end and a curved portion therebetween, the first end of each wing being adjacent to the second end of the other wing, the first end of each wing for displacing the strand from contact with the second end of the other wing for traversing a strand along the length of an axis of rotation of a rotatable collector during winding of the strand about a surface of the collector, the first end of each wing being positioned on the shaft at a distance from the midpoint which is less than a distance from the midpoint at which the second end of each wing is positioned on the shaft.

5,669,565
ANTI-JAMMING MECHANISM FOR BAIL ASSEMBLY ON FISHING REEL

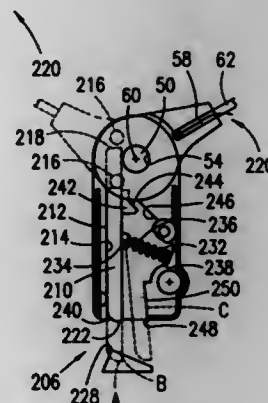
John Anthony Zurcher, St. Charles, Mo.; John Walter Puryear, Biloxi, Miss.; Hyunky Kim, Incheon, Rep. of Korea, and Robert L. Carpenter, Tulsa, Okla., assignors to Zebco Corporation, Tulsa, Okla.

Filed Jul. 15, 1992, Ser. No. 914,260

Int. Cl.⁶ A01K 89/01

U.S. Cl. 242—233

24 Claims



1. A fishing reel comprising:

a frame;
a rotor;
means for mounting the rotor to the frame for rotation about a first axis;
a line storage spool;
means for rotating the rotor;
means on the rotor for directing line onto the line storage spool as an incident of the rotor being rotated about said first axis, said line directing means including a bail assembly comprising first and second bail arms and means for mounting the bail arms to the rotor for pivotable movement between (a) a first position wherein the bail assembly is in a retrieve position and (b) a second position wherein the bail assembly is in a cast position;
a substantially rigid trip link;
means for mounting the trip link to the rotor for movement relative to the rotor between third and fourth positions;
means cooperating between the bail assembly and trip link for moving the trip link from its third position into its fourth position as an incident of the bail assembly moving from its first position into its second position; and
a trip link actuator on the reel frame and defining a shoulder that intercepts the trip link with the trip link in its fourth position

and the rotor rotating in a first rotational direction about its axis and moves the trip link from its fourth position towards its third position.

said means cooperating between the bail assembly and trip link including means for moving the bail assembly from its cast position towards its retrieve position as an incident of the trip link moving from its fourth position into its third position, said trip link mounting means including means for allowing repositioning of the trip link relative to the rotor in the event that the trip link encounters the trip link actuator as the trip link moves from its third position towards its fourth position to thereby prevent jamming of the trip link by the trip link actuator and allow the trip link to move fully into its fourth position.

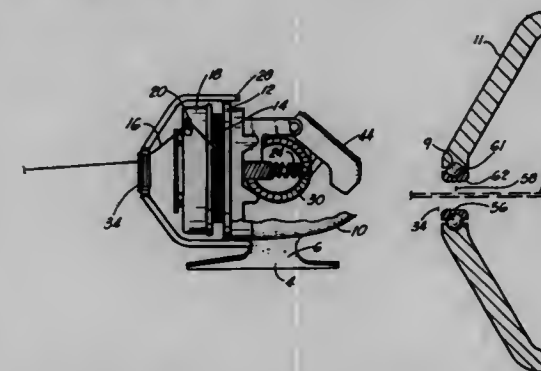
5,669,566
LINE GUIDE FOR FISHING REELS AND METHOD OF PREVENTING LINE TWIST

John W. Puryear, 130 Janelle Dr., Bay St. Louis, Miss. 39520 Continuation-in-part of Ser. No. 40,104, Mar. 30, 1993, Pat. No. 5,467,932. This application Aug. 28, 1995, Ser. No. 519,762

Int. Cl.⁶ A01K 89/01; 87/04; B65H 57/00; 57/06

U.S. Cl. 242—234

7 Claims



1. A system to prevent twisting of fishing line on a fishing reel mounted to a fishing rod, the fishing reel having a front housing enveloping a line spool having an axis, the line spool mounted with its axis aligned with the fishing rod, the system comprising:

a line guide mounted to the front housing of the fishing reel, said line guide having a freely rotating sleeve member encircling a portion of the fishing line.

5,669,567
BRAKE MECHANISM FOR DRUM TYPE MAGNETIC RECORDING AND REPRODUCING APPARATUS

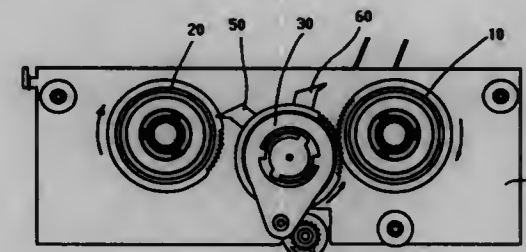
Ming-Jer Chiu, Hsinchu, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Sep. 18, 1995, Ser. No. 529,799

Int. Cl.⁶ G11B 15/32; G03B 1/04

U.S. Cl. 242—355

4 Claims



1. A brake mechanism for drum type magnetic recording and reproducing apparatus including:

a first and second reels each having: a pivot vertically mounted on a base plate of said magnetic tape machine; a first gear rotably mounted on said pivot; a first reel body coaxially and rotably fitted to said pivot with said first gear; a first frictional device, providing a frictional force between said first gear and said first reel body, said first gear is structured such that when said first gear is put in rotation, said first gear drives said first reel body in rotation to produce a braking force therebetween;

a reel motor for providing power necessary for said first reel or said second reel to drive a reel of said cassette;

a rocking gear mechanism mounted between said first and second reels, including: a drive gear being driven by said reel motor in rotation; and a rocking arm having a first end and a second end, said first end having a pinch swingingly pivoted on said base plate, a transmission gear rotably mounted on said pinch for engaging with said drive gear; and said second end having a rocking gear pivotally connected thereto for engaging with said transmission gear, and selectively engaging with said first gear or said second gear in accordance with a swinging of said rocking arm; and first friction means for providing a frictional force between said rocking gear and rocking arm;

said transmission gear wherein said transmission gear is driven by said drive gear in rotation, and is structured such that said rocking arm is first driven in rotation to cause said rocking gear to be selectively engaged with said first gear of said first and second reels and then in rotation opposite said transmission gear;

a brake plate coaxially mounted with said rocking gear on said second end of said rocking arm, and second frictional means for providing a frictional force between said brake plate and said rocking gear to cause said rocking gear to drive said brake plate in rotation;

a first clutch tooth provided on said brake plate for engaging with said first gear of said first reel when said rocking gear is engaged with said first gear of second reel; and a second clutch tooth for rotably engaging with said first gear of said second reel when said rocking gear is engaged with said first gear of first reel;

wherein said rocking gear and said first and second clutch teeth are structured to match an operating mode of said magnetic tape, causing said first and second reels to provide a varying brake force and thus a varying back tension on the tape.

5,669,568
BRAKE DEVICE FOR A MAGNETIC RECORDING AND REPRODUCING APPARATUS

Myung Goo Kang, Seoul; Seong Sik Kang; Sung Hoon Choi, both of Kyungki-Do; Mun Chea Joung, Seoul; Byoung Gyu Jang, Kyungki-Do; Kye Yeon Ryu; Hyo Chong Yu, both of Seoul, and Sang Jig Lee, Kyungki-Do, all of Rep. of Korea, assignors to Goldstar Co., Ltd., Seoul, Rep. of Korea

Division of Ser. No. 421,028, Apr. 13, 1995, Pat. No. 5,511,737, which is a continuation of Ser. No. 73,600, Jun. 9, 1993, abandoned. This application Jan. 30, 1996, Ser. No. 593,488

Claims priority, application Rep. of Korea, Jun. 17, 1992, 10706/1992; Jun. 17, 1992, 10709/1992; Jun. 23, 1992, 10921/1992

Int. Cl.⁶ G11B 15/32; 5/027; 5/008

U.S. Cl. 242—355.1

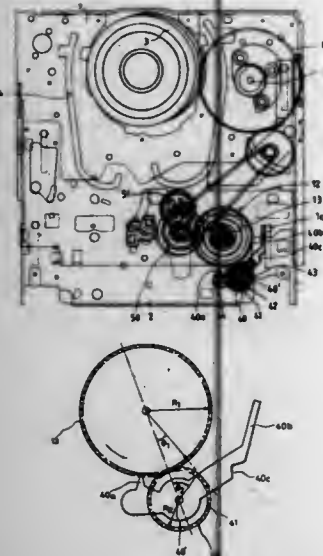
15 Claims

1. A brake device for a magnetic recording and reproducing apparatus, comprising:

a clutch gear rotatably mounted on a shaft of a slide base of a deck mechanism of said apparatus to engage with a reel gear of a tape take-up reel table;

a reel brake rotatably mounted on a shaft of said clutch gear, said reel brake being provided at a first end thereof with a rotation limiting lever for limiting a rotation of said reel brake in cooperation with the deck mechanism;

a latch provided at a second end of said reel brake to selectively engage with said reel gear so as to brake the take-up reel table; and



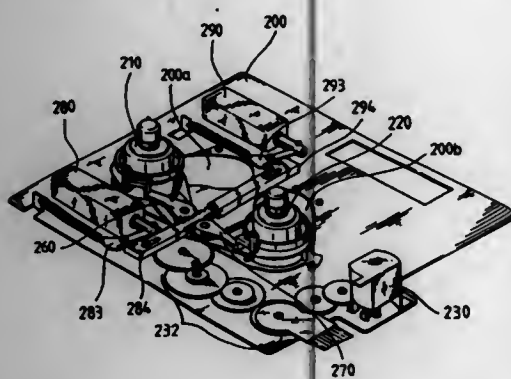
a stop pin mounted on a lower surface of the second end of said reel brake, said stop pin cooperating with a slit of said slide base so as to separate said latch from said reel gear, wherein said reel gear and said reel brake are constructed under a design condition represented by the following relation:

$$\theta_1 : \theta_2 = R_2 : R_1$$

wherein θ_1 is a rotating angle of said reel gear, θ_2 is a corresponding rotating angle of said take-up reel brake cooperating with said reel gear, R_1 is a radius of a pitch circle of said reel gear, and R_2 is a radius of a pitch circle of said take-up reel brake.

5,669,569
REEL BRAKING MECHANISM IN MAGNETIC RECORDING OR REPRODUCING APPARATUS
Min-su Lee, Ulsan, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
Filed May 20, 1996, Ser. No. 650,753
Claims priority, application Rep. of Korea, May 18, 1995, 95-12461

Int. Cl.⁶ G11B 15/16
U.S. Cl. 242—355.1 17 Claims



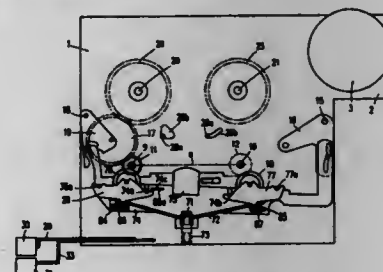
1. A reel braking mechanism for a magnetic recording or reproducing apparatus comprising:
a deck having first and second arcing holes;
first and second pins, separated by a predetermined distance, fixed on said deck;
first and second rotating arms rotatably connected with said first and second pins, respectively, said first rotating arm supporting a first reel table and said second rotating arm supporting a

second reel table for moving said reel tables between first and second positions along said arcing holes;
first and second driving arms having gear portions engaged with each other, said driving arms rotatably connected with said first and second pins, respectively;
a driving motor for driving the gear portion of at least one of said first and second driving arms;
connecting means for connecting said driving arms to said rotating arms to transfer a force of said driving motor to said rotating arms;
first and second brake members rotatably connected with said first and second pins, respectively, and rotatable together with said first and second driving arms, respectively, wherein said brake members rotate to contact at least one of said first and second reel tables, thereby reducing the speed of said reel tables;
elastic biasing means for firmly contacting said brake members to a surface of said reel tables; and
releasing means for separating said brake members from the surface of said reel tables.

5,669,570
MAGNETIC TAPE CASSETTE APPARATUS FOR REVERSIBLE PLAYING OF MAGNETIC TAPE CASSETTES

Norbert Kunze, Ehringshausen; Dieter Müller, Staufenberg, and Marc Gielkens, Braunfels, all of Germany, assignors to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 378,699, Jan. 26, 1995, abandoned.
This application Nov. 7, 1996, Ser. No. 744,500
Claims priority, application Germany, Feb. 12, 1994, 44 04 578.6

Int. Cl.⁶ G11B 15/32; 5/008
U.S. Cl. 242—356.4 7 Claims

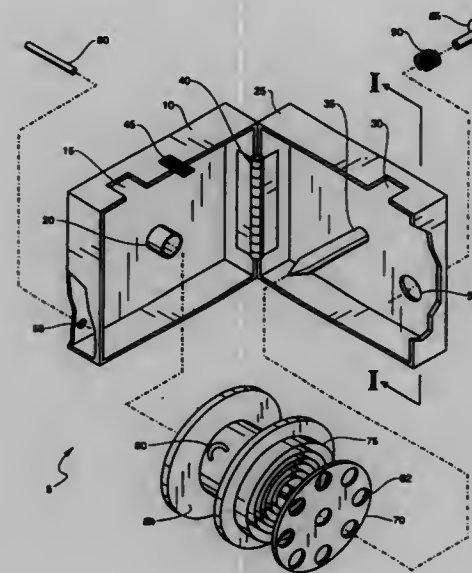


5. A magnetic tape cassette apparatus for reversible playing of a magnetic tape cassette with two tape hubs, comprising:
a) first and second rotatable spool hubs for receiving the tape hubs of the tape cassette;
b) first transmission means for selectively transporting the tape at a play speed in (i) a forward tape transport direction and (ii) an opposite, reverse tape transport direction;
c) second transmission means selectively applicable (i) to said first spool hub for fast winding said first spool hub at a speed faster than said play speed in the forward tape transport direction and (ii) to said second spool hub for fast winding said second spool hub at a speed faster than said play speed in the reverse tape transport direction;
d) a first selection rod translatable from an inactivated position to an activated position for selecting fast winding of said first

spool hub in the forward tape transport direction and a second selection rod translatable from an inactivated position to an activated position for selecting fast winding of said second spool hub in the reverse tape transport direction; and
e) a selection plate coupled to said first transmission means, said selection rods and said second transmission means, said selection plate occupying (i) a first position corresponding to forward tape transport by said first transmission means at the play speed and (ii) a second position corresponding to reverse tape transport at the play speed by said first transmission means, and
f) means for coupling said selection plate to said selection rods, said means for coupling including said selection rods have respective slide portions which slide flat over each other and have respective guide slots, and the selection plate comprises a selection plate rod which enters said guide slots of said selection rods in dependence on the position of the selection plate and on the playing direction of said first transmission means, said guide slots being arranged such that, irrespective of whether the next preceding tape transport direction by said first transmission means at the play speed was in the forward or reverse tape transport direction, (i) translation of said first selection rod to said activated position causes said second transmission means to fast wind said first spool hub in the forward tape transport direction and (ii) translation of said second selection rod causes said second transmission means to fast wind said second spool hub in the reverse tape transport direction, said selection plate being taken along by one of the selection rods in dependence on the design of the guide slots during translation from the inactivated to activated position of one selection rod by engagement of the selection plate rod with the guide slot of said one selection rod, where the guide slot in the slide portion of the other selection rod passes the selection plate rod by during the translation from the inactivated to activated position of said other selection rod.

5,669,571
ELECTRICAL CORD STORAGE AND DISPENSING ORGANIZER
Larry Dean Graybill, 1995 Stoney Battery Rd., Troutville, Va. 24175

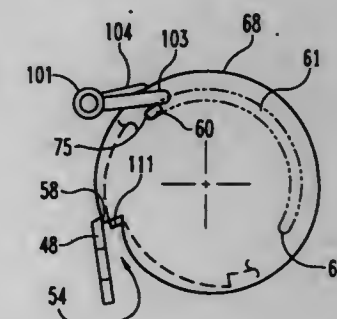
Filed Dec. 4, 1995, Ser. No. 566,939
Int. Cl.⁶ B65H 75/48
U.S. Cl. 242—378.1 14 Claims



1. An electrical cord storage and dispensing organizer comprising:

a split storage container, said split storage container having a first half connected to a second half via a hinge and forming an interior space;
a shaft, said shaft mounted centrally within said storage container;
a cordwheel mounted rotatably about said shaft; a lock spindle connected to said cordwheel, said lock spindle defining a plurality of circumferentially arrayed locking holes;
a coiled spring connecting said cordwheel to said shaft in a manner such as to cause a spinning tension upon said cordwheel;
a returnable wheel lock button for engaging with any said locking hole and for resisting said spinning tension caused by said coil spring upon said cordwheel; and
a cordhole penetrating said storage container for providing an entrance to or exit conduit from the interior of said storage container.

5,669,572
ANTI-CINCH AUTOMATIC LOCKING RETRACTOR WITH CAM RELEASE
James E. Crook, Carmel, Ind., assignor to Indiana Mills and Manufacturing, Inc., Westfield, Ind.
Continuation-in-part of Ser. No. 307,528, Sep. 16, 1994, Pat. No. 5,497,956. This application Dec. 15, 1995, Ser. No. 573,411
Int. Cl.⁶ B60R 22/353
U.S. Cl. 242—382.1 19 Claims



12. A web retractor comprising:
a retractor frame with a pair of upstanding walls;
a web spool rotatably mounted about an axis of rotation to said pair of upstanding walls and movable to and between a web retracted position and a web extended position, said spool including at least one spool end wall with teeth formed circumferentially thereon;
a lock movably mounted to said frame and lockingly engagable with said teeth;
a first device movably mounted on said frame and movable from a first position blocking said lock and teeth from locking together as said spool is moving toward said web extended position to a second position allowing said lock to lock with said teeth as said lock moves from said web extended position; and,
a second device mounted on said frame and movable between a third position and a fourth position, said second device when in said third position blocking movement of said first device to said first position and when in said fourth position allowing movement of said first device to said first position.

5,669,573

BELT RETRACTOR

Uwe Hirzel, Auenwald, Germany, assignor to TRW Occupant Restraint Systems GmbH, Alfdorf, Germany
PCT No. PCT/EP95/02657, § 371 Date Mar. 6, 1996, § 102(e)
Date Mar. 6, 1996, PCT Pub. No. WO96/01751, PCT Pub. Date Jan. 25, 1996

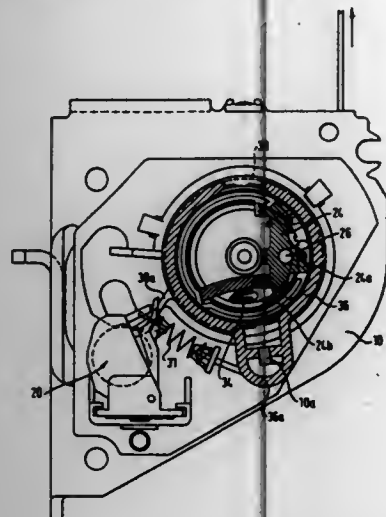
PCT Filed Jul. 7, 1995, Ser. No. 605,170

Claims priority, application Germany, Jul. 7, 1994, 44 23 958.0

Int. Cl. B60R 22/405; 22/41

U.S. Cl. 242—383.1

11 Claims



1. A belt retractor for an occupant restraining system in vehicles, comprising:

- a frame;
- a belt drum rotatably mounted in the frame;
- a wind-up spring acting upon the belt drum;
- a locking mechanism for the belt drum;
- at least one pivotable actuator pawl, the locking mechanism being activated in a manner responsive to the vehicle and/or the belt webbing by pivoting of the actuator pawl;
- catch elements pivotally mounted on the belt drum and rotatable relative to the belt drum, said catch elements and the actuator pawl being able to assume, by rotation of the belt drum in the wind-up direction, a first position in relation to each other in which the catch elements engage the actuator pawl and prevent pivoting thereof, and by rotation in the unwinding direction, a second position in which the catch elements clear the actuator pawl;
- wherein, for the transition from the first into the second position, a rotation of the belt drum through a predetermined angular range between approximately 20° and approximately 25° is necessary.

5,669,574

STORABLE CARPET RUNNER

Deborah A. Calhoun, 66 Elizabeth Ave., Hempstead, N.Y. 11550

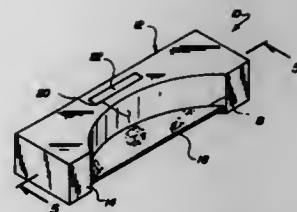
Filed Jan. 31, 1996, Ser. No. 594,227

Int. Cl. B65H 75/40

U.S. Cl. 242—395

4 Claims

1. A storable carpet runner comprising:
- a housing including a front wall having a slot directed there-through;
 - a length of carpet received through the slot through the front wall of the housing for storage therein wherein the housing is shaped so as to define a front wall recess directed into the front wall thereof which allows an



- individual to grasp the length of the carpet by both hands during initial extension of the length of carpet from the housing;
- wherein the length of carpet includes at least one carpet indicia member removably coupled thereto;
 - wherein the length of carpet is shaded so as to define a receiving groove directed thereinto; and further wherein the carpet indicia member includes at least one securing projection extending from an outer edge thereof which is received within the receiving groove of the length of carpet;
 - wherein the length of carpet is shaded so as to define a receiving aperture directed thereinto, with the receiving groove being directed into a backing portion of the length of carpet, whereby the carpet indicia member is positioned into the receiving aperture, with the securing projection being positioned into the receiving groove to secure the carpet indicia member within the receiving aperture.

5,669,575

APPARATUS FOR CONTROLLING A CABLE ON A TAKE-UP DRUM

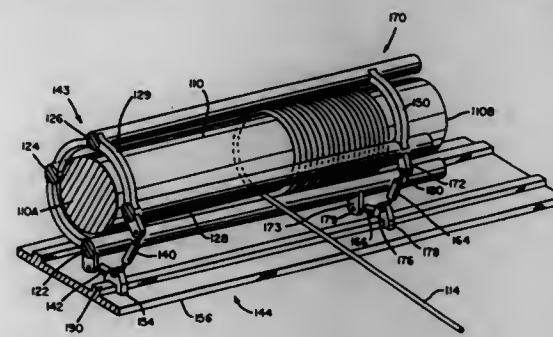
Darryl S. Byle, Kalispell, Mont., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 29, 1995, Ser. No. 564,674

Int. Cl. B65H 54/553

U.S. Cl. 242—470

2 Claims



2. In combination,
- (a) a cable take-up drum having a cylindrical outer surface of a prescribed length;
 - (b) a cable wrapped around a portion of the length of the cable take-up drum;
 - (c) an apparatus for controlling said cable on said cable take-up drum, said apparatus comprising: roller means for continually applying a pressure to the cable at a plurality of points that are uniformly around the take-up drum, the roller means extending substantially the length of the cable take-up drum;

- first and second support means being respectively adjacent to first and second ends of the cable take-up drum for rotatably supporting the roller means, each of the first and second support means respectively having two attached flexible spring steel members and an adjustable link means attached between two ends of the two attached flexible spring steel members for pulling the two ends of the two attached flexible spring steel members together with an adjustable force to cause the roller means to apply an adjustable pressure on the cable, the first and second support means encircling the cable take-up drum; and
- a base means for preventing the first and second support means from rotating as the take-up drum rotates, the base means being adjacent to the length of the take-up drum.

- a roll stop element in operative association with said elongated spindle element and said rotatable sleeve for engagement by an end of a coreless toilet tissue roll on said rotatable sleeve; and
- a double ended spacer ring surrounding said elongated spindle element, rotatably mounted on said spindle element, and axially located between said rotatable sleeve and the enlargements affixed to said elongated spindle element, said roll stop element comprising a projection secured to and projecting outwardly from said spacer ring at one of the ends of the spacer ring, said spacer ring and said projection being selectively reversible relative to said elongated spindle element.

5,669,577

WINDING DEVICE

Masamitsu Nagashima, Kuroiso, Japan, assignor to Bridgestone Metalpha Corporation, Tokyo, Japan

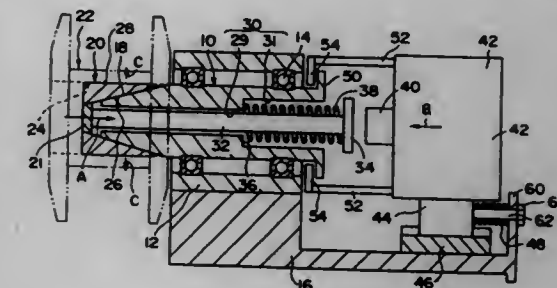
Filed Aug. 1, 1995, Ser. No. 509,832

Claims priority, application Japan, Aug. 2, 1994, 6-181643

Int. Cl. B65H 75/24

U.S. Cl. 242—573.9

10 Claims



1. A winding device which a winding reel can be mounted on and removed from, comprising:

- a rotatable winding shaft having a through-hole along an axial direction of the winding shaft and having a tapered end, said through-hole having a first diameter at the tapered end and a second diameter at the other end, said second diameter being larger than said first diameter wherein a stepped-diameter portion is formed in said through-hole;
- bearing means for supporting said winding shaft such that said winding shaft is rotatable around its axis, said bearing means being adapted to be fitted into a device base;
- a collet sleeve adapted to receive the winding reel, said collet sleeve having an outer periphery adapted to be detachably fitted into the winding reel and having an inner periphery slidably fitted onto the tapered end of said winding shaft, said collet sleeve increasing in diameter when sliding along the tapered end toward the taper to engage the winding reel, wherein the rotation of said winding shaft is transmitted to the winding reel, said collet sleeve decreasing in diameter when sliding along the tapered end away from the taper to release the winding reel from said collet sleeve;
- a transmission member having two ends, one end equipped with a flange having a diameter larger than the second diameter of said through-hole, the other end being fixed to said collet sleeve, said transmission member passing through the through-hole of said winding shaft and being movable in the axial direction of said winding shaft, wherein the flange-equipped end protrudes from said winding shaft;
- clamping and urging means provided between said flange-equipped end of said transmission member and said stepped-diameter portion of said winding shaft, for urging said transmission member in a direction to move said collet sleeve along the tapered end of said winding shaft toward the taper to engage the winding reel;
- a pressing member provided to face the flange of said transmission member, for abutting and pressing said transmission member against said clamping and urging means to move said

5,669,576

APPARATUS FOR SUPPORTING CORELESS ROLLS IN TOILET TISSUE DISPENSER

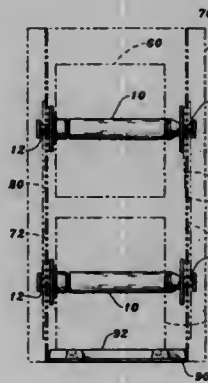
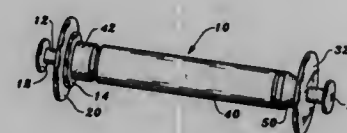
John R. Moody, Antioch, Calif., assignor to James River Corporation of Virginia, Richmond, Va.

Filed Aug. 10, 1995, Ser. No. 513,438

Int. Cl. B65H 19/00; 16/06; 18/04

U.S. Cl. 242—560.3

15 Claims



9. A support spindle for insertion into a toilet tissue dispenser cabinet including double-sided, spaced cabinet walls at least partially defining a cabinet interior and further defining opposed, generally vertically oriented, elongated first and second slots communicating with said cabinet interior and for supporting in said toilet tissue dispenser a coreless toilet tissue roll comprised of a plurality of toilet tissue web convolutions and having a central aperture defined by the innermost toilet tissue web convolution, said support spindle comprising:

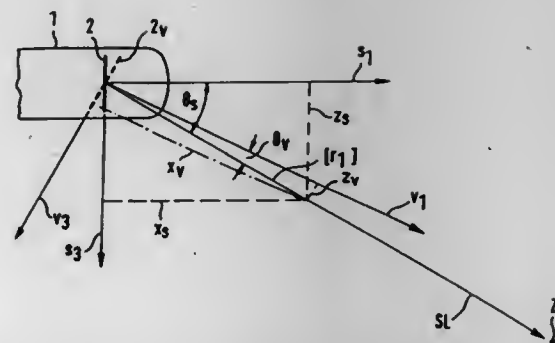
- an elongated spindle element slidably positionable in said first slot having a first end and a second end;
- two spaced enlargements affixed to said elongated spindle element at the first end thereof positionable on opposed sides of the cabinet wall defining said first slot;
- a second spindle element releasably connected to said elongated spindle element slidably positionable in said second slot;
- two spaced enlargements on said second spindle element positionable on opposed sides of the cabinet wall defining said second slot;
- a rotatable sleeve rotatably disposed about said elongated spindle element for location within said cabinet interior, said rotatable sleeve having an outer peripheral surface for frictional engagement with the innermost toilet tissue web convolution of the coreless toilet tissue roll;

collet sleeve along the tapered end of said winding shaft away from the taper to release the winding reel from said collet sleeve;

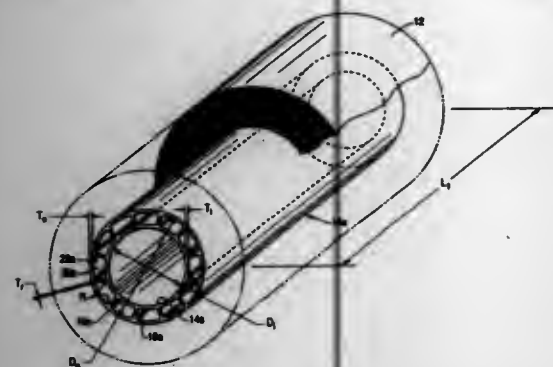
driving means for driving said pressing member;

movement-allowing means provided on the device base, for allowing said driving means to move away from said winding shaft by reactive force received by said pressing member upon pressing said flange of said transmission member; and

movement-preventing means provided with said driving means for preventing said driving means from moving away from said winding shaft by engaging with said winding shaft at an engaging portion of said winding shaft after said driving means is allowed to move away from said transmission member by said movement-allowing means.



5,669,578
CRUSH-PROOF EXTRUSION CORE
 Ming Ma, Miamisburg, Ohio, assignor to NCR Corporation, Dayton, Ohio
 Filed Sep. 22, 1995, Ser. No. 532,199
 Int. Cl.⁶ B65H 75/10
 U.S. Cl. 242—613.5
 9 Claims



1. A core for a paper roll comprising:
 an inner tube having an inner diameter and a radial wall inner thickness;
 an outer tube having an outer diameter and a radial wall outer thickness, and disposed coaxially with said inner tube and spaced radially outwardly therefrom;
 a plurality of ribs extending radially between and integrally joined with said inner and outer tubes, and circumferentially spaced apart from each other to define four empty pockets therebetween;
 each of said pockets being bounded on four sides by an adjacent pair of said ribs and respective portions of said inner and outer tubes extending therebetween to define four corresponding corners each having a radius which is greater than said outer thickness; and
 said inner thickness being at least as large as about said outer thickness for increasing crushing resistance of said core.

5,669,579
METHOD FOR DETERMINING THE LINE-OF-SIGHT RATES OF TURN WITH A RIGID SEEKER HEAD
 Athanasios Zacharias, Bayerisch Gmain, Germany, assignor to Mafo Systemtechnik Dr.-Ing. A. Zacharias, GmbH & Co. KG, Teisendorf, Germany
 Continuation of Ser. No. 340,148, Nov. 15, 1994, abandoned.
 This application Dec. 11, 1995, Ser. No. 570,382
 Claims priority, application Germany, Nov. 16, 1993, 43 39 187.7

Int. Cl.⁶ F41G 7/20
 U.S. Cl. 244—3.15
 19 Claims

1. A method of determining a desired rate-of-turn of a guided missile toward a target for use by a guidance unit configured to

steer the missile, the missile having a fixed seeker head rigidly attached thereto, the seeker head having a center point through which an on-target, line-of-sight axis extends, said method including the steps of:

measuring a real deviation angle between the seeker head and the target, said real deviation angle representing a deviation between the seeker head line-of-sight axis and the target relative to the seeker head center point;

determining a virtual seeker transformation matrix between the seeker head and a virtual seeker, said virtual seeker being centered on the seeker head center point and being selectively rotatable about the seeker head center point, said virtual seeker having a virtual line-of-sight that extends through the seeker head center point at a fixed angle relative to the virtual seeker, said determining step including the steps of:

measuring rotation of the seeker head line-of-sight axis in a reference coordinate system;

determining rotation of said virtual seeker virtual line-of-sight from the seeker head center point in the reference coordinate system, said rotation determination being performed by monitoring a calculated virtual seeker rate-of-turn; and

basing said virtual seeker transformation matrix on said real seeker head measured rotation and said virtual seeker calculated rotation;

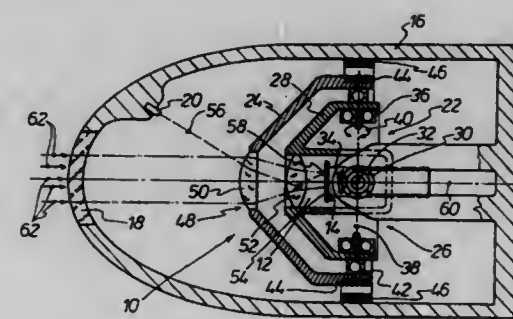
calculating a virtual deviation angle between said virtual seeker head and the target, said virtual deviation angle representing a deviation between said virtual seeker virtual line-of-sight and the target relative to the seeker head center point, said calculation being based on said real deviation angle and said virtual seeker transformation matrix; and

calculating a virtual seeker rate-of-turn based on said calculated virtual deviation angle wherein said virtual seeker rate-of-turn is used in a subsequent virtual seeker virtual line-of-sight rotation determination step and is forwarded to the missile guidance unit as the missile rate-of-turn.

5,669,580
SENSOR DEVICE FOR A MISSILE
 Werner Strauss, Nurnberg, Germany, assignor to Diehl GmbH & Co., Nurnberg, Germany
 Filed Nov. 15, 1995, Ser. No. 558,832
 Claims priority, application Germany, Dec. 3, 1994, 44 43 134.1

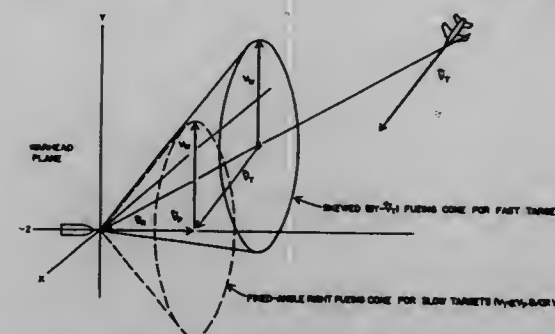
Int. Cl.⁶ F41G 7/00; 7/22
 U.S. Cl. 244—3.16
 7 Claims

1. A sensor device for an autonomously guided missile, comprising a radiation-sensitive matrix detector; an electronic evaluation circuit operatively connected to the matrix detector, a ray source (20) being stationarily arranged on the missile (16), and a gyro-optical device (22) cardinally mounted on the missile being operatively located stationarily so as to deflect a beam emitted from said ray source and to direct said beam between the ray source (20) and the matrix detector (12), and said gyro-optical



device (22) includes a gyro-rotor (24) which is mounted in the missile (16) by cardan joint means (26).

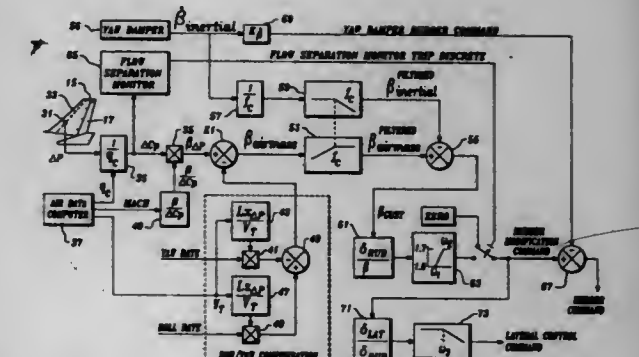
5,669,581
SPIN-STABILIZED GUIDED PROJECTILE
 Hayden N. Ringer, Laguna Hills, Calif., assignor to Aerojet-General Corporation, Ohio
 Continuation of Ser. No. 225,634, Apr. 11, 1994. This application Nov. 17, 1995, Ser. No. 560,132
 Int. Cl.⁶ F41G 7/22
 U.S. Cl. 244—3.16
 6 Claims



5. A spin-stabilized ballistic projectile for destroying a selected target; the projectile having a longitudinal axis and comprising: an imaging array of infrared detectors for scanning images in at least one of a plurality of concentric circular patterns about the projectile axis, said scanning being implemented by the spin of said projectile about said axis; and a planar warhead selectively projectable from said projectile; said imaging array having a wide angle field of view provided by a plurality of detectors configured as a radial array; said array being configured for tracking said target to intercept based upon a skewed fuzing cone and for selectively projecting said directional mass-focus warhead at a vulnerable area of said target, the skewed cone having a generatrix which is the vector sum of projectile velocity, warhead velocity and the negative of target velocity.

5,669,582
METHOD AND APPARATUS FOR REDUCING UNWANTED SIDEWAYS MOTION IN THE AFT CABIN AND ROLL-YAW UPSETS OF AN AIRPLANE DUE TO ATMOSPHERIC TURBULENCE AND WIND GUSTS
 William F. Bryant, Bellevue; Arun A. Nadkarni, Kirkland, and Paul Salo, Seattle, all of Wash., assignors to The Boeing Company, Seattle, Wash.
 Filed May 12, 1995, Ser. No. 440,339
 Int. Cl.⁶ B64C 13/16
 U.S. Cl. 244—76 C
 39 Claims

1. A method of producing a rudder modification command for reducing unwanted sideways motion in the aft cabin of an airplane comprising:



determining the pressure differential across the opposite sides of the vertical stabilizer of the airplane;

producing an airmass sideslip angle value based on said pressure differential;

roll and yaw compensating said airmass sideslip angle value to produce a compensated airmass sideslip angle value;

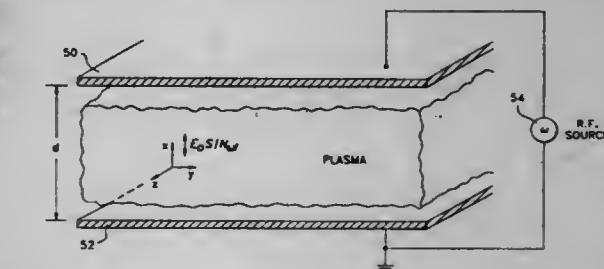
high-pass filtering said compensated airmass sideslip angle value with a filter having a corner frequency that is approximately twenty-five percent (25%) of the Dutch roll frequency of the airplane to produce a first rudder deflection value;

deriving a second rudder deflection value by gain adjusting and low-pass filtering an inertially derived sideslip angle rate value with a filter having a corner frequency that is approximately twenty-five percent (25%) of the Dutch roll frequency of the airplane;

subtractively combining said first and second rudder deflection values; and

gain shape filtering said combined first and second rudder deflection values to produce a rudder modification command, said gain shape filtering gain modifying said combined first and second rudder deflection values as a function of the Dutch roll frequency of the airplane.

5,669,583
METHOD AND APPARATUS FOR COVERING BODIES WITH A UNIFORM GLOW DISCHARGE PLASMA AND APPLICATIONS THEREOF
 John Reece Roth, Knoxville, Tenn., assignor to University of Tennessee Research Corporation, Knoxville, Tenn.
 Filed Jun. 6, 1994, Ser. No. 254,264
 Int. Cl.⁶ B64C 1/38
 U.S. Cl. 244—130
 23 Claims



1. A method for generating a steady-state one atmosphere glow discharge plasma which covers a surface of a body in a gas, wherein said body has a skin on which are disposed a plurality of insulated strip electrodes which are spaced from and generally parallel to each other, said method comprising the steps of:

providing a first electrode terminal including first electrode strips disposed on the skin of said body, and a second electrode terminal including second electrode strips disposed on the skin of said body and which are adjacent to said first electrode strips, wherein said second electrode terminal is electrically isolated from said first electrode terminal,

connecting said first electrode terminal to a first pole of a radio frequency (RF) power source which has first and second opposite poles, and connecting the second electrode terminal either to the second pole of said RF power source or to ground, and
generating said steady-state one atmosphere glow discharge plasma by utilizing said RF power source to energize said first electrode terminal relative to said second electrode terminal with an RF driving voltage at an applied frequency, wherein the RF driving voltage is high enough to generate an electric field which covers the surface of the body, and the applied frequency produces an RF electric field which is high enough to trap positive ions of the plasma on electric field lines between the two electrode terminals, but not so high that electrons of the plasma are also trapped during a half cycle of oscillation of the RF driving voltage,
producing a steady-state one atmosphere glow discharge plasma in the gas which covers the surface of the body.

5,669,584

SPACE VEHICLE APPARATUS INCLUDING A CELLULAR SANDWICH WITH PHASE CHANGE MATERIAL

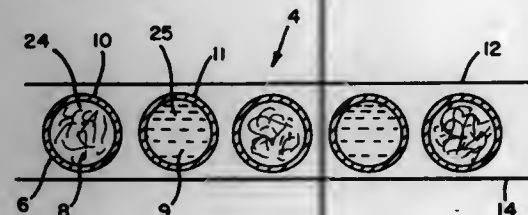
Edward S. Hickey, Dover, Mass., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 13, 1995, Ser. No. 571,646

Int. Cl.⁶ B64G 1/58

U.S. Cl. 244—158 A

3 Claims



1. Apparatus for holding a space vehicle at a constant temperature during space flight, comprising:
 - (a) the space vehicle;
 - (b) a cellular sandwich having outer layers, the cellular sandwich on an outer surface of the space vehicle, the cellular sandwich having translucent cells interior to the outer layers, an outer layer that is more distant from the space vehicle being able to transmit sunlight to the translucent cells and to transmit radiation from the translucent cells; and
 - (c) a selected amount of the phase change material within the translucent cells of the cellular sandwich, the phase change material absorbing sunlight and radiating energy for holding the space vehicle at a constant temperature during a space flight.

5,669,585

ELLIPTICAL ORBIT SATELLITE, SYSTEM, AND DEPLOYMENT WITH CONTROLLABLE COVERAGE CHARACTERISTICS

David Castiel; John E. Dralm, and Jay Brosius, all of Washington, D.C., assignors to Mobile Communications Holdings, Inc., Washington, D.C.

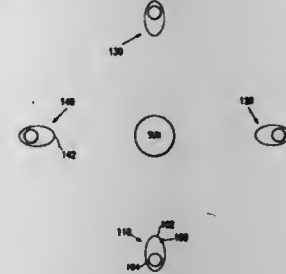
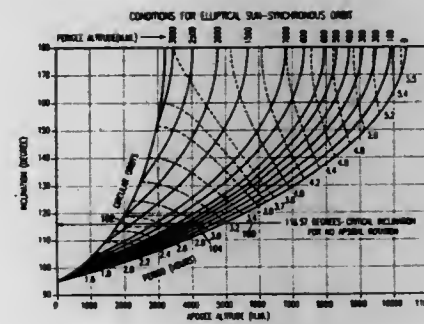
Division of Ser. No. 197,260, Feb. 16, 1994, Pat. No. 5,582,367, which is a continuation-in-part of Ser. No. 892,239, Jun. 2, 1992. This application Nov. 19, 1996, Ser. No. 746,911

Int. Cl.⁶ B64G 1/10; H04B 7/185

U.S. Cl. 244—158 R

49 Claims

1. A satellite in orbit around the earth, defining an elliptical orbit which has orbital parameters to satisfy the equation



$$\frac{da}{dt} + \frac{d\Omega}{dt} = 0.9856, \quad (1)$$

where Ω is the right ascension of the ascending node, and ω is the argument of perigee, and wherein said satellite in orbit asymmetrically covers one parameter of coverage preferentially over another in a way which is constant relative to the sun, all year round.

5,669,586

SATELLITE GRAVITY GRADIENT COMPENSATION USING ON-ORBIT SOLAR ARRAY REORIENTATION

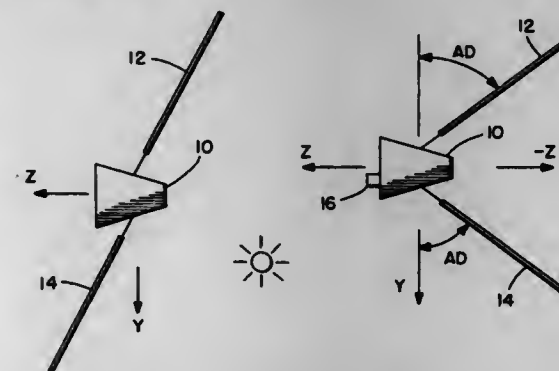
Alfred H. Tadros, Palo Alto, Calif., assignor to Space Systems/Loral, Inc., Palo Alto, Calif.

Filed Dec. 6, 1994, Ser. No. 349,950

Int. Cl.⁶ B64G 1/34

U.S. Cl. 244—167

10 Claims



1. A method for operating an orbiting spacecraft, comprising the steps of:
 - changing a mass distribution of the spacecraft from a first mass distribution for setting a first principal moment of inertia of the spacecraft along a first axis approximately equal to a second principal moment of inertia of the spacecraft along a second axis, thereby minimizing a gravity gradient torque about a third axis;
 - performing a desired activity while the gravity gradient torque about the third axis is minimized; and
 - resetting the mass distribution back to the first mass distribution at a completion of the desired activity; wherein the spacecraft includes a plurality of solar array panels, wherein the step of changing is accomplished by varying a position of at

least two of the solar array panels away from a sun-pointing configuration, and wherein the step of resetting is accomplished by varying a position of the at least two solar array panels back to the sun-pointing configuration.

5,669,587

POINT DETECTION AND INDICATION WITH LATCH OUT MEANS

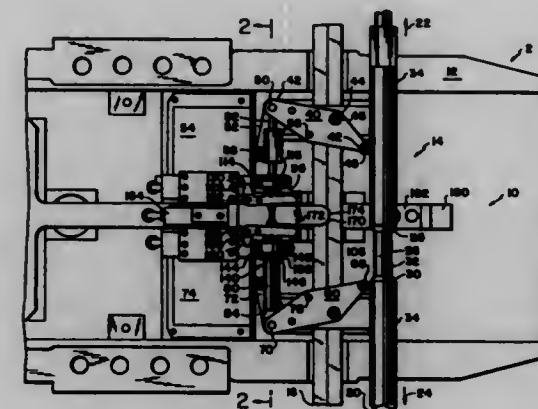
Daniel W. Van Alstine, Rochester, N.Y.; George E. Ludwick, Tequesta; George A. Bonner, Palm Beach Gardens, both of Fla.; Mark Hager, Rochester, N.Y.; Charles M. Eggebrecht, Churchville, N.Y.; Allen Baughman, Rush, N.Y., and Barry A. Taft, Rochester, N.Y., assignors to General Railway Signal Corporation, Rochester, N.Y.

Continuation-in-part of Ser. No. 541,924, Oct. 10, 1995, abandoned, which is a continuation of Ser. No. 293,126, Aug. 19, 1994, abandoned. This application Feb. 16, 1996, Ser. No. 603,152

Int. Cl.⁶ E01B 7/00

U.S. Cl. 246—220

35 Claims



1. A point detection and indication apparatus for an electric motor driven switch machine, comprising:
 - a point detector bar having an outer surface;
 - a point detector cam located on said outer surface;
 - a pair of cam followers, each of said cam followers having a first end which is contiguous to said outer surface, and a second end;
 - said second end is positioned at a first position when said first end is positioned adjacent said point detector cam, and said second end is positioned at a second position when said first end is not positioned contiguous to said point detector cam; and
 - a link arm, directly linking said second ends of said pair of cam followers, having tension means;
- said tension means being operable for retracting a length of said link arm when at least one of said second ends shifts from said second position to said first position and for extending the length of said link arm when at least one of said second ends shifts from said first position to said second position.

5,669,588

MOTION BARRIER

Michael A. Goldsmith, 75-58 192nd St., Flushing, N.Y. 11366

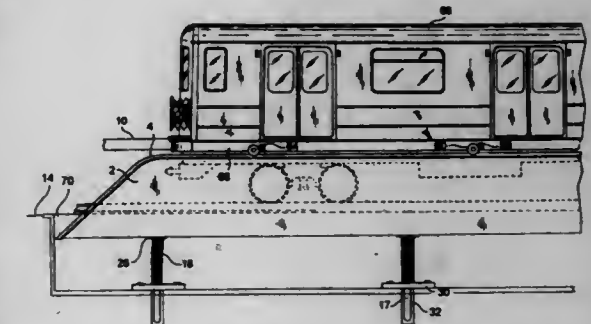
Filed Aug. 26, 1996, Ser. No. 703,382

Int. Cl.⁶ B61B 1/02

U.S. Cl. 246—307

4 Claims

1. A railway motion barrier system comprising:
 - a motion barrier wall,
 - at least one spring unit affixed to said motion barrier wall to bias said motion barrier wall upward above a platform level,



- a spring unit reception area for receiving said at least one spring unit,
- at least one ridge wheel affixed to a train, said ridge wheel compressing said spring unit into said spring reception area by rolling on said motion barrier wall when said train enters a location adjacent said motion barrier wall, such that said motion barrier wall is compressed below the platform level, and
- said at least one ridge wheel releasing said compressed spring unit from said spring reception area by rolling off said motion barrier wall when said train leaves the location adjacent said motion barrier wall, such that said motion barrier wall is returned upward above the platform level.

5,669,589

PIPE AND CABLE CLAMP WITH BASE PART AND RECEIVING STRAP

Rupert Janssen, Meiningen; Markus Fröwis, Frastanz, both of Austria, and Luc Guillon, Sax, Switzerland, assignors to Hilti Aktiengesellschaft, Furstentum, Liechtenstein

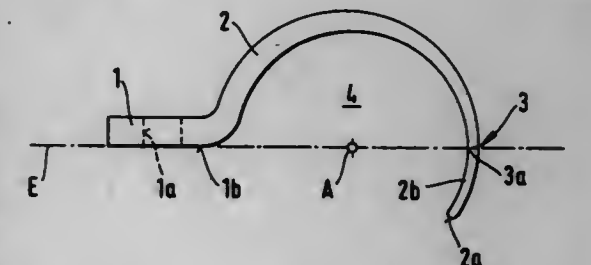
Filed Sep. 14, 1995, Ser. No. 527,908

Claims priority, application Germany, Sep. 15, 1994, 44 32 780.3

Int. Cl.⁶ F16L 3/08

U.S. Cl. 248—65

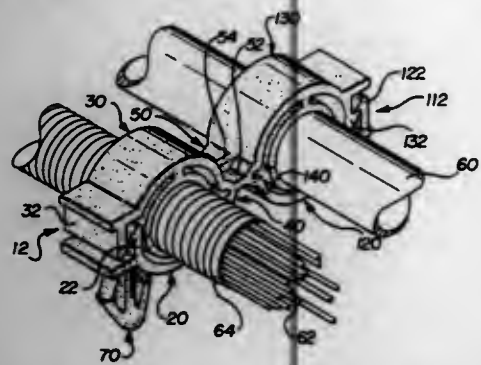
4 Claims



1. Pipe and cable clamp comprises a base part (1) having a planar first surface for attachment to a surface of a structural member (8) and an oppositely facing second surface, at least one generally arcuately shaped elongated receiving strap (2) extending laterally from and curving outwardly from said base part first surface in the direction extending from said first surface towards said second surface and having a free end (2a) spaced outwardly from said base part, at least one receiving space (4) formed between said receiving strap and a plane containing the planar first surface of said base part for receiving at least one of pipe and cable (5, 7) in said receiving space (4), wherein the improvement comprises that said receiving strap (2) having a first surface facing in the direction of said base part first surface and an oppositely facing second surface with a pair of laterally spaced edges bordering said first and second surfaces and a joint (3) spaced intermediate said base part and said free end (2a) and extending between said edges for affording a folding of a section of said receiving strap extending from said free end to said joint into said receiving space, said joint being formed by a cross-sectional reduction of said receiving strap extending from said second surface of said receiving strap towards said first surface thereof and transversely of the elongated

direction of said receiving strap, said joint having a pivot axis extending parallel to a central axis (A) of the said receiving space (4) with the central axis extending transversely of the elongated direction of said receiving strap, said first surface arranged to directly contact at least one of the pipe and cable, and said edges extending transversely of said central axis whereby said folding section is adapted to be in a arcuate configuration of said receiving strap in a first position for a first size pipe or cable and in a folded configuration below said receiving strap in a second position for receiving a reduced size pipe or cable.

5,669,590
RETAINING CLIP WITH MULTIPLE CLAMPS
 Kevin Donald Przewodek, Northville, Mich., assignor to Yazaki Corporation, Tokyo, Japan
 Filed Dec. 4, 1995, Ser. No. 567,092
 Int. Cl.⁶ F16L 3/22
 U.S. Cl. 248—68.1 7 Claims



1. A one-piece, molded plastic retaining clip for holding a plurality of articles in spaced relationship to one another, the clip comprising:

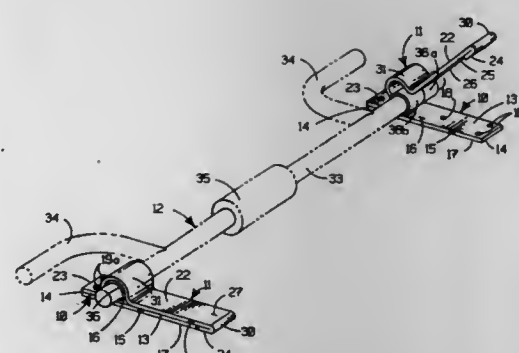
a plurality of retaining clamps, each clamp comprising a first and a second generally arcuate arm joined together at respective first ends by hinge means having an undeformed condition wherein the arms are in an open position in which second ends of the arms distal from the first ends are relatively far apart, the hinge means being elastically deformable to a deformed condition wherein the arms are in a closed position in which the second ends of the arms are relatively close together, the second ends of the arms having latching means molded integrally therewith and engagable with one another to hold the arms in the closed position; and spacer means interconnecting at least two of the hinge means and maintaining the at least two hinge means in spaced relationship to one another.

5,669,591
FASTENING SYSTEM FOR AUTO ANTI-THIEF DEVICE
 Joseph P. Perez, 1216 "A" St., Apt. B, Coeur d'Alene, Id. 83814
 Filed Apr. 8, 1996, Ser. No. 630,969
 Int. Cl.⁶ F16M 11/00

U.S. Cl. 248—201 4 Claims

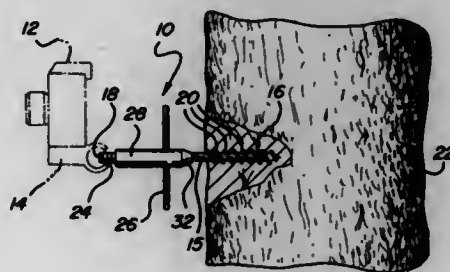
1. A fastening system to releasably positionally maintain an auto anti-theft device having an elongate body on an interior surface of a vehicle during periods of non-use, the auto anti-theft device having a first end and a second end with a fastening means integral with at least one of the ends of the auto anti-theft device, the fastening system including two spaced adjacent holders, each holder comprising in combination:

an elongate base having inner and outer surfaces with first means to fastenably maintain the inner surface of the base on the interior surface of the vehicle, second means at one end portion to permanently fasten an elongate flexible fastening



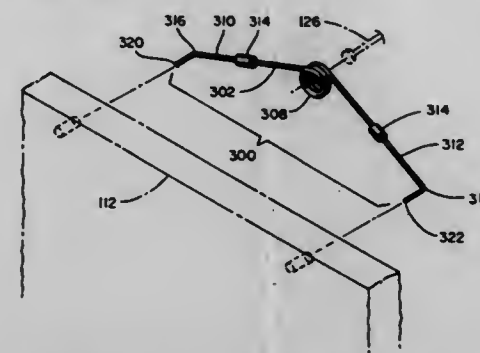
band thereto and third means on the outer surface to releasably fasten the elongate flexible fastening band to a portion of the outer surface; and the elongate flexible fastening band being permanently fastened to the end portion of the base, having a pre-formed, configurationally sustaining, flexibly deformable portion adjacent the area permanently fastened to the body to conformably receive and fit over a portion of the body of the anti-theft device to be carried by the fastening system extending over the base and having fastening means on its surface adjacent the base to releasably fasten with the releasable fastening means of the base, the flexibly deformable portion having a fastening means adapted to engage the fastening means that is integral with the at least one of the ends of the auto anti-theft device.

5,669,592
CAMERA SUPPORT
 Robert G. Kearful, 398 Grover Cleveland Hwy., Amherst, N.Y. 14226
 Filed Sep. 26, 1995, Ser. No. 533,680
 Int. Cl.⁶ A47B 96/06
 U.S. Cl. 248—217.4 5 Claims



1. A camera support (10) comprising:
 a shaft (15) having first (16) and second (18) ends and a longitudinal axis extending therebetween;
 anchor threads (20) disposed on said first end (16) and extending along said axis of said shaft (15);
 support threads (24) disposed on said second end (18) and extending along said axis of said shaft (15);
 a handle (26) extending transversely to opposing sides of said axis of said shaft (15) for manually rotating said anchor threads (20);
 said anchor threads (20) being coarse self tapping threads and said support threads (24) being fine machine-type threads;
 a center portion (28) extending between said anchor threads (20) and said support threads (24) with said handle (26) disposed along said center portion (28);
 said center portion (28) having a larger diameter than the major diameter of said support threads (24); and
 a frusto-conical section (32) interconnecting said center portion (28) and said first end (16).

5,669,593
PICTURE HANGING DEVICE
 Richard N. Kirchner, 11204 Gasch, Harvard, Ill. 60033
 Filed Jun. 7, 1995, Ser. No. 487,939
 Int. Cl.⁶ A47G 1/24
 U.S. Cl. 248—476 2 Claims



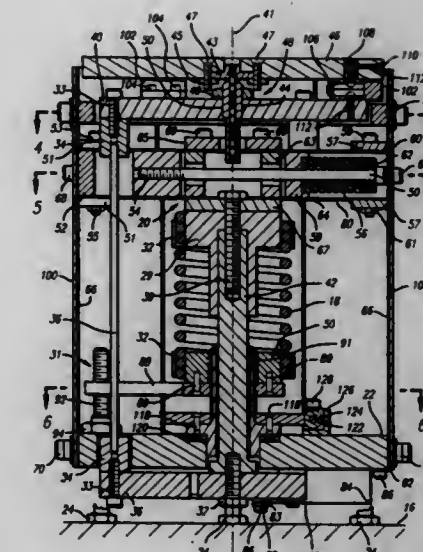
1. A picture hanging device for hanging a picture in a proper position, comprising:

- a picture means being attached to the picture;
- the picture means including a shaped wire;
- the shaped wire having a centrally located coil;
- the centrally located coil having a first arm and a second arm extending therefrom;
- the first arm having a first slidable weight mounted thereon;
- the second arm having a second slidable weight mounted thereon;
- the first arm being oppositely disposed from the second arm;
- the first arm having a first attaching member oppositely disposed from the coil;
- the second arm having a second attaching member oppositely disposed from the coil;
- the first attaching member and the second attaching member being securable to the picture;
- the first slidable weight being situated between the coil and the first attaching member; and
- the second slidable weight being situated between the coil and the second attaching member.

5,669,594
VIBRATION ISOLATING SYSTEM
 David L. Platus, Los Angeles, and Donald A. Durran, Manhattan Beach, both of Calif., assignors to Minus K Technology, Inc., Inglewood, Calif.
 Continuation of Ser. No. 186,573, Jan. 25, 1994, abandoned, which is a continuation-in-part of Ser. No. 125,496, Sep. 22, 1993, abandoned, which is a continuation of Ser. No. 987,046, Dec. 4, 1992, abandoned, which is a continuation-in-part of Ser. No. 708,995, May 31, 1991, Pat. No. 5,178,357, which is a continuation-in-part of Ser. No. 681,808, Apr. 8, 1991, abandoned, which is a continuation-in-part of Ser. No. 395,093, Aug. 16, 1989, abandoned. This application May 3, 1995, Ser. No. 434,979
 Int. Cl.⁶ F16M 13/00
 U.S. Cl. 248—619 16 Claims

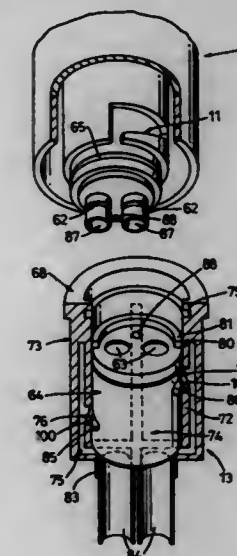
1. An omni-directional vibration isolation suspension system for supporting an object having a center-of-mass in an equilibrium position relative to a base while suppressing transmission of vibratory motion between the object and the base, comprising:

- a vertical-motion isolator for isolating vibratory motion in a vertical direction operatively connected in series with a horizontal-motion isolator for isolating vibratory motion in a horizontal direction;
- a tilt-motion isolator for isolating tilt motion operatively connected in series with either of said vertical-motion isolator and horizontal motion-isolator; and a platform operatively supported by said vertical-motion, horizontal-motion and tilt-motion isolators upon which the object rests, said platform



having a center-of-mass below the center-of-mass of the object such that the combined center-of-mass of the platform and object is located relative to said vertical-motion isolator, horizontal-motion isolator and tilt-motion isolator to substantially decouple the vertical, horizontal and tilt motions of the system.

5,669,595
WATER TAP FOR BASINS, BATHS, AND THE LIKE
 Quinn Jonathon Bytheway, "Fair View", Shut End, Kingswinford, West Midlands DY6 7LR, Great Britain
 Filed Sep. 6, 1995, Ser. No. 523,940
 Claims priority, application United Kingdom, Sep. 7, 1994, 9418027; Feb. 16, 1995, 9503045
 Int. Cl.⁶ F16L 37/28
 U.S. Cl. 251—149.8 5 Claims



1. A sanitary-ware appliance comprising a mixer tap assembly operable in use to control the mixing and dispensing of water from separate hot and cold water supplies to the assembly, the assembly comprising a first part being a connector which is secured to the appliance and comprises separate inlets for receiving supplies of hot and cold water and a second part being a mixer tap comprising a body which is arranged for securement in the connector by insertion and rotation relative to the connector between a first orientation in which it is inserted and a second orientation in which it becomes secured and in which orientation separate hot and cold

inlets of the tap body become connected through the connector to the hot and cold water inlets respectively of the connector, there being interengageable formations on the tap body and the connector whereby the tap body becomes secured in the connector upon being twisted between its first and second orientations, and the connector comprising shut-off means which becomes coupled to the tap body when said body is inserted into the connector whereby upon twisting the tap body between its second orientation and its first orientation, the supplies of hot and cold water through the connector become shut-off.

5,669,594

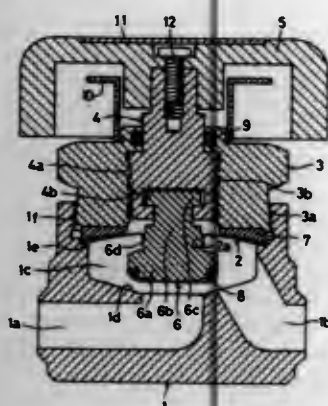
DIAPHRAGM VALVE

Kazuhiro Yoshikawa, and Tetsuya Kojima, both of Osaka, Japan, assignors to Fujikin Incorporated, Osaka, Japan
Filed Nov. 14, 1995, Ser. No. 558,697

Claims priority, application Japan, Feb. 15, 1995, 7-027135
Int. Cl.⁶ F16K 31/00

U.S. Cl. 251—335.2

17 Claims



1. A diaphragm valve comprising:

- a valve body with a valve seat on the bottom of a concave valve chamber, the valve chamber communicating with an inflow passage and an outflow passage;
- a metallic diaphragm having a center opening therein whereby said diaphragm exhibits an inner circumference with an edge portion and an outer circumferential edge portion, said metallic diaphragm being elastically deformable in a vertical direction and positioned in the valve chamber opposite the valve seat for maintaining air-tightness of the valve chamber;
- a bonnet fixed to said valve body for clamping said outer circumferential edge portion of said metallic diaphragm against said valve body;
- a stem inserted in and supported by said bonnet, said stem being movable up and down through said bonnet; and,
- a valve disk, said valve disk comprising a disk-like seat portion making contact with and moving away from said valve seat, a shaft portion extending from a top surface of said seat portion through said center opening in said metallic diaphragm, and a connecting portion connected to said shaft portion and to a bottom end portion of said stem, and a weld joint fastening and integrating said end edge portion of the inner circumference of said metallic diaphragm to said shaft portion around the entire circumference of said shaft portion, said weld joint being spaced from said seat portion by a gap which extends across the entire extent of the diaphragm from the edge portion of the inner circumference to the outer circumferential edge portion.

5,669,597

SELF-PUMPING AIR SUSPENSION SPRING MOUNTED ON A SHOCK ABSORBER ASSEMBLY

Henning Rittstiege, Villa Hills, Ky., and Hartmut Rölleke, Oberelsser, Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Germany

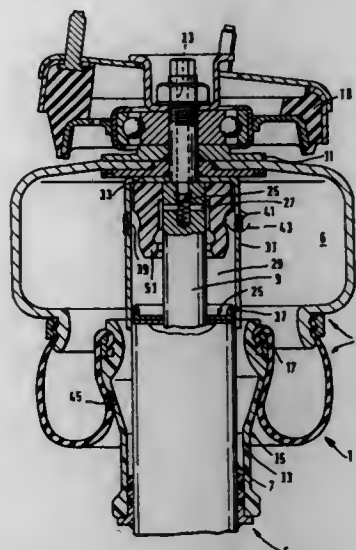
Filed Feb. 14, 1996, Ser. No. 599,882

Claims priority, application Germany, Feb. 15, 1995, 195 05 026.6

Int. Cl.⁶ F16F 9/04

U.S. Cl. 267—64.17

20 Claims



1. Self-pumping air suspension spring for a motor vehicle, comprising roller bellows which form a spring chamber, a spring carrier which comprises a cylinder and a piston rod which can be displaced axially in the cylinder, whereby the roller bellows are functionally connected to the cylinder and the piston rod, a compressed air reservoir, a vestibule with at least one connection to the spring chamber and at least one connection to the compressed air reservoir, whereby when there is a movement of the piston rod a pumping process into the spring chamber takes place via the vestibule in connection with at least one non-return valve, characterized by the fact that the vestibule is located inside the spring chamber which is enclosed by the roller bellows and the cylinder, whereby at least one of the components of the air suspension spring which performs the pumping process is formed by the piston rod, the vestibule is formed by a tube which has a first bottom which is functionally connected to the piston rod, and a second bottom which is functionally connected to the cylinder, whereby inside the at least partly hollow piston rod there is a flow connection with the air reservoir which emerges in the vestibule, whereby the vestibule is reduced in size when the piston rod executes an insertion movement, and the excess compressed air escapes into the spring chamber by means of a non-return valve, the non-return valve between the vestibule and the spring chamber is an elastically expandable ring which covers an overflow opening in the tube.

5,669,598

SPRING RETAINER AND ALIGNMENT METHOD

Lester Ticey, Gilbert; Peter Schneider, Mesa, and Jim Leonhardt, Gilbert, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 581,799, Jan. 2, 1996, abandoned.

This application Jan. 23, 1997, Ser. No. 786,350

Int. Cl.⁶ F16F 1/20

U.S. Cl. 267—162

17 Claims

1. An injection molding apparatus for forming an integrated circuit package, comprising:
a shaft;

5,669,600

X-Y TABLE

Manabu Okada, Hamamatsu, Japan, assignor to NTN Corporation, Osaka, Japan

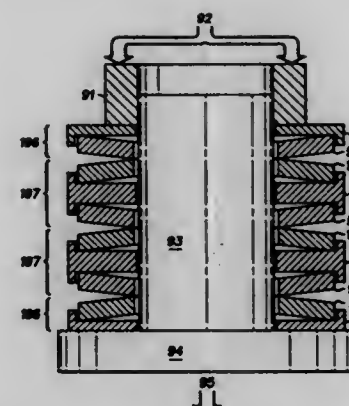
Filed May 10, 1996, Ser. No. 644,419

Claims priority, application Japan, May 31, 1995, 7-133198

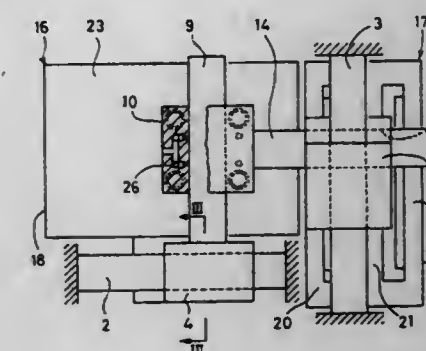
Int. Cl.⁶ B23Q 1/25

U.S. Cl. 269—73

3 Claims



a first spring washer having an outer contact edge and an opening for moving along the shaft; and
a retainer having an opening less in diameter than the opening of the first spring washer for slidably mounting on the shaft, wherein the first spring washer is disposed on a first planar surface of the retainer extending from the opening of the retainer to a first retaining lip, the first retaining lip is greater in diameter than the outer contact edge of the first spring washer when the first spring washer is uncompressed, and the first retaining lip restricts movement of the first spring washer on the first planar surface to avoid contact between the first spring washer and the shaft.



1. An X-Y table comprising:

- a base;
- an x-axis bar guide and a y-axis bar guide extending perpendicular to each other over said base;
- two slide blocks slidably supported on said x-axis bar guide and said y-axis bar guide, respectively, by air bearings;
- a y-axis sub-bar guide extending parallel to said y-axis bar guide and having one end thereof fixed to one of said two slide blocks supported on said x-axis bar guide;
- an x-axis sub-bar guide extending parallel to said x-axis bar guide and having one end thereof fixed to the other of said two slide blocks;
- a stage slidably supported on said y-axis sub-bar guide by an air bearing, wherein said x-axis sub-bar guide has one end thereof fixed to said stage;
- an x-axis linear motor and a y-axis linear motor for moving said respective slide blocks along said X-axis bar guide and said Y-axis bar guide, said motors each having a yoke supported on said base, said yoke of said x-axis linear motor having a guide surface for guiding movement of said stage, and said stage having a bottom surface opposite to said guide surface; and
- a permanent magnet in said bottom surface of said stage for creating a magnetic circuit between said stage and said yoke of said x-axis linear motor, said stage further comprising a plurality of nozzles for injecting compressed air into a space between said stage and said guide surface.

5,669,599

MAGNETIC BOATS

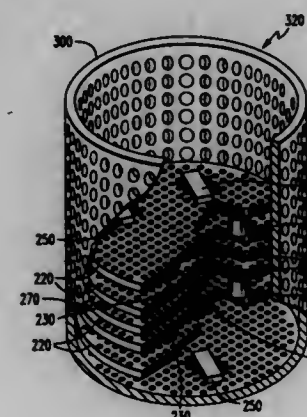
Hong Seng Toh, Phoenix, Ariz.; Frederick P. Eickmann, and James V. Clark, both of Palm Bay, Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Nov. 3, 1995, Ser. No. 552,711

Int. Cl.⁶ B25B 11/00

U.S. Cl. 269—8

11 Claims



1. An apparatus for transporting an integrated circuit during a manufacturing process, comprising:
a substantially planar support plate having a first and second planar opposing surfaces; and
at least one magnet placed on the first planar surfaces of the support plate, the magnet maintaining the integrated circuit against and in a fixed position to the second planar surface of the support plate during the transporting of the integrated circuit;
a basket for holding the support plate, at least one magnet and integrated circuit therein; and
wherein the support plate and basket have a plurality of perforations for allowing gases or fluids to flow through the perforations and drain away from the integrated circuits.

5,669,601

SHEET FEEDING DEVICE WITH FLOATING GUIDE

Terrence L. Fisher, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 31, 1996, Ser. No. 657,841

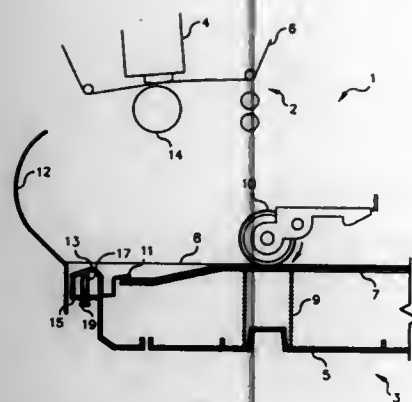
Int. Cl.⁶ B65H 5/22

U.S. Cl. 271—3.08

7 Claims

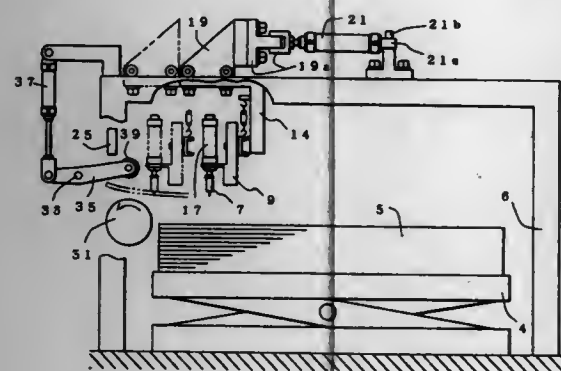
1. A sheet feeding device comprising:

- means for supporting a stack of sheets having a top sheet to be fed in a first direction, the top sheet having a leading edge and a trailing portion when fed in the first direction and corners associated with the leading edge,
- means for engaging the top sheet and pushing the top sheet in the first direction,
- corner means positioned to engage the corners associated with the leading edge as the sheet is pushed in the first direction to inhibit double feeds, said corner means being vertically movable with the top of the stack,



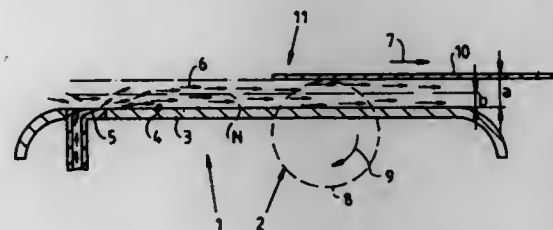
guide means attached to the corner means and mounted for vertical movement in response to the position of the corner means as determined by the top of the stack, said guide means being positioned to engage the trailing portion of a sheet being returned in a second direction opposite the first direction to deflect the trailing portion above the stack.

5,669,602
VENEER HOISTING APPARATUS
Akira Ito, Obu, Japan, assignor to Meinan Machinery Works, Inc., Obu, Japan
Filed Mar. 18, 1996, Ser. No. 617,130
Claims priority, application Japan, Mar. 30, 1995, 7-099526
Int. Cl.⁶ B65H 3/22
U.S. Cl. 271-18.3 8 Claims



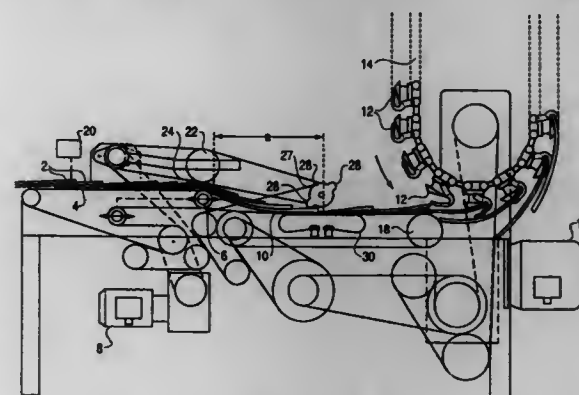
1. A veneer hoisting apparatus for hoisting veneers from a top one of piled veneers comprising:
a piercing unit with a sharp piercing member;
an elevating member for vertically moving the piercing unit non-rotatably fixed thereto;
supporting means for supporting the elevating member, said supporting means having an angle adjusting mechanism for adjusting an angle between the piercing member and said top veneer when the piercing unit contacts the top veneer such that said piercing member is continuously maintained substantially perpendicular to said top veneer while hoisting a top veneer from a pile; and
a controller for controlling motion of the elevating member.

5,669,603
METHOD AND DEVICE FOR GUIDING A SHEET WITH A PNEUMATIC SHEET FLOATATION GUIDE
Andreas Detmers, Mauer, and Günter Stephan, Wiesloch-Baieral, both of Germany, assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany
Filed Sep. 21, 1995, Ser. No. 531,417
Claims priority, application Germany, Sep. 21, 1994, 44 33 644.6
Int. Cl.⁶ B65H 29/68
U.S. Cl. 271-183 8 Claims



1. Method for guiding a sheet in the vicinity of a sheet slow-down device of a sheet-processing machine, which includes gripping the sheet at a leading edge thereof and transporting the sheet in a sheet-transport direction along a sheet travel path, the sheet having a defined region with which the sheet comes into contact with a sheet slow-down device for subsequently forming a sheet pile, which comprises directing the sheet, in the vicinity of the sheet slow-down device, into a range of influence of a floatation guide produced along a guiding surface member by an air flow, the floatation guide having an air flow in the sheet transport direction and, without taking into account the influence of the sheet slow-down device, being effective for bringing the sheet to a normal floatation level located above the guiding surface member, and supplying the sheet to the sheet slow-down device at a height level above the normal floatation level in order to form sheet-stabilizing vacuum forces resulting from the air flow.

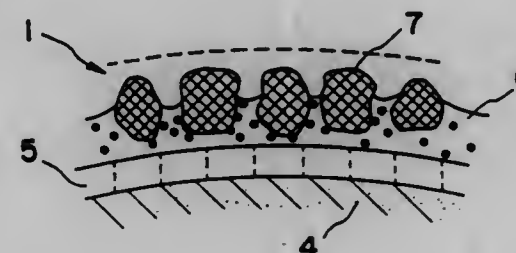
5,669,604
SYSTEM FOR ACCELERATING AND TRANSFERRING IMBRICATED PRINTED PRODUCTS TO A GRIPPING CHAIN
Erik Hansen, Horsens, Denmark, assignor to Thorsted Maskiner A/S, Horsens, Denmark
PCT No. PCT/DK94/00298, § 371 Date Feb. 5, 1996, § 102(e) Date Feb. 5, 1996, PCT Pub. No. WO95/03989, PCT Pub. Date Feb. 9, 1995
PCT Filed Aug. 3, 1994, Ser. No. 596,098
Claims priority, application Denmark, Aug. 3, 1993, 0899/93
Int. Cl.⁶ B65H 7/02; 29/66
U.S. Cl. 271-265.01 5 Claims



1. A system for conveying flat products, comprising:
a first conveyor (4) for moving the products in imbricated formation,

a second conveyor (14) having gripping members (12) thereon for gripping the products,
a transfer conveyor (10) having a smooth surface for frictionally engaging products received from the first conveyor and successively delivering single ones of the products to the second conveyor by bringing the leading edges of the products into engagement with respective ones of the gripping members on the second conveyor as the products are moved past the delivery end of the transfer conveyor,
sensor means (20) for detecting the leading edge of the products on the first conveyor,
a speed adjustable driving unit (16) responsive to the sensor means for driving the transfer conveyor at a speed causing the arrival of the leading edges of the products at the second conveyor to coincide with the passage of the gripping members.

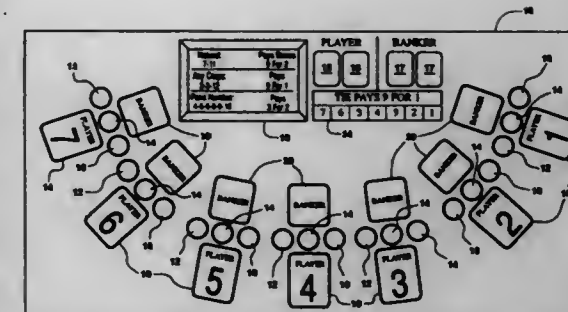
5,669,605
PAPER FEED ROLLER
Tsutomu Sawa, Fujisawa; Hiroyuki Takenoshita, Yokohama; Toshiki Hada, Fujisawa, and Hirohide Komatsu, Machida, all of Japan, assignors to K R D Corporation, Kanagawa-ken, Japan, and International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 275,737, Jul. 19, 1994, Pat. No. 5,553,845. This application Apr. 2, 1996, Ser. No. 626,407
Claims priority, application Japan, Jul. 20, 1993, 5-179294
Int. Cl.⁶ B65H 29/20
U.S. Cl. 271-314 16 Claims



1. A roller mounting member having a plurality of paper feed rollers fitted therein in an axial direction of a roller shaft, wherein each of the said paper feed rollers comprises:
a cylindrical core made of a foamed material, and having a cylindrical surface;
a layer of an elastic material coated on said cylindrical surface of said cylindrical core;
a layer of an elastic bonding agent formed by coating an elastic bonding agent on said layer of elastic material; and
a plurality of ceramic particles embedded and fixed in said layer of elastic bonding agent, said plurality of ceramic particles having end portions which project beyond an outer surface of said layer of elastic bonding agent so as to increase the coefficient of friction of each of said paper feed rollers.

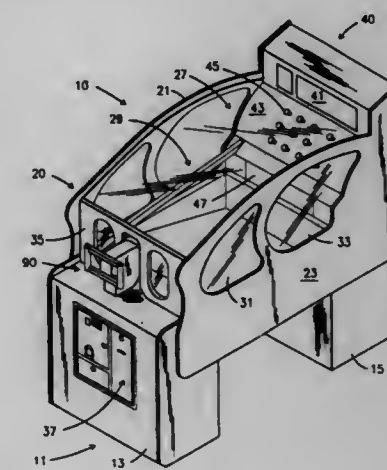
5,669,606
CRAPS QUALIFIED BY BACCARAT
J. Breck Brown, Las Vegas, Nev., assignor to Steven R. Pyykkonen, Leonard, Mich.
Continuation-in-part of Ser. No. 533,567, Sep. 25, 1995, and a continuation-in-part of Ser. No. 594,759, Jan. 31, 1996, and a continuation-in-part of Ser. No. 587,016, Jan. 16, 1996. This application Nov. 25, 1996, Ser. No. 753,426
Int. Cl.⁶ A63F 1/00
U.S. Cl. 273-274 15 Claims

1. A method of combining the play of baccarat and craps comprising the steps of:



offering a baccarat wager in the form of a player wager (18) that a player hand (15) will win;
offering a baccarat wager in the form of a banker wager (20) that a banker hand (17) will win;
offering a baccarat wager in the form of a tie wager (24) that cards of the player hand (15) will tie the cards of the banker hand (17) in accordance with the play of baccarat;
presenting at least two cards to a player hand (15) and at least two cards to a banker hand (17);
presenting additional cards to each of the two player (15) and banker (17) hands in accordance with the play of baccarat;
settling only baccarat wagers;
offering a plurality of craps wagers (12, 14 and 16) based respectively on a plurality of groups of dice numbers with each group of dice numbers having different betting odds;
establishing a craps wager on at least one of the groups of dice numbers for each participating player;
offering a roll of two dice (28) to at least one player when the cards of the player hand (15) ties the cards of the banker hand (17) under the play of baccarat; and
settling the craps wagers (12, 14 and 16) based the outcome of the roll of the dice (28).

5,669,607
CASH REGISTER GAME OF SKILL
Thomas L. Silver, and David Wise, both of Dayton Beach, Fla., assignors to Bob's Space Racer's Inc., Daytona Beach, Fla.
Filed Oct. 28, 1996, Ser. No. 742,585
Int. Cl.⁶ A63F 9/02
U.S. Cl. 273-354 20 Claims



19. A game of skill, comprising:
a) a housing having opposed front wall and rear walls, a top transparent wall extending therebetween and opposed side walls positioned between the front and rear walls, the front, rear, top and side walls defining a chamber, the rear wall resembling a cash register,
b) the cash register having an arcuate portion along a top end of the cash register, a display and a plurality of simulated buttons

disposed along the arcuate portion in vertical columns, the simulated buttons having illumination means contained there-within.

- c) a target adjacent the rear wall and including a plurality of compartments, the target comprising a drawer and resembling a cash drawer of the cash register, the rear wall including an opening for slidably receiving the drawer, the opening formed below the arcuate portion of the cash register;
- d) oscillation means for oscillating the target between a first position wherein the plurality of compartments are closed and a second position wherein the plurality compartments are open;
- e) each of the plurality of compartments including a floor having a pivotable gate, the gate being closed in the second position and open in the first position;
- f) a chute mounted under each of the plurality of compartments, each chute having means for detecting passage of a projectile therethrough;
- g) a projectile mechanism adjacent the front wall and selectively operable to project a projectile toward the target, the projectile mechanism comprising a solenoid with a plunger, the plunger extending when the solenoid is activated to strike a projectile and project it toward the target;
- h) actuating means for actuating the projectile mechanism;
- i) control means for controlling the oscillation means and for activating and maintaining the game; and
- j) projectile return means for depositing all projectiles employed in the game in a central location and for selectively providing projectiles to a player of the game.

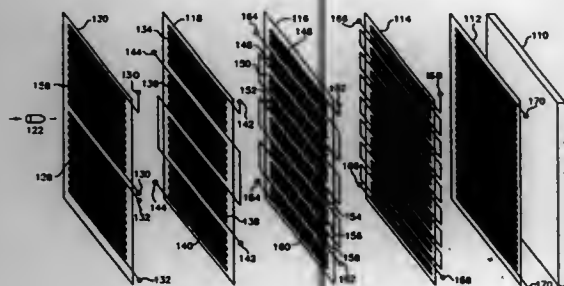
5,669,608 DEVICE FOR LOCATING THE POSITION OF IMPACT OF A PROJECTILE

George M. Thomson, Churchville; Thomas W. Kottke, Havre de Grace, and Paul R. Berning, Perryville, all of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 15, 1995, Ser. No. 409,560
Int. Cl.⁶ F41J 5/00

U.S. Cl. 273—373

12 Claims



1. A device for locating a position of impact of a projectile, comprising:

a plurality of pairs of windings disposed in adjacent layers each covering parallel two dimensional surfaces, each winding of a pair of windings covering adjacent zones on a respective two dimensional surface, a first of said pairs of windings defining first and second zones in a first layer, subsequent pairs of windings further dividing said first and second zones into a plurality of smaller zones;

a single winding disposed in a layer adjacent to said plurality of pairs of windings covering a common two dimensional surface, which is severed by said projectile which impacts anywhere on said parallel two dimensional surfaces, and

means connected to each of said pairs of windings and to said single winding for detecting an impact of said projectile with a winding of each pair identifying a zone on said common two dimensional surface through which said projectile passes.

5,669,609

TARGET FOR MISSILES, ESPECIALLY FOR THROWN MISSILES

Stefan Reichert, Waldalgesheim, Germany, assignor to NSM Aktiengesellschaft, Bingen am Rhein, Germany
Continuation of Ser. No. 360,404, Dec. 21, 1994, abandoned.

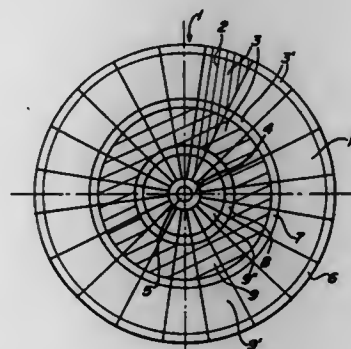
This application May 23, 1996, Ser. No. 652,186

Claims priority, application Germany, Aug. 25, 1994, 44 29 894.3

Int. Cl.⁶ F41J 3/00

U.S. Cl. 273—376

8 Claims



1. A target for missiles, especially for thrown missiles, such as darts, comprising:

a disk member divided into target fields;

a plurality of target elements located in said target fields;

means associated with each target element for causing an electronic signal to be generated when that target element is subjected to a load by a missile;

an evaluating unit for receiving and processing the electronic signals caused to be generated by the target elements and assigning one of a number of different values to each signal whereby each target is associated with an assigned value; and

at least one target element which, when subjected to loads by a missile, actuates a contact which is connected to said evaluating unit;

each target element being given a predetermined value by the evaluating unit and said value being able to be means for changing which target elements and the number of target elements which are associated with each assigned value; whereby the area of the target assigned each value may be changed and the target may target may be varied to form different value patterns.

5,669,610

HUMAN ASSAILANT SIMULATOR TARGET

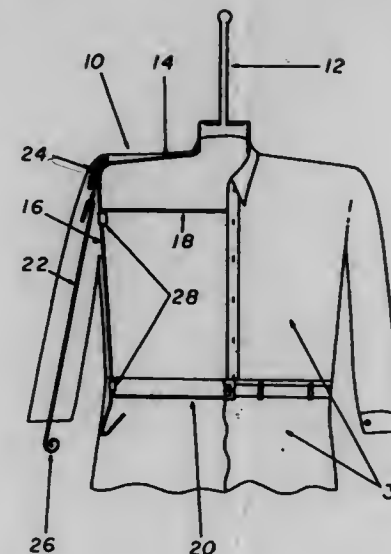
Edward Francis Salyers, 517 Merwin Rd., Apollo, Pa. 15613
Filed Nov. 22, 1995, Ser. No. 561,540

Int. Cl.⁶ F41J 1/00

U.S. Cl. 273—407

10 Claims

1. A hollow frame target for shooters comprising a human shaped wire frame torso, said torso being defined by an upper shoulder section, a lower waist section and a pair of side sections;
- a hanger/head form support section fixably attached to said upper shoulder section;



an impact recorder means attached across said wire frame torso; and

a set of human clothing covering said impact recorder means.

5,669,611

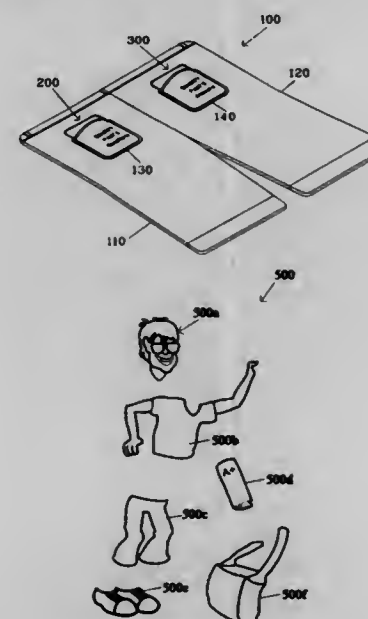
MATHEMATICAL GAME APPARATUS

Stephen Fedele, 26425 Redhawk Ln., Clovis, Calif. 93611
Filed Jul. 30, 1996, Ser. No. 688,394

Int. Cl.⁶ A63F 9/18

U.S. Cl. 273—431

20 Claims



1. A method of playing a mathematical game comprising the steps of:

- a. providing a first plurality of cards, each card having on one side thereof a mathematical question, said plurality of cards forming a question card deck;
- b. providing a plurality of cards having on one side thereof an answer to each question posed in said question card deck;
- c. providing each player a plurality of disassembled puzzle pieces of a puzzle;
- d. providing each player a selected number of answer cards;
- e. revealing a question card from said question card deck to initiate a round of game play;

f. a first player upon revealing an answer card responsive to said question card in said round being awarded a piece of said puzzle for assembly, said player drawing an additional answer card;

g. if no answer card is revealed in a round of game play, each player drawing an additional card from said answer card deck;

h. repeating said steps of e-g until a player first assembles said puzzle.

5,669,612

METALLIC SEAL RINGS

Terence Peter Nicholson, Hexham, England, assignor to Specialist Sealing Limited, Channel Islands
Continuation of Ser. No. 458,794, Jun. 2, 1995, abandoned.

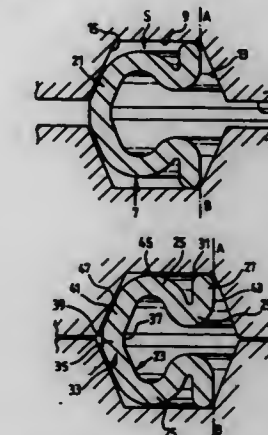
This application Oct. 7, 1996, Ser. No. 726,624

Claims priority, application United Kingdom, Jul. 13, 1994, 9414113

Int. Cl.⁶ F16J 15/08

U.S. Cl. 277—167.5

9 Claims



1. A groove seal of metal which has a cross-section in the form of a capital letter omega having a smoothly curved C-shaped body portion comprising a central region and adjoining curved limbs each having a spring characteristic, and at each end of each said limb a respective substantially straight outwardly turned end part having a tip, wherein the tips of the end parts provide the maximum axial dimension of the seal, greater than that of the C-shaped portion, the shape and dimensions of the seal being such that in use sealing contact exists nowhere other than at the tips of the end portions and said central region of the C-shaped body; wherein said central region comprises a heel region disposed between first and second oblique regions, wherein said oblique regions are shaped to abut respective correspondingly shaped walls of a groove in which the seal is situated during use, thereby controlling the spring characteristics of said curved limbs.

5,669,613

SEALING GASKET ARRANGEMENT

Richard J. Lubienski, Houston, Tex., assignor to Flexitallic Inc., Deer Park, Tex.

Filed Jul. 10, 1996, Ser. No. 677,936

Int. Cl.⁶ F16J 15/00

U.S. Cl. 277—204

21 Claims

1. A sealing gasket arrangement comprising

- (1) a spiral wound element, wound about a longitudinal axis, and including, between sealing faces that are separated along its longitudinal axis and extend orthogonally thereto, a resilient section comprising a ridge extending outwardly from said longitudinal axis and formed by metallic surfaces inclined to said axial direction, and
- (2) a locating plate having a through-aperture, corresponding in outline to the spiral wound element and dimensioned greater



than the sealing faces but smaller than the element as a whole, and an embossment surrounding said aperture and inclined with respect to a plane of the plate to one side only thereof at an angle corresponding to the inclination of a said metallic surfaces said ridge, said embossment being secured to one surface of said ridge at a plurality of locations about the periphery of the through-aperture.

5,669,614
METAL GASKET HAVING BEAD WITH INCLINED END PORTION

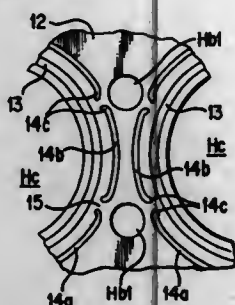
Tsunekazu Udagawa, Ichikawa, Japan, assignor to Ishikawa Gasket Co., Ltd., Tokyo, Japan

Filed Jul. 2, 1996, Ser. No. 672,532

Int. Cl.⁶ F16J 15/12

U.S. Cl. 277—235 B

8 Claims



1. A metal gasket for an internal combustion engine comprising, a metal plate for constituting the metal gasket including at least one bolt hole; a bore situated near the at least one bolt hole; a first bead extending around the bore while the first bead is interrupted near the bolt hole, said first bead having a main portion extending toward the bolt hole and at least two end portions located near the bolt hole, each of said end portions which extend from the main portion changing a direction to incline toward the bore so that the end portion can be easily compressed when a bolt passing through the bolt hole is tightened; and a second bead completely surrounding said bore inside said first bead.

5,669,615
METAL GASKET WITH BEADED COVER PLATES AND SANDWICH SHEET HAVING NONPARALLELED APPROACHING EDGE

Kurt Höhe, Langenau; Hans Kitzmaier, Beimerstetten, and Josef Ludwig, Niederstotzingen, all of Germany, assignors to Reinz-Dichtungsgesellschaft mbH, Neu-Ulm, Germany

Continuation of Ser. No. 455,088, May 31, 1995, abandoned. This application Dec. 4, 1996, Ser. No. 754,488

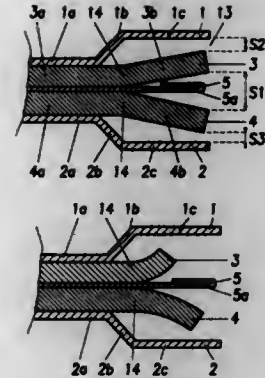
Claims priority, application Germany, Sep. 14, 1994, 694 14 941.0

Int. Cl.⁶ F16J 15/08

U.S. Cl. 277—235 B

21 Claims

1. A metallic gasket having two beaded cover sheets and having at least one sandwich sheet which surrounds an opening, wherein said sandwich sheet (3) includes a folded edge (14), said folded edge (14) lying in the region of one of the beads (1b, 2b) of one of said cover sheets (1, 2) and being formed in the direction toward



and approaching one of said beads (1b, 2b) so that a non-bonded webbed edge is formed, said non-bonded webbed edge having an arched cross section with a continuous transition curving in the direction toward one of said beads (1b, 2b) in the same direction as said folded edge, and said non-bonded webbed edge of the sandwich sheet is not parallel to either of said beads.

5,669,616
TOOL CHUCK

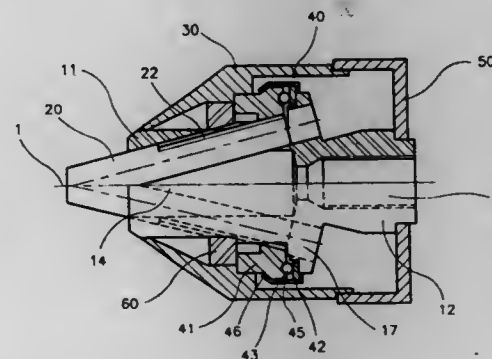
Lin Yuan Ho, No.210, Lane 388, Dou-One W.Rd, Yung-Feng Village, Pi-Tou Hsiang, Chang-Far Hsien, Taiwan

Filed Nov. 13, 1995, Ser. No. 556,353

Int. Cl.⁶ B23B 13/12

U.S. Cl. 279—62

7 Claims



1. A tool chuck including:

- (a) a main body having a plurality of oblique guidances spaced intermittently at equal angles centering around a central axis of said main body, and a rear stopper;
- (b) a plurality of jaws slidably and respectively mounted in said guidances, each of said jaws having a gear rack, which is slanted relative to said central axis;
- (c) an integrated rotational nut having a rotational ring, a back ring and a plurality of balls, said rotational nut is mounted in front of said rear stopper and said rotational ring is rotatably mounted about said central axis via said balls, which serve as a bearing;
- (d) said rotational ring having a slanted inner ring surface having matching slope and internal thread for engaging with gear racks of said jaws so as to drive said jaws closer together when it is rotated in one direction, and drive said jaws apart from each other when it is rotated in another direction;
- (e) a front stopper element fixedly mounted on said main body in front of said rotational nut for forcing said rotational nut against said rear stopper; and
- (f) a front jacket rotatably mounted on said main body and is in movable engagement with said rotation ring for driving said rotational ring to rotate.

5,669,617

CHILDREN'S STAKE WAGON

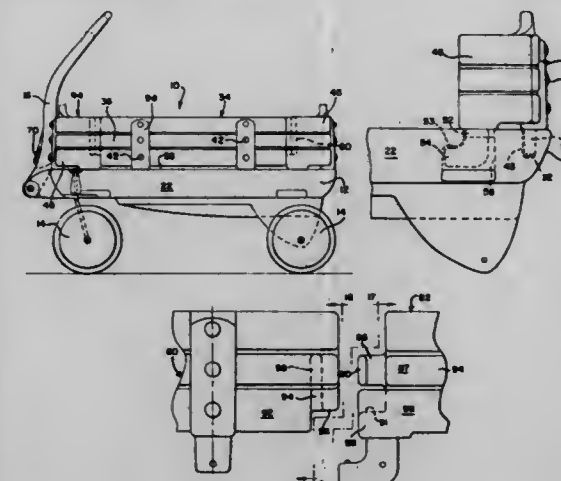
Antonio James Pasin, Chicago, Ill.; Joseph Gerald Lucey, Franklin, Wis., and Jerry Alan Weber, Sabula, Iowa, assignors to Radio Flyer, Inc.

Continuation-in-part of Ser. No. 489,056, Jun. 9, 1995. This application Apr. 22, 1996, Ser. No. 635,770

Int. Cl.⁶ B62B 9/00

U.S. Cl. 280—87.01

18 Claims



1. A children's wagon comprising a horizontally disposed supporting surface and front, rear and side walls at the perimeter of said surface, said walls defining top edges, openings defined by said walls extending downwardly from said top edges to form pockets within said walls, and stakes forming upwardly extending extensions for said walls removably mounted on said top edges, said stakes including downwardly extending legs receivable within said pockets, said stakes comprising four stakes including a stake positioned at the front and rear of the wagon and a side stake positioned at each side of the wagon, vertically disposed opposite ends defined by each stake, and interlocking means for connecting the ends of the stakes at the front and rear of the wagon with the adjacent ends of stakes at the sides of the wagon, said interlocking means including an upper extension and a lower extension formed on one stake end and a lip formed on an adjacent stake end receivable between said extensions whereby lateral forces applied to the lip are resisted by one of said upper and lower extensions.

5,669,618

BICYCLE TRAILER

Ping-Jan Chiu, No. 1146, Chung-Shan Rd., Ta-Chia Chen, Taichung Hsien, Taiwan

Filed Oct. 25, 1995, Ser. No. 548,061

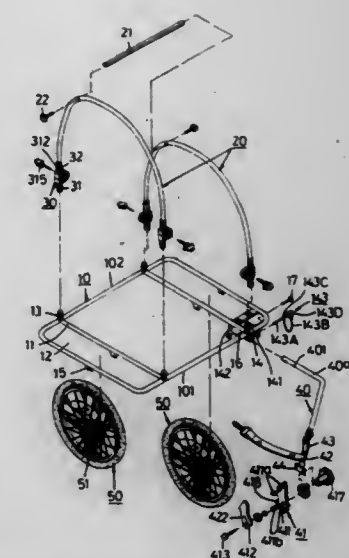
Int. Cl.⁶ B62K 27/12

U.S. Cl. 280—204

3 Claims

1. A bicycle trailer for towing by a bicycle which includes a frame body having a seat stay, a chain stay, a rear wheel axle, and a kickstand-mounting piece installed on the frame body adjacent to the rear wheel axle, said bicycle trailer comprising:

- a) an annular carrier frame,
- b) two wheels provided on two side portions of the carrier frame, and
- c) a connecting device which is adapted to be coupled with the frame body of the bicycle,
- d) wherein the carrier frame has a front end portion, a rear end portion, two pairs of vertical stubs extending upward therefrom in such a manner that one pair of the stubs are respectively located on two sides of the front end portion while the other pair of the stubs are respectively located on two sides of the rear end portion, and a pivot seat secured to a lower surface of the front portion of the carrier frame; and



e) the connecting device includes a connecting rod having a rear end section pivoted to the pivot seat in such a manner that the connecting rod can rotate about a horizontal axis, a front end section, and a coupler unit attached on the front end section, the coupler unit including a vertical inner plate adapted to be disposed on one side of the frame body so as to abut against the seat stay and the chain stay of the frame body, and a vertical outer plate adapted to be disposed on a side of the frame body opposite said one side so as to abut against the seat stay and the chain stay, said outer plate being fastened threadedly to the inner plate in such a manner that the outer plate has an inclined upper fastening tab extending toward the inner plate and adapted to abut against the seat stay, a lower fastening tab extending toward the inner plate and adapted to abut against the chain stay, and a positioning stub projecting rearward from a lower end portion of the outer plate and adapted to abut against the kickstand-mounting piece, wherein the inner and outer plates are lockable on the seat stay and the chain stay as to prevent disengagement of the coupler unit from the frame body.

5,669,619

PORTABLE WHEELCHAIR

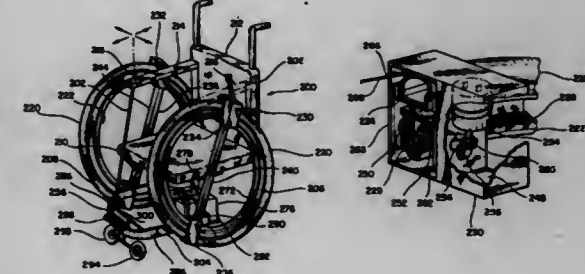
Il Yoo Kim, 7945 Audubon Ave. No. A-6, Alexandria, Va. 22306

Continuation-in-part of Ser. No. 517,605, Aug. 22, 1995. This application Oct. 12, 1995, Ser. No. 542,386

Int. Cl.⁶ B60K 7/00

U.S. Cl. 280—250.1

20 Claims



1. A portable wheelchair, comprising: a seat assembly including a seat and a back rest; a footrest including at least one guiding wheel; the seat assembly and the footrest are selectively secured between a first wheel and a second wheel, the first wheel including a first tire mounted on a first rim and the second wheel including a second tire mounted on a second rim, wherein a first cross brace extends between a first portion of the first rim and a second portion of the first rim and releases.

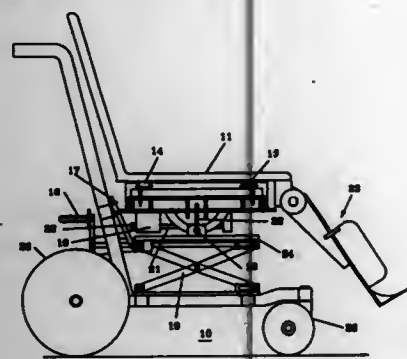
ably couples the seat assembly to the first wheel and a second cross brace extends between a first portion of the second rim and a second portion of the second rim and releasably couples the seat assembly to the second wheel; and the first cross brace includes a first motor and the second cross brace includes a second motor, wherein the first motor and the second motor are respectively coupled to the first wheel and the second wheel to facilitate movement of the wheelchair.

5,669,620
WHEEL CHAIR AND PLATFORM DEVICE FOR MOVEMENT OF A DISABLED PERSON FROM A WHEEL CHAIR TO A CHAIR SEAT SUPPORT IN A VEHICLE AND AIRCRAFT

Dennis L. Robbins, 2508 Sunshine Ct., Bedford, Tex. 76021
Filed Oct. 18, 1995, Ser. No. 543,995
Int. Cl.⁶ B62M 1/14

U.S. Cl. 280—250.1

14 Claims

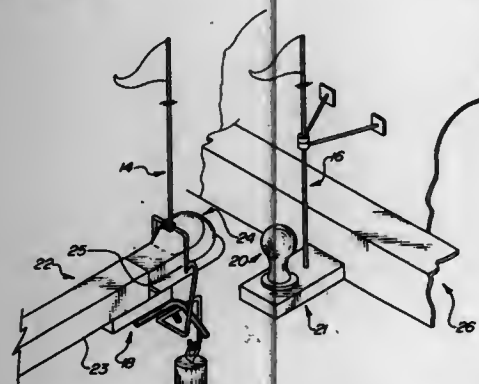


1. A wheel chair and seat support device, comprising:
a wheel chair base including wheels;
a seat;
a seat support platform;
at least one movable platform mounted on the seat support platform for moving the seat laterally to one side of the wheel chair base; and
a pair of tracks on said seat mounted in said at least one movable platform.

5,669,621
VEHICLE ALIGNMENT DEVICE
Van Lockwood, 16 E. Pinestead Rd., Pensacola, Fla. 32503
Filed Nov. 22, 1993, Ser. No. 155,645
Int. Cl.⁶ B60D 1/06

U.S. Cl. 280—477

5 Claims



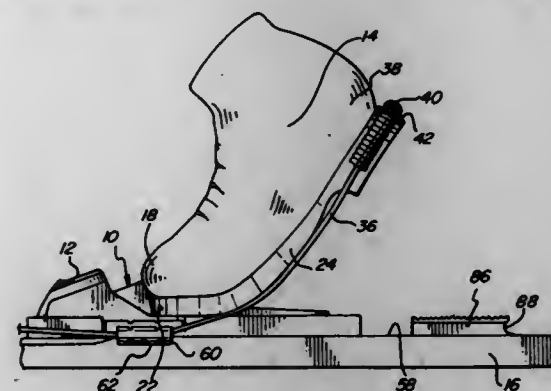
1. A trailer-towing vehicle-trailer hitch alignment device for aligning a ball of a towing vehicle with a socket defined in a tongue of a trailer, comprising:

- (a) a fixed sight member having means for removably attaching said fixed sight member to a rear portion of a towing vehicle in a vertical position;
- (b) a stop brace having means for removably and adjustably attaching said stop brace to trailer tongue, whereby said stop brace can be positioned such that when a towing vehicle ball is moved towards said trailer tongue, said stop brace contacts said towing vehicle ball before said trailer tongue contacts said towing vehicle; and
- (c) a pivoting sight member having a lower portion that extends below said trailer tongue and having means for pivotally mounting said pivoting sight member to said trailer tongue whereby said pivoting sight member remains in a vertical position when undisturbed and pivots when said towing vehicle ball moves into vertical alignment with a trailer tongue socket and contacts said lower portion of said pivoting sight member.

5,669,622
SKI BINDING
Michael E. Miller, R.R. 1 Box 4080, Killington, Vt. 05751
Filed Feb. 8, 1995, Ser. No. 385,343
Int. Cl.⁶ A63C 9/00

U.S. Cl. 280—615

19 Claims



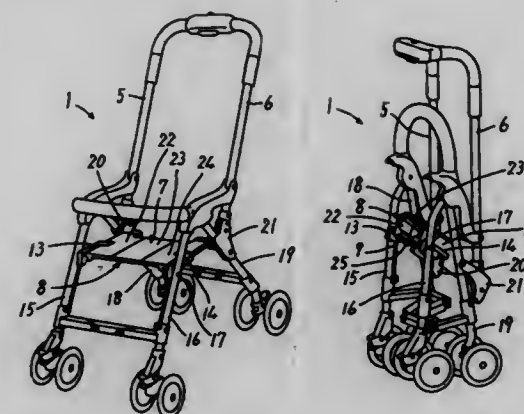
1. A binding for mounting a boot to a ski, comprising:
means for fixedly connecting a toe of the boot to the ski;
a cable tensioned around a heel of the boot yet permitting the boot heel to be raised off of the ski; and
a cable guide, mountable together with said toe connecting means, for controlling a direction toward which said cable is tensioned, said cable guide for receiving said cable therein at a position below said toe connecting means to generate increasing cable tension, urging the boot heel back down onto the ski as it is raised off the ski.

5,669,623
BABY CARRIAGE AND METHOD OF MANUFACTURING SEAT PLATE FOR ITS SEAT
Ichiro Onishi, Osaka, Japan, assignor to Aprica Kassai Kabushikikaisha, Osaka, Japan
Filed Aug. 21, 1995, Ser. No. 517,445
Claims priority, application Japan, Sep. 21, 1994, 6-226217
Int. Cl.⁶ B62B 7/10

U.S. Cl. 280—642

16 Claims

1. A baby carriage that is collapsible in a direction of its width by a widthwise collapsing operation, comprising:
a seat including a seat portion and a backrest portion that is deformable so as to allow said widthwise collapsing operation;
a pair of side bars arranged on a lower surface of said seat portion along respective side thereof, wherein a spacing distance between said side bars is changeable in accordance with said widthwise collapsing operation; and

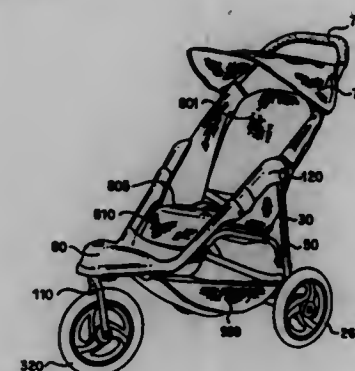


a flat seat extending across said pair of side bars and providing an upper surface that is in supporting contact with a principal region of said lower surface of said seat portion, wherein said seat plate comprises a plurality of plate-type members of a relatively rigid material divided from one another by at least one dividing line extending along a front-to-back direction of said seat plate, and a hinge portion hinging adjacent one of said plurality of plate-type members with each other on respective lower surface thereof, wherein said plurality of plate-type members have respective edge surfaces that are butted against each other between said adjacent plate-type members when said upper surface of said seat plate defined a uniform plane, wherein at least one of said plate-type members comprises a major plate body and a substantially rigid spacer member independent of said major plate body and mounted on an edge thereof to form a respective one of said edge surfaces, and wherein said major plate body has edge flange defining said edge surface thereof and extending along said front-to-back direction of said seat plate, said spacer member has a U-shaped cross-section with a channel formed between two shanks thereof, and said spacer member is mounted on said edge flange with said edge flange received in said channel.

5,669,624
STROLLER
Anthony E. Eichhorn, East Amherst, N.Y., assignor to Fisher-Price, Inc., East Aurora, N.Y.
Continuation of Ser. No. 304,663, Sep. 9, 1994, Pat. No. 5,590,896. This application Apr. 12, 1996, Ser. No. 635,254
Int. Cl.⁶ B62B 3/02

U.S. Cl. 280—642

16 Claims



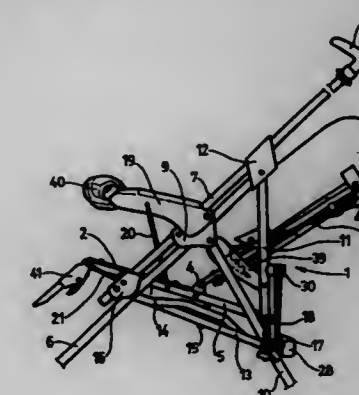
1. A folding stroller having a frame with a substantially centered longitudinal axis, comprising:
a front wheel positioned substantially on the longitudinal axis;
a front member having a front wheel support portion for supporting said front wheel and a pair of front member ends;

a rear handle member having a handle portion and a pair of handle member ends pivotally coupled to said front member ends;
a pair of rear wheels both laterally offset from the longitudinal axis;
a rear support member having a pair of rear wheel support portions, each said rear wheel support portion supporting a respective one of said rear wheels and said rear support member having a pair of rear support member ends pivotally connected to said handle member;
a coupling mechanism releasably connecting said rear wheels to said rear wheel support portions; and
a pair of side members each having a first side member end and a second side member end, wherein said first side member ends are each pivotally connected to said front member between said front wheel supporting portion and one of said pair of front member ends and said second side member ends are each pivotally connected to said rear member.

5,669,625
FOLDING CHILD'S PUSHCHAIR
Ramón Jane Cabagnero, Palau de Plegamans, Spain, assignor to Jane, S.A., Palau de Plegamans, Spain
Filed Sep. 27, 1995, Ser. No. 534,867
Claims priority, application Spain, Mar. 29, 1995, 9500831 U; Jun. 16, 1995, 9501654 U; Sep. 5, 1995, 9502272 U
Int. Cl.⁶ B62B 7/08

U.S. Cl. 280—647

11 Claims



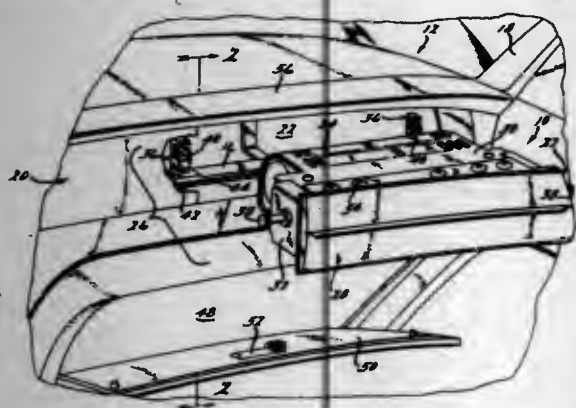
1. Folding child's pushchair comprising a frame having a handlebar with legs, front feet and rear feet, the legs of the handlebar slidable on the front feet and from which legs is actuated a device for locking and unlocking the frame for folding, the legs of the handlebar having lower ends connected to the rear feet by means of two hingedly crossed arms; the front feet having upper ends which each include a guiding strap to which guiding straps are hingedly connected respective vertical arms which connect said front feet to the rear feet; the frame bearing a seat, a back hingedly connected to the seat; armrests and a front handrail connecting the armrests, characterized in that the seat is hingedly connected at its rear, by its sides to the vertical arms at a lower portion of each vertical arm, the seat further being connected, to each of the armrests, by means of a tie rod, and, at its front end, through further tie rods, to the legs of the handlebar.

5,669,626
INFLATABLE OCCUPANT RESTRAINT SYSTEM
 Christopher James Bartos, Rochester Hills; Albert James Dapoz, Sterling Heights, and Daniel Cornelius Bach, Jr., Belleville, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Apr. 8, 1996, Ser. No. 629,159
 Int. Cl.⁶ B60R 21/16

U.S. Cl. 280—728.2

12 Claims



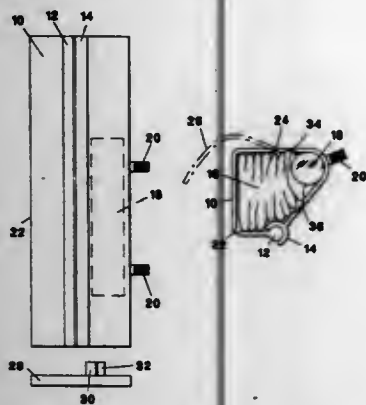
1. An inflatable occupant restraint system for an automotive vehicle having a body structure including a laterally extending beam and an instrument panel carried within the body structure, the occupant restraint system comprising:
 an air bag module;
 means defining an aperture through the instrument panel, said aperture receiving said air bag module;
 a trim portion of the instrument panel fixedly secured to said air bag module in overlying relationship thereto for closing said aperture; and
 a latch assembly having a portion thereof directly connected to the laterally extending beam and another portion thereof directly connected to said air bag module, said latch assembly selectively releasably securing said air bag module to the beam.

5,669,627
SIDE IMPACT AIRBAG MODULE WITH EXTRUDED COVER
 George C. Marjanski, Riverdale; Davin G. Saderholm, Salt Lake City; Donald J. Paxton, Brigham City; David L. Spilker, Pleasant View, and Brent R. Beesley, Layton, all of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Jul. 25, 1996, Ser. No. 690,324
 Int. Cl.⁶ B60R 21/20

U.S. Cl. 280—728.3

16 Claims



1. The method of manufacturing a side impact airbag module which comprises:

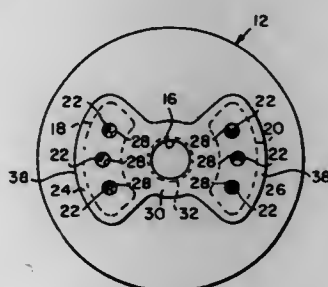
providing an inflator having means thereon for mounting to a vehicular frame member;
 providing a folded airbag having an open mouth;
 connecting the mouth of said airbag to said inflator for inflation upon actuation of said inflator;
 providing an extruded one-piece thermoplastic cover in the form of a sheet, said extruded sheet having first and second longitudinal edges to form a tube adapted to encircle said airbag and inflator the extruded sheet defining a weakened tear seam parallel to and intermediate said first and second longitudinal edges for releasing said airbag upon inflation;
 cutting said sheet to a desired length sufficient to enclose said inflator and said airbag; and
 encircling said inflator and airbag with said cut sheet and interlocking said first edge with said second edge to encircle said airbag and inflator to form an elongated airbag module.

5,669,628
AIR BAG CUSHION PROTECTION DURING BOTH NORMAL AND OUT OF POSITION DEPLOYMENTS
 James R. Kaufmann, Salt Lake City, and Kirk H. Rasmussen, West Point, both of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Apr. 8, 1996, Ser. No. 629,128
 Int. Cl.⁶ B60R 21/30

U.S. Cl. 280—739

14 Claims



1. In a method of protecting a vehicle passenger who is out of a normal occupant seating position by reducing the force applied to a face panel of an air bag cushion relative to the force applied during a normal air bag cushion deployment:
 providing an air bag cushion having a face panel of a fabric that is generally gas impermeable and a base panel having a wall defining an opening through which inflation gas is received during deployment and at least one area that is gas permeable which allows venting of a portion of the inflation gas when deployment of the cushion starts by moving the face panel toward the occupant seating position, said base panel gas permeable area having a venting capability which exceeds that required for venting from the cushion to produce a normal deployment;
 reducing the base panel gas permeable area size during an unobstructed deployment of the face panel toward the occupant seating position by providing a flap having first and second ends and made of a material that is gas impermeable, said first end being fixed relative to the base panel along a hinge line and secured to the inside of base panel along side of said at least one gas permeable area, said second end being mounted for swingable movement during deployment between a first position which allows inflation gas flow through said at least one gas permeable area to the outside of the cushion and a second position which blocks a part of said gas flow to an amount that reduces venting from the cushion to that which provides a normal deployment; and
 releasing said flap to move from said first position to said second position under the influence of the inflation gas received through said base panel opening in response to advancement of the face panel during deployment past a predetermined position in its normal deploying path toward the occupant seating position, and propelling said flap from said first position

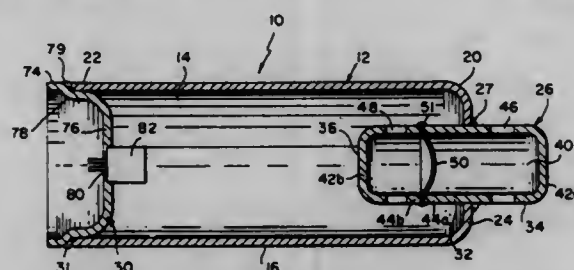
tion to said second position under the influence of the inflation gas received for deploying said air bag cushion.

5,669,629
AIRBAG INFLATION GAS GENERATION VIA A DECOMPOSING MATERIAL
 Karl K. Rink, Liberty, Utah, assignor to Morton International, Inc., Chicago, Ill.

Filed Apr. 15, 1996, Ser. No. 632,698
 Int. Cl.⁶ B60R 21/28

U.S. Cl. 280—741

59 Claims



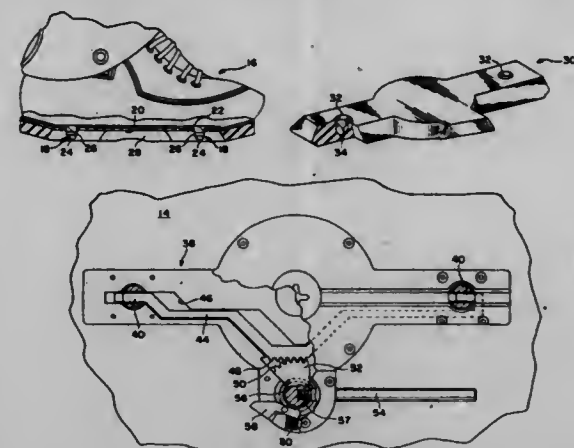
1. An apparatus for inflating an inflatable device, said apparatus comprising:
 a first chamber having contents including at least one gas source material selected from the group consisting of nitrous oxide, acetylene or an acetylene-based material and which undergoes decomposition to form decomposition products including at least one gaseous decomposition product used to inflate the device, and
 an initiator to initiate the decomposition of the at least one gas source material in said first chamber.

5,669,630
SNOWBOARD BINDINGS
 Richard W. Perkins, Van Nuys, and Bradley L. Read, Los Angeles, both of Calif., assignors to Crush Snowboard Products, Inc., Van Nuys, Calif.

Continuation of Ser. No. 406,387, Mar. 17, 1995, abandoned, which is a continuation of Ser. No. 278,511, Jul. 21, 1994, Pat. No. 5,474,355. This application Jan. 24, 1996, Ser. No. 590,622

U.S. Cl. 280—613

5 Claims



1. A binding that couples a boot to a snowboard that has a top surface, comprising:
 a first pin that extends from the boot;
 a second pin that extends from the boot;
 an armature that is mounted to the snowboard and moves between a locked position and an unlocked position, said

armature is attached to said first pin and said second pin when said armature moves to the locked position to secure said first pin and said second pin in a vertical direction and a lateral direction relative to the top surface of the snowboard to maintain the boot in a mounted position, said armature being separated from said first pin and said second pin when said armature is moved to the unlocked position;
 a lever that is coupled to said armature and moves said armature between the locked and unlocked positions, wherein said first pin and said second pins are attached to said armature and the boot is maintained in the mounted position until said lever is moved to move said armature to the unlocked position; and
 a latch that engages said lever to maintain said armature in the unlocked position.

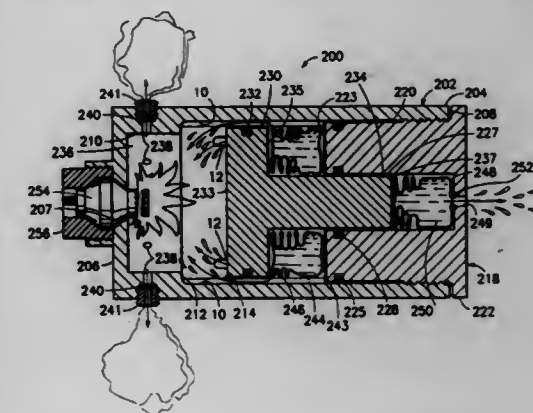
5,669,631
LIQUID PROPELLANT AIRBAG INFLATOR WITH AUTO INJECTION COMBUSTION CHAMBER

Darrin L. Johnson, Fountain Hills, Ariz., and L. John Pierotti, Huntsville, Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Nov. 18, 1996, Ser. No. 751,717
 Int. Cl.⁶ B60R 21/26

U.S. Cl. 280—741

43 Claims



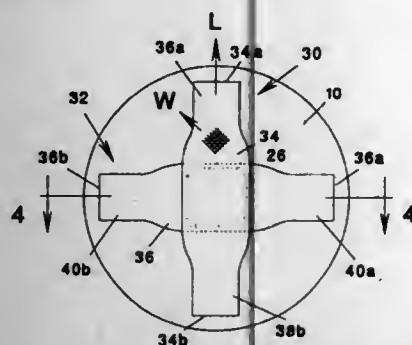
1. A liquid propellant airbag inflator for inflating an airbag cushion in an airbag module, the airbag inflator comprising:
 an inflator housing;
 a propellant piston slidably received within the inflator housing and internally dividing the inflator housing into a combustion chamber and a propellant reservoir;
 at least one inflation gas exhaust port communicating with the combustion chamber;
 liquid propellant contained within the propellant reservoir;
 at least one propellant injection port connecting the combustion chamber and the propellant reservoir, the at least one propellant injection port defined by the inflator housing;
 propellant plug means preventing the liquid propellant from flowing through the at least one propellant injection port until the propellant piston moves towards the liquid propellant; and
 initiating means for forcing the propellant piston against the liquid propellant, thereby breaching the propellant plug means and causing the liquid propellant to be injected into the combustion chamber through the propellant injection port, and for igniting the liquid propellant upon entering the combustion chamber.

5,669,632

AIRBAG TETHER AND ATTACHMENT SEAM
David B. Johnson, Brigham City; John L. Sabin, Kaysville, and Scott B. Okelberry, Logan, all of Utah, assignors to Morton International, Inc., Chicago, Ill.
Continuation of Ser. No. 552,945, Nov. 3, 1995, abandoned.
This application Nov. 7, 1996, Ser. No. 739,735
Int. Cl.⁶ B60R 21/20

U.S. Cl. 280—743.2

7 Claims



1. In an automotive airbag having a rear panel with a peripheral first edge and a front panel with a peripheral second edge, said first and said second peripheral edges being joined, the improvement comprising:

- a first internal tether having a central body joined to said front panel by a stitched seam and two opposed radial straps unitary with and extending from said central body of said first tether, each of said two opposed radial straps of said first tether extending along a center line to a distal end secured to said rear panel;
- a second internal tether having a central body joined to said front panel by said stitched seam and two opposed radial straps unitary with and extending from the central body of said second tether, each of said two opposed radial straps of said second tether extending along a center line to a distal end secured to said rear panel and with the center lines of the two radial straps of said second tether being angularly displaced substantially 90° from the two radial straps of said first tether, said stitched seam being substantially in the form of a rectangle with rounded corners having four substantially linear side portions with the center lines of each of said four radial straps extending, respectively, across a linear side portion of the rectangle and each rounded corner having a radius between substantially 20% to 45% of the length of each rectangle side prior to the rounding of the corners, and wherein the airbag panels comprise fabric material having a denier no greater than 420.

5,669,633

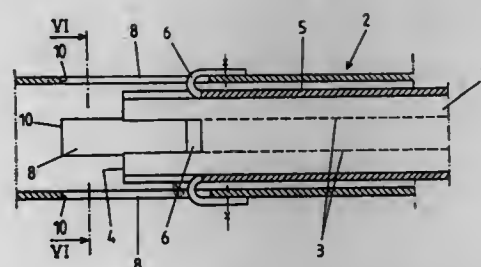
COLLAPSIBLE MOTOR VEHICLE STEERING SHAFT
Domink Näff, Triesen, Liechtenstein, and Hubert Breuss, Gisingen, Austria, assignors to Etablissement Supervis, Vaduz, Liechtenstein
Filed Jan. 29, 1996, Ser. No. 592,984
Claims priority, application Germany, Feb. 1, 1995, 195 03 124.5

Int. Cl.⁶ B62D 1/19

U.S. Cl. 280—777

3 Claims

1. A steering shaft for a steering system of a motor vehicle, comprising:
- a first tubular member; and
 - a second tubular member extending into the first tubular member and secured therein without a possibility of axial and radial displacement relative thereto during normal operation of the steering shaft,
- wherein the first and second tubular members are displaceable relative to each other in an axial direction in case of a collision,



wherein the second tubular member has a plurality of tear-off strips each having a bent-over front end, when viewed in a displacement direction of the first and second tubular members, which is one of cut free and stamped free of the second tubular member,

wherein the second tubular member has a plurality of pairs of flutes continuously extending along the second tubular member, with each pair of flutes forming one of the tear-off strips and defining weakness locations, wherein the first tubular member has a plurality of recesses corresponding to the plurality of tear-off strips, and wherein the bent-over front ends of the tear-off strips project through respective recesses of the first tubular member and engage the first tubular member.

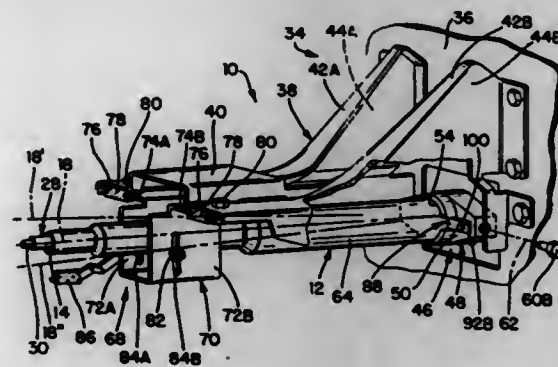
5,669,634

ENERGY ABSORBER FOR MOTOR VEHICLE STEERING COLUMN

Marc William Heinzman, Frankenmuth; Michael Patrick Anspaugh, Bay City; Richard Kremer Riefe, and David Michael Byers, both of Saginaw, all of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed May 13, 1996, Ser. No. 645,320
Int. Cl.⁶ B62D 1/19

U.S. Cl. 280—777

4 Claims



1. An energy absorber and a motor vehicle steering column having a mast jacket with a longitudinal centerline coincident with a longitudinal centerline of said steering column, characterized in that said energy absorber comprises:

- a yoke mounted on a body structure of said motor vehicle for pivotal movement about a lateral centerline of said body structure,
- a bore in said yoke closely receiving an outer cylindrical wall of said mast jacket and cooperating therewith in supporting said mast jacket on said yoke with said longitudinal centerline of said mast jacket intersecting said lateral centerline for linear translation in the direction of said longitudinal centerline of said mast jacket and for pivotal movement as a unit with said yoke about said lateral centerline and in preventing tipping of said mast jacket relative to said yoke before and during linear translation of said mast jacket relative to said yoke,
- a convex anvil means on said mast jacket,

a J-shaped flat metal strap having a concave web bearing against said convex anvil means and a first leg rigidly attached to said yoke and a second leg juxtaposed a wall of said mast jacket parallel to said longitudinal centerline of said mast jacket, linear translation of said mast jacket relative to said yoke in the direction of said longitudinal centerline of said mast jacket in response to an impact on said steering column being operative to effect relative sliding of said flat metal strap across said convex anvil means to plastically deform said metal strap and convert into work a fraction of the kinetic energy of said impact on said steering column, and

guide means operative to maintain substantial parallelism between said second leg of said metal strap and said longitudinal centerline of said mast jacket during linear translation of said mast jacket relative to said yoke.

5,669,635

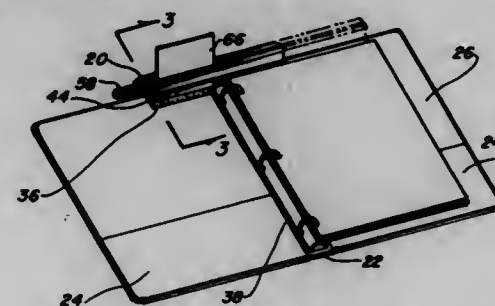
BINDER STIFFENER

Ronald A. Wilson, 14702 Danborough Rd., Tustin, Calif. 92780, and Robert V. Tucker, 825 N. Red Robin St., Orange, Calif. 92669

Filed Dec. 6, 1996, Ser. No. 764,094
Int. Cl.⁶ B42D 9/00

U.S. Cl. 281—30

15 Claims



1. A spined multi-ring loose-leaf binder stiffener for holding hinged covers of a binder open in a flat, rigid position, comprising: a stiffener body having a longitudinal length sufficient to interface with a binder spine and a portion of each cover, said body having an integral, springable U-shaped channel portion including a web, an upper leg and a lower leg, for resistably gripping an upper edge of a binder when forced thereupon,

said channel portion upper leg having a wedge shaped end and said upper leg longer than said lower leg, the wedge end fashioned to penetrate between a binder's spine and ring holding rigid strip when disposed upon an upper edge of a binder,

said body further having an integral C-shaped portion opposite said channel web, sized to springably receive writing utensils, permitting storage and accessibility thereof, and said body further having an integral raised nonpliant upright member adjoining said channel web and C-shaped portion, for linear rigidity and structural integrity of the binder stiffener.

5,669,636

FLOATING SEAL ASSEMBLY FOR A BEARINGLESS COOLANT UNION HAVING AIR ROTATION CAPABILITY

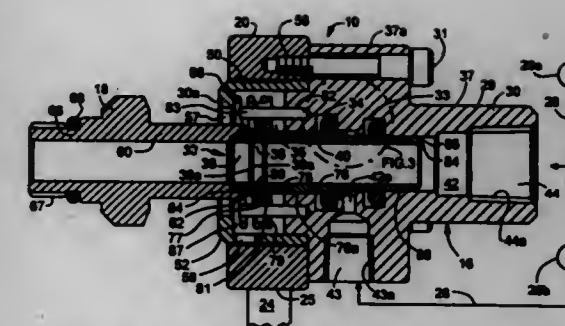
Zbigniew Kubala, Waukegan, Ill., assignor to Deublin Company, Waukegan, Ill.

Filed Aug. 1, 1995, Ser. No. 509,766
Int. Cl.⁶ F16L 17/02

U.S. Cl. 285—98

14 Claims

1. A coupling device for providing a sealing arrangement with a rotating seal member having a passageway therethrough comprising:



a housing having a fluid coolant inlet, an air coolant inlet and a passageway therethrough defining an inner surface, said housing structurally arranged in axial aligned position with the passageway of the rotating seal member;

a seal shaft member having a seal member thereon and an axial bore therethrough positioned in said housing for axial sliding movement within said passageway of said housing along said housing inner surface and said shaft member having an outer surface in engagement with said inner surface and operable between an unpressurized unsealed position and a pressurized sealed position, with said seal shaft member in said pressurized position providing a sealing arrangement between the rotating seal member and said seal shaft member;

a first sealing assembly positioned between said engaging surfaces of said seal shaft member and said housing and structurally arranged to communicate with said air coolant inlet when air coolant is directed through said axial bore of said seal shaft member to provide a seal between said shaft member and said housing;

a second sealing assembly positioned between said engaging surfaces of said seal shaft member and said housing and structurally arranged to communicate with said fluid coolant inlet when fluid coolant is directed through said fluid coolant inlet to provide a seal between said shaft member and said housing;

first valve means positioned between said air coolant inlet and said source of air coolant and second valve means positioned between said air coolant inlet and said source of fluid coolant, with each of said first and said second valve means being operable between open and closed positions; and

with said first sealing assembly providing a seal between said movable seal shaft member and said housing when air coolant is directed through said air coolant inlet into said housing when said first valve means is in the open position and said second valve means is in the closed position and said seal shaft member is in said pressurized position to provide said sealing arrangement between the rotating seal member and said shaft seal member and with said second sealing assembly providing a seal between said movable seal shaft member and said housing when liquid coolant is directed through said liquid coolant inlet and said air coolant inlet into said housing when said first valve means is in the closed position and said second valve means is in the open position and said seal shaft member is in said pressurized condition to provide said sealing arrangement between the rotating seal member and said seal shaft member.

5,669,637

MINIATURE FITTING ASSEMBLY FOR MICRO-TUBING

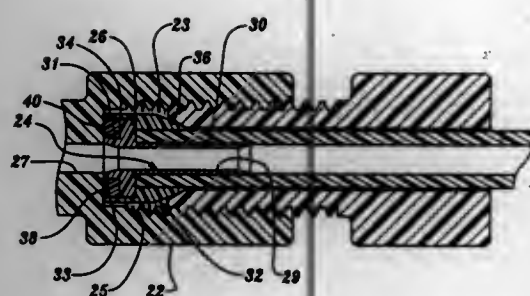
Andrew I. Chitty, West Linn; John T. Martin, and Saleh Mohammed Mirani, both of Portland, all of Oreg., assignors to Optimize technologies, Inc., Oregon City, Oreg.

Filed May 29, 1996, Ser. No. 655,440
Int. Cl.⁶ F16L 19/06; 21/04

U.S. Cl. 285—342

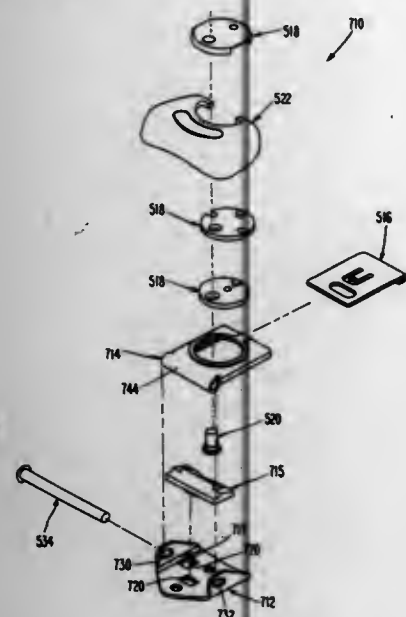
30 Claims

23. A fitting assembly for mating an end of a micro-tubing segment in fluid communication to a connector having a first interlocking surface and an internal wall, the fitting assembly comprising:



- (a) a male nut having a second interlocking surface adapted for coupling with the first interlocking surface of the connector, wherein a passage is defined axially through the nut, the passage being for receiving the end of the micro-tubing segment;
- (b) a sleeve including a head section having a first cross-sectional area, and a stem section centrally projecting from the head section and having a second cross-sectional area smaller than the first cross-sectional area, the stem section being inserted into the end of the polymer micro-tubing when the fitting assembly is mated to the connector;
- (c) an annular elastomeric seal circumferentially surrounding at least a portion of the head section and abutting the internal wall in the connector when the fitting assembly is mated to the connector; and
- (d) means for sealing against an exterior surface of the received end of the micro-tubing segment and for compressing the elastomeric seal when the fitting assembly is mated to the connector.

5,669,638
FASTENING DEVICE
 Glenn E. Anderson, Malvern, Pa.; Alan Mazurowski, and Cuyler Hoen, both of Rensselaer, N.Y., assignors to Southco, Inc., Concordville, Pa.
 Filed Feb. 1, 1996, Ser. No. 595,175
 Int. Cl.⁶ E05C 5/00
 U.S. Cl. 292—111



1. A fastener adapted to be secured to a first member for fastening a keeper secured to a second member, said fastener comprising:
- a base member having opposing side portions, each side portion having a slot therein defined by a front end, a back end and a

pair of generally elongated opposing connecting ends extending between the front end and the back end;

a sleeve member having therein an opening and opposed side portions forming a sleeve;

hinge means for pivotally connecting said base member and said sleeve member, said hinge means including attachment means received within the slots in the opposing side portions of said base member;

a slide member received within said sleeve of said sleeve member, to be extended or withdrawn, and having a cam opening;

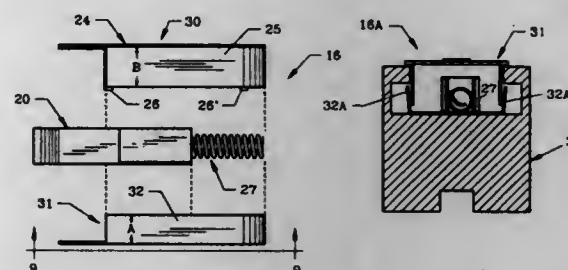
cam means received within said opening of said sleeve member for rotatable movement therein;

a cam member extending from said cam means and protruding through said cam opening;

turning means for rotating said cam means to provide movement of said cam member within said cam opening for extending or withdrawing said slide member, whereby said slide member is adapted to latch said keeper as said slide member is withdrawn;

said latch further including means confined within said base member for biasing said sleeve member relative to said base member as said slide member is fastened with said keeper, wherein said attachment means is displaced along a longitudinal direction of said connecting ends of said slots and is closer to the front end of the slots of the base member when the slide member is fastened with said keeper than when the slide member is unfastened from said keeper.

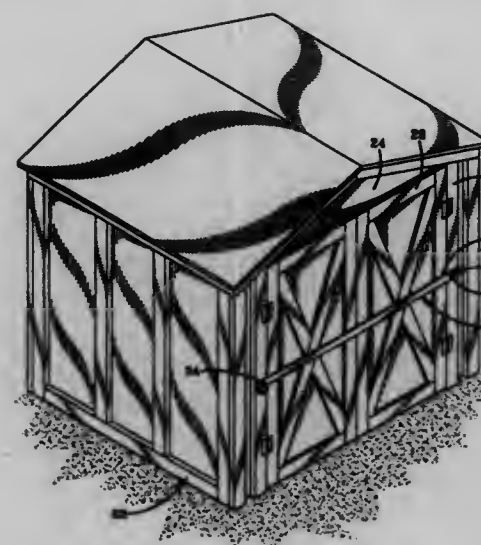
5,669,639
WINDOW LATCH MECHANISM
 Barry G. Lawrence, P.O. Box 846, Thomasville, N.C. 27360
 Filed May 9, 1996, Ser. No. 647,288
 Int. Cl.⁶ E05C 1/10
 U.S. Cl. 292—175



1. A latch mechanism comprising: a housing, a slidable latch contained within said housing, said housing comprising a top section, a bottom section, said bottom section comprising a base, side walls, said side walls attached substantially perpendicularly to said base, said top section comprising a top, an edge, said edge surrounding said top, side walls, said side walls attached substantially perpendicularly to said top inwardly of said top edge, and said top section side walls placed within said bottom section side walls.

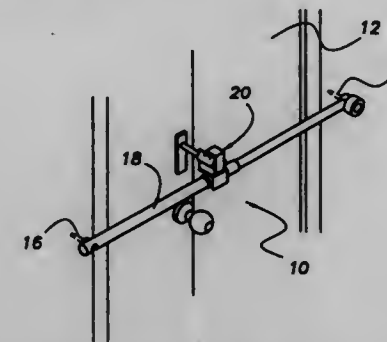
5,669,640
DOOR LATCH
 Charles R. Ryan, 133 Woodside Dr., Mogadore, Ohio 44260
 Filed Jan. 2, 1996, Ser. No. 581,896
 Int. Cl.⁶ E05C 19/18
 U.S. Cl. 292—259 R

1. A door latch for securing an access door into a secured area against unwanted entry, said door securing device comprising:
- an elongated, rigid bar having first and second openings therein;
- a first lock post insertable in the first opening and selectively securable therein; and



a second lock post insertable in the second opening and including a pad lock receiving groove circumferentially therearound for selectively securing the elongated, rigid bar to the second lock post.

5,669,641
DOOR SECURING SYSTEM
 James Roderick Jeanson, 606 Maxine Dr., Baton Rouge, La. 70808
 Filed Feb. 5, 1996, Ser. No. 596,460
 Int. Cl.⁶ E05C 19/18
 U.S. Cl. 292—259 R



1. A door securing system comprising:
- a pivot anchor having a threaded pivot anchor securing portion at a first pivot anchor end and a positioning tab extending radially outward from a second pivot anchor end;
- a latch anchor having a threaded latch anchor securing portion at a first latch anchor end, a partial spherical latch ball secured to a second latch anchor end in a manner such that a longitudinal axis of said latch anchor passes through said center of said latch ball, and a latching shoulder extending radially outward from a side of said latch anchor at a location a first distance away from said latch ball;
- a telescoping cross-bar having a pivot section having a first outer diameter, a circular cross-section and a tubular latch section, said tubular latch section having a first internal diameter sized to slidably and rotatably receive therein at least a portion of said pivot section, said pivot section including a pivot hub at one end thereof having a hub channel formed wherein that is sized to captively receive a section of said pivot anchor therein including said positioning tab, said positioning tab being insertable into said hub channel through a tab access slot formed through a first hub channel end, said pivot hub having a first storage slot formed through a second end

thereof that is angularly offset from said tab access slot by about a forty-five (45°) degree angle, said first storage slot being sized to receive therein said positioning tab, said latch section including a circular latch ball receiving aperture formed through a sidewall thereof at a first latch section end and a latch anchor receiving slot formed in connection with said latch ball receiving aperture along a portion of a circumference of said first latch section end, said latch ball having a diameter greater than said latch anchor receiving slot and less than said latch ball receiving aperture; and

an adjustable door assembly including a contact securing mechanism, securable to and positionable along at least a portion of said latch section, and a user positionable bumper plate that is positionable in a securable at a plurality of user selected positions with respect to said latch section.

5,669,642
OUTSIDE DOOR HANDLE AUTOMATIC LOCKING DEVICE FOR AUTOMOBILES
 Sun Won Kang, Seoul, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea
 Filed Jun. 5, 1996, Ser. No. 655,238
 Int. Cl.⁶ E05B 3/00
 U.S. Cl. 292—336.3

6 Claims



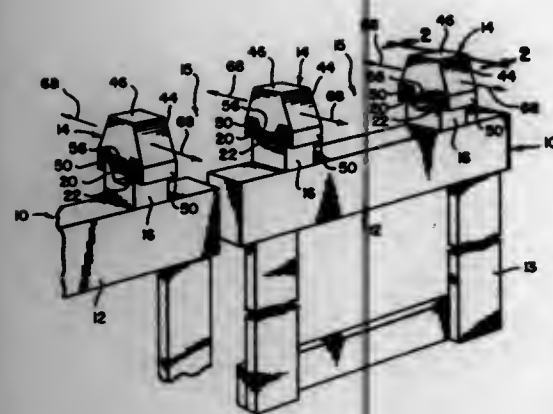
1. An automatic locking device for an outside handle of an automobile door comprising:
- a housing including a pair of spaced supports;
- a hinge shaft supported by the supports;
- a pair of spaced levers for supporting the outside handle for pivotal movement about the hinge shaft between open and closed positions;
- an elastic member supported on the hinge shaft for biasing the outside handle to the closed position;
- a rotating member fixed to one of said levers for rotation in response to an impact from a side collision; and
- a hook portion formed on a surface of a support and disposed to engage the rotating member upon its rotation in response to a side impact.

5,669,643
DEVICE FOR EMPTYING TRASH BARRELS INTO A WASTE COLLECTION VEHICLE
 Ralf Rübe, Langerringen, and Rudolf Motsch, Kissing, both of Germany, assignors to Otto Lift-Systeme GmbH, Köln, Germany
 Filed Aug. 25, 1995, Ser. No. 519,319
 Claims priority, application Germany, Aug. 26, 1994, 44 30 260.6; Aug. 26, 1994, 9415505 U

Int. Cl.⁶ B65F 3/02
 U.S. Cl. 294—1.1

23 Claims

1. A device for emptying a trash barrel using a lift-and-tip mechanism of a waste collection truck, the trash barrel being of the type having a grip ledge which protrudes outward from one side of the trash barrel, said device comprising:



a plurality of spaced, upward pointing claws for insertion under the grip ledge of a trash barrel, each claw having a lower section and an upper section, wherein:

the upper section has an upper free surface shaped to engage under the grip ledge of the trash barrel and a lower surface; the lower section has an upper surface facing the lower surface of the upper section;

the lower surface of the upper section is maintained spaced above the upper surface of the lower section when the upper surface of the upper section is not engaging a grip ledge of a trash barrel;

the upper section is movably attached to the lower section such that the upper section is freely movable relative to the lower section when the lower surface of the upper section is spaced above the upper surface of the lower section; and

the upper section is immovable relative to the lower section when the lower surface of the upper section is urged by the load of a trash barrel to a position of minimum distance from the upper surface of the lower section.

5,669,644

WAFER TRANSFER PLATE

Hideki Kaihotsu; Kazuhiro Shimeno, and Kouji Tometsuka, all of Tokyo, Japan, assignors to Kokusai Electric Co., Ltd., Japan

Filed Nov. 13, 1995, Ser. No. 557,409

Int. Cl.⁶ B25J 75/00

U.S. Cl. 294—1.1

16 Claims



1. A wafer transfer plate for use in a wafer manufacturing system, said wafer transfer plate comprising:

at least one wafer contact for supporting a wafer loaded onto said wafer transfer plate by contacting said wafer; and a hard carbon film covering at least a portion of said at least one wafer contact, wherein said hard carbon film comprises material selected from a group consisting of diamond like carbon and a transparent hard carbon.

5,669,645 HANDHELD GRABBING ASSEMBLY FOR GRABBING WASTE

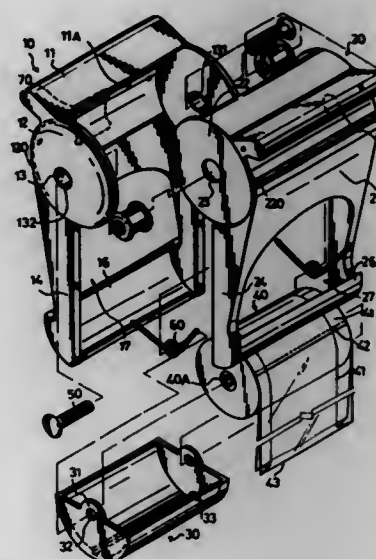
Yi-Chang Chuang, 4F, No. 516, Minsu E. Rd., Taipei City, Taiwan

Filed Dec. 6, 1996, Ser. No. 761,196

Int. Cl.⁶ A01K 29/00; E01H 1/12

U.S. Cl. 294—1.3

9 Claims



1. A handheld grabbing device used in combination with a plastic bag supplying device, said plastic bag supplying device including a spindle, a spool mounted rotatably on said spindle, and a reel of continuous lay-flat web sheet of plastic bags wound around said spool for reeling out a leading plastic bag to be torn off from said reel, comprising:

a first clutching arm member having a first clutching blade end section and a first handgrip end section which includes a first elongated frame body extending parallel to said first clutching blade end section;

a pair of first lug portions respectively and transversely extending from two lateral sides of said first elongated frame body, each of said first lug portions defining a first axle hole adapted to be journaled by a respective end of said spindle; and

a boss member formed on an inner surface of each of said lug portions and around said first axle hole;

a second clutching arm member having a second clutching blade end section, and a second handgrip end section which includes

a second elongated frame body extending parallel to said second clutching blade end section, and

a pair of second lug portions respectively and transversely extending from two lateral sides of said second elongated frame body, each of said second lug portions defining a second axle hole adapted to be journaled by said respective end of said spindle,

said pair of second lug portions being disposed respectively to flank said pair of first lug portions, and being mounted pivotably on said first lug portions around an axis of said first axle holes so as to bring said first clutching blade end section toward said second clutching blade end section; and

a biasing member disposed on said boss member to bias said first clutching blade end section toward said second clutching blade end section;

whereby, when said first and second handgrip end sections are turned toward each other against biasing action of said biasing member, said first and second clutching blade end sections will be gaped apart from each other for picking up waste therebetween.

5,669,646 DEVICE FOR POSITIONING AND RETRIEVING GOLF BALLS AND TEES

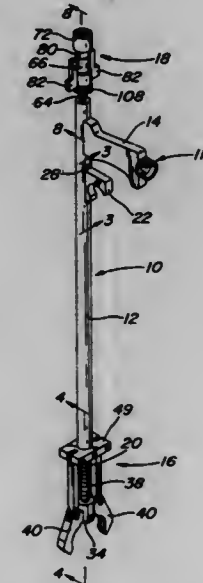
Emmanuel R. Flocca, 1233 Agnew Dr., Drexel Hill, Pa. 19026, and Bruce G. Greenfield, 9 Feldstone Ln., Bryn Mawr, Pa. 19010, assignors to Emmanuel R. Flocca, Drexel Hill, and Bruce G. Greenfield, Bryn Mawr, both of Pa.

Filed Nov. 12, 1996, Ser. No. 748,253

Int. Cl.⁶ A63B 47/02; 57/00

U.S. Cl. 294—24

15 Claims



1. A golf ball and tee positioning device, comprising: an elongated shaft;

a gripper disposed at one end of the shaft for manipulating golf balls; and

a tee inserter disposed at the other end of the shaft for inserting a tee into the ground, the inserter comprising an elongated rod extending from the other end of the shaft, a barrel slideably disposed on the rod for receiving a golf tee, a pair of jaws pivotally attached to the barrel, each jaw member having a mandible portion which extends into a slot formed in the barrel for engaging a tee located within the barrel and being spring biased into the tee engaging position.

5,669,647

PAN GRIPPER OR THE LIKE

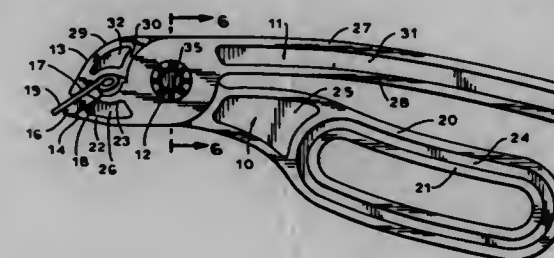
Alfred Neubauer, Langhorne, Pa., assignor to Magic Mold Corporation, Hatfield, Pa., and Leonard M. Brenner Associates, Inc., Boca Raton, Fla.

Filed May 10, 1996, Ser. No. 644,172

Int. Cl.⁶ A47J 45/10; B25B 7/06

U.S. Cl. 294—31.1

35 Claims



1. A gripping device having first and second movable members and pivot means joining said movable members for pivotal movement, characterized by

(a) said movable members being formed by molding with structural plastic material,

(b) said first movable member including a first body portion and an integral pivot post extending laterally from one side wall of said body portion and defining a pivot axis,

(c) said second movable member including a second body portion and an integral pivot member of tubular configuration adapted for close-fit reception over said pivot post for pivotally joining said first and second movable members,

(d) said pivot post including an annular groove therein spaced from said first body portion,

(e) said tubular pivot member including a plurality of integral, resilient locking tabs, spaced angularly about said tubular pivot member and having portions projecting radially inwardly toward said axis at an acute angle with respect thereto,

(f) said locking tabs being resiliently outwardly displaceable during axial assembly of said tubular pivot member over said pivot post, and

(g) said inwardly projecting portions of said locking tabs being lockingly received in said annular groove to lock said movable members in pivotally connected relation.

5,669,648

POST HOLE DIGGER

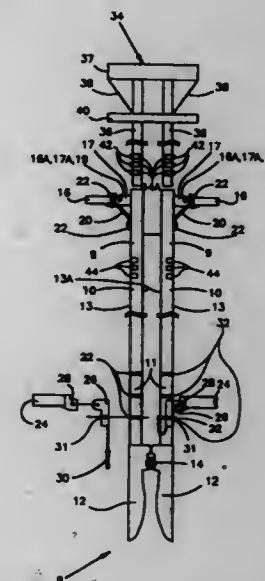
Michael Lewis Luck, P.O. Box 4433, Flint, Mich. 48504

Filed Jun. 12, 1996, Ser. No. 675,460

Int. Cl.⁶ A01B 1/18

U.S. Cl. 294—50.8

10 Claims



1. An improved post hole digger for removing a quantity of dirt from a ground surface in order to produce a narrow lateral hole thereat for receiving an elongated object such as a post, comprising:

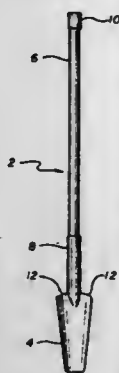
a) a plurality of elongated arm members, each of said elongated arm members having a proximal end and a distal end, and an inner surface and an outer surface;

b) a sharpened shovel blade secured to the distal end of each of said elongated arm members;

c) a hinge which secures the sharpened shovel blades to each other and acts as an axis of pivotal securement so that said sharpened shovel blades may be drawn together or spread apart about said axis in response to movement of the elongated arm members toward or away from each other; and

d) a top plate assembly affixed to the proximal end of the elongated arm members which permits a user to strike said top plate assembly with a weighted object such as a sledge hammer, thus driving the sharpened shovel blades of the improved post hole digger firmly and deeply into the ground.

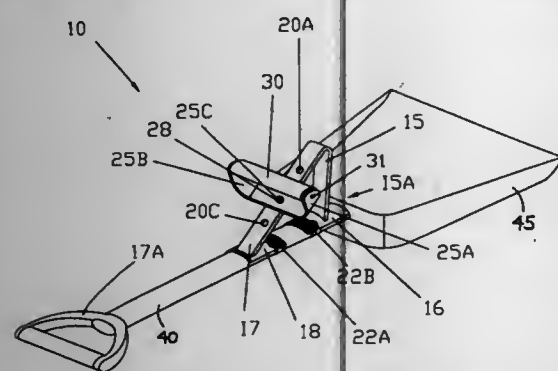
5,669,649
DITCH SHOVEL
 Tom Metcalf, P.O. Box 8594, Incline Village, Nev. 89452
 Filed May 13, 1996, Ser. No. 647,576
 Int. Cl.⁶ A01B 1/02; B25G 1/00
 U.S. Cl. 294—57



2 Claims

1. A handle for a shovel, the shovel being adapted to dig trenches and holes, comprising:
- (A) a heavy gauge pipe weighing substantially between 7 and 11 pounds and being of a length wherein the total length of the shovel is substantially between 77 and 89 inches for a user to hold the shovel and for providing mass, whereby said pipe is strong enough to withstand large stresses and is massive enough to develop a large downward momentum when thrust downward;
 - (B) a flared end on said pipe for preventing a users hands from slipping off of said pipe;
 - (C) insulating material covering at least part of said pipe for insulating said pipe; and
 - (D) attachment means for attaching said pipe to a shovel blade, whereby the shovel may be comfortably used to dig deep trenches and holes by a user who stands on the surface of the ground.

5,669,650
DETACHABLE AND ADJUSTABLE AUXILIARY HANDLE FOR A LONG-HANDED MATERIAL-MOVING TOOL
 Almer J. Rutz, Box 543, Riverdale, N. Dak. 58565
 Filed Jul. 24, 1996, Ser. No. 685,636
 Int. Cl.⁶ A01B 1/22; B25G 3/20
 U.S. Cl. 294—58



3 Claims

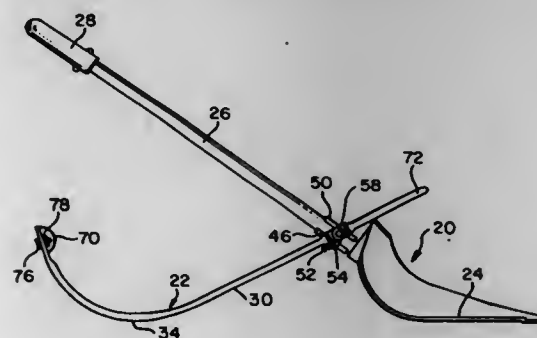
1. A detachable and adjustable auxiliary handle for a long-handled, material-moving tool comprising:
- a handle bracket having a first leg portion, a first foot portion fixedly attached to an end of said first leg portion, a second leg portion integral to said first leg portion, and a second foot portion fixedly attached to an end of said second leg portion, said handle bracket being fastenable to a long-handled, material-moving tool, said first leg portion extending outwardly from a handle shaft of a long-handled, material-

moving tool upon said handle bracket being fastened to the long-handled, material moving tool, said second leg portion being at an angle relative to said first leg portion;

a hand-hold support member securely fastenable to said handle bracket and being selectively fastenable along the length of said second leg portion and extending outwardly therefrom; and a hand-hold member which is attached to said hand-hold support member, further said second leg portion having a plurality of holes through which a fastening member securely fastens said hand-hold support member at selected locations along the length of said second leg portion for selectively positioning said hand-hold member as needed by users.

5,669,651
SHOVEL WITH LIFT AID ATTACHMENT
 Adrian Vroegindewey, 4 Woodlawn Ave., Clifton, N.J. 07013, assignor to Adrian Vroegindewey, Clifton, and Dennis A. Vroegindewey, Parsippany, both of N.J.
 Filed Aug. 19, 1996, Ser. No. 699,417
 Int. Cl.⁶ A01B 1/22; B25G 3/38

22 Claims



1. An attachment for a shovel having a blade and an elongated main handle shaft secured at one end to the blade, the attachment comprising:
- an elongated member having a substantially straight portion terminated by a cambered portion;
 - mounting means for pivotally mounting said straight portion to said shaft about a pivot axis orthogonal to said shaft and adjacent said blade, with said elongated member being so oriented that when said shovel is in its normal shoveling position the pivot axis is substantially horizontal and the cambered portion extends downwardly beyond the straight portion and curves back toward said shaft;
 - a foot support at the distal end of said cambered portion; and
 - an auxiliary handle secured to said straight portion and positioned across said shaft from said foot support.

5,669,652
APPARATUS FOR GRIPPING A FLAT SUBSTRATE
 Michael Reising, Mömbris; Stefan Kempf, Alzenau, and Michael König, Frankfurt, all of Germany, assignors to Balzers und Leybold Deutschland Holding AG, Hanau, Germany

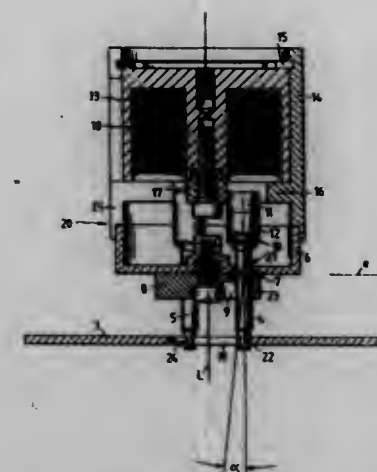
Filed Aug. 1, 1996, Ser. No. 691,138

Claims priority, application Germany, Aug. 16, 1995, 195 29 945.0

Int. Cl.⁶ B25J 15/10

5 Claims

1. Apparatus for gripping a disk-like substrate having a central opening, said apparatus comprising
- a housing having a longitudinal axis, inner stop surfaces facing outward from said axis, and outer stop surfaces facing said inner stop surfaces,



- a plurality of finger-like grippers pivotally supported in said housing to pivot about pivot axes in a common plane which is transverse to said longitudinal axis, each gripper having an inner end which is pivotable between one of said inner stop surfaces and one of said outer stop surfaces, and an outer end protruding from said housing;
- permanent magnets attached to said inner ends of said grippers, said permanent magnets serving to hold said inner ends against one of said inner stop surfaces and said outer stop surfaces, and
- an electromagnet having a field axis which coincides with the longitudinal axis of the housing, said electromagnet being switchable between a first polarity which moves the inner ends toward the inner stop surfaces and a second polarity which moves the inner ends toward the outer stop surfaces.

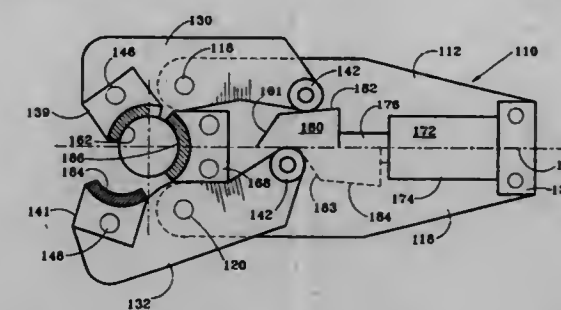
5,669,653
FLUID POWERED BACKUP TONG AND METHOD
 Dennis J. Penisson, Raceland, La., assignor to Bilco Tools, Inc., Houma, La.

Filed Oct. 5, 1995, Ser. No. 539,356

Int. Cl.⁶ B25B 13/50

U.S. Cl. 294—116

20 Claims



1. A backup tong for gripping engagement with an oilfield tubular, comprising:
- a tong body having a throat for laterally moving the tong body on and off the oilfield tubular in a direction generally aligned with a centerline of the tong body;
 - a first link pivotally mounted to the tong body about a first pivot;
 - a second link pivotally mounted to the tong body about a second pivot;
 - a first jaw block pivotally mounted to the first link about a third pivot, the first jaw block supporting a first die thereon for gripping engagement with the oilfield tubular;
 - a second jaw block pivotally mounted to the second link about a fourth pivot, the second jaw block supporting a second die thereon for gripping engagement with the oilfield tubular;
 - a hydraulic cylinder assembly mounted on the tong body and having a cylinder body and a cylinder rod extending from the

cylinder body, the hydraulic cylinder assembly being mounted on the tong body such that the cylinder rod is movable along the centerline of the tong body; and

a wedge mounted on the cylinder rod, the wedge having first and second cam surfaces thereon provided on opposing sides of the centerline of the tong body for engagement with the first and second links, respectively, to force the first and second dies into gripping engagement with the oilfield tubular, each of the first and second cam surfaces having an initial high cam angle for moving the dies toward engagement with the tubular, and a subsequent low cam angle inclined at an angle less than the high cam angle with respect to the centerline of the tong body for gripping engagement of the respective first die and the second die with the oilfield tubular.

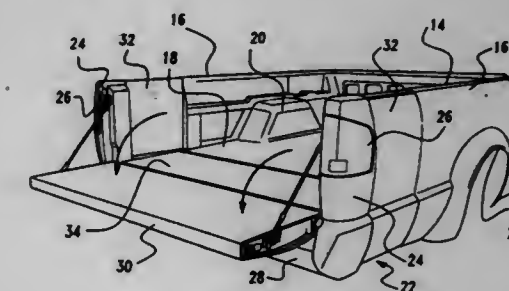
5,669,654
EXTENDABLE REAR GATE FOR VEHICLE CARGO BED
 Gregory L. Eilers, Royal Oak; Gary E. Fulkerson, Auburn Hills, and Sven A. Christopherson, Durand, all of Mich., assignors to MSX International Engineering Services, Inc., Auburn Hills, Mich.

Filed Jan. 16, 1996, Ser. No. 587,319

Int. Cl.⁶ B62D 33/08

U.S. Cl. 296—26

5 Claims



1. A vehicle having a cargo area with fixed side walls and a bottom surface, said vehicle comprising:
- a tailgate section forming a rear portion of the vehicle cargo area and including rear corner pillars incorporating indicator lights and a deployable gate extending between said corner pillars for selective access to the cargo area, said tailgate section longitudinally movable relative to the fixed side walls and bottom surface between a retracted position and an extended position to expend the cargo area of the vehicle, a rail and roller assembly mounted within each of the fixed side walls of the cargo area for slidably supporting said tailgate section in said retracted and extended positions, said movable tailgate section maintaining the visual integrity of the vehicle in both said retracted and extended positions.

5,669,655
ENCLOSURES AND ACCESSORIES FOR SPORT UTILITY VEHICLES, VANS, AND MINIVANS
 John M. Hammond, 6172 Knickerbocker Rd., Ontario, N.Y. 14519

Continuation-in-part of Ser. No. 400,371, Mar. 8, 1995, Pat. No. 5,582,456, which is a continuation-in-part of Ser. No. 137,635, Oct. 18, 1993, Pat. No. 5,417,469. This application

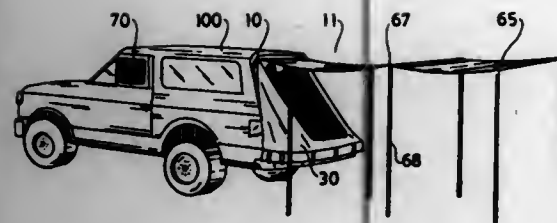
Feb. 12, 1996, Ser. No. 601,266

Int. Cl.⁶ B60P 3/34

U.S. Cl. 296—26

12 Claims

1. An apparatus for attaching an enclosure to a motor vehicle comprised of a back section comprising a door, and an opening, wherein said apparatus is comprised of:
- a substantially quadrilateral shaped plate, wherein said substantially quadrilateral shaped plate is substantially coplanar, and wherein said substantially quadrilateral shaped plate is flex-



ible, and wherein the perimeter of the cross section of said substantially quadrilateral shaped plate is comprised of at least one substantially flat surface, and wherein said substantially flat surface is the surface of the perimeter of the cross section of said substantially quadrilateral shaped plate which is in closest proximity to the front portion of the vehicle;

a first means for attaching said substantially quadrilateral-shaped plate to said motor vehicle, wherein said first attaching means applies a force on said substantially quadrilateral shaped plate which has a component which is perpendicular to said substantially quadrilateral shaped plate;

a second means for attaching said substantially quadrilateral-shaped plate to said motor vehicle;

a substantially weather-proof cover comprised of a first sleeve and a second sleeve;

and means for attaching said cover to said substantially quadrilateral-shaped plate;

wherein when said weatherproof cover is attached to said substantially quadrilateral-shaped plate and said substantially quadrilateral-shaped plate is attached to said motor vehicle, it encloses the space between said back section of said vehicle and said cover and forms a substantially water-proof enclosure covering said space.

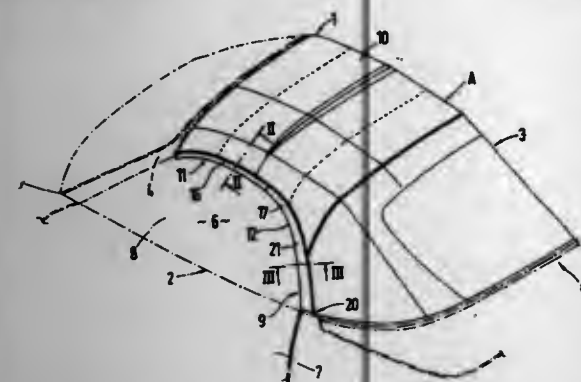
5,669,656 FOLDING TOP FOR VEHICLES, PARTICULARLY PASSENGER CARS

Matthias Aydt, Eberdingen; Kurt Pförtner, Wimsheim; Alexander Zeissner, Illingen; Peter Thomas, Pforzheim, and Christof Blech, Renningen, all of Germany, assignors to Dr. Ing. h.c.f. Porsche AG, Weissach, Germany

Filed Nov. 22, 1995, Ser. No. 561,969

Claims priority, application Germany, Nov. 23, 1994, 44 41 671.7

Int. Cl.⁶ B60J 7/12
U.S. Cl. 296—116



1. Molding top for passenger cars, composed of a folding top structure, sealing strips and a folding top covering, the folding top covering and sealing strips being held in position on lateral frame parts of the folding top structure, wherein linkages for the folding top covering and for the sealing strips are provided separately from one another on the lateral frame parts of the folding top structure, wherein wall sections of the lateral frame parts of the folding top structure, which are not covered by the folding top cover and which form the vehicle shell in sections, extend between the spaced linkages,

wherein a nose-shaped partial area of the wall section forming the vehicle shell which faces the folding top covering is constructed such that, together with the adjoining folding top covering situated farther on the inside, a rain groove is formed, and

wherein the wall sections which form the vehicle shells have curved exterior surfaces extending inwardly so as to approximately conform to adjacent folding top covering sections.

5,669,657 SUNROOF ASSEMBLY FOR MOTOR VEHICLE Kiyotaka Miyazawa, Atsugi, Japan, assignor to Hori Glass Co., Ltd., Japan

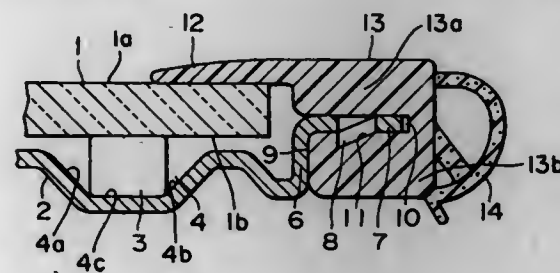
Filed Dec. 12, 1995, Ser. No. 571,116

Claims priority, application Japan, Dec. 13, 1994, 6-332732; Dec. 13, 1994, 6-332733

Int. Cl.⁶ B60J 7/00

U.S. Cl. 296—216

18 Claims



1. A sunroof assembly for motor vehicles, comprising: a sunroof glass; a retainer disposed below a surface of the sunroof glass, the retainer having a recess part defined by a pair of sidewall portions and a base portion, a stopper part extending generally perpendicular to the base portion of the recess part, a generally horizontal holder part extending from an upper end of the stopper part, and projections provided on the holder part with a prescribed interval between the projections; a bonding agent disposed in the recess part of the retainer; and a weather strip for connection to the retainer, the weather strip having a stopper surface for abutment with the stopper part of the retainer, a holder groove for receiving the holder part, an anchor groove formed in the holder groove for engagement with the projections of the holder part of the retainer, and a lip part for supporting the sunroof glass; wherein the sunroof glass is disposed on the retainer with the bonding agent disposed in the recess part of the retainer, the holder part of the retainer is inserted into the holder groove while the sunroof glass is supported by the lip part of the retainer, the stopper surface is abutted on the stopper part, and the anchor groove is engaged with the projections to thereby integrally connect the sunroof glass, the retainer, and the weather strip together.

5,669,658 CONVERTIBLE TABLE AND SUPPORT Raymond D. Liles, 373 Woodland Park Rd., Stonewall, La. 71078

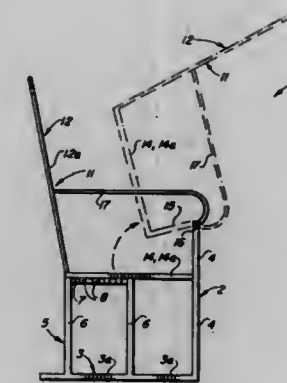
Filed Jul. 16, 1996, Ser. No. 680,828

Int. Cl.⁶ A47B 85/04

U.S. Cl. 297—123

5 Claims

1. A convertible table and support comprising a support frame base having opposite base ends; a bench mounted on said support frame base; a pair of support frame arms extending upwardly from said base ends, respectively, of said support frame base; a pivoting support seat having seat ends, normally disposed on said bench; a backrest extending from said support seat; a pivoting arm extending from each of said seat ends of said support seat to said support frame arms, respectively; and a pivot pin extending through said support frame arms and said pivoting arm, respectively, whereby said support seat and said backrest are selectively pivoted from a



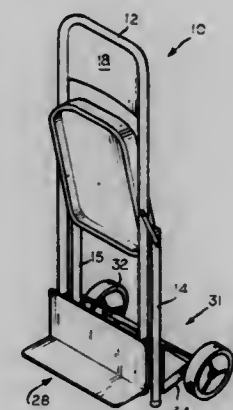
5,669,659 COMBINATION CHAIR AND HAND TRUCK Thomas E. Dittmer, 317 Peru-Olena Rd., Norwalk, Ohio 44857

Filed Aug. 20, 1996, Ser. No. 700,276

Int. Cl.⁶ A47C 13/00

U.S. Cl. 297—129

15 Claims



6. A combination chair and hand truck, comprising:

a chair comprising a pair of upright members held in parallel spaced relation, a seat hingedly attached to the pair of upright members, a generally U-shaped carrying frame pivotably connected to the pair of upright members forming a pair of parallel, spaced-apart leg members and having an upper back rest portion;

a wheel assembly removably attached to the pair of upright members of said chair, said wheel assembly comprising a plurality of brackets for removably attaching said wheel assembly to the pair of upright members, an axle fixedly attached to the plurality of brackets, and a pair of wheels rotatably connected to opposite ends of the axle; and

a platform assembly removably attached to the pair of leg members, said platform assembly comprising a lift member, a transverse platform, and a plurality of elongated right and left channels extending vertically from the lift member,

wherein said combination chair and hand truck is used as a chair when said combination chair and hand truck is in an open position, and

wherein said combination chair and hand truck is used as a hand truck when said combination chair and hand truck is in a closed position.

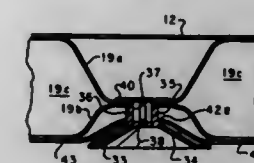
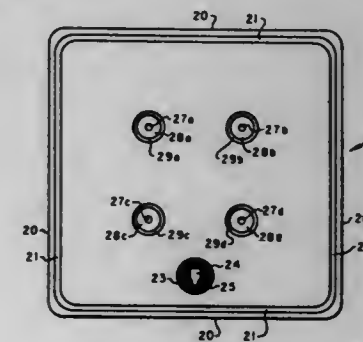
5,669,660 INFLATABLE MOTORCYCLE SEAT Lawayne L. Matthies, 1888 Mountain Creek Pky., Dallas, Tex. 75211

Filed Jun. 7, 1996, Ser. No. 659,923

Int. Cl.⁶ B62J 1/18

U.S. Cl. 297—195.13

20 Claims



1. A portable detachable inflatable motorcycle seat comprising:

(a) an outer case of water repellent material having predetermined dimensions to form top, bottom and sides to enclose an interior of said case; said case having an opening providing access to said interior;

(b) an inflatable bladder disposed within said case, said bladder having upper and lower surfaces joined to one another along a perimeter thereof, said upper and lower surfaces also being joined to one another at a plurality of spaced locations located interiorly of said perimeter to form recessed portions in said bladder, said recessed portions each including an aperture extending through both the upper and lower surfaces; said bladder further including a port extending from the exterior of said bladder to the interior of said bladder for introducing and exhausting air therethrough;

(c) a predetermined number of flexible suction cups each having a projection extending therefrom; and

(d) means for individually extending said projections through said apertures to affix said suction cups to said bladder.

5,669,661 VEHICLE SEAT BACKS Marc Pajon, Etampes, France, assignor to Bertrand Faure Equipements SA, France

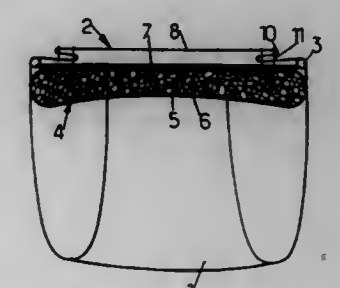
Filed Dec. 18, 1995, Ser. No. 573,894

Claims priority, application France, Dec. 19, 1994, 94 15246

Int. Cl.⁶ B60N 2/42

U.S. Cl. 297—216.13

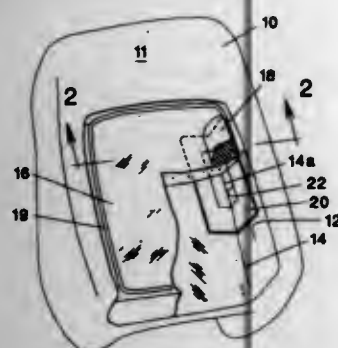
9 Claims



1. A vehicle seat back comprising two deformable elements both extending across the back between two lateral uprights defining the

sides of the back, said elements comprising a first element suitable for dissipating energy by deforming plastically in progressive manner, and a second element suitable for stopping deformation of the first element, said second element being disposed in such a manner that when large longitudinal thrust is applied to its middle portion, practically no resistance until said second element begins by lengthening while offering said second element reaches a given length, and thereafter becomes inextensible.

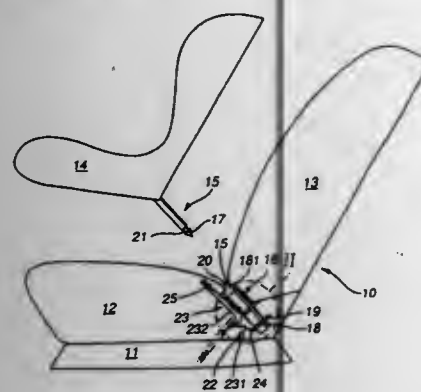
5,669,662
AIRBAG DEPLOYMENT PAD
Timothy M. Maly, Plymouth, Mich., assignor to Morton International, Inc., Chicago, Ill.
Filed Nov. 1, 1996, Ser. No. 742,857
Int. Cl.⁶ B60N 2/42
U.S. Cl. 297—216.13



1. In an automotive seat having a seat body covered with upholstery joined at a seam and a resilient foam pad housed in said seat body adjacent an airbag module, said seam having a rupturable seam portion for permitting deployment of an airbag from said module, the improvement which comprises:

a sheet which is relatively more rigid than said foam pad molded onto an outer surface of said foam pad forming a portion of the foam pad's external surface, said relatively rigid sheet defining an airbag opening adjacent said rupturable seam portion to guide therethrough an expanding airbag from said module.

5,669,663
QUICK-ACTION FASTENING DEVICE FOR A CHILD'S SEAT IN A VEHICLE
Ingo Feuerherdt, Kaempfelbach, Germany, assignor to Mercedes-Benz AG, Germany
Filed Jun. 7, 1996, Ser. No. 660,102
Claims priority, application Germany, Jun. 16, 1995, 195 21 889.2
Int. Cl.⁶ B60N 2/28
U.S. Cl. 297—253



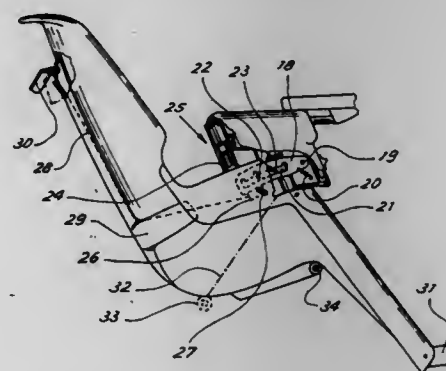
1 Claim

1. A device for quick-action fastening of a child's seat on a vehicle seat having a seat substructure with a seat cushion and a backrest, comprising at least one plug-in connection having two mutually corresponding plug-in parts, with one of the plug-in parts being operatively connected with the child's seat and the other of the plug-in parts adapted to be retained in a region between the seat cushion and the backrest, on one of the seat substructure and a vehicle floor, and one of the plug-in parts being configured as a plug and the other of the plug-in parts being designed as a socket with a manually releasable locking member which locks the plug in the socket, and a tensioning device operatively connected with the plug-in connection such that when the plug has been locked in the socket, the child's seat is drawn against the seat cushion and backrest of the vehicle seat, wherein the locking member is displaceably retained in the socket, and the tensioning device has a manually operable, pivotably mounted tensioning lever arranged to transfer the locking member from and to a first position, located in a vicinity of a plug-in opening of the socket, and to and from a second position remote from said plug-in opening.

9 Claims

5,669,664
HIGHCHAIR WITH IMPROVED RECLINING MECHANISM
Gianluca Perego, Arcore, Italy, assignor to Peg Perego Pines, S.p.A., Milan, Italy
Filed Jul. 16, 1996, Ser. No. 680,607
Claims priority, application Italy, Jul. 25, 1995, MI950538 U
Int. Cl.⁶ A47C 1/02
U.S. Cl. 297—327

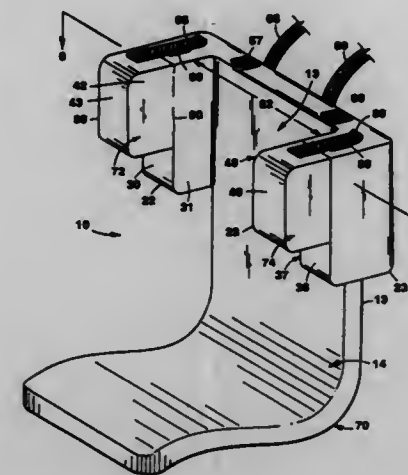
17 Claims



1. A highchair comprising:
a chair; and
a supporting frame on which the chair is supported, the chair having at least one portion which is reclinable by means of manual adjusting means which are movable between a position allowing free adjustment and a locked position in which adjustment is prevented, the manual adjusting means comprising an operating element disposed on the backrest of the chair for their movement between the locked position and the position of free adjustment, lateral shoulders being secured to the frame on the sides of the chair and the adjusting means having fixing arms movable between the position of free adjustment and the locked position, engaging the lateral shoulders with the at least one portion which is reclinable, to fix said at least one portion which is reclinable relative to the lateral shoulders, the operating element comprising an operating lever disposed on the backrest and connected by means of tension wires to said fixing arms.

5,669,665
CAR SEAT CUSHION
Ralph M. Nowak, Marblehead, Mass., assignor to The First Years Inc., Avon, Mass.
Filed Jun. 28, 1996, Ser. No. 672,414
Int. Cl.⁶ A47C 7/38
U.S. Cl. 297—406

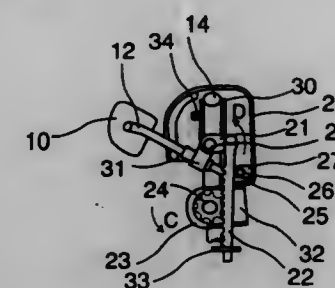
9 Claims



1. A car seat cushion, comprising
a back defining a head support region and a seat portion;
a side support projecting forward from each side of and in spaced-apart fixed relation to the head support region;
a laterally adjustable ancillary support member adjustably connected to and configured to cooperate with each side support, said laterally adjustable ancillary support members being in spaced-apart relation,
attachment members disposed on the ancillary support members, side supports, and back for selectively securing the ancillary support members to the side supports in a first position and to the back in a second position,
whereby said laterally adjustable ancillary support members adjustably connected to said side supports form an adjustable space between said side supports for the head of a child sitting in the car seat cushion.

5,669,666
DEVICE AND METHOD FOR AUTOMATICALLY CONTROLLING A HEADREST
Hyung-Ho Lee, Kyungnam-Do, Rep. of Korea, assignor to Hyundai Motor Company, Ltd., Seoul, Rep. of Korea
Filed Apr. 5, 1996, Ser. No. 628,340
Claims priority, application Rep. of Korea, Apr. 6, 1995, 95-7932
Int. Cl.⁶ A47C 1/10; 7/36
U.S. Cl. 297—408

20 Claims

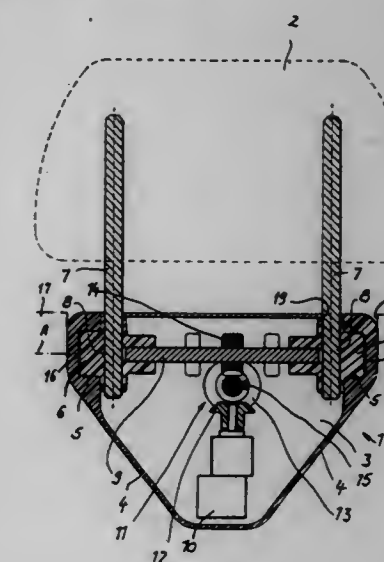


1. A device for automatically controlling a headrest, the device comprising:
a rotatable gear connected to a motor, the motor rotating the rotatable gear;

a rack gear movably engaging with the rotating rotatable gear to provide lineal movement;
a rotator rotatably connected to the rack gear, the rotator having a predetermined configuration such that the rotator occupies one position throughout an operation of the rotator;
first connection means for connecting the rack gear with the rotator;
second connection means for connecting the rotator with the headrest; and
a switch circuit for controlling rotation of the motor, whereby tilting of the headrest is selectively controlled by the switch circuit.

5,669,667
MOTOR-VEHICLE SEAT HEADREST
Reinhard Schmidt, Lennestadt, Germany, assignor to R. Schmidt GmbH, Lennestadt, Germany
Filed Jul. 16, 1996, Ser. No. 680,603
Claims priority, application Germany, Aug. 2, 1995, 195 28 274.4
Int. Cl.⁶ B60N 2/48
U.S. Cl. 297—408

8 Claims



1. In combination with a motor-vehicle seat formed with an upwardly open recess, a headrest assembly comprising:
a pair of complementary housing shells having mating annular edges that meet and are joined together substantially on an upright plane to form a cavity, each shell being formed inside the cavity with a pair of seat halves open at the plane and forming inside the cavity with the seat halves of the other shell a pair of seats aligned along a horizontal axis and lying on the plane, the joined shells being set and secured in the recess of the seat;
respective pivot bodies inside the cavity engaged in the seats and pivotal therein about the axis between upright and horizontal positions;
respective support rods extending radially from the pivot bodies out of the cavity; and
a headrest fixed on the support rods outside the cavity.

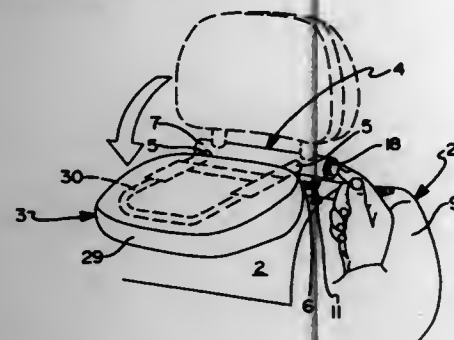
5,669,668
FOLDING HEADREST IN PARTICULAR FOR MOTOR VEHICLES

Andrew Leuchtmann, Bad Kreuznach, Germany, assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 26, 1996, Ser. No. 693,819

Claims priority, application Germany, Aug. 3, 1995, 195 28 456.9

Int. Cl.⁶ A47C 7/36; B60N 2/48
 U.S. Cl. 297—408 1 Claim



1. In a motor vehicle seat having a backrest and a headrest having a supporting structure, a pivot mechanism for supporting said headrest to said backrest so that said headrest is pivotable forward and rearward relative to said backrest about a substantially horizontal axis lying in the transverse direction of the vehicle, and so that said headrest can be releasably locked in a substantially vertical position, said pivot mechanism comprising:

a sleeve-like housing located outside of said headrest and having a post connected to said headrest supporting structure, said housing also having a radial slot and an internal stop member recess,

a journal rotatably mounted within said sleeve, said journal having a central axis and a post connected to said backrest to orient said journal axis substantially horizontal and in the transverse direction of said vehicle seat said journal post also being movable within said sleeve radial slot as said journal rotates within said sleeve, said journal further having a groove like guide and a central boring through an end of said journal that opens into said groove like guide,

a bolt which is arranged within said housing and slidable within said groove like guide against the force of a spring, said bolt further having a guide pin guided without play through said journal central boring and also having a locking member engageable in form locking relationship with said sleeve internal stop member recess to hold said sleeve post, headrest supporting structure and headrest in said substantially vertical position, and,

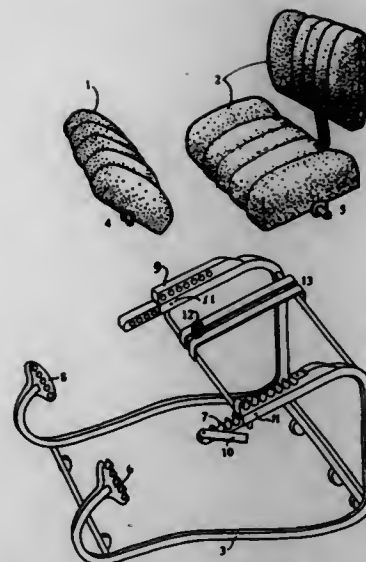
a release button movable relative to said sleeve to push said bolt guide pin through said journal central boring against the force of said spring to thereby slide said bolt through said journal groove like guide to a released position that removes said bolt locking member out of form locking relationship with said sleeve internal stop member recess, and thereby releases said sleeve to allow rotation of said journal as said journal post moves through said sleeve radial slot and said headrest concurrently rotates about said journal axis.

5,669,669
CHILD'S BALANCE SEAT
 Gregory Jerome Usher, P.O. Box 2, Berry N.S.W. 2535, Australia

Filed Jan. 25, 1996, Ser. No. 591,321

Int. Cl.⁶ A47C 7/52
 U.S. Cl. 297—423.12 2 Claims

1. A child's balance seat comprising a seat, shin cushion and a frame, the frame including two opposite sides, two opposite ends and an upper portion, the seat and shin cushion attached to the



upper portion of the frame in a sleigh configuration, the frame including two pairs of support members provided on both sides at both ends of the frame, one pair of the support members on one side including a plurality of round bores, and the other pair of support members, and the other pair of support members on the other side including grooves that correspond to the bores on the other pair of support members, said support members with said bores and said grooves being used to adjustably support said seat and said shin cushion, thereby making said child's balance seat useful:

(a) during periods of gradual growth of a child and

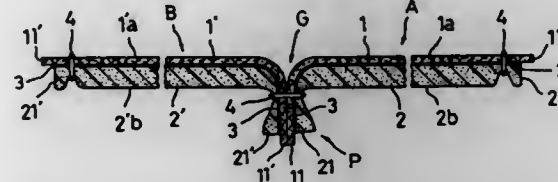
(b) in assisting free forward and backward movement of a child's body;

wherein said support members for supporting said seat is a combination support member, the combination support members including support portions integral with the frame at the support members, said frame being tubular and having a hollowed, square cross section, the support members further including support bars having a square cross section slightly smaller than and corresponding to the hollowed, square cross section of the frame for inserting into said hollowed, square cross section of the frame at the support portions allowing the support bars to be telescoped under said support portions and to be fixedly secured beneath the support portions to form the combination support member.

5,669,670
LEATHER TRIM COVER ASSEMBLY FOR VEHICLE SEAT AND METHOD FOR FORMING THE SAME
 Youichi Haraguchi, Akishima, and Kenichi Kumazawa, Akita-ken, both of Japan, assignors to Tachi-S Co., Ltd., Tokyo, Japan

Filed Mar. 21, 1996, Ser. No. 619,081

Int. Cl.⁶ A47C 7/24
 U.S. Cl. 297—452.61 18 Claims



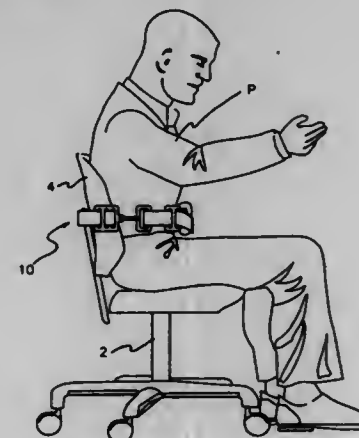
1. A leather trim cover assembly for a vehicle seat, comprising: a top cover layer made of a leather material, said top cover layer being cut in a predetermined shape; a flat-plate-like elastic foam layer cut in a predetermined shape;

an adhesive applying area defined on each of a peripheral edge portion of said top cover layer and a peripheral edge portion of said flat-plate-like elastic foam layer; said top cover layer being bonded on said flat-plate-like elastic foam layer by an adhesive agent, only along said adhesive applying area, to define a bonded area between said top cover and flat-plate-like elastic foam layers only along each said peripheral edge portion; substantially all an area on both said top cover layer and said flat-plate-like elastic foam layer outside said bonded area being unbonded; and said top cover layer further sewn with said flat-plate-like elastic foam layer at and along said bonded area, so that said peripheral edge portion of said top cover layer and flat-plate-like elastic foam layer are sewn together along said bonded area.

5,669,671
SUPPORT HARNESS FOR A PERSON SEATED IN A CHAIR

Randall J. Laco, 703 Ninth St., Suite 201, Durham, N.C. 27705
 Continuation-in-part of Ser. No. 235,480, Apr. 29, 1994, Pat. No. 5,529,383. This application Jun. 24, 1996, Ser. No. 669,036

Int. Cl.⁶ A62B 35/00
 U.S. Cl. 297—485 7 Claims



1. A harness for maintaining a person seated in a chair in an erect posture, said harness comprising:

an anchoring member comprising a continuous and imperforate first flexible strap and a first sliding clip having means defining at least two slots formed in said sliding clip for accepting passage of said first flexible strap and enabling frictional retention of said first flexible strap, said first flexible strap forming a closed loop having a circumference when an end of said first flexible strap is passed through said first sliding clip;

a support member comprising a continuous and imperforate second flexible strap having a proximal end and a distal end, a buckle attached to said second flexible strap at said distal end thereof, and a second sliding clip having means defining at least two slots formed in said second sliding clip for accepting passage of said second flexible strap and enabling frictional retention of said second flexible strap, said second flexible strap forming a closed loop for engaging said anchoring member, said closed loop of said second flexible strap formed at said distal end of said second flexible strap by passing said second flexible strap through said second sliding clip, and a continuous and imperforate third flexible strap, and a third sliding clip having a proximal end and a distal end, means defining at least two slots formed in said third sliding clip for accepting passage of said third flexible strap and enabling frictional retention of said third flexible strap, said third flexible strap having a closed loop for engaging said

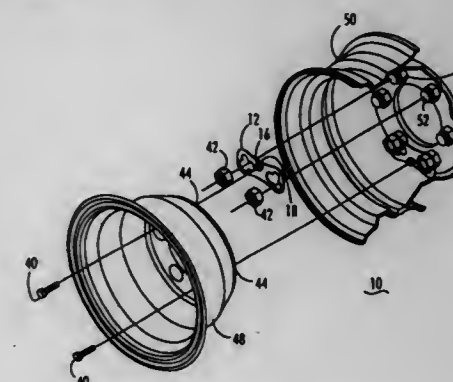
anchoring member formed at said distal end of said third flexible strap by passing said distal end of said third flexible strap through said third sliding clip; and attachment apparatus for attaching said second flexible strap to said anchoring member at a point along said circumference of said anchoring member and for attaching said third flexible strap to said anchoring member at a second point along said circumference of said anchoring member, said first point along said circumference and said second point along said circumference being different points, said attachment means comprising two pairs of mating, separable members, one member of each pair of mating, separable member terminating in a sliding clip for engaging said first flexible strap of said anchoring member and the other member of each pair of mating, separable members terminating in a loop for engaging one of said second flexible strap and said third flexible strap, whereby said anchoring member may be fastened around the back of a chair, said second flexible strap being separably attachable to said anchoring member at a point along said circumference of said anchoring member by said attachment apparatus, and said third flexible strap being separably attachable to said anchoring member at a different point along said circumference of said anchoring member, and said second flexible strap and said third flexible strap being mutually connectable by said buckle, thereby encircling the torso of the person seated in the chair.

5,669,672
WHEEL TRIM ATTACHMENT SYSTEM FOR DIFFERENT BOLT PATTERNS

James P. Wright; Timothy L. Bates; Kevin D. Nash; Barry Lynn Roberts, all of Cookeville, and John Davenport, Crossville, all of Tenn., assignors to Phoenix USA, Inc., Cookeville, Tenn.

Filed Feb. 20, 1996, Ser. No. 602,510

Int. Cl.⁶ B60B 7/10
 U.S. Cl. 301—37.37 7 Claims



1. A wheel trim attachment system comprising:

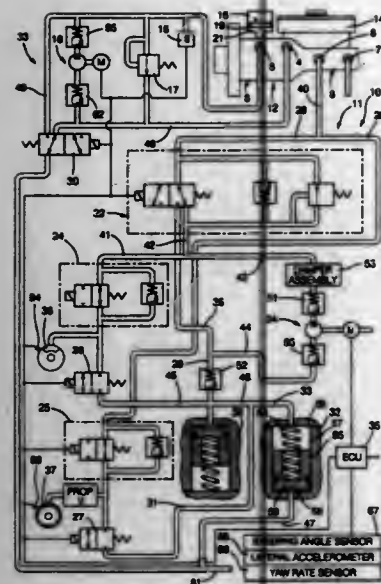
a. a wheel liner;
 b. a bracket having a clover leaf hole;
 c. means for attaching said wheel liner to said bracket; and
 d. wherein said clover leaf hole having a six lug hole, an eight lug hole, and a ten lug hole.

5,669,673
DIRECT POWER BOOSTER RESPONSE SYSTEM
 David Fredrick Reuter, Beavercreek, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 23, 1996, Ser. No. 636,485

Int. Cl.⁶ B60T 15/04
 U.S. Cl. 303—10 15 Claims

1. A direct power booster response system comprising:



- a power booster including an accumulator having a fluid chamber and including a longitudinal bore containing a charged chamber, the charged chamber of the longitudinal bore continuously communicating with the fluid chamber of the accumulator;
- a wheel brake actuable at a rate dependent upon fluid pressure;
- a master cylinder operatively engaging the power booster and selectively operable to generate fluid pressure to actuate the wheel brake;
- a first conduit extending from the master cylinder to the wheel brake wherein the wheel brake is actuable by the master cylinder through the first conduit;
- a first pump interconnected with the charged chamber of the longitudinal bore operable to maintain a fluid charge in the fluid chamber of the accumulator;
- a second conduit extending between the first pump and the wheel brake wherein the rate at which the wheel brake is actuated is increased in direct response to a transfer of the fluid charge through the second conduit.

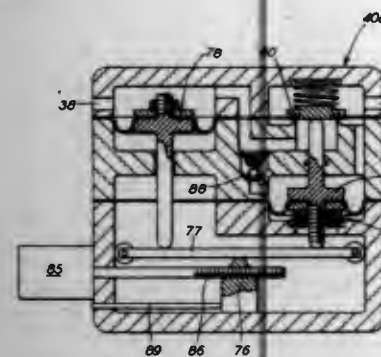
5,669,674 ELECTRO-PNEUMATIC FREIGHT BRAKE CONTROL SYSTEM

Albert A. McKay, Stoney Creek, and Eric G. Smith, Burlington, both of Canada, assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Division of Ser. No. 429,450, Apr. 27, 1995, Pat. No. 5,586,813.
This application May 29, 1996, Ser. No. 654,849
Int. Cl.⁶ B60T 8/18

U.S. Cl. 303—22.4

7 Claims



1. A railroad car brake control system comprising:
(a) a source of fluid under pressure;
(b) a brake cylinder device;

- (c) application and release control valve means interposed between said brake cylinder device and respective ones of said source of fluid under pressure and atmosphere;
- (d) electric communication means for conducting a brake command signal;
- (e) processor means for establishing and interrupting electrical communication between a source of electric power and said application and release control valve means in accordance with said brake command signal, said application and release control valve means in a deenergized condition establishing communication between said source of fluid under pressure and said brake cylinder device;
- (f) electric load sensing means for providing a car load signal corresponding to the load weight of said car; and
- (g) pressure limiting valve means interposed between said application and release control valve means and said brake cylinder device, and subject to said car load weight signal for setting a maximum pressure limit above which the fluid pressure at said brake cylinder device is cut-off from said source of fluid under pressure, and for retaining the setting of said maximum pressure limit following a loss of said car load weight signal, wherein said limiting valve means includes:
- (i) an inlet connected to said application and release valve means;
- (ii) an outlet;
- (iii) a first piston abutment subject to the fluid under pressure effective at said inlet;
- (iv) a second piston abutment subject to the fluid under pressure effective at said outlet;
- (v) supply valve means operative responsive to movement of one of said first and second piston abutments for connecting fluid under pressure from said inlet to said outlet;
- (vi) a balance beam pivotally connected between said first and second piston abutments;
- (vii) a moveable fulcrum member engaged with said balance beam; and
- (viii) electric motor means subject to said car load weight signal for adjusting the position of said fulcrum along said balance beam depending upon the load weight of said car such that said supply valve means interrupting fluid pressure communication between said inlet and said outlet when the forces on opposite sides of said fulcrum member are substantially equal, the fluid pressure effective at said outlet representing said maximum pressure limit when said car load weight signal is absent in consequence of said source of electric power being lost.

5,669,675 ELECTROMAGNETICALLY ACTUATED VALVE FOR SLIP-CONTROLLED HYDRAULIC BRAKE SYSTEMS IN MOTOR VEHICLES

Klaus Mueller, Tamm; Bernhard Heugle, Grossbottwar; Kurt Herzog, Bietigheim-Bissingen; Martin Oehler, Leingarten; Günther Hohl, Stuttgart, and Hans-Jürgen Herderich, Kernen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

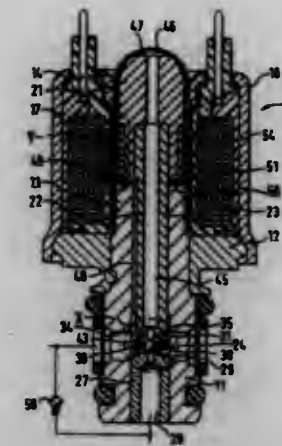
PCT No. PCT/DE94/01099, § 371 Date Mar. 25, 1996, § 102(e) Date Mar. 25, 1996, PCT Pub. No. WO95/08463, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 21, 1994, Ser. No. 617,931
Claims priority, application Germany, Sep. 23, 1993, 43 32 372.3

Int. Cl.⁶ B60T 8/36; 8/50; F16K 31/06; G05D 16/20
U.S. Cl. 303—119.2

7 Claims

1. An electromagnetically actuated valve (10), for slip-controlled hydraulic brake systems in motor vehicles, which comprises:
a magnet armature (21) is accommodated in longitudinally movable fashion in a closed valve dome (14), the valve dome (14) is surrounded by a solenoid (17), emanating from the magnet armature (21) is a valve tappet (22) with a closing member (24) arranged at an end remote from the armature, a valve body (27) with a valve seat (29) as a pressure-medium inlet is



secured in a housing (11) of the valve (10), with the solenoid (17) unexcited, a return spring (31) raises the closing member (24) from the valve seat (29) due to the action of said return spring (31), the closing member (24) and the valve seat (29) part of the valve body (27) forms a first seat valve (30) and are situated in a valve chamber (35) which is connected to a pressure-medium outlet of the valve (10), the valve chamber (35) has a valve subchamber (43) which acts as a retaining space and from there emanates a first pressure-medium passage (45) that leads to a control chamber (47) situated between a valve dome end (47) of the magnet armature (21) which is remote from the closing member and the valve dome (14), a second pressure-medium passage (48) leads from the valve chamber (35) to a balance chamber (49) which is arranged between an end (50) of the magnet armature (21) which is close to the closing member and a pole core (13) of the valve (10), a pressure generated in the valve subchamber (43) is capable of bringing about a force in the control chamber (46) that acts counter to the force of the return spring (31) on the magnet armature (21) and as a result due to the force, the seat valve (30) assumes a partially closed position which differs from its rest position, a pressure-medium-transmitting connection along the circumference of the magnet armature (21) is provided between the control chamber (46) and the balance chamber (49), the pressure-medium-transmitting connection is controlled by a second seat valve (51), in a rest position and during a first partial stroke of the magnet armature (21) following this rest position, the pressure-medium-transmitting connection is open, in the working position and during a second partial stroke of the magnet armature (21) following the working position, the pressure-medium-transmitting connection is closed by the second seat valve (51).

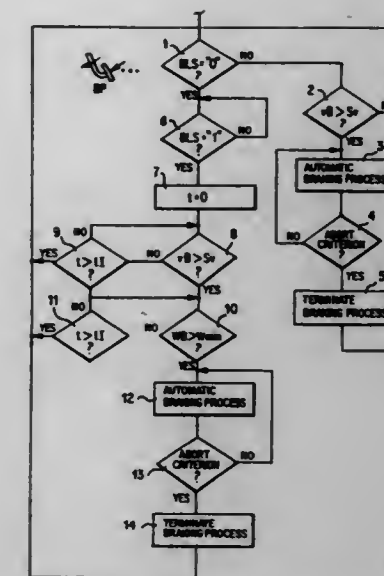
5,669,676 METHOD FOR DETERMINING THE START OF AN AUTOMATIC BRAKING PROCESS

Siegfried Rump, Weinstadt; Alexander Fuchs, Stuttgart, and Bernd Knoff, Esslingen, all of Germany, assignors to Mercedes-Benz AG, Germany
Filed Oct. 31, 1995, Ser. No. 550,733
Claims priority, application Germany, Oct. 31, 1994, 44 38 966.3

Int. Cl.⁶ B60T 13/68
U.S. Cl. 303—125

10 Claims

1. In an automatic braking system of the type wherein during automatic braking, braking pressure is applied which is greater than that which corresponds to a position of a brake pedal of said system, a method for determining the start of automatic braking comprising the steps of:
detecting the position of said brake pedal relative to an unactuated rest position thereof;
detecting an actuation of said brake pedal;



tion and an operated brake, such that an ABS control is initiated on at the most one wheel, wherein:

said analysis unit comprises means for recognizing cornering by calculating at least one of a first actual value proportional to rear axle lateral acceleration from a difference of rotational wheel speeds of rear wheels of the vehicle and a second actual value proportional to front axle lateral acceleration from a difference of the rotational wheel speeds of the front wheels.

5,669,678 **PROCESS AND APPARATUS FOR DETERMINING THE APPLICATION PRESSURES AND CHARACTERISTIC BRAKE VALUES OF A VEHICLE**

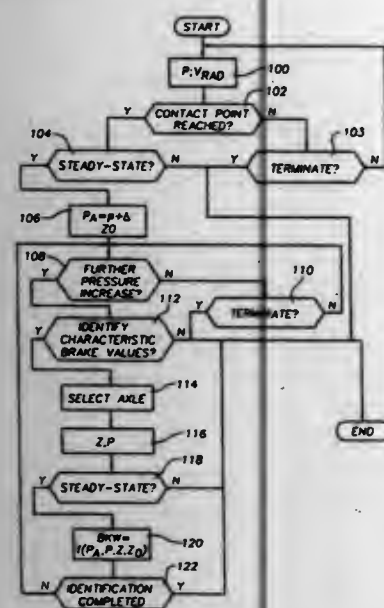
Werner Stumpe, Stuttgart; Bernhard Schwendemann, Schorndorf, and Matthias Horn, Hardheim, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Apr. 1, 1996, Ser. No. 626,049

Claims priority, application Germany, May 13, 1995, 195 17 708.8

Int. Cl.⁶ B60T 11/66
U.S. Cl. 303—155

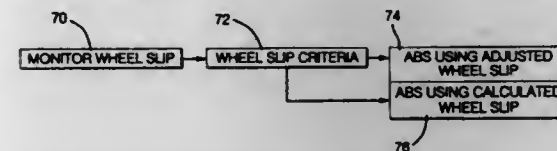
11 Claims



1. Process for electronic control of a brake system of a vehicle, said vehicle having wheels and brakes at each wheel which are responsive to a driver's input, said process comprising monitoring said driver's input, monitoring at least one operating parameter, which increases in response to said driver's input, determining the vehicle deceleration, determining when braking action at each wheel begins, determining said at least one operating parameter when braking action at each wheel begins, determining a characteristic brake value as a function of said at least one operating parameter and said vehicle deceleration, storing said characteristic brake values and said at least one operating parameter determined when said braking action at each wheel begins, and controlling the brakes based on driver's input, said stored characteristic brake values, and said at least one stored operating parameter determined when braking action at each wheel begins.

5,669,679
BRAKE SYSTEM CONTROL
Michael Wajih Hammoud, Woodhaven; Daniel Andrew Nagy, Farmington Hills, and Chris-Ann Paterson, Highland, all of Mich., assignors to General Motors Corporation, Detroit, Mich., and Delco Electronics Corp., Kokomo, Ind.
Filed Mar. 4, 1996, Ser. No. 610,036
Int. Cl.⁶ B60T 8/66
U.S. Cl. 303—165

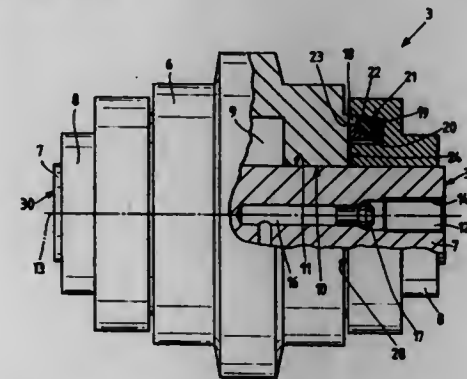
7 Claims



1. A brake system control for use in a vehicle that calculates a wheel slip for at least one wheel, wherein the brake system control comprises the steps of: monitoring the calculated wheel slip; imposing a discriminating criteria on the monitored wheel slip wherein the discriminating criteria determines whether or not the calculated wheel slip accurately reflects an actual operating condition of the wheel; implementing ABS control using an adjusted wheel slip for the wheel when the discriminating condition determines that the calculated wheel slip does not accurately reflect an actual operating condition of the wheel; and implementing ABS control utilizing the calculated wheel slip when the discriminating condition determines that the calculated wheel slip accurately reflects an actual operating condition of the wheel.

5,669,680
TRACKED RUNNING GEAR ASSEMBLY IN PARTICULAR FOR SMALL EXCAVATORS
Giovanni Bertoni, Ferrara, Italy, assignor to Berco S.p.A., Copparo, Italy
Filed Apr. 3, 1995, Ser. No. 415,629
Claims priority, application Italy, Apr. 15, 1994, MI9400279 U
Int. Cl.⁶ B62D 55/15
U.S. Cl. 305—119

16 Claims

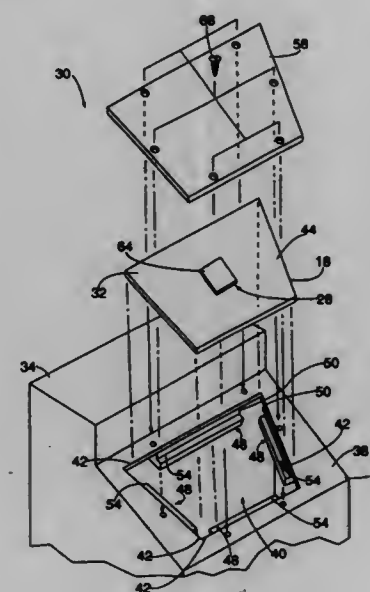


1. A tracked running gear assembly (1) for small excavators, comprising a frame (15) supporting: a drive wheel (2), a track tensioning wheel (3), and a plurality of load-bearing wheels (4), all of said wheels engaging along a part of their perimeter an endless crawler track (5) having an upper branch and a ground-contacting lower branch, wherein said load-bearing wheels (4) and said track tensioning wheel (3) each comprise an idle roller (6) maintained on a shaft (7) by two locking elements (8) mounted as an interference fit on the ends of said shaft (7); said idle roller (6) comprising a lubricant chamber (9) and being constructed of ferritic-pearlitic spheroidal graphite cast iron subjected to austempering heat treatment.

ment; said shaft (7) having an internally threaded (14) axial hole (12) at both ends for fixing the wheel (2, 3) on both sides to said frame (15) of said track running gear assembly (1), wherein at least one of said axial holes (12) extends to form a duct (16), said duct communicating with the interior of said lubricant chamber (9) when said roller (6) is mounted on said shaft (7) and is provided internally with a plug (17), said shaft (7) being constructed of a constructional carbon steel lightly alloyed with chromium and/or boron; each of said locking elements (8) comprising a seat (18) for a seal means (19), said seal means (19) positioned between the locking element (8) and the roller (6), said locking elements (8) being constructed of spheroidal graphite cast iron of prevalently ferritic matrix; said drive wheel (2) comprising a sprocket ring (26) removably fixable to the outside of an inner hub (27) and constructed of spheroidal ferritic-pearlitic cast iron subjected to austempering heat treatment.

5,669,681
MIRROR SECURING DEVICE
Takayasu Ishikawa; Toshihiro Kikuchi; Takashi Kawabe; John R. Whiteford, and James R. White, all of Pittsburgh, Pa., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.
Filed Aug. 22, 1996, Ser. No. 701,516
Int. Cl.⁶ A47B 81/06
U.S. Cl. 312—7.2

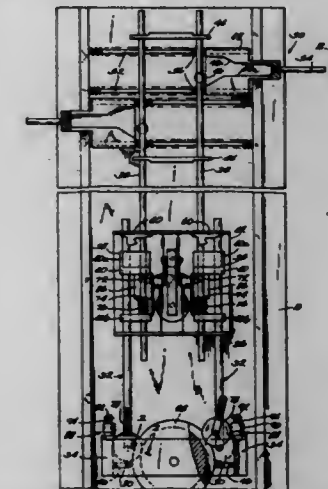
21 Claims



1. A device for securing a mirror having a reflection surface and a back surface in a projection television, comprising: a cabinet having an aperture defined by edges; a shoulder element adjacent each of said edges, each said shoulder element extending underneath said aperture and positioned for supporting peripheral edges of said reflection surface; a mirror cover plate affixed on said cabinet and adjacent said back surface; and a securing element affixed between said back surface and said mirror cover plate for reducing deformation of said mirror.

5,669,682
MECHANICAL AUTOMATIC AISLE LOCK
Steven L. Janson, Deerfield, Wis., assignor to Spacesaver Corporation, Fort Atkinson, Wis.
Continuation of Ser. No. 375,935, Jan. 20, 1995, abandoned.
This application Nov. 26, 1996, Ser. No. 756,055
Int. Cl.⁶ A47B 53/02
U.S. Cl. 312—201

16 Claims

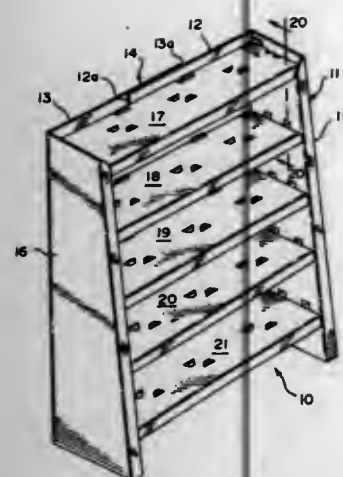


1. In combination with a mobile storage system having at least one storage unit for storing material which is movable along a path, at least one blocking object on said path, and path wheels supporting the storage unit for movement along the path both toward and away from said blocking object: a clutch wheel rotatably mounted to the movable storage unit and operatively connected to at least one of said path wheels for rotating with said at least one path wheel, so that rotation of the drive wheel in a first direction is associated with movement of the movable storage unit away from said blocking object, while rotation of the drive wheel in a second rotation direction is associated with movement of the movable storage unit toward said blocking object, said clutch wheel having a rotational axis and having a periphery located in a plane which is normal to said axis; resilient binding means located in said plane, said binding means including a binding block spaced apart from the periphery of the clutch wheel and a resilient binding member shiftable between a binding state, permitting rotation of said clutch wheel in said first direction, only, wherein the binding member is in contact with both the periphery of said clutch wheel and said binding block whereby rotation of said clutch wheel in said first direction is permitted, thereby allowing movement of the movable storage unit away from the blocking object but preventing movement toward the blocking object, and a non-binding state, permitting rotation of said clutch wheel, and movement of said movable storage unit, in either direction; and shifting means for shifting said binding means from said non-binding state to said binding state.

5,669,683
DISPLAY SHELF ASSEMBLY
William F. Moss, Canonsburg, and Tricia Knezevich, McMurray, both of Pa., assignors to Union Camp Corporation, Princeton, N.J.
Continuation-in-part of Ser. No. 128,648, Sep. 30, 1993, Pat. No. 5,458,411. This application Aug. 17, 1995, Ser. No. 516,406
Int. Cl.⁶ A47B 43/02
U.S. Cl. 312—259

20 Claims

1. A display shelf assembly, comprising: a support housing having a generally upright back panel means with opposite side edges, a side panel extending forwardly from each of the opposite side edges of the back panel means

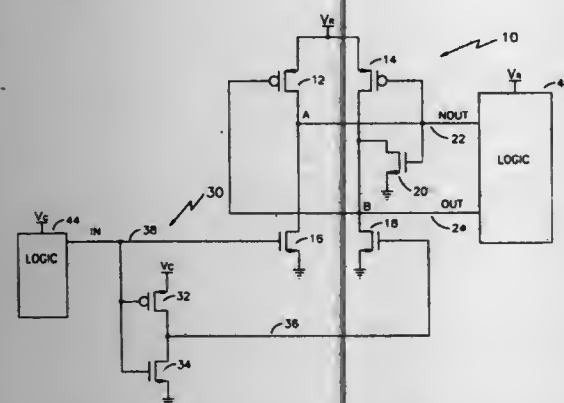


and terminating in a forward free edge, each said side panel comprising spaced apart inner and outer parallel walls, said inner wall having at least one elongate rectangular opening or slot formed therein, extending in a front-to-rear direction; and at least one shelf unit extending between the side panels and having its opposite ends extended through an associated slot in each of the side panel inner walls to hold the shelf in generally horizontal, supported position between the side panels.

5,669,684
LOGIC LEVEL SHIFTER WITH POWER ON CONTROL
Tom A. Agan, 7064 Carey Ln., Maple Grove, Minn. 55369
Filed Dec. 7, 1995, Ser. No. 570,170
Int. Cl.⁶ H03K 19/0185

U.S. Cl. 326—81

11 Claims



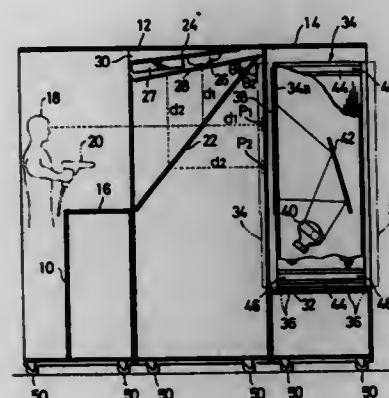
1. A logic level shifter for coupling a first logic circuit having a first voltage level power supply to a second logic circuit, said shifter and said second logic circuit having a second voltage level supply, with said second voltage level supply being present at a time when said first level voltage supply is not present, comprising:

first input means for accepting a first logic signal from said first logic circuit wherein said first logic signal can vary from a reference voltage to said first voltage;
second input means for accepting a complement of said first logic signal;
first output means for providing a first output which can vary from said reference voltage to said second voltage; and
means for maintaining said first output at said reference voltage or at said second voltage during a first time period when said second voltage level power supply is present and said first voltage level power supply is not present.

5,669,685
GAME MACHINE CAPABLE OF CREATING THREE-DIMENSIONAL VISUAL EFFECTS
Hideki Kotani, and Kuniaki Kakuwa, both of Kobe, Japan, assignors to Konami Co., Ltd., Hyogo-ken, Japan
Filed Feb. 16, 1996, Ser. No. 602,646
Claims priority, application Japan, Feb. 17, 1995, 7-029743
Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—28

12 Claims

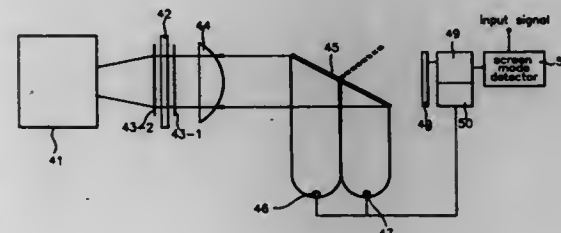


1. A game machine comprising:
a diorama object; and
an image generator arranged behind the diorama object in such a way that an image formed by the image generator is superimposed on an image of the diorama object in a specified depth relation, and the image of the diorama object and the image formed by the image generator are movable in depth directions relative to each other.

5,669,686
IMAGE PROJECTOR
Seong Hak Moon, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea
Filed Jun. 2, 1995, Ser. No. 458,680
Claims priority, application Rep. of Korea, Jun. 10, 1994, 13119/1994
Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—98

18 Claims

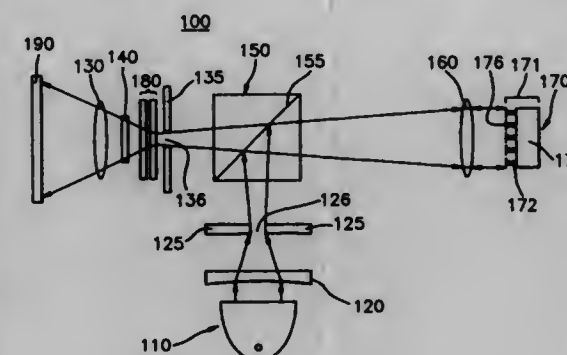


1. An image projector comprising:
a plurality of light sources for projecting light;
a reflecting mirror portion for reflecting the light projected from said plurality of light sources onto a predetermined direction;
a reflecting mirror controller for controlling the position of said reflecting mirror portion according to screen vertical-to-horizontal ratios; and
a microcomputer for controlling said reflecting mirror portion and plurality of light sources according to screen vertical-to-horizontal ratios.

5,669,687
OPTICAL PROJECTION SYSTEM
Jin-Se Yang, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea
Continuation of Ser. No. 546,206, Oct. 20, 1995, Pat. No. 5,541,679. This application Jun. 20, 1996, Ser. No. 667,175
Claims priority, application Rep. of Korea, Oct. 31, 1994, 94-28335
Int. Cl.⁶ G03B 21/28

U.S. Cl. 353—98

10 Claims



9. An optical projection system capable of displaying an image having pixels on a projection screen comprising:
means for emanating a white light, wherein the white light has a first, a second and a third primary light beams, each of the primary light beams being of one of the primary colors;
a source stopper, provided with a source aperture, for shaping the white light from said means emanating into a predetermined configuration;
an array of actuated mirrors type optical path changing means, each of the actuated mirrors in the array being capable of reflecting the white light and changing an optical path of the reflected white light therefrom;
a field lens for collimating the white light from said source stopper and for focusing the reflected white light from each of the actuated mirrors in the array;
a projection stopper, provided with a projection aperture, for passing a fraction of the reflected white light from each of the actuated mirrors in the array through the projection aperture thereof, to thereby modulate the intensity of the reflected white light;
a RGB pixel filter for dividing the white light passing through the projection stopper into the primary light beams; and
a projection lens for projecting the primary light beams from the RGB pixel filter on the projection screen, wherein said source and projection stoppers are placed at the focal point of said field lens.

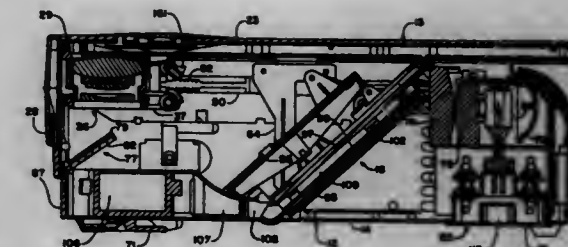
5,669,688
DISPLAY PANEL PROJECTOR AND METHOD OF USING SAME

Kenneth W. Baar, Escondido; Sidney Sitachitt, San Diego; Barry K. Spicer, Ramona; Graham H. Brewis, Oceanside; Arthur P. Minich, San Diego; Paul R. Corsaro, Escondido, and Paula M. Berg, San Diego, all of Calif., assignors to Proxima Corporation, San Diego, Calif.
Filed Jun. 7, 1996, Ser. No. 655,208
Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—119

22 Claims

6. A display panel projector, comprising:
a housing having a pair of housing portions mounted relative to each other;
a mechanism mounted within the housing to enable one housing portion to be moved relative to the other housing portion to cause the overall dimensions to be increased effectively when the housing portions are moved relative to one another into their use position;

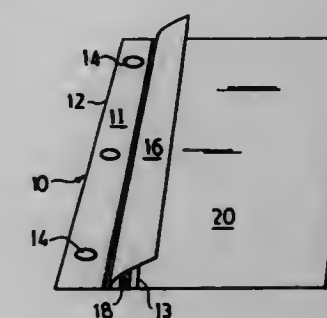


a display panel assembly mounted within the housing for creating a displayable image, wherein said display panel assembly is responsive to the relative movement of said housing portions to move between a use position and a storage position; illumination means mounted within the housing for illuminating the display panel assembly; and
a projection lens arrangement is mounted at one end of said housing for facilitating the projection of the image created by the display panel assembly, said illumination means and said projection lens arrangement being aligned along an optical path extending within the increased overall dimensions of said housing to provide a desirable projected image.

5,669,689
HOLDER FOR TRANSPARENCIES
William Joseph Zelfang, Rochester, N.Y., assignor to Labelon Corporation, Canandaigua, N.Y.
Filed Oct. 3, 1996, Ser. No. 720,776
Int. Cl.⁶ G03B 21/11

U.S. Cl. 353—120

8 Claims



1. A ring binder transparency holder which comprises an elongated, substantially rectangular, ring-engagable strip of sheet material having two longitudinal edges and a line of ring-engagable openings parallel and adjacent to one of said edges, along the other longitudinal edge an elongated area of said strip that is adapted to receive an edge of a plastic transparency sheet and means for attaching said sheet to said strip, an elongated opaque flap hingedly attached to said strip along a line that extends substantially the entire length of the strip, the line being positioned between and parallel to said line of ring-engagable openings and said elongated area, said flap being hingedly moveable between a closed position covering said elongated area and an open position covering said ring engagable openings and the adjacent edge of the strip.

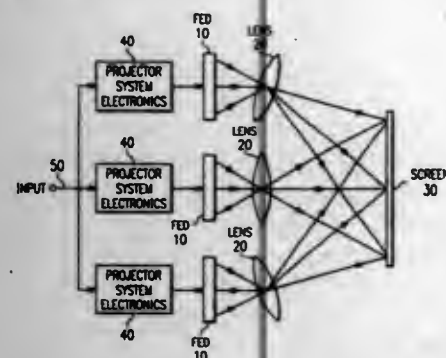
5,669,690 MULTIMEDIA FIELD EMISSION DEVICE PROJECTION SYSTEM

Lester L. Hodson, McKinney, and Charles E. Primm, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation-in-part of Ser. No. 324,832, Oct. 18, 1994, abandoned. This application Oct. 3, 1995, Ser. No. 538,328 Int. Cl.⁶ G03B 21/00

U.S. Cl. 353-122

26 Claims



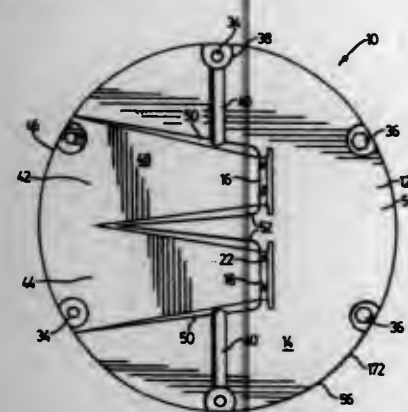
21. A method of projecting a field emission device image onto a surface comprising the steps of:
applying a voltage of less than 5,000 volts to a first, second, and third field emission device;
displaying on said first field emission device a red image, displaying on said second field emission device a green image, and displaying on said third field emission device a blue image; and
projecting said images onto said surface.

5,669,691 AIRPORT RUNWAY OR TAXIWAY LIGHT FIXTURE

Fred Robert Barrow, Oakville, Canada, assignor to Tristar Electric Inc., Ontario, Canada
Filed Feb. 21, 1995, Ser. No. 391,219
Claims priority, application Canada, Jan. 27, 1995, 2141250 Int. Cl.⁶ F21V 13/04

U.S. Cl. 362-153.1

15 Claims



1. An in-pavement light fixture for mounting in pavement of an airport runway or taxiway comprising:
a cover with a generally flat top surface and a bottom, said cover having at least one window for passage of an output light beam and a cavity formed therein, which cavity is open at said bottom of the cover;
an optical prism detachably mounted to said cover adjacent said window, said prism having three flat sides forming an equilateral triangle with two of said three sides sloping upwardly to a top edge which is positioned at a top of said window, said prism fitting in said cavity;

a sealing member fitting over said prism and covering one of said two sides which slope upwardly, said sealing member also extending about a lower portion of said prism and forming a watertight seal between said cover and said prism;
electric light means capable of beaming light into said prism, said light means being mounted in said fixture and below said cover;
detachable means for holding said prism in said cavity, said detachable means being attached to said cover, and
a bottom receptacle on which said cover is supported.

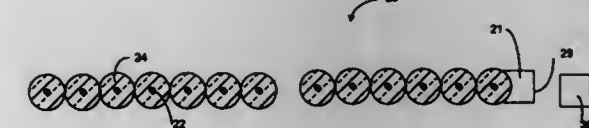
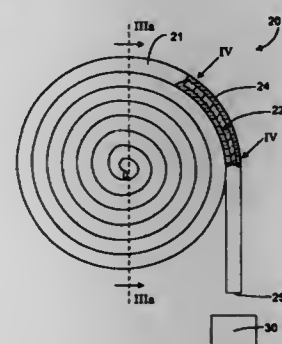
5,669,692 FIBER OPTIC LIGHTING SYSTEM

Harold Thorgersen; Jose Santana; Andrew C. Ledesma, all of Woodbury; Surendar K. Bhan, Watertown, and Lyman Daigle, Bethlehem, all of Conn., assignors to Timex Corporation, Middlebury, Conn.

Filed Nov. 17, 1995, Ser. No. 560,065 Int. Cl.⁶ G01D 11/28

U.S. Cl. 362-26

8 Claims



1. A lighting system, which comprises:
an optical fiber comprising a core and cladding, where a refractive index of the core is higher than a refractive index of the cladding;
the optical fiber being wound in a spiral shape comprising a plurality of turns, where the spiral shape optical fiber has an outer end;
a light source;
means for focusing the light from the light source to the core at the outer end of the spiral shape optical fiber; and
a casing enclosing the spiral shape optical fiber along a periphery and a bottom, except for an aperture to permit the core at the outer end of the spiral shape optical fiber to receive light from the light source, the casing having a reflective inner surface.

5,669,693 HOLOGRAPHIC THIN TAILLAMP

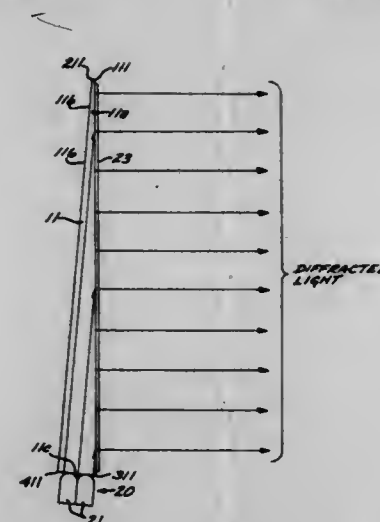
Ronald T. Smith, Torrance, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Apr. 17, 1996, Ser. No. 633,612 Int. Cl.⁶ F21V 7/04

U.S. Cl. 362-31

9 Claims

1. A holographic rear exterior lamp for a vehicle, comprising:
a light pipe having a first planar surface and a second planar surface that are opposite each other, and a planar entrance surface between adjacent edges of said first planar surface and said second planar surface;



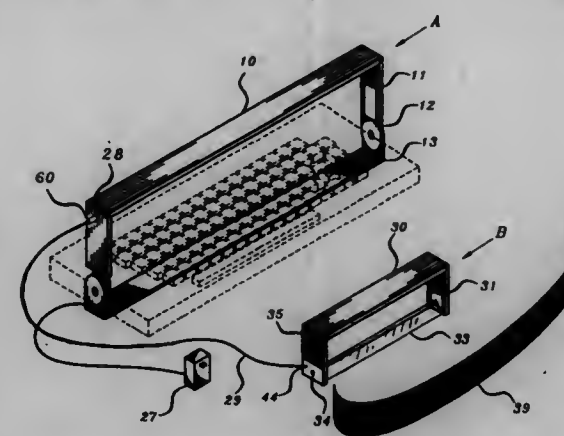
a rear exterior lamp hologram attached to said first planar surface of said light pipe; and
means for illuminating said entrance surface with incident illumination such that transmitted illumination illuminates said rear exterior lamp hologram without reflection at said second planar surface;
whereby said rear exterior lamp hologram diffracts a portion of said transmitted light travelling within said light pipe to provide rear exterior lamp illumination.

5,669,694 SELF ACTIVATED KEYBOARD ILLUMINATOR AND ACCESSORY

Ronald N. Morton, Sr., 12740 Jimeno Ave., Granada Hills, Calif. 91344
Filed Apr. 11, 1994, Ser. No. 226,021 Int. Cl.⁶ F21V 13/00

U.S. Cl. 362-33

3 Claims



1. A lighting system for a computer keyboard with an accessory light comprising a lamp housing having an elongated light source which directs illumination downwardly onto a generally horizontal computer keyboard, said lamp housing being supported at both ends by arms which space the lamp housing above the computer keyboard, said arms being pivotally supported by a base upon which the computer keyboard is situated, the pivotal support between the arms and the base further having a position responsive electrical switch which activates the elongated light source when the lamp housing is pivoted into an operable position over the computer keyboard, the position responsive electrical switch is connected to an electrical power supply via an electrical transformer, said lamp housing further having a light diffusing means which directs light only on said computer keyboard while avoiding illumination on a computer monitor.

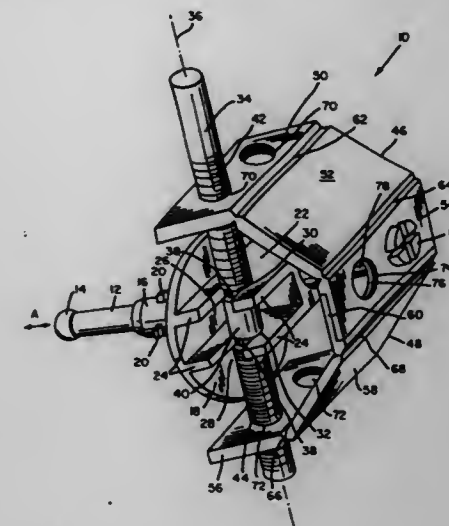
5,669,695 HEADLAMP ADJUSTMENT MECHANISM

Eric G. Parker, Elgin, Ill.; Albert Willem van Boven, Iserlohn, Germany, and Samuel P. Amdahl, Fenton, Mich., assignors to Illinois Tool Works Inc., Glenview, Ill.

Filed Sep. 23, 1994, Ser. No. 311,479 Int. Cl.⁶ B60Q 1/04

U.S. Cl. 362-66

38 Claims



1. A vehicular headlamp adjustment mechanism, comprising:
a ball rod having a ball element disposed upon a first end portion thereof for connection to a vehicular headlamp housing;
means to be mounted upon a portion of a vehicular frame for slidably supporting said ball rod, and said ball element thereof, such that said ball rod, and said ball element thereof, can be slidably moved in two oppositely disposed directions whereby said ball rod, and said ball element thereof, can be extended out from and retracted into said supporting means; rotary drive means capable of being rotated in two opposite directions; and
expandable/contractible means interconnecting said rotary drive means and said ball rod such that upon rotation of said rotary drive means in a first one of said two opposite directions, said expandable/contractible means will have portions thereof expand and move away from each other such that said ball rod, and said ball element thereof, will be slidably moved in a first one of said two oppositely disposed directions so as to be extended outwardly from said supporting means, whereas upon rotation of said rotary drive means in a second one of said two opposite directions, said expandable/contractible means will have said portions thereof contract and move toward each other such that said ball rod, and said ball element thereof, will be slidably moved in a second one of said two oppositely disposed directions so as to be retracted into said supporting means, and said vehicular headlamp housing may be positionally adjusted.

5,669,696 UNDERHOOD LAMP ASSEMBLY WITH GRAVITY-ACTUATED SWITCH

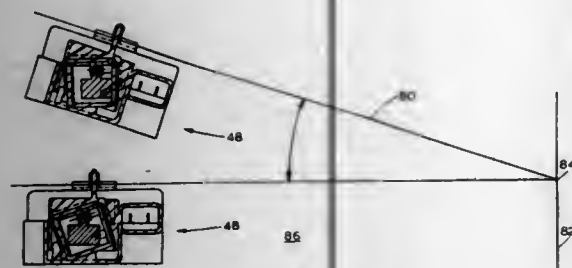
William M. Brown, Brighton, and Kenneth A. Eklov, Farmington Hills, both of Mich., assignors to Micro Craft, Inc., Novi, Mich.

Division of Ser. No. 396,965, Mar. 1, 1995, abandoned, which is a division of Ser. No. 262,963, Jun. 21, 1994, Pat. No. 5,477,428. This application Apr. 29, 1996, Ser. No. 639,559 Int. Cl.⁶ F21V 33/00; B60Q 3/06

U.S. Cl. 362-80

19 Claims

1. A lamp assembly adapted to be mounted to the underside of a hinged cover member of a vehicle to illuminate a compartment of



the vehicle when the hinged member is opened to a predetermined extent, said lamp assembly comprising:

a housing member capable of being moved between a pair of predetermined positions each angularly displaced from the other;

means for connecting said housing member to said cover member;

a pendulum;

means mounting said pendulum on said housing member for pivotal movement of said pendulum, relative to said housing member, between a first pendulum position and a second pendulum position angularly displaced from said first pendulum position;

said pendulum and said mounting means for the pendulum comprising means cooperating (a) to maintain said pendulum in its first position when said housing member is in one of said pair of predetermined positions and (b) to allow the pendulum to move, under an urging of gravity, from the pendulum's first position to its second position in response to movement of said housing member from its one predetermined position to another of said pair of predetermined positions for the housing member, angularly displaced from said one position of the housing member;

a first electrical contact; and

a second electrical contact comprising means for engaging said pendulum when the pendulum is in its second position;

said second electrical contact being spaced from and disengaged from said pendulum when the pendulum is in its first position;

a lamp electrically connected to one of said electrical contacts; and

the other one of said electrical contacts comprising means electrically connectable to a source of electrical energy for said lamp, to illuminate said lamp when said pendulum is in said second position.

5,669,697

TRUCK SUN VISOR

Gerald J. Angelo, Redmond; Alex G. Bernasconi, Kent, and Daniel P. Dunne, Seattle, all of Wash., assignors to PACCAR Inc., Bellevue, Wash.

Filed May 1, 1996, Ser. No. 641,471

Int. Cl.⁶ B60Q 1/02

U.S. Cl. 362—80

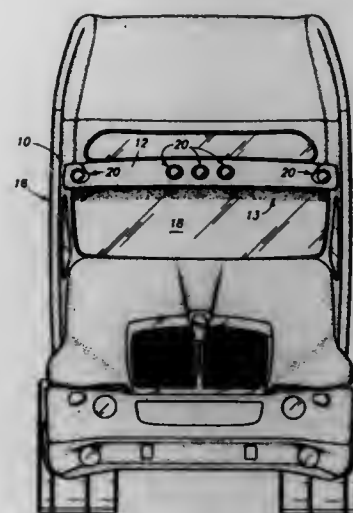
41 Claims

1. A sun visor for mounting upon a vehicle comprising:

a visor body configured for mounting on a vehicle adjacent the vehicle's front windshield; said visor body casting a shaded area upon the windshield;

at least one light aperture in the visor body;

at least one mounting extension attached to said visor body and projecting rearwardly therefrom, said at least one mounting extension being configured for attachment to a corresponding clearance light fixture on the vehicle and thereby forming an operative connection between said visor body and the vehicle;



said at least one mounting extension forming at least a portion of an enclosure from which light is conveyed to said at least one light aperture.

5,669,698

MODULAR REARVIEW MIRROR ASSEMBLY AND METHOD FOR MAKING SAME

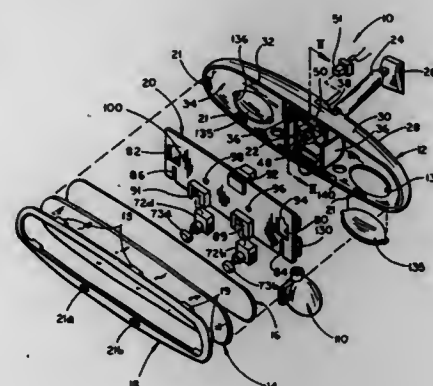
Roger L. Veldman, 608 W. 29th St., Holland, Mich. 49423, and Brent J. Bos, 458 W. Main Ave., Zeeland, Mich. 49464

Filed May 24, 1995, Ser. No. 448,883

Int. Cl.⁶ B60Q 3/02

U.S. Cl. 362—83.1

71 Claims



53. A rearview mirror assembly for vehicles comprising:

a case having a reflective mirror element;

a support on said assembly for mounting said assembly on a vehicle;

a modular carrier member formed separately from and mounted on said case, said carrier member including an electrically conductive circuit member and a support body, said circuit member being formed separately from and secured to said support body, said carrier member providing an integral support, electrical connections for, and an electrical distribution network to at least one electrical component on said assembly; and

an electrical component mounted on said carrier member, said component being connected to said circuit member for operation on said mirror assembly;

said circuit member being a metal stamping; said support body being molded therearound.

5,669,699

EXTERIOR VEHICLE SECURITY LIGHT

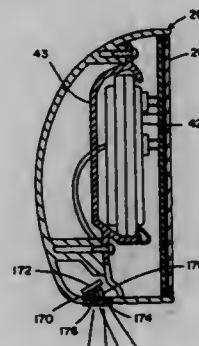
Todd W. Pastrick, Grand Haven, and Roger L. Veldman, Holland, both of Mich., assignors to Donnelly Corporation, Holland, Mich.

Continuation-in-part of Ser. No. 426,591, Apr. 21, 1995, Pat. No. 5,497,306, which is a continuation-in-part of Ser. No. 333,412, Nov. 2, 1994, Pat. No. 5,497,305, which is a continuation of Ser. No. 11,947, Dec. 16, 1992, Pat. No. 5,371,659. This application Jan. 8, 1996, Ser. No. 585,393

Int. Cl.⁶ B60Q 1/26

U.S. Cl. 362—83.1

92 Claims



43. A mirror assembly security system for a vehicle, comprising: a first exterior mirror assembly including a first reflective element and a first opaque housing for said first reflective element, said first housing being fixedly mounted relative to said vehicle and defined in part by a first lower wall portion and means for movably mounting said reflective element relative to said housing to face in a direction rearwardly of said vehicle; and

a first security light comprising a first plurality of at least four light-emitting diodes projecting a first pattern of light downwardly and rearwardly from said first lower wall portion on at least a first area adjacent a first portion of the vehicle in order to create a first lighted security zone in said first area illuminated to a light intensity of at least approximately five lux.

5,669,700

LIGHT INTENSITY EQUALIZING ELEMENT FOR LIGHTED DISPLAY PANEL

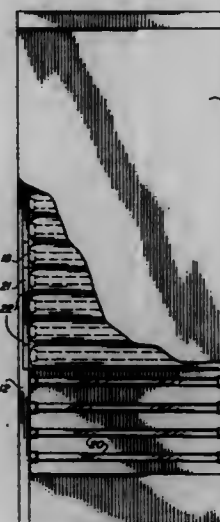
Christopher M. Wendel, Westfield, N.J., assignor to Exhibit-Group/Giltspur, Inc., Roselle, Ill.

Filed Feb. 16, 1996, Ser. No. 602,699

Int. Cl.⁶ F21S 3/00

U.S. Cl. 362—223

13 Claims



1. A diffusing panel for placement in a lighted display to provide a substantially uniform distribution of light from multiple spaced light sources positioned between opposing members of a frame, said panel comprising:

a) first and second flanges for affixation to opposing members of the frame;

b) a light diffuser overlying a plurality of said light sources and extending between said first and second flanges, said diffuser including a plurality of adjacently positioned elongated sections having first and second adjacently positioned ends and a longitudinal axis extending therebetween, each elongated section having an arcuate cross-section and a raised central region extending between the first and second positioned ends in alignment with the longitudinal axis, said diffuser having a continuously curved surface formed by the adjacently positioned elongated sections, and

c) first and second connectors securing the first and second positioned ends of the elongated sections to the first and second flanges respectively, each of said connectors angularly extending between the elongated sections and the flanges respectively so that said flanges are in substantial alignment with the raised central region of the elongated sections.

5,669,701

LAMP HOLDER STRUCTURE

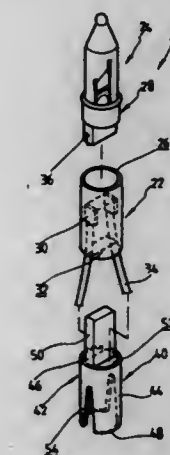
Fong-Shi Lin, 2F, No. 7, Alley 5, Lane 212, Chung-Cheng Road, Shih-Lin, Taipei City, Taiwan

Filed Jul. 24, 1996, Ser. No. 685,679

Int. Cl.⁶ H01R 33/00

U.S. Cl. 362—226

3 Claims



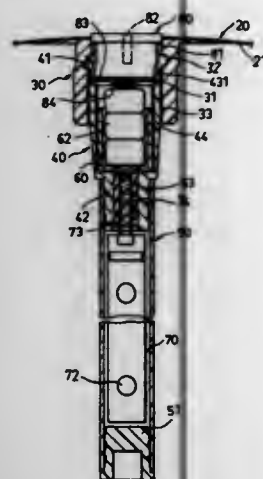
1. A lamp holder structure comprising a hollow holder body having a top opening to receive therein a base of a bulb, two contact terminals being provided inside the holder body in a spaced manner corresponding and connecting and connecting to filament extensions of the base of the bulb for establishing electrical connection therewith, electrical wires being inserted into the holder body through a bottom opening of the holder body and physically connecting, to the contact terminals of the holder body, the improvements comprising an elongated tubular member made of an insulating material, having a side wall with an open top side and an open lower side, a partition plate being fixed to the open top side to define two openings adjacent the partition plate, the partition plate being inserted into the holder body through the bottom opening of the holder body and holding the holder body thereon and at least partially separate the wires from each other with the wires inserted into the bottom opening of the holder body through the open lower side of the tubular member and respectively extending through the openings on the top open side of the tubular member.

5,669,702

INFLATABLE ARTICLE WITH AN ILLUMINATING DEVICE

Wen-Ching Wang, No. 15, Fu-Chia Lane, Chen-Nan Rd.,
Sa-Lu Chen, Taichung Hsien, Taiwan
Continuation-in-part of Ser. No. 640,577, Jun. 11, 1996, Pat.
No. 5,609,411. This application Oct. 16, 1996, Ser. No. 732,172
Int. Cl.⁶ F21V 33/00
U.S. Cl. 362—234

6 Claims



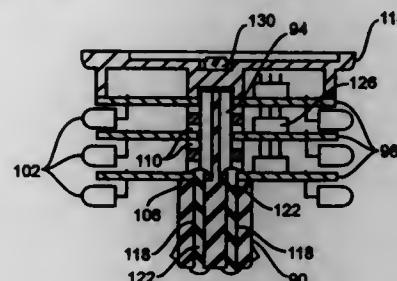
1. An inflatable article comprising:
a gas-tight hollow body having a rounded wall which encloses a first space;
an illuminating device mounted inside said hollow body and occupying a portion of said first space, said illuminating device including containing means which has a base bonded sealingly and integrally to said rounded wall and which confines a second space hermetically sealed from a remaining portion of said first space, said base having at least a part exposed from said rounded wall and an opening formed in said part for access to said second space, said containing means further including a primary mounting seat which is formed integrally with said base and which has an inner wall that defines a cavity therethrough in communication with said opening and an annular groove formed in said inner wall, said containing means further including a tubular secondary mounting seat disposed in said cavity and having an annular outward flange press-fitted into said annular groove of said primary mounting seat so as to form a first gas-tight seal between said primary and secondary mounting seats, wherein said illuminating device further has electric circuit means which is received in said second space and which includes: a light emitting element disposed interiorly of said opening and formed with a first electric terminal and a second electric terminal; a power source disposed between said opening and said light emitting element and having a negative electrode proximate to said opening and a positive electrode in electrical contact with said first electric terminal of said light emitting element; and a conductive member extending axially and outwardly of said power source and having a lower end connected to said second electric terminal of said light emitting element and an upper end disposed to be more proximate to said opening than said negative electrode;
a conductive cap closing said opening and movable axially relative to said primary mounting seat between a conducting position and a non-conducting position; and
a conductive biasing member disposed between said cap and said negative electrode such that, when said conductive cap is in said conducting position, said cap engages said upper end of said conductive member against biasing action of said biasing member, and when said cap is in said non-conducting position, said cap is spaced apart from said upper end of said conductive member so as to deactivate said light emitting element.

5,669,703

PUSH-IN BULB BASE FOR BAYONET-TYPE BULB SOCKETS

Kelth D. Wheeler, Raleigh, N.C., and Robert Sehmer, Grafton, Wis., assignors to Square D Company, Palatine, Ill.
Filed Dec. 28, 1995, Ser. No. 579,710
Int. Cl.⁶ H01R 33/00
U.S. Cl. 362—249

48 Claims



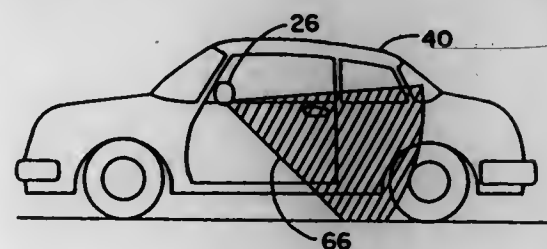
1. A push-in bulb base for being received and retained in a commercially available bayonet-type bulb socket having at least one L-shaped retaining groove or slot, said bulb base comprising:
a body being generally cylindrical in shape and dimensioned to be slidably received within the bulb socket;
at least one electrical terminal, said electrical terminal extending through said body generally along its longitudinal axis such that an electrical connection can be made with an electrical terminal of the bulb socket;
means for selectively retaining said bulb base in the bulb socket, said retaining means being normally biased to a first position wherein said retaining means engages a horizontal leg of the L-shaped groove or slot of the bulb socket and movable to a second position in response to pushing said bulb base into the bulb socket or pulling said bulb base from the bulb socket, and;
means for aligning said bulb base in the bulb socket such that said retaining means is properly aligned with the horizontal leg of the L-shaped groove or slot.

5,669,704

EXTERIOR VEHICLE SECURITY LIGHT

Todd W. Pastrick, Spring Lake, Mich., assignor to Donnelly Corporation, Holland, Mich.
Continuation of Ser. No. 426,591, Apr. 21, 1995, Pat. No. 5,497,306, which is a continuation-in-part of Ser. No. 333,412, Nov. 2, 1994, Pat. No. 5,497,305, which is a continuation of Ser. No. 11,947, Feb. 1, 1993, Pat. No. 5,371,659. This application Feb. 26, 1996, Ser. No. 607,284
Int. Cl.⁶ B60Q 1/26
U.S. Cl. 362—83.1

20 Claims



1. A mirror assembly passive security system for a vehicle comprising:
a first exterior mirror assembly including a first reflective element and a first housing for said first reflective element;
a first security light projecting light from said first housing on at least a first area adjacent a first portion of the vehicle in order to create a first lighted security zone in said first area; and
an actuator for said first security light;

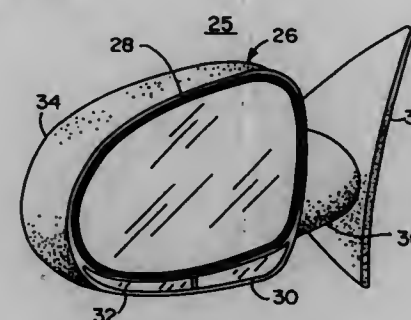
wherein said actuator is responsive to a proximity detection system and actuates said first security light when the vehicle is approached wherein said proximity detection system automatically senses proximity and approach to the vehicle by automatic detection of a transducer carried by a vehicle operator without the necessity of the operator operating a button associated with the transducer.

5,669,705

EXTERIOR VEHICLE MIRROR SYSTEM INCLUDING SIGNAL LIGHT

Todd W. Pastrick, Grand Haven; Linda K. Molenkamp, Fruitport, and Roger L. Kooops, Holland, all of Mich., assignors to Donnelly Corporation, Holland, Mich.
Continuation of Ser. No. 333,412, Nov. 2, 1994, Pat. No. 5,497,305, which is a continuation of Ser. No. 11,947, Feb. 1, 1993, Pat. No. 5,371,659. This application Feb. 26, 1996, Ser. No. 607,285
Int. Cl.⁶ B60Q 1/26
U.S. Cl. 362—83.1

21 Claims

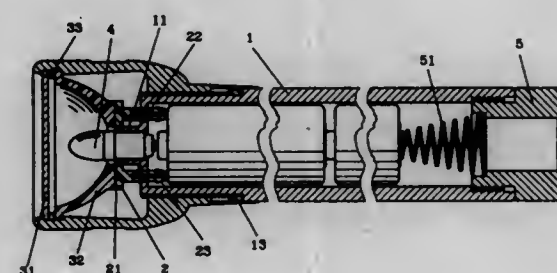


1. An exterior mirror system for a vehicle comprising:
an exterior mirror including a reflective element and an opaque housing for said reflective element; and
a signal light having a lens and incorporated in an opening formed by said housing, said lens facing rearwardly of said vehicle and adapted to project a pattern of light from said housing rearwardly of the vehicle wherein said pattern of light is restricted from extending forward of the vehicle and extends laterally away from the side of the vehicle so that a driver seated in the vehicle may see said lens but does not directly intercept said pattern of light, said signal light connected with at least one of a stoplight circuit and a turn signal circuit of the vehicle in order to actuate said signal light when at least one of the stoplight circuit and turn signal circuit is being actuated.

5,669,706

TURN-ON-AND-OFF DEVICE FOR A FLASHLIGHT
Chin-Hsiang Chen, No. 32 Lane 398, Fu Chiang Rd. Sec 2,
Yung Kang Hsiang, Tainan Hsiang, Taiwan
Filed Mar. 26, 1996, Ser. No. 622,712
Int. Cl.⁶ F21L 1/00
U.S. Cl. 362—203

2 Claims



1. A turn-on and turn-off device for a flashlight, which has a casing, a gasket fixed at a front end of said casing, a lamp housing screwed with a front end section of said casing and a tail cap screwed with a rear end of said casing, comprising:
an actuating disc having a center hole for a lamp to pass through and three posts extending laterally rearward and spaced apart equidistantly, each said post having a larger diameter annular projection near an end;
said casing having a lamp holder fixed on a front end surface, three position holes in said front end spaced apart equidistantly between said lamp holder and a front peripheral edge of said casing; and
characterized by said actuating disc being located in front of said casing, with said three posts of said actuating disc extending through said three position holes in an interior of said casing and secured in that position by means of said larger diameter annular projections, said actuating disc with said three posts being able to be moved forward and rearward by said lamp housing when said lamp housing is screwed to move forward and rearward, said three posts being in a forward position to permit, a positive pole of a foremost battery contact with a bottom of said lamp, which is then lit up, said three posts being in a rearward position to push said foremost battery rearward and to force said positive pole of said foremost battery separated from said bottom of said lamp, which is then turned off.

5,669,707

CHRISTMAS LAMP SOCKET

Shun-Feng Huang, No. 13, Lane 84, Nei Hu Road, Hsin-Chu City, Taiwan
Filed May 28, 1996, Ser. No. 655,150
Int. Cl.⁶ F21V 21/00
U.S. Cl. 362—249

1 Claim



1. A lamp socket structure comprising:
a first set of lamp sockets electrically connected each to the other by a first set of electrical cords; and
a second set of lamp sockets electrically connected each to the other by a second set of electrical cords, said second set of lamp sockets being coupled to said first set of lamp sockets, each of said lamp sockets of said first and second sets having a hooked projection member extending from a side wall thereof, an electrical cord of said first set of electrical cords extending from a socket in said first set through a hooked projection is a socket of said second set and back to the next succeeding socket in said first set.

5,669,700
OPTICAL ELEMENT, PRODUCTION METHOD OF
OPTICAL ELEMENT, OPTICAL SYSTEM, AND OPTICAL
APPARATUS

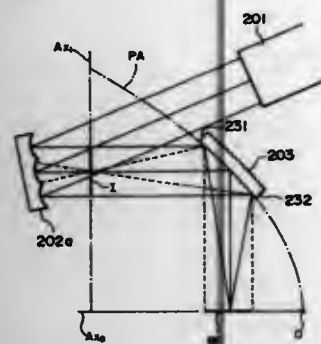
Kiyoto Mashima; Takashi Mori, both of Kawasaki, and Osamu Tanitsu, Funabashi, all of Japan, assignors to Nikon Corporation, Japan
Division of Ser. No. 399,683, Mar. 7, 1995, Pat. No. 5,581,605, which is a continuation-in-part of Ser. No. 196,059, Feb. 10, 1994, abandoned. This application Feb. 28, 1996, Ser. No. 608,077

Claims priority, application Japan, Feb. 10, 1993, 5-021577; Sep. 14, 1993, 5-229173; Sep. 24, 1993, 5-237654; Mar. 9, 1994, 6-038799

Int. Cl.⁶ G21K 1/06

U.S. Cl. 362—341

17 Claims



1. An optical apparatus for illuminating an illuminated surface in an arcuate shape with electromagnetic waves emitted from a light source, comprising:

- a first reflective element having a reflective surface with a plurality of concave surfaces or convex surfaces having a substantially same curvature, said reflective surface reflecting the electromagnetic waves incident from said light source to form a plurality of secondary light source images; and
 - an optical reflector for reflecting the electromagnetic waves from said secondary light source images to illuminate said illuminated surface, said optical reflector having a reflective surface forming a part of a parabolic toric surface obtained by revolving an arbitrary parabola about a second axis passing a point located on a first axis passing a vertex of the parabola and a focus of the parabola, said point being opposite to a directrix of the parabola with respect to said focus, said second axis being parallel to the directrix;
- wherein said first reflective element reflects the electromagnetic waves at a predetermined angle of divergence by the reflective surface thereof when the electromagnetic waves are incident onto the reflective surface of said first reflective element, so that said plurality of secondary light source images with the angle of divergence are formed on a same plane located at a place apart from the reflective surface of said first reflective element.

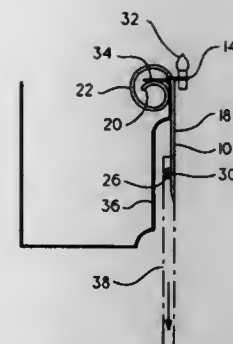
5,669,701
DECORATIVE LIGHT HOLDER
William E. Adams, Portersville, Pa., assignor to Adams Mfg. Corp., Portersville, Pa.
Filed Jan. 11, 1996, Ser. No. 585,282
Int. Cl.⁶ F21V 21/08

U.S. Cl. 362—396

21 Claims

1. A light holder for mounting a decorative light, the light holder comprising:

- a base member having a first end and a second end;
- the first end forming a hook portion having spiral curvature with a proximal point adjacent said base member and being sized and shaped to be attachable to a gutter and the second end being sized and shaped to be insertable between overlapping shingles; and



- b. a light support being separable from said base member and having at least one arm and an attaching member;
- the at least one arm being sized and configured to engage and hold a socket of the decorative light and the attaching member being adapted to secure said light support to said base member at a position thereon.

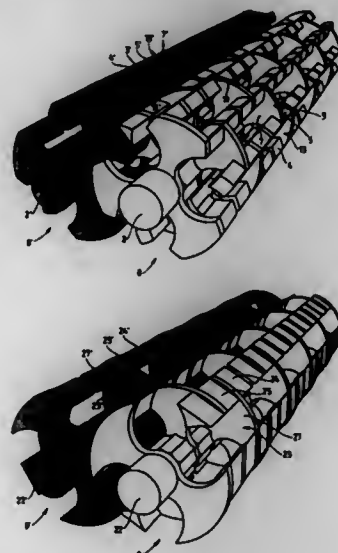
5,669,710
COMPLETELY SELF-CLEANING MIXER/REACTOR
Klaus Schebesta; Heinrich Schuchardt, and Martin Ullrich, all of Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Filed Nov. 29, 1995, Ser. No. 564,531

Claims priority, application Germany, Dec. 5, 1994, 44 43 151.1; Jun. 19, 1995, 195 22 087.0

Int. Cl.⁶ B29B 7/48; 7/82

U.S. Cl. 366—97

8 Claims



- 1. A mixer/reactor comprising:
- a surrounding housing;
- two or more parallel axially directed counter-rotating shafts disposed in said housing, each of said shafts having respective groups of intermeshing gear wheels mounted thereon, which gear wheels are disposed in an axially offset manner, each of said gear wheels having a plurality of circumferentially spaced apart radially extending teeth, each of said teeth being connected by a kneading bar to the immediately adjacent gear wheels and each of said teeth having at least one further kneading bar disposed on each end face thereof, with the exception of the end faces of the gear wheels facing the housing end faces, said further kneading bars not being connected to any other gear wheel, the edges of cut of the gear wheels and kneading bars which arise in any radial section all being geometrically either arcs of a circle around the center of rotation or epicycloidal sections,

the edges of cut of the gear wheels and kneading bars which arise in any radial section all being geometrically concave when they point inwards,

the edges of cut of the gear wheels and kneading bars which clean the housing at least with one edge at the periphery being convex when they point outwards, except for the edges of cut of surfaces which are cleaned by another shaft,

whereby the end faces of each gear wheel, apart from those which are cleaned by the housing end faces, are kinematically cleaned by the kneading bars of a respective other adjacent shaft, and the remaining surfaces of the gear wheels are completely kinematically cleaned either by the housing or by the intermeshing gear wheel of an adjacent shaft,

the unconnected end faces of said further kneading bars are cleaned by the gear wheels on an adjacent shaft,

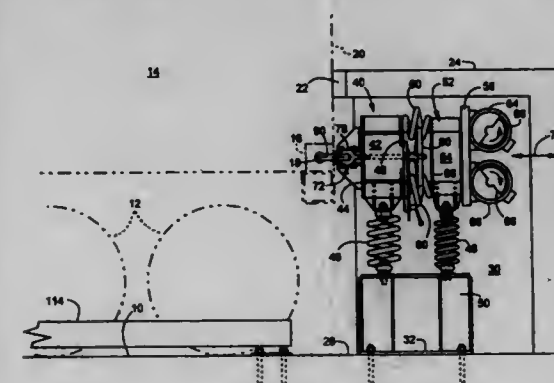
the remaining surfaces of said kneading bars and said further kneading bars of each of said shafts are completely kinematically cleaned either by said housing or by an adjacent shaft or by the kneading bars of an adjacent shaft.

5,669,711
VIBRATORY SETTLING OR COMPACTION UNIT
James F. Spence, III, Elgin, and Paul Casey, Lindenhurst, both of Ill., assignors to General Kinematics Corporation, Barrington, Ill.
Filed Mar. 29, 1996, Ser. No. 627,702

Int. Cl.⁶ B01F 11/00; B65G 67/00

U.S. Cl. 366—108

15 Claims



1. A vibratory compaction unit for compacting particulate material while in a universal shipping container of the type having spaced lifting pockets at predetermine depositions thereon and adapted to be transported on a trailer, railway car or other vehicle, said unit comprising:

- a clamping deck having a generally vertical face;
- spaced contact blocks on said deck and extending from said face, the distance between said contact blocks being substantially equal to the spacing between said lifting pockets;
- clamping means on said clamping deck for engaging lifting pockets on said container to firmly clamp the container against said contact blocks;
- an exciter mass spaced from but adjacent to said clamping deck on the side thereof opposite said vertical face;
- vibration imparting means on said exciter mass;
- springs interconnecting said clamping deck and said exciter mass;
- a base; and
- resilient isolation means mounting said clamping deck and said exciter mass on said base.

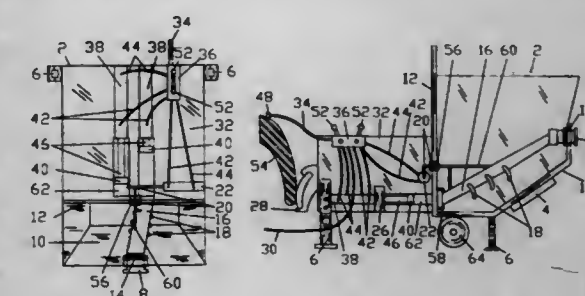
5,669,712
CONCRETE PLACER ATTACHMENT FOR SKID STEER
LOADERS

Anton J. Bauermeister, 5810 Walnut St., Omaha, Nebr. 68106, and Mark J. Parkert, 4807 Cass St., Omaha, Nebr. 68132
Filed Jul. 3, 1996, Ser. No. 675,543

Int. Cl.⁶ B01F 15/02; B28C 7/16

U.S. Cl. 366—348

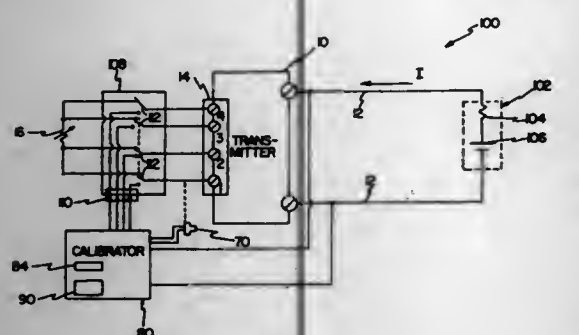
17 Claims



15. A method for using a skid steer loader for placing concrete in hard to reach areas, said method comprising the steps of providing a skid steer loader having electrical power and a hydraulic system; also providing a hopper having a clean-out hatch through its bottom surface, two holes through its back wall, and a discharge port through its front wall, a concrete pump frame, at least one mounting plate, a plurality of adjustable jack stands, at least one wheel, two concrete pumping cylinders, two large hydraulic cylinders, two actuator arms, two pumping pistons, a control box, a plurality of hydraulic lines, an electrical cord having a twelve volt connector on one end, a swing valve having an outside surface, a thrust valve, a plurality of agitators, a small hydraulic cylinder, and a swing valve assembly, all of which in combination weigh less than 1750 pounds; attaching said mounting plates to one end of said concrete pump frame; attaching said back wall of said hopper to the end of said concrete pump frame remote from said mounting plates; firmly securing said two concrete pumping cylinders within said concrete pump frame so that openings in said concrete pumping cylinders each communicate with one of said two holes in said hopper; attaching said mounting plates to said skid steer loader; placing each of said large hydraulic cylinders in communication with one of said concrete pumping cylinders; placing the rearward end of each of said actuator arms movably within one of said large hydraulic cylinders; placing the forward end of each of said actuator arms movably within one of said concrete pumping cylinders; connecting one of said pumping pistons to said forward end of each of said actuator arms; attaching said adjustable jack stands beneath said concrete pump frame and to said bottom surface of said hopper; attaching said wheels centrally to said bottom surface of said hopper; adjusting said adjustable jack stands so as to stabilize said concrete pumping cylinders and said concrete pump frame during operation; firmly attaching said small hydraulic cylinder to said concrete pump frame; connecting said small hydraulic cylinder to said swing valve assembly; connecting said swing valve assembly to said swing valve; attaching said agitators to said outside surface of said swing valve; using said thrust valve to firmly attach one end of said swing valve to said discharge port; placing the other end of said swing valve adjacent to each of said holes in said back wall of said hopper; using said hydraulic lines to connect said small hydraulic cylinder to said control box; using said hydraulic lines to connect said large hydraulic cylinders to said control box; using said hydraulic lines to connect said control box to said hydraulic system of said skid steer loader; using said twelve volt connector on said electrical cord to connect said control box to said electrical power of said skid steer loader so that said control box can use power provided by said running engine of said skid steer loader through its alternator to move said swing valve alternately in front of each of said holes in said back wall of said hopper; placing concrete in said hopper; letting gravity force said concrete into said bottom of said hopper; using said control box to activate said pumping pistons to push said concrete from said concrete pumping cylinders, through said swing valve, and out

of said hopper through said discharge port; and rinsing residual portions of said concrete from said hopper through said clean-out hatch after use.

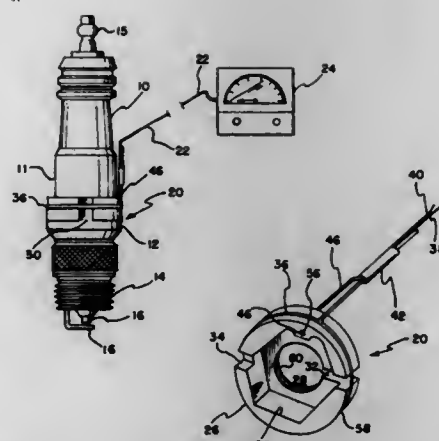
5,669,713
CALIBRATION OF PROCESS CONTROL
TEMPERATURE TRANSMITTER
 Bradley N. Schwartz, Lakeville, and William R. Kirkpatrick, Faribault, both of Minn., assignors to Rosemount Inc., Eden Prairie, Minn.
 Filed Sep. 27, 1994, Ser. No. 313,452
 Int. Cl.⁶ G01K 15/00
 U.S. Cl. 374-1



- 14 Claims
1. A temperature transmitter in a process control loop, comprising:
- a terminal block for receiving a temperature calibration input resistance from a temperature sensor thermally coupled to the terminal block for cold junction compensation calibration;
 - a cold junction compensation temperature sensor coupled to the terminal block for providing an output related to cold junction temperature of the terminal block;
 - A/D conversion circuitry for converting the temperature calibration input resistance and the output related to cold junction temperature into digital values;
 - I/O circuitry coupling to the process control loop and sending and receiving information over the loop; and
 - microprocessor circuitry coupled to the A/D converter for calculating a calibration value for the cold junction compensation temperature sensor based upon the temperature calibration input resistance and the cold junction temperature measured by the cold junction compensation temperature sensor.

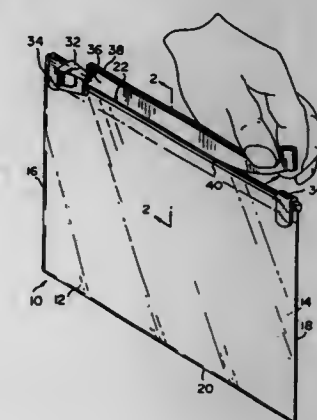
5,669,714
TEMPERATURE SENSOR ADAPTOR FOR MEASURING
THE TEMPERATURE OF A SPARK PLUG
 Edward Runne, 94 New York Ave., Lake Hopatcong, N.J. 07849
 Filed Jul. 31, 1995, Ser. No. 509,220
 Int. Cl.⁶ G01K 1/14; 7/04

- 4 Claims
1. A removable temperature sensor adaptor in which a thermocouple is embedded in an adaptor means to make thermal contact with a spark plug of the type having a metal body portion with a hexangular wall section; said adaptor means having a cylindrical body, a top with an aperture to fit on the spark plug on one end of said cylindrical body, said cylindrical body being open at its other end, said cylindrical body having a cavity, where said cavity is surrounded by a plurality of walls having a hexangular shape adapted to removably mate with the hexangular wall section of the spark plug; a spark plug contact point in one of said walls of said cavity, said thermocouple being embedded in an aperture in said spark plug contact point to sense the temperature of the spark plug at said spark plug contact point, said thermocouple being supported on said adaptor means by a metal spring ring which encircles said



cylindrical body, said thermocouple being further supported by a vertical post means extending from said metal spring ring, said cylindrical body having a circumferential groove to receive said metal spring ring, and wherein said vertical post means has a sleeve means for fastening said thermocouple to said vertical post means.

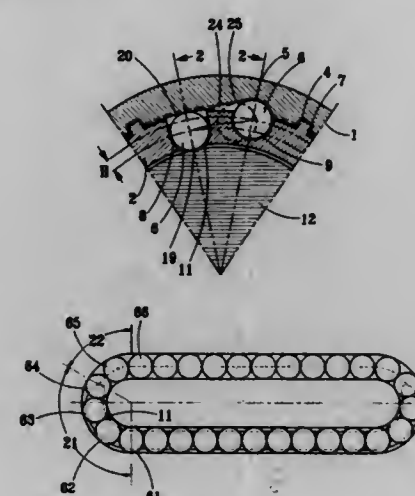
5,669,715
TAMPER-EVIDENT RECLOSABLE PLASTIC BAG WITH
SLIDER
 David V. Dobreski, Fairport; Michael W. McManus, East Rochester; Alexander R. Provan, Canandaigua, and Toby R. Thomas, Pittsford, all of N.Y., assignors to Tenneco Packaging, Evanston, Ill.
 Filed Aug. 16, 1996, Ser. No. 700,680
 Int. Cl.⁶ B65D 33/18
 U.S. Cl. 383-5



- 12 Claims
1. A tamper-evident reclosable plastic bag, comprising:
- first and second opposing panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;
 - a reclosable zipper extending along a mouth formed opposite said bottom, said zipper including a first track with a first profile and a second track with a second profile, said first and second profiles being releasably engageable to each other;
 - a slider slidably mounted to said zipper for movement between a closed position and an open position, said first and second profiles being engaged to each other while said slider is in said closed position, said first and second profiles being disengaged from each other in response to movement of said slider from said closed position to said open position; and
 - first and second upstanding fins extending upward from said respective first and second profiles, said first and second upstanding fins being detachably connected to said first and second profiles along a preferential area of weakness and

being attached to each other, said first and second upstanding fins extend substantially across said mouth, an end portion of said zipper supporting said slider while said slider is in said closed position being free of said first and second upstanding fins such that said slider is substantially unmovable from said closed position until said first and second upstanding fins are detached from said first and second profiles along said preferential area of weakness.

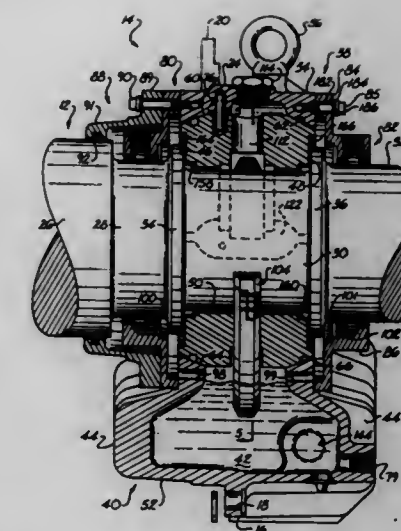
5,669,716
LINEAR BALL BEARING
 Chao Song Chang, Taichung, Taiwan, assignor to Hiwin Technologies Corporation, Taichung, Taiwan
 Continuation-in-part of Ser. No. 403,997, Mar. 14, 1995, abandoned. This application Jan. 11, 1996, Ser. No. 583,886
 Int. Cl.⁶ F16C 29/06
 U.S. Cl. 384-43



- 2 Claims
1. A linear ball bearing comprising:
- an outer sleeve, a ball retainer, and a plurality of ball tracks, each of said ball tracks comprises a linear loaded ball groove, a linear unloaded ball groove, and two ball turning grooves which connect said linear loaded ball groove and said linear unloaded ball groove to form a continuous circuit,
 - each of said turning grooves includes a first and a second stage, in said first stage steel balls of said linear ball bearing move from said loaded ball groove through an approximately 120 degree turn, in said first stage a depth of said turning groove is gradually decreased, said depth being decreased in said first stage an amount equal to one-half the difference in elevation of said loaded ball groove and said unloaded ball groove, and in said second stage said depth of said ball groove is further decreased until it coincides with said unloaded ball groove, at which point said steel balls protrude beyond an outer surface of said ball retainer, a small indentation on an inner surface of said outer sleeve accommodating said protrusion of said steel balls.

5,669,717
CENTER FLANGE BEARING SUITABLE FOR USE WITH
ELECTRICAL MACHINERY
 Gregory J. Kozrzewsky, Columbus, Ind., assignor to Reliance Electric Industrial Co., Cleveland, Ohio
 Filed Oct. 15, 1996, Ser. No. 730,555
 Int. Cl.⁶ F16C 33/74; 33/10; 35/02
 U.S. Cl. 384-144
 60 Claims

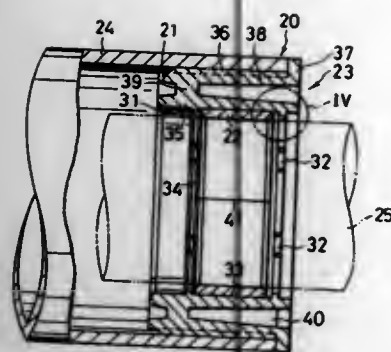
1. A bearing assembly for supporting a rotatable shaft, said bearing assembly comprising:



- 2 Claims
- a bearing housing having a shaft receiving portion and a sump portion, said sump portion defining a sump for containing a lubricant fluid therein;
- a bearing liner within said shaft receiving portion of said bearing housing, said bearing liner defining a shaft bore through which said rotatable shaft operatively extends;
- first and second lubricant seals located at respective opposite axial ends of said shaft receiving portion of said bearing housing, each of said lubricant seals including an annular flange portion integrally extending into an extension portion having an annular seal structure located on an inside thereof, said annular flange portion being connected to a respective end face of said shaft receiving portion and said extension portion being situated about said shaft.
20. A bearing assembly for supporting a rotatable shaft, said bearing assembly comprising:
- a bearing housing having a base element and a cap element matable to facilitate mounting of said bearing housing about said shaft, said base element defining a sump for containing a lubricant fluid therein and further defining a first partial shaft receiving portion, said cap element defining a second partial shaft receiving portion complementary to said first partial shaft receiving portion to produce a complete shaft receiving portion when said base element and said cap element are mated;
 - a bearing liner contained within said complete shaft receiving portion of said bearing housing, said bearing liner defining a shaft bore through which said rotatable shaft operatively extends; and
 - said complete shaft receiving portion having a first axial length approximately equal to a second axial length of said bearing liner.

5,669,718
STEERING COLUMN BEARING
 Yoshikazu Sakurai, and Atsushi Ueno, both of Fujisawa, Japan, assignors to Oiles Corporation, Tokyo, Japan
 Filed Dec. 20, 1995, Ser. No. 578,064
 Claims priority, application Japan, Dec. 28, 1994, 6-340611
 Int. Cl.⁶ F16C 27/06; 33/02; B62D 1/16
 U.S. Cl. 384-220

- 6 Claims
1. A bearing for a steering column comprising:
- a resilient outer bush and an inner bush,
 - wherein said outer bush includes:
 - an inner ring which has a lip portion projecting inwardly radially in a vicinity of one end of an inner peripheral surface thereof and a retaining protrusion projecting inwardly radially on said inner peripheral surface at a predetermined distance from said lip portion in an axial



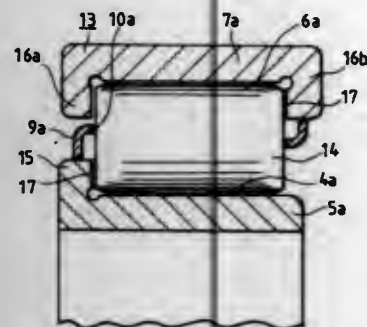
direction thereof so as to define a hollow cylindrical recess in association with said lip portion and said inner peripheral surface;

an outer ring which has a plurality of protrusions formed on its outer peripheral surface along an axial direction thereof and arranged in a circumferential direction thereof;

an annular support leg which is united at an annular inner surface thereof with a first outer peripheral surface portion of said inner ring not corresponding to said hollow cylindrical recess, and which is united at an annular outer surface thereof with an inner peripheral surface portion of said outer ring facing said first outer peripheral surface portion; and

at least three reinforcing ribs, each of which extends axially from a second outer peripheral surface portion of said inner ring corresponding to said lip portion to said support leg through a third outer peripheral surface portion of said inner ring corresponding to said hollow cylindrical recess, each said rib being united with said second and third outer peripheral surface portions of said inner ring, other inner peripheral surface portion of said outer ring, and said support leg, at inner and outer longitudinal ends and lateral one end thereof respectively, said other inner peripheral surface portion of the outer ring facing said second and third outer peripheral surface portions of the inner ring; and wherein said inner bush is held in said hollow cylindrical recess of said inner ring.

5,669,719
ROLLER BEARING
Dai Kinno, and Atsushi Yokouchi, both of Kanagawa, Japan, assignors to NSK Ltd., Tokyo, Japan
Continuation of Ser. No. 271,972, Jul. 8, 1994, abandoned.
This application Jul. 1, 1996, Ser. No. 675,278
Claims priority, application Japan, Jul. 9, 1993, 5-042709 U
Int. Cl.⁶ F16C 33/62
U.S. Cl. 384-463



1. A roller bearing comprising:
an inner race including an inner raceway on an outer cylindrical surface thereof;

an outer race including an outer raceway on an inner cylindrical surface thereof;

a plurality of rollers rotatably provided between said inner raceway and said outer raceway; and

a flange extending from an edge of either the outer cylindrical surface of said inner race or the inner cylindrical surface of said outer race, said flange having an inner surface which is confronted with an end face of each of said rollers,

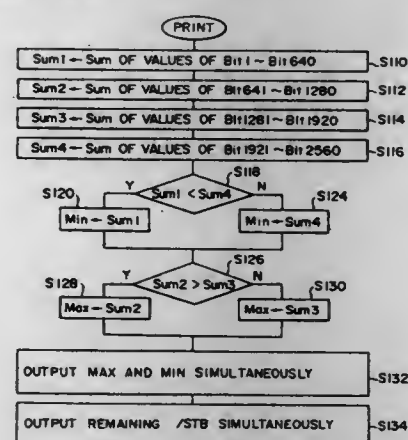
a surface layer formed on a confronting surface of the inner surface of said flange and the end face, said surface layer comprising a solid lubricant,

wherein an intermediate layer is formed between said surface layer and the confronting surface, and comprises a phosphate compound.

5,669,720
THERMAL PRINTER WITH MINIMIZED POWER DIFFERENCE BETWEEN SEQUENTIALLY DRIVEN BLOCKS OF PRINTING ELEMENTS

Kiyoshi Negishi; Katsumi Kawamura; Katsuyoshi Suzuki; Hiroshi Orita, and Minoru Suzuki, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 332,150, Oct. 31, 1994, abandoned.
This application Feb. 26, 1996, Ser. No. 606,548
Claims priority, application Japan, Oct. 30, 1993, 5-294464; Oct. 30, 1993, 5-294465; Nov. 11, 1993, 5-305862; Nov. 11, 1993, 5-305863

Int. Cl.⁶ B41J 2/355
U.S. Cl. 400-120.05



1. A thermal printer having a thermal head provided with a plurality of linearly arranged thermal elements, said printer comprising:

a power source capable of supplying power of a predetermined power level to the plurality of thermal elements, the plurality of thermal elements being divided into a predetermined number of blocks, each of the blocks having a similar number of thermal elements;

a driver for driving the thermal elements with power supplied by the power source, in accordance with printing data, said thermal elements generating heat when driven by said driver; and

a controller for dividing the plurality of thermal elements into at least two groups when the thermal elements are driven, said controller determining the at least two groups of thermal elements such that a difference in power consumption between the at least two groups is minimized, said controller determining the number of said thermal elements to be simultaneously driven in each of said blocks based upon said printing data, said controller combining said predetermined number of blocks to form said at least two groups such that a difference in said number of said thermal elements to be simultaneously driven in each group is minimized, said con-

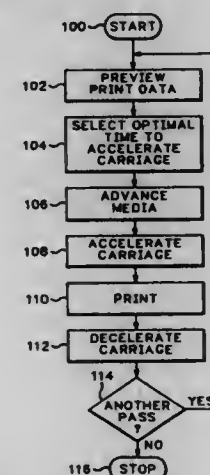
troller dividing said plurality of thermal elements into first, second, third and fourth linearly and sequentially arranged blocks, said controller determining which of said first and fourth blocks has a lesser number of thermal elements to be driven, and which of said second and third blocks has a greater number of thermal elements to be driven, said controller combining said block having said greater number of thermal elements to be driven and said block having said lesser number of thermal elements to be driven into one of said at least two groups;

said driver driving said groups at different time intervals.

5,669,721
METHOD AND APPARATUS FOR ACHIEVING INCREASED PRINTER THROUGHPUT
John C. Santon, and Joseph Henry Bauman, both of Brush Prairie, Wash., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 15, 1996, Ser. No. 648,470
Int. Cl.⁶ B41J 19/00
U.S. Cl. 400-279

16 Claims



1. An improved printer control method which includes repeated steps of accelerating a printhead carriage to a printing velocity, printing a printable image on print media, decelerating the printhead carriage, and advancing the print media, the improvement comprising:

selecting an optimal time to begin accelerating the printhead carriage, such selecting including determining a difference between a duration of time to accelerate the printhead carriage to printing velocity and a duration of time required to advance the print medium, such difference defining a time at which to begin an accelerating step in order to provide for concurrent completion of carriage acceleration and media advancement; and

beginning the accelerating step during a corresponding advancing step at a time which provides for concurrent completion of carriage acceleration and media advancement.

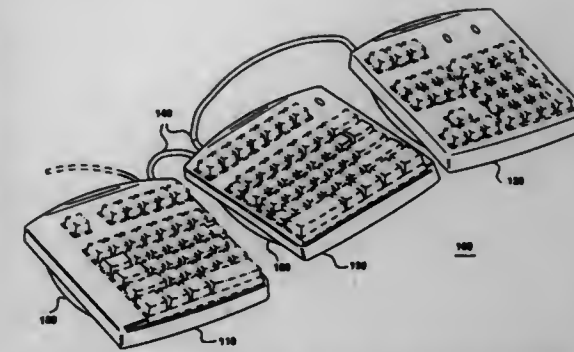
5,669,722
COMPUTER KEYBOARD SUPPORT MECHANISM
Thomas Overthun, San Francisco; Shigetoshi Amano, Sunnyvale; Masahiko Kawauchi, and J. Scott Petermann, both of San Jose, all of Calif., assignors to Alps Electric (U.S.A.), Inc., San Jose, Calif.

Filed Apr. 10, 1996, Ser. No. 631,770
Int. Cl.⁶ B41J 5/08

U.S. Cl. 400-489

9 Claims

1. A bifurcated keyboard comprising:
first and second supports, each support including an outer wall having a lower edge defining a first plane and an upper wall



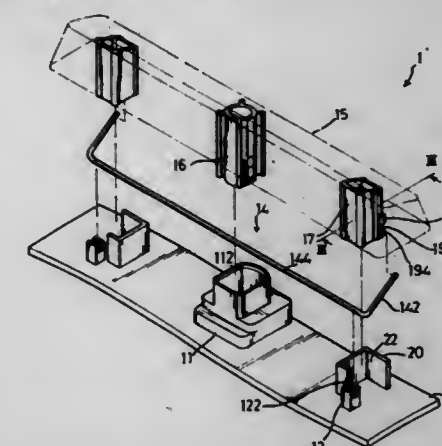
defining a second plane, the second plane intersecting the first plane at an acute angle; and

first and second keyboard segments respectively rotatably mounted on the first and second supports, each of the first and second keyboard portions including a disk-shaped beveled protrusion having a lower surface slidably mounted on the upper wall of one of the supports.

5,669,723
KEY ASSEMBLY FOR COMPUTER KEYBOARD
Joe Chang, Taipei, Taiwan, assignor to Behavior Technical Computer Corp., Taipei, Taiwan
Filed Mar. 26, 1996, Ser. No. 622,658
Int. Cl.⁶ B41J 5/16

U.S. Cl. 400-496

3 Claims



1. A key assembly, particularly a space bar assembly for a computer keyboard, comprising:

an elongate cap adapted for receiving a pressing force;

an actuating post mounted on a bottom of the elongate cap and located substantially at a center thereof;

a pair of locating posts mounted on the bottom of the cap and located respectively substantially at two ends thereof, each said locating post having an upper and lower mounting block, said mounting blocks having confronting ends defining a mounting slot, each of said confronting ends being defined by an inclined short side and an inclined long side intersecting on an apex wherein the short sides are aligned with each other while the long sides are parallel to and spaced from each other a distance;

a hollow key base adapted to be mounted on an IC board, defining a hole extending therethrough for receiving the actuating post to have a reciprocal movement therein;

a pair of locating walls adapted to be mounted on the IC board, each locating wall defining a space for receiving a corresponding locating post to have a reciprocal movement therein;

a pair of mounting seats adapted to be mounted on the IC board, each mounting seat defining a snapping closure; and

a supporting member having a first portion and a second portion respectively extending through the mounting slots on the

locating posts and a third portion and a fourth portion respectively snappingly received in the snapping closures whereby each of said mounting slots can have enlarged opening ends to facilitate the first and second portions of the supporting member to be extended through the mounting slots.

5,669,724

SIMPLIFIED PAPER PASSAGE IN A PRINTER

Hiroyuki Kato, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

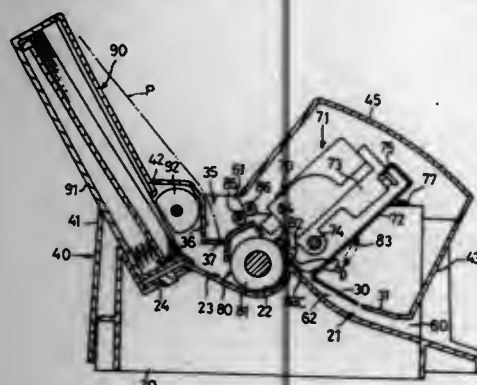
Filed Apr. 22, 1996, Ser. No. 635,703

Claims priority, application Japan, May 16, 1995, 7-116979; Nov. 16, 1995, 7-298415

Int. Cl.⁶ B41J 11/50

U.S. Cl. 400—605

21 Claims



1. A printer, comprising:
 - a base frame having a pair of opposing side walls;
 - a paper source;
 - a transferring device supported by said base frame to transfer paper along a paper passage;
 - a paper discharge opening;
 - a printing head adapted to perform a printing operation for the paper;
 - a carriage frame extending between said pair of side walls for directly supporting a carriage slidably in a direction perpendicular to the paper transferring direction of said transferring device, said carriage carrying said printing head thereon;
 - a guide surface formed on said base frame, said guide surface constituting one surface of a portion of said paper passage; and
 - a guide member provided on said carriage frame which constitutes a portion of said paper passage for conducting the paper to one of said transferring device and said paper discharge opening, wherein each of said paper source and said paper discharge opening is adjacent an end of the paper passage.

5,669,725

IMPACT DOT PRINTER WITH NOISE SUPPRESSION
Osamu Koshishi; Shigeki Mizuno; Keiichi Kubota; Katsuhiko Nishizawa; Motoyuki Niimura; Hiroshi Shirotori, and Kyouti Ko, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

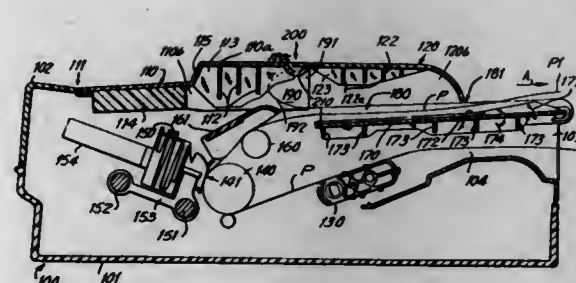
Continuation of Ser. No. 52,028, Apr. 22, 1993, Pat. No. 5,540,511. This application Jun. 18, 1996, Ser. No. 668,457
Claims priority, application Japan, Apr. 22, 1992, 4-26231; Jun. 10, 1992, 4-159429; Jun. 17, 1992, 4-41614; Jun. 18, 1992, 4-159426; Jun. 18, 1992, 4-159427; Jun. 18, 1992, 4-159428

Int. Cl.⁶ B41J 29/08

U.S. Cl. 400—690

23 Claims

1. An impact dot printer comprising:
 - a case having at least one opening;
 - a print section positioned in said case at least in part in registration with said at least one opening, and having a platen and a print head, said print head confronting said platen;



- a cover positioned to close at least the portion of said at least one opening in registration with and overlying said print section;
- a silencing device disposed between a portion of said cover overlying at least a part of said print section and said print section constructed to reduce the sound of printing from the print section reaching the exterior of said case and cover, said silencing device including at least one reflecting plate for reflecting a sound wave; and
- a sheet discharge plate positioned entirely within said case and intermediate said print section and said silencing device to at least in part guide a sheet of paper in a direction away from said silencing device.

5,669,726

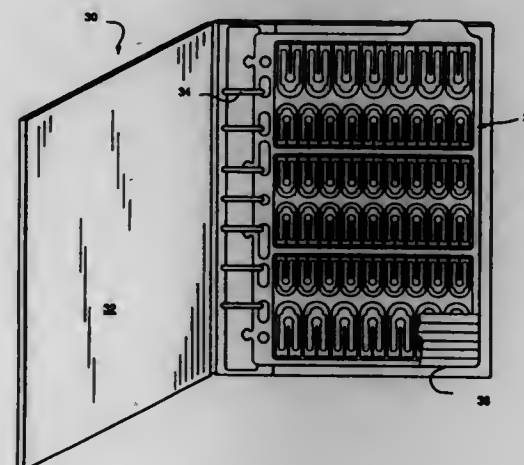
SHEET OF PAPER CLIPS WITH A SINGLE LEG ATTACHMENT

Robert G. Karlis, Hingham, and Gordon A. Vinther, Pepperell, both of Mass., assignors to Clix Products, Inc., Natick, Mass.
Division of Ser. No. 291,279, Aug. 16, 1994, which is a continuation-in-part of Ser. No. 145,955, Nov. 1, 1993, Pat. No. 5,419,018. This application Jul. 10, 1995, Ser. No. 500,262

Int. Cl.⁶ B42F 3/00

U.S. Cl. 402—4

13 Claims



1. For mounting in a notebook having outer covers and a spine, a sheet of clips comprising:
 - a frame having inner and outer side rims, top and bottom cross rims, and optionally at least a rib connected between a pair of said rims;
 - a set of paper clips integrally connected to said frame via said rims and said rib;
 - each of said clips including an outer retainer, an inner retainer, and a yoke connecting said outer retainer and said inner retainer;
 - said outer retainer being an elongated arch and said inner retainer being an elongated arch, one leg of said inner retainer and one leg of said outer retainer being connected to said yoke;

- at least one rupturable junction extending between said frame and said yoke; and
- a configuration on said inner rim for connection to said spine.

5,669,727

DEVICE FOR FIXEDLY INTERCONNECTING TWO PARTS OF A CLOTHES HANGER

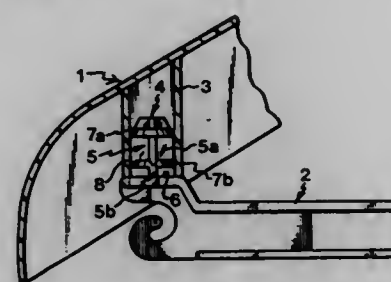
Gustav Wegscheider, Gemünden am Main, Germany, assignor to Karner & Company Aktiebolag, Lidköping, Sweden
PCT No. PCT/SE92/00859, § 371 Date Jul. 25, 1994, § 102(e)
Date Jul. 25, 1994, PCT Pub. No. WO93/11681, PCT Pub. Date Jun. 24, 1993

PCT Filed Dec. 14, 1992, Ser. No. 244,767

Claims priority, application Sweden, Dec. 12, 1991, 9103665
Int. Cl.⁶ A47G 25/28; F16B 2/00

U.S. Cl. 403—24

11 Claims



1. A clothes hanger, said clothes hanger including:
 - a hanger part (1) having at least one downwardly extending cylindrical socket (3), and;
 - a cross bar portion (2) having at least one corresponding pin (4) to be inserted into said downwardly extending socket, characterized in that said pin comprises at least one continuous non-circular portion extending radially from the pin and having a radius exceeding a radius of the socket, and said non-circular portion (9) is flexible in the direction opposite to the direction of insertion of the pin for wedging the pin in the socket after the insertion.

5,669,728

BRACKET FOR A STRUT OF A VEHICLE SUSPENSION AND CONNECTING STRUCTURE THEREOF TO CONNECT SUCH A BRACKET AND A SHOCK ABSORBER

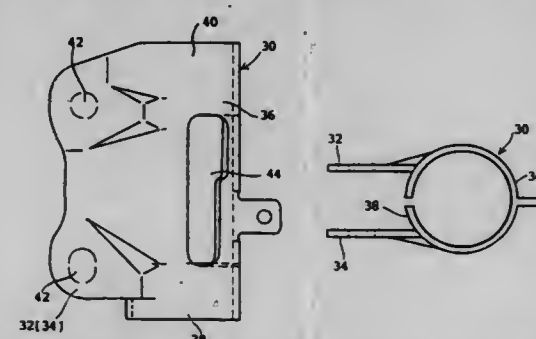
Hiroyuki Koba, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi-Ken, Japan

Filed Aug. 1, 1995, Ser. No. 510,097

Claims priority, application Japan, Aug. 25, 1994, 6-201014
Int. Cl.⁶ B60G 7/00

U.S. Cl. 403—270

18 Claims



13. A connecting structure in combination with a strut of a vehicle suspension comprising:

a bracket formed from a thin metal plate, said bracket comprising a holding portion for holding the strut, at least two attaching portions extending directly from said holding portion for attaching said bracket to a wheel carrier and at least one welding portion for surrounding and conforming to an end of the strut such that the at least one welding portion is completely welded in a circular direction to the strut when the strut is located at a predetermined position;

said connecting structure further comprising a welding bead substantially surrounding said strut, welding said strut at a substantially whole circumference thereof to said at least one welding portion and being formed under substantially constant welding conditions.

5,669,729

RECONSTITUTABLE ROD CLUSTER CONTROL ASSEMBLY

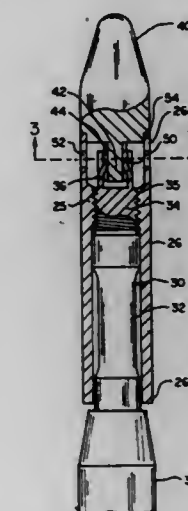
Douglas J. Attix, Lynchburg, Va., assignor to Framatome Cogema Fuels, Lynchburg, Va.

Filed Jan. 11, 1996, Ser. No. 584,524

Int. Cl.⁶ G21C 7/00; 3/32

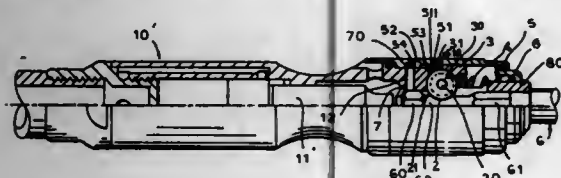
U.S. Cl. 403—282

4 Claims



1. A rod connector assembly for removably securing a control rod to a spider structure, said rod connector assembly comprising:
 - a tubular boss fixedly secured to the spider structure, said boss including at least one access hole formed therein and interior threads formed on an interior surface of said boss;
 - a securement structure including a coupling adapted to be fixedly secured to the control rod and having external threads adapted to engage said interior threads, said securement structure including a deformable member;
 - wherein, when said external threads are engaged with said interior threads, said deformable member is disposed within said boss and is accessible through said at least one access hole; and
 - a crimped region formed in said deformable member for resisting rotation of said external threads with respect to said interior threads, wherein said securement structure further includes a cap adapted to be fixedly secured to an upper end of said boss and including at least one groove, wherein said cap further includes a projection extending into said boss, said at least one groove formed in said projection, wherein, when said cap is secured to said upper end of said boss and said external threads are engaged with said interior threads, said projection is disposed within said collar.

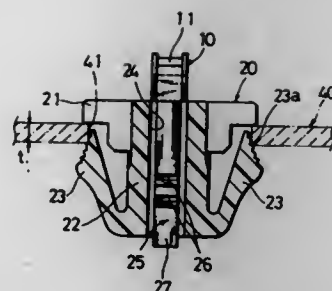
5,669,730
RELEASABLE COUPLING FOR A WORK TOOL TO A PERCUSSION APPARATUS
 Marc Bidaux, 14 rue Ehlinger, 90400 Andelnans, France
 Filed Dec. 21, 1995, Ser. No. 576,771
 Claims priority, application France, Dec. 23, 1994, 94 15732
 Int. Cl.⁶ F16B 1/04
 U.S. Cl. 403—325 8 Claims



1. A releasable rapid coupling for coupling a tang of a work tool to a tool assembly, the coupling comprising:
 - an apparatus having a front adapted to extend toward the tang of the tool, a generally cylindrically shaped tip of the apparatus extending toward the front of the apparatus and shaped for receiving the tang of the tool in the tip; at least one longitudinally extending groove in the tip;
 - at least one roller supported in the at least one groove for being movable forwardly and rearwardly longitudinally along the groove, and the groove being of a longitudinal length enabling such movement; the groove having an access cutout therein enabling the roller to engage the tang in the tip when the roller is in the groove;
 - a roller engaging first ring located around the tip and movable forwardly and rearwardly with respect to the tip, the first ring being engageable against the roller for preventing the roller from moving forward;
 - a spring supported to the tip and pressing the first ring rearwardly against the roller;
 - a second ring disposed around the first ring, the roller, and the groove, the second ring having an inward protrusion which engages the first ring for setting the position of the first ring against the roller as the first ring is urged rearward by the spring; wherein upon forward movement of the second ring with respect to the roller and along the first ring, the second ring being so shaped as to then free the roller to move out of the groove for releasing the tang to move free of the tip;
 - a screw connection between the second ring and the tip for causing rotation of the second ring around the tip in one direction to move the second ring forward for freeing the roller to move out of the groove, and for causing rotation of the second ring in the opposite direction for enabling the spring to urge the first ring against the roller to hold the roller in the groove.

5,669,731
COMPONENT RETAINING LEGS
 Katsuhito Hironaka, and Makoto Fukase, both of Okazaki, Japan, assignors to Daiwa Kasei Kogyo Kabushiki Kaisha, Aichi-ken, Japan
 Filed Mar. 20, 1996, Ser. No. 619,793
 Claims priority, application Japan, Sep. 19, 1995, 7-239989
 Int. Cl.⁶ F16B 1/00
 U.S. Cl. 403—405.1 2 Claims

1. A component retaining leg adapted to engage a panel through a mounting hole defined in the panel, the mounting hole having a peripheral edge, the panel having a first surface and an opposed substantially parallel second surface, said retaining leg comprising a base provided on a component, a pillar extending outward from said base and terminating in a free outer end, and a resiliently flexible retaining piece fixed to said free outer end of said pillar and extending inwardly therefrom at an angle to said pillar, said retaining piece terminating in a free inner end adjacent said base, said pillar and said retaining piece being adapted to engage through the panel hole with said base engaged with and substantially



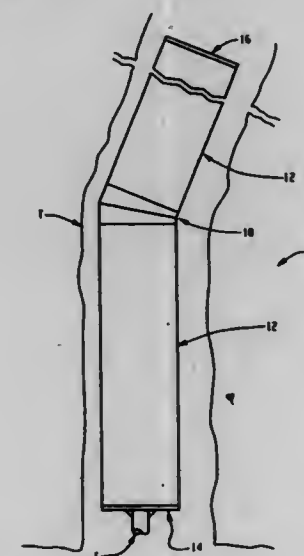
parallel to the front surface of the panel, said retaining piece being resiliently flexible toward said pillar upon engagement through the panel hole, said base limiting the extent of engagement through the hole by engaging the panel first surface, said free end of said retaining piece having an engagement step section for engaging the panel adjacent the hole peripheral edge, said engagement step section having a plurality of engagement steps formed at predetermined intervals therealong and selectively adapted to accommodate panels of different thicknesses, each of said engagement steps having an engagement face facing inward toward said base for selective engagement with the second surface of the panel upon engagement of said retaining leg through the mounting hole and engagement of said base with the first surface of the panel, said engagement faces of said engagement steps being formed at progressively greater angles to said pillar progressively outward from said inner free end of said retaining piece, each of said engagement faces assuming an angle substantially parallel to said base as said retaining piece is progressively flexed toward said pillar, thus providing for selective parallel engagement of said engagement faces with the second surface of the panel in accord with corresponding selected thicknesses of the panel.

5,669,732
SELF-CLOSING INTERLOCKING SANDBAGS AND PROCESS FOR ERECTING DAMS THEREFROM
 Willie W. Trullitt, 7402 Fire Tower Rd., Zuni, Va. 23669
 Filed Jun. 19, 1995, Ser. No. 460,789
 Int. Cl.⁶ E02B 3/12
 U.S. Cl. 405—20 9 Claims



1. A bag that self-closes from pressure of material which is insertable into said bag comprising: (A) an openable overlapping elastic structure in which a prestressed innermost elastic material is disposed to completely cover an opening in said bag; and (B) a prestressed outermost elastic material is disposed to completely overlap said innermost elastic material; said bag having at least one joint capable of forming a temporary interlock or connection with at least one joint disposed on at least an additional self-closing bag having an openable overlapping elastic structure in which an innermost elastic material is disposed to completely cover an opening in said bag and an outermost elastic material is disposed to completely overlap said innermost elastic material.

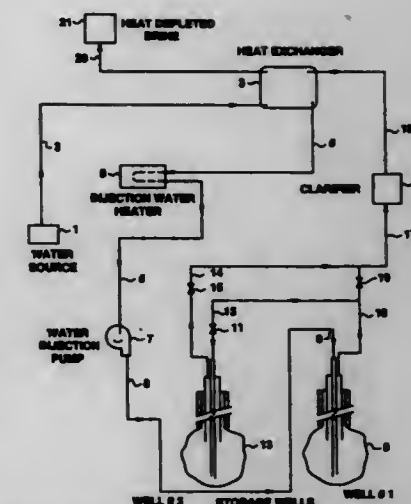
5,669,733
ANGLED ADAPTER FOR A LEACHING CHAMBER SYSTEM
 Frank J. Daly, Cheshire, Conn.; Douglas O. Hamilton, Findlay, and H. John Skidaway, McComb, both of Ohio, assignors to Hancor, Inc., Findlay, Ohio
 Continuation-in-part of Ser. No. 299,828, Sep. 1, 1994, Pat. No. 5,556,231. This application Mar. 31, 1995, Ser. No. 414,932
 Int. Cl.⁶ E02B 13/00
 U.S. Cl. 405—48 18 Claims



1. In a leaching system having a plurality of buried leaching chambers connected to receive effluent and disperse the effluent into surrounding soil, each chamber being generally U-shaped and installed with an open side down and having a generally U-shaped male end collar and a generally U-shaped female end collar, the male and female end collars of each chamber being matable with the female and male end collars, respectively of other chambers, the improvement comprising:
 - an adapter section having generally U-shaped first and second end portions with open sides down and an arch-shaped ridge disposed therebetween, the first end portion having a generally U-shaped adapter section male end collar and the second end portion having a generally U-shaped adapter section female end collar, the adapter section male and female end collars being angled such that one chamber whose male end collar is connected with the adapter section female end collar is offset relative to another chamber whose female end collar is connected with the adapter section male end collar.

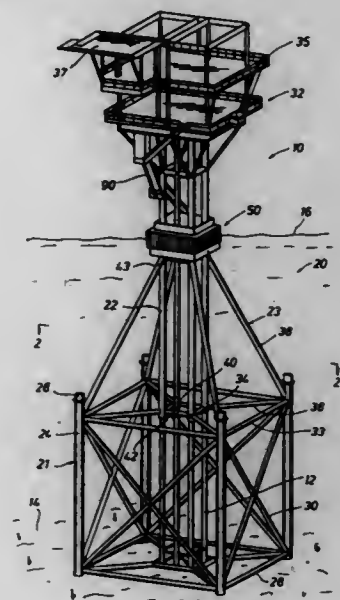
5,669,734
PROCESS FOR MAKING UNDERGROUND STORAGE CAVERNS
 Lawrence F. Becnel, Jr., Sugarland; Frank V. Whelply, and William H. Barlow, both of Houston, all of Tex., assignors to Texas Brine Corporation, Houston, Tex.
 Filed Nov. 29, 1995, Ser. No. 563,915
 Int. Cl.⁶ B65G 5/00; F21F 17/16
 U.S. Cl. 405—58 16 Claims

1. A process for making an underground cavern for injection and storage of fluid or fluidized materials in bedded or domal salt deposits which comprises:
 - employing fresh water from ambient temperature reserves available at or near the salt deposit site,
 - preheating the water by passing it through one side of a heat exchanger, with water on one side and warm brine on the other side, said warm brine having been produced by solution mining the salt deposit,



clarifying the solution mined warm brine to remove sand and other sediments before introduction into the heat exchanger, further heating the preheated fresh water exiting the heat exchanger by subjecting it to supplemental heating with an appropriate source of heat, injecting the resulting heated water into the salt deposit to cause accelerated dissolution of the salt thus more rapidly forming a cavern in substantially less time than would be required with unheated water, circulating the warm brine exiting the cavern either through a second cavern in series and then to one side of the heat exchanger or directly to the heat exchanger, thereby transferring its sensible heat to the fresh water, disposing or otherwise using the heat depleted brine in an environmentally acceptable manner, and evacuating the brine from the cavern for underground storage of the fluids.

5,669,735
OFFSHORE PRODUCTION PLATFORM AND METHOD OF INSTALLATION THEREOF
 Joseph W. Blandford, 10919 Wickline, Houston, Tex. 77024
 Filed Dec. 20, 1994, Ser. No. 359,591
 Int. Cl.⁶ E02D 29/09
 U.S. Cl. 405—227 17 Claims



1. An offshore production platform for use with at least one well located in a body of water, comprising:

- (a) a platform substructure having four corner-located piling sleeves;
- (b) a first set of bracing members disposed in horizontal planes between and interconnecting the corner piling sleeves;
- (c) a second set of brace members disposed in vertical planes between and interconnecting the corner piling sleeves;
- (d) at least four support columns spaced substantially equidistant from each other and connected to said first set of bracing members, wherein the upper ends of said support columns extend above the surface of the body of water and the lower ends thereof are mounted to a center framing structure located interior of said corner piling sleeves, said center framing structure including frame members disposed between and connected to the lower ends of said support columns, said frame members further including guide sleeves extending therethrough for providing a passageway for one or more conductor pipes extending from the seabed to said deck structure;
- (e) a set of angular brace members disposed between and interconnecting the support columns and corner piling sleeves; and
- (f) a deck structure mounted on the upper ends of said support columns.

5,669,736

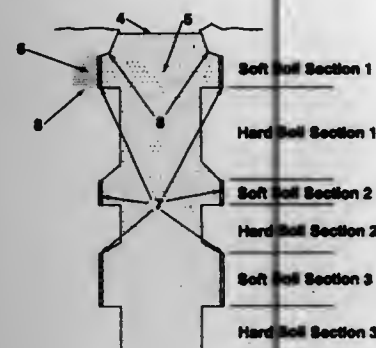
MULTI-LEVEL SUPPORT CAST FOUNDATION RESIST PILE

Chien-Hsin Lin, 2800 State St., Santa Barbara, Calif. 93105
Filed Nov. 13, 1995, Ser. No. 556,702

Int. Cl.⁶ E02D 5/44

U.S. Cl. 405—233

5 Claims



1. A process for forming a cast-in-place foundation pile comprising:

- (a) an excavation for a central shaft of the foundation pile wherein vertical sampling is made of soil of the excavation for determining a first soil zone and a second soil zone immediately adjacent to the central shaft, the soil in the first soil zone being substantially softer than the soil in the second soil zone and the second soil zone is located immediately below the first soil zone;
- (b) support means for collar plates and vertically disposed collar plates on the support means, vertically locating collar plates on the support means so that after insertion of the support means in the excavation, the collar plates will be situated adjacent to the first soil section;
- (c) inserting support means into the excavation; and
- (d) radial force means driving the collar plates substantially horizontally into the adjacent soil to form lateral extensions of the central shaft.

5,669,737

WALL RETENTION SYSTEM

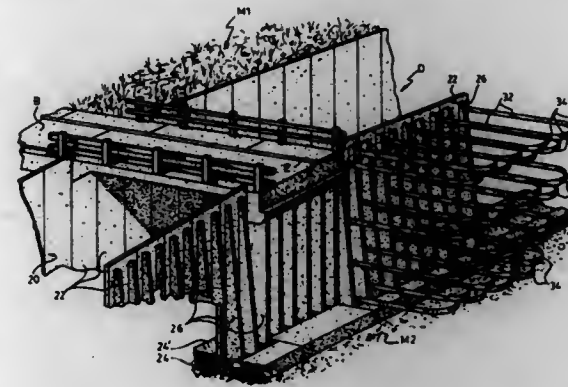
Michel Équilbec, 124, rue Biron, Drummondville (Québec), Canada, J2C 2Y7, and Jean Côté, 837, route 148, Masson (Québec), Canada, J0X 2H0

Filed Jul. 27, 1995, Ser. No. 507,884

Int. Cl.⁶ E02D 5/20

U.S. Cl. 405—262

6 Claims



1. A wall retention system having precast modular components, for abutting against and retaining a mass of earth, comprising in combination:

- (a) a set of flat facing slabs, adapted to interlock with one another to form a single continuous wall structure, each said facing slab having an outer flat surface and an inner, reinforced surface;
- (b) interlocking means, for sideways interlocking said facing slabs to form said single continuous wall structure;
- (c) foundation slabs, adapted for ground engagement, and defining integral means for supporting and anchoring the lower portions of said facing slabs wherein said facing slabs are supported in generally upright condition;
- (d) a number of sets of elongated tension members, each of said sets of tension members having at least three vertically spaced tension members integrally carried at their inner ends by the same single corresponding said facing slab reinforced surface and transversely projecting therefrom at vertically spaced intervals, said tension members adapted to embeddably anchor into said mass of earth to be retained;

wherein each of said elongated tension members includes:

- (a) first and second straight, elongated brace bars, defining inner and outer ends;
- (b) bracket means, fixedly anchoring said inner ends of said first and second straight brace bars to laterally offset raised sections of said reinforced surface of facing slabs; and
- (c) a third arcuate brace bar, fixedly interconnected by bolt means to said outer ends of said first and second straight brace bars, with the convex side of said arcuate brace bar extending away from said facing slabs;
- wherein said first to third brace bars are installed behind the facing slabs within a trenched earthless area;
- wherein said third arcuate brace bars of laterally adjacent sets of tension members are fixedly interconnected in successive lateral pairs of third arcuate brace bars by the same said bolt means, so that all said sets of tension members are accordingly interconnected in successive pairs at their outer ends wherein an integral massive open ground anchoring array is formed;

wherein large horizontal loadings from the mass of earth can be sustained by said wall retention system, without compromising the angularity of said facing slabs relative to ground level.

5,669,738

MODULAR TRENCH BOX SHEETING

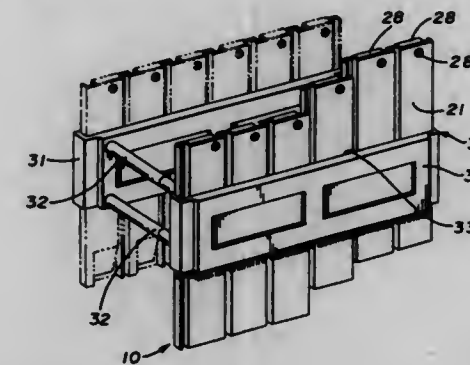
Robert Kundel, P.O. Box 4210, Warren, Ohio 44482

Continuation of Ser. No. 421,516, Apr. 13, 1995, Pat. No. 5,533,838. This application Jun. 3, 1996, Ser. No. 660,207

Int. Cl.⁶ E02D 5/00; 5/03; 5/08; 17/00; 17/08; 29/00; 29/02

U.S. Cl. 405—282

5 Claims



1. Modular trench box sheeting panels comprising an elongated composite tubular structure, each of said panels having panel sections in spaced parallel relation to one another, a plurality of parallel reinforcing plates extending between said panels, a ground engaging panel portion extending from one end of said tubular structure, said ground engaging portion having a tapered portion spaced inwardly from its free end and in spaced relation to a sidewall of one of said panel sections, a pounding plate secured to said reinforcing plates, and means for engaging and lifting each of said sheeting panels.

5,669,739

PRESTRESSING OF MINE PROPS

Graham Heath Clarke, Randfontein, South Africa, assignor to HL & H Timber Products (Proprietary) Limited, Johannesburg, South Africa

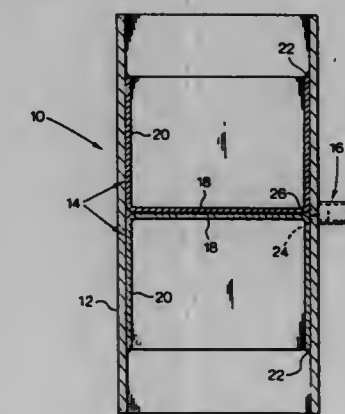
Filed Jan. 16, 1996, Ser. No. 586,049

Claims priority, application South Africa, Jul. 5, 1995, 95/5587; Aug. 3, 1995, 95/6489

Int. Cl.⁶ E21D 15/32

U.S. Cl. 405—289

21 Claims



1. A mine prop prestressing device comprising a tube, a flexible cup-shaped member inside the tube, said cup-shaped member having a base and a cylindrical side wall permanently fixed internally to the wall of the tube, a counter-member which is fixed to the tube and which spans across the tube in opposition to and adjacent the base of the cup-shaped member, and a valved inlet leading through the wall of the tube for the purpose of introducing a pressurised fluid into the tube between the base of the cup-shaped

member and the counter-member so as to deform the base of the cup-shaped member and the counter member apart from one another.

5,669,740

BARK MULCH HANDLING AND SPREADING APPARATUS

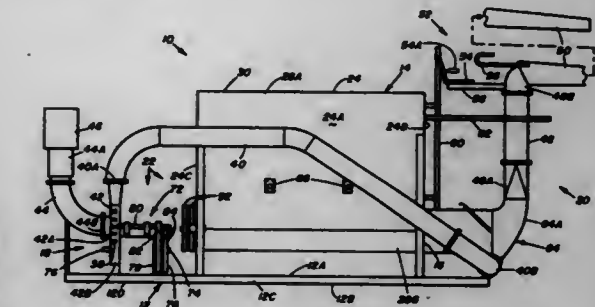
Randall L. Townsend; Michael T. Townsend, and Tim L. Townsend, all of Cowley, Wyo., assignors to Central Distributing, Cowley, Wyo.

Filed Mar. 13, 1996, Ser. No. 615,622

Int. Cl.⁶ B65G 53/08

U.S. Cl. 406—38

19 Claims



1. A bark mulch handling and spreading apparatus, comprising:

- (a) a platform adapted to be mounted on a mobile chassis;
- (b) means mounted on said platform for receiving bark mulch and conveying bark mulch to an outlet port of said receiving and conveying means;
- (c) at least one blower mechanism mounted on said platform adjacent to said receiving and conveying means for generating a flow of air past said outlet port of said receiving and conveying means so as to entrain in the flow of air the bark mulch being discharged from said outlet port;
- (d) a spreading mechanism mounted on said platform adjacent to said receiving and conveying means and adapted to receive the flow of air with entrained bark mulch from said outlet port of said receiving and conveying means and to distribute the air flow entrained bark mulch to a selected discharge location, said spreading mechanism including an upright discharge tube and an upper distributing spout rotatably mounted to said upright discharge tube and extending outwardly therefrom in a transverse relation thereto, said upright discharge tube having an inflow end in communication with said outlet port of said receiving and conveying means for receiving a bark mulch entrained upward flow of air therefrom, said upright discharge tube also having an outflow end displaced above said inflow end and connected to said upper distributing spout for expelling air flow entrained bark mulch into said upper distributing spout for distribution therefrom to the discharge region; and
- (e) a drive arrangement mounted on said platform for driving said receiving and conveying means and said blower mechanism;
- (f) said receiving and conveying means including
- (i) a hopper having a pair of oppositely inclined side walls and a pair of front and rear end walls extending between and connected to said side walls and together therewith defining a bark mulch holding chamber having a top portion with an inlet opening for receiving bark mulch and a bottom portion, said outlet port formed in said rear end wall adjacent to and aligned with said bottom portion of said chamber, said chamber being wider at said top portion than at said bottom portion for promoting gravity flow of bark mulch from said top portion downwardly to said bottom portion,
- (ii) an elongated auger rotatably mounted along said bottom portion of said chamber of said hopper, said auger having a discharge end disposed at said outlet port of said hopper

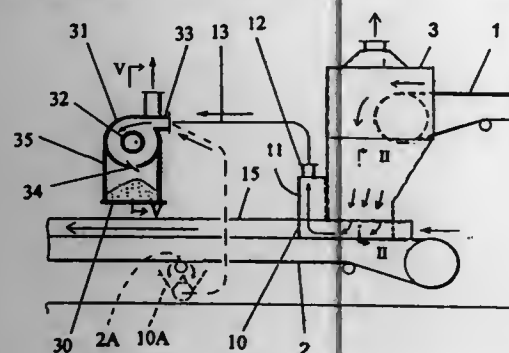
and being adapted to convey bark mulch through said chamber to said outlet port of said hopper, and
(iii) a plurality of agitating members each having an elongated shaft rotatably mounted at opposite ends to said hopper and extending across said chamber thereof above said auger, each of said agitating members also having a plurality of stirring elements mounted to and spaced along the respective shaft, a first group of said agitating members extending substantially parallel to said auger, a second group of said agitating members extending transverse to said auger, said first and second groups of agitating members being disposed at different elevations across said chamber of said hopper.

5,669,741
DEVICE FOR SEPARATING POWDER MATERIAL FROM AN AIR FLOW

Yasushi Ono, Toyokawa, and Etsuzou Kawai, Toyohashi, both of Japan, assignors to Sintokogio, Ltd., Japan
Filed Nov. 30, 1995, Ser. No. 565,552
Claims priority, application Japan, Nov. 30, 1994, 6-323569; Dec. 16, 1994, 6-334314; Jan. 20, 1995, 7-026313
Int. Cl.⁶ B45G 53/14

U.S. Cl. 406—79

4 Claims



1. An apparatus for collecting powder material disposed between a belt conveyor and a chute disposed above the belt conveyor for feeding the powder material onto the belt conveyor, comprising:
a) a duct device disposed adjacent to the lower ends of the chute and above the belt conveyor for collecting powder material;
b) a horizontally extending hollow cylinder disposed above the belt conveyor for centrifugally separating powder material from a powder-material-carrying air flow from the duct device, the hollow cylinder having a slit at the bottom thereof;
c) a suction blower for drawing air in the hollow cylinder; and
d) a chamber disposed under the slit of the hollow cylinder and having a weighted damper at the bottom thereof.

5,669,742
TOOL HOLDER FOR THE CLAMPING OF CUTTING INSERTS

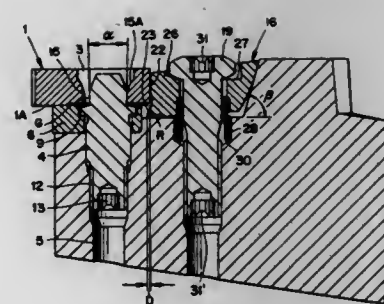
Sture Sjöberg, Gävle, and Håkan Ericsson, Kungälv, both of Sweden, assignors to Sandvik Aktiebolag, Sandviken, Sweden

Filed Apr. 10, 1996, Ser. No. 630,327
Claims priority, application Sweden, Apr. 11, 1995, 9501341
Int. Cl.⁶ B23B 29/04; 27/16

U.S. Cl. 407—105

8 Claims

1. A tool holder for clamping cutting inserts, comprising:
a body forming an insert-support surface adapted to support a cutting insert, and a wedge-support surface adapted to support a wedge;
the wedge-support surface including a front portion disposed adjacent the insert-support surface and a rear portion extending upwardly at an obtuse angle relative to the front portion;



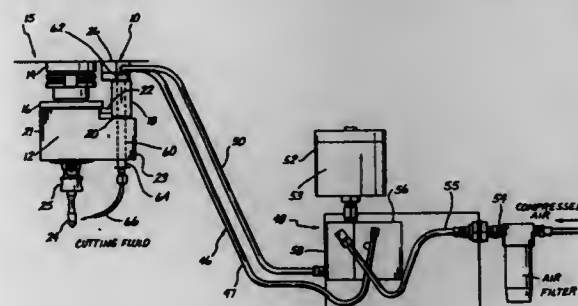
a pin projecting upwardly from the insert-support surface and adapted to enter a through-hole of a cutting insert, the rear portion of the wedge-support surface facing generally toward the pin; and
a wedge supported by the wedge-support surface and including a through-hole receiving a fastening screw which secures the wedge to the front portion of the wedge-support surface, the wedge including a rear contact surface abutting the rear portion of the wedge-support surface to cause the wedge to be displaced toward the pin when the fastener screw is tightened, the wedge including a front contact surface disposed opposite the rear contact surface, the front contact surface including an insert-engaging portion for abutting and pushing an insert against the pin, the front contact portion also including a supporting heel for abutting the front portion of the wedge-support surface at a location which is disposed closer to an axis of the pin than is the insert-engaging portion.

5,669,743
FLUID DISPENSING AND CONTROL SYSTEM FOR TAPPING ATTACHMENTS

Mark F. Johnson, Harrison, Id., and Wallace G. Boelkins, Grand Rapids, Mich., assignors to Tapmatic Corporation, Post Falls, Id., and Unimist, Inc., Grand Rapids, Mich.
Filed Jul. 14, 1995, Ser. No. 502,705
Int. Cl.⁶ B23B 51/06

U.S. Cl. 408—56

13 Claims



1. A system for dispensing of fluid, including cutting fluid and coolant for a tapping attachment comprising:
(1) sensor-actuator means responsive to presence and absence of air flow to control dispensing of fluid to a tapping attachment;
(2) Control means connectable with said sensor-actuator means for air flow therebetween, said control means including means for controlling air flow between said control means and said sensor-actuator means and being connectable to a tapping attachment.

5,669,744
ROTARY CHISEL
Donald G. Hines, 1516 S. Jefferson, Casper, Wyo. 82601
Filed Jan. 5, 1996, Ser. No. 583,613
Int. Cl.⁶ B23C 1/20; 5/02

U.S. Cl. 409—181

6 Claims



1. A rotary chisel for use in a rotary power unit, said chisel comprising:
(a) an elongated mandrel having first and second ends;
(b) a triangularly shaped cutting head having three cutting points equidistantly spaced around the perimeter of said cutting head; wherein said cutting head is mounted on said first end of said mandrel; and wherein said cutting head is formed of three linear sides substantially equal in length, each side extending between a cutting point and a recessed area adjacent to another said cutting point.

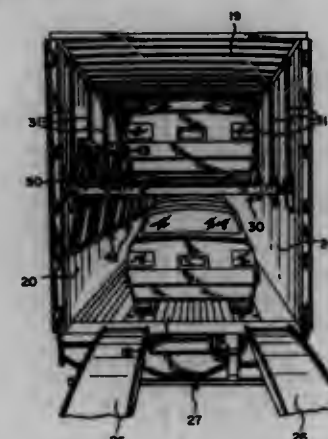
5,669,745
BUMPER SYSTEM FOR AN INTERMODAL AUTO TRAILER

John D. Anderson, Aurora, Ill., assignor to Zeftek, Inc., Montgomery, Ill.

Filed Aug. 30, 1995, Ser. No. 521,528
Int. Cl.⁶ B60P 7/16; B61D 45/00

U.S. Cl. 410—87

26 Claims



1. In a trailer for carrying vehicles, wherein the trailer includes a floor, a roof, upstanding side walls between the roof and floor, an end wall between the roof and floor at one end, doors at the other end movable between open and closed positions for loading and unloading vehicles and/or freight, and a deck movable between the floor and roof, the improvement being in a bumper system

mounted on at least one of the upper or lower sides of the deck for protecting the vehicle doors from contacting the side walls of the trailer and against damage when the doors are opened, said bumper system comprising:

a bumper having at least a door contacting portion of material that prevents vehicle door damage when contacted,
a plurality of extension arms pivotally mounted at one end to the bumper and pivotally mounted at the other end to the deck such that said bumper is movable between open position for engagement by said doors and closed position for storage against the deck, whereby said bumper may be selectively closed to allow the deck to be raised to a position against the roof or lowered to a position against the floor.

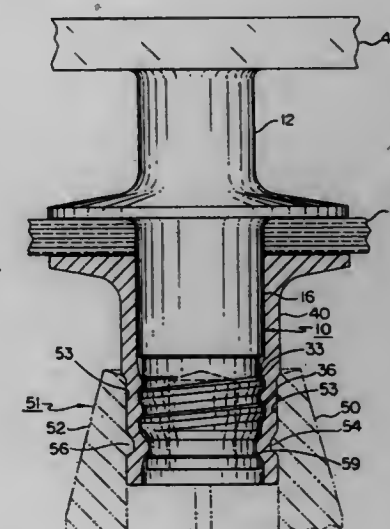
5,669,746
FASTENER HAVING SPIRAL SHAPED COLLAR PORTION

Alan R. Myers, Quail Valley, and Albert K. Yamamoto, Huntington Beach, both of Calif., assignors to Fairchild Holding Corp., Chantilly, Va.

Filed Aug. 12, 1996, Ser. No. 689,618
Int. Cl.⁶ F16B 19/00; 35/00

U.S. Cl. 411—361

3 Claims

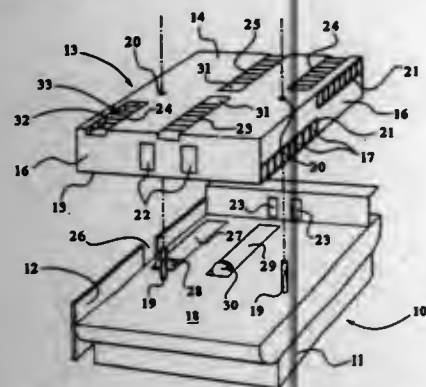


1. A fastener system comprising
a bolt having a longitudinal axis and a head at one end and a gripping portion adjacent its other end, said gripping portion comprising a first annular groove, a second groove extending at an angle to said longitudinal axis, a third groove extending at an angle to said longitudinal axis, a shoulder separating said second and third grooves, a first cone shaped surface extending at an angle to said longitudinal axis, a fourth groove extending at an angle to said longitudinal axis and a second cone shaped surface extending to an angle to said longitudinal axis; and
a collar member constructed for fitting over the bolt to surround the gripping portion, said collar being swaged from an initial state to a swaged state into the bolt in the gripping portion, in said initial state said collar having an outside surface and an interior surface, in said swaged state the interior surface of said collar preventing axial movement with respect to said bolt by deforming into a complementary shape to said bolt about said gripping portion, removal of said swaged collar from said bolt being enhanced by said cone shaped surfaces.

5,669,747
CODED COIL ELEMENT CARTRIDGE
 Roger M. Scherer, Des Plaines, Ill., assignor to General Binding Corporation, Northbrook, Ill.
 Filed Mar. 26, 1996, Ser. No. 620,673
 Int. Cl.⁶ B42B 5/08

U.S. Cl. 412—38

16 Claims



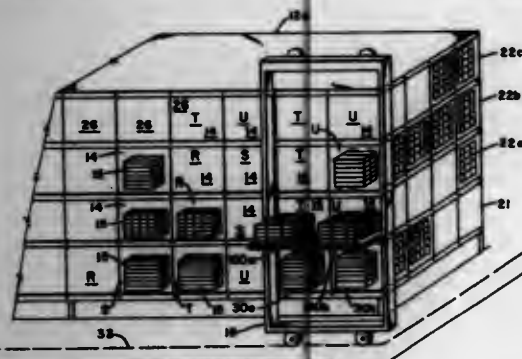
1. For use in a system for handling a supply of multi-spiral coil elements and extracting said coil elements one at a time from said supply:

- a container having a top surface, a bottom surface, and opposed sidewall surfaces extending therebetween for defining an interior space;
- a quantity of spiral coil elements disposed in said interior space, each coil element exhibiting a longitudinal axis about which its coil spirals parallel to the longitudinal axes of the other coil elements;
- a first elongated opening in at least one of said top and bottom surfaces extending lengthwise transversely of the longitudinal axes of said coil elements and exposing intermediate portions of said coil elements; and
- a second elongated opening in at least one of said sidewall surfaces extending lengthwise transversely of the longitudinal axes of said coil elements and exposing end portions of said coil elements.

5,669,748
PRODUCT HANDLING PROCESS AND SYSTEM
 Peter S. Knudsen, Jr., Hamden, Conn., assignor to Progressive Solutions, Inc., Hamden, Conn.
 Division of Ser. No. 361,196, Dec. 21, 1994, Pat. No. 5,564,890. This application Jul. 22, 1996, Ser. No. 681,115
 Int. Cl.⁶ B65G 1/06

U.S. Cl. 414—273

15 Claims



1. A product handling system, comprising:
- a storage structure comprising a plurality of product pallet lanes, each of which having a quantity of pallets of product cases therein;
 - a transporter for replenishing pairs of juxtaposed pallet lanes with pairs of corresponding product pallets; and

a control system for (i) controlling said transporter to automatically and simultaneously replenish the pairs of juxtaposed pallet lanes, (ii) recording the quantity of product pallets in each of said product pallet lanes, (iii) determining if there is a product pallet lane depleted of pallets such that the quantity of pallets therein is below a first predetermined quantity, and (iv) automatically halting said transporter from replenishing the pairs of juxtaposed pallet lanes if the control system determines that there is a product pallet lane depleted of pallets such that the quantity of pallets therein is below the first predetermined quantity, and directing said transporter to replenish only the depleted product pallet lane until the quantity of pallets therein increases to a second predetermined quantity.

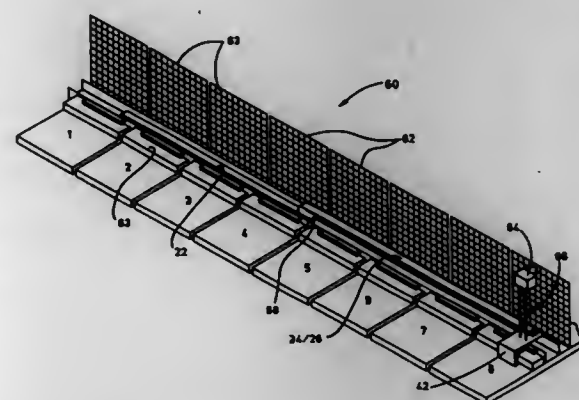
5,669,749
MOVABLE FLEXIBLE RIBBON CABLE AND SUPPORT BAND ASSEMBLY
 Craig T. Danielson; James Lawrence Overacker; Gustave Christian Stern, and Martin David Williams, all of Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 14, 1994, Ser. No. 338,292

Int. Cl.⁶ B65G 1/04

U.S. Cl. 414—280

50 Claims

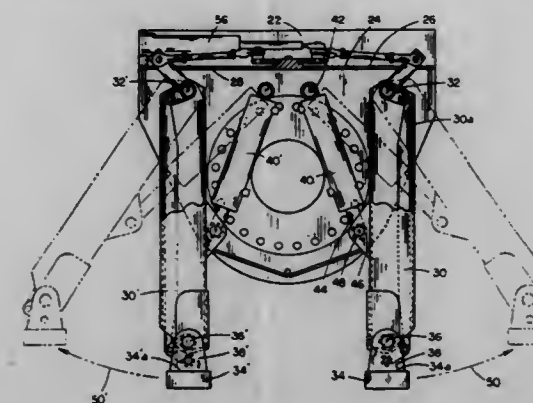


1. A robotic media storage library comprising:
- an elongated framework which has a vertical wall of receptacles for containing media units and at least one media drive;
 - a horizontally extending track along said wall of receptacles and an electrically powered accessor for moving horizontally on the track, the accessor including a vertically positionable media picker so that media units can be transported between said receptacles and/or said drive;
 - at least one elongated flexible ribbon cable having a first end fixed at a location in relationship to the framework for receiving electrical power, a second end which is connected to the accessor for delivering said electrical power to the accessor and movable horizontally therewith and a loop between said first and second ends;
 - an elongated support band having a first end fixed substantially at said location, a second end which is connected to the accessor and movable horizontally therewith and a loop between said first and second ends of the support band;
 - the flexible ribbon cable and the support band being substantially coextensive and substantially engaging one another along their lengths; and
 - each of the flexible ribbon cable and the support band having a cross section, as seen perpendicularly across its respective length, which is cupped with one of the flexible ribbon cable and the support band being cupped in a complementary fashion within the other one of the flexible ribbon cable and the support band.

5,669,750
LOADER ATTACHMENT
 Lee R. Vieselmeyer, P.O. Box 36, Davenport, Nebr. 68335
 Filed Jul. 19, 1996, Ser. No. 684,577
 Int. Cl.⁶ B66C 23/00

U.S. Cl. 414—722

7 Claims



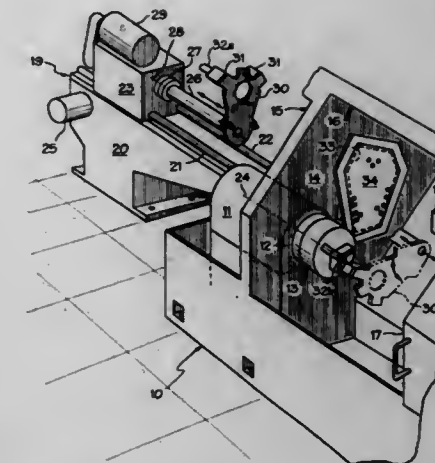
1. A loader attachment, comprising:
- a frame having a forward wall and rearward wall;
 - a first arm pivotally connected at an upper end to the frame for pivotal movement about a generally horizontal axis oriented in a forward-rearward direction;
 - a first tine pivotally connected to a lower end of the first arm, for pivotal movement about an axis parallel to the arm upper end pivot axis, said tine projecting forwardly from said first arm;
 - first means connected between the frame and the first arm, for selectively pivoting said arm about the first arm upper pivot axis, in inward and outward directions;
 - a second arm pivotally connected at an upper end to the frame for pivotal movement about a pivot axis parallel and spaced apart from the first arm upper pivot axis;
 - a second tine pivotally connected to a lower end of the third arm, for pivotal movement about an axis parallel to the second arm upper end pivot axis, said second tine projecting forwardly from said second arm;
 - second means connected between the frame and the second arm, for selectively pivoting said second arm about the second arm upper pivot axis, inwardly towards the first arm and outwardly away from the first arm;
 - each, said tine including an upper surface;
 - linkage means connecting said first and second tines, for maintaining selected orientation of the first tine upper surface relative to the second tine upper surface; and
 - an operable actuator connected between said frame and said linkage means, operable to rotate the tines about their respective arm lower pivot axes in opposing rotational directions.

5,669,751
TRANSPORT SYSTEM FOR WORKPIECES
 James R. Hoffman, Cincinnati, and Robert F. Massmann, Wilmington, both of Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio
 Filed May 9, 1994, Ser. No. 239,776
 Int. Cl.⁶ B65G 35/00

U.S. Cl. 414—751

2 Claims

1. A transport system for workpieces, comprising:
- an enclosure for a machine, comprising
 - a guard for substantially enclosing a workpiece processing zone,
 - an opening in said guard for transit of workpieces into and out of said guard,
 - a door, sized to close said opening, and
 - means for releasably locking said door to said guard; and
 - a workpiece transporter, comprising
 - a base, proximal said machine enclosure,



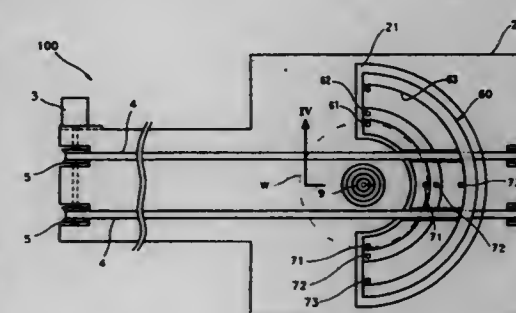
- a support arm, movably mounted to said base, for movement through said opening,
- means for gripping a workpiece, said gripping means being mounted to said support arm and movable through said opening, and
- means for unlocking and releasably attaching said door to said support arm, said attaching means being mounted, in part, to said support arm,
- whereby, when the support arm and gripping means are moved to the enclosure, the door is unlocked from the guard and attached to the support arm by the attaching means, and whereby, as the support arm and gripping means are further moved through the opening and into the guard, the door moves with the support arm, away from the opening.

5,669,752
SEMICONDUCTOR WAFER PRE-ALIGNING APPARATUS
 Chang-youl Moon, Ulsan, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
 Filed Jul. 16, 1996, Ser. No. 680,871
 Claims priority, application Rep. of Korea, Dec. 13, 1995, 95-49284

U.S. Cl. 414—783

Int. Cl.⁶ B65G 49/07

4 Claims



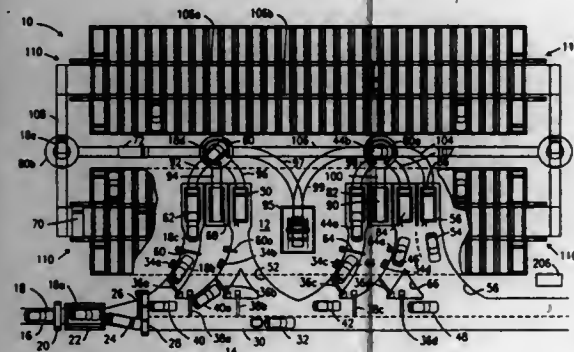
1. A semiconductor wafer pre-aligning apparatus comprising:
- a wafer transfer unit for transferring a semiconductor wafer; and
 - a wafer stopping unit for stopping and disposing said transferred semiconductor wafer on a predetermined position of a transferring path,
- wherein said wafer stopping unit comprises:
- a stop elevatably disposed on said wafer transferring path and having a plurality of stepped and arc-shaped walls whose radii are different from one another but whose curvature centers coincide; and
 - means for elevating said wafer stopping unit.

5,669,753
MODULAR AUTOMATED PARKING SYSTEM
 Heiner Schween, 240 Windward Passage, #1103, Clearwater,
 Fla. 34630

Filed Dec. 9, 1994, Ser. No. 352,945
 Int. Cl.⁶ E04H 6/12

U.S. Cl. 414—786

4 Claims



1. A method for parking vehicles in a parking garage having more than one floor, comprising the steps of:
 positioning a pallet at an arrival station in raised relation to a support surface;
 inserting a carrier beneath said pallet;
 lifting said pallet from said support surface, said carrier being adapted to include pallet-lifting means for performing said lifting;
 employing said carrier to transport said pallet and said vehicle to a lifting device;
 deploying a carrier-supporting means into said lifting device;
 inserting said carrier and hence said pallet and said vehicle into said lifting device;
 deploying a pallet supporting means into said lifting device to lift said pallet from said carrier to support said pallet independently of said carrier;
 withdrawing said carrier from said lifting device after said pallet is supported independently of said carrier-supporting means;
 employing said pallet supporting means to lift said pallet one floor, said lifting bringing said pallet to a second floor of said parking garage;
 deploying a carrier supporting means associated with said second floor into said lifting device;
 inserting a second carrier stationed on said second floor into said lifting device;
 employing said second carrier to lift said pallet from said pallet supporting means by activating a pallet-lifting means that forms a part of said second carrier; and
 transporting said pallet to an assigned parking space.

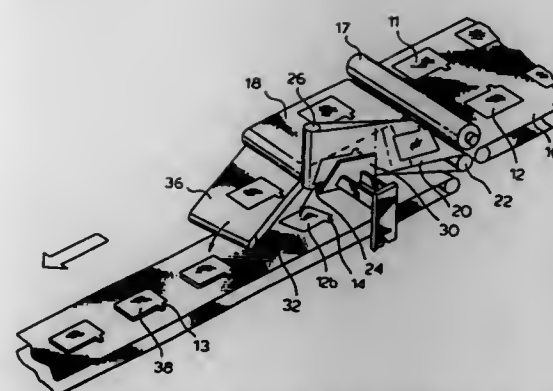
5,669,754
METHOD AND APPARATUS FOR COLLECTING PLATES
 Normand Croteau, Carignan; Fergus M. Groundwater, St. Lambert, and Jean Guy Caron, St. Bruno, all of Canada, assignors to Advanced Dynamics Corporation Ltd., St. Bruno, Canada

Filed Apr. 22, 1996, Ser. No. 635,797
 Int. Cl.⁶ B65G 57/06

U.S. Cl. 414—786

8 Claims

4. A method of collecting lead alloy battery plates each having a tab extending from a side edge thereof, from two rows of plates travelling side-by-side on a first conveyor with the tabs of one row of plates facing the tabs of the other row of plates, inverting the plates in one row of plates by passing the plates sequentially over an endless belt having an upper moving surface turning from a substantially horizontal plane through about 90° to a substantially vertical plane at a linear speed effective to turn the plates upside down onto a second conveyor, merging the two rows of plates by transferring the other row of plates onto a diagonal conveyor



intersecting the second conveyor and controlling the relative speeds of the second conveyor and diagonal conveyor whereby each plate from the diagonal conveyor is deposited on a plate on the second conveyor to form a pair of double plates with the tabs of the two plates at least partially overlapping each other, and assembling said double plates into bundles.

5,669,755
DEVICE FOR PRODUCING INDIVIDUAL STACKS OF SHEETS

Erich Michael Zahn, Eppelheim, Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany
 PCT No. PCT/EP94/00219, § 371 Date Aug. 28, 1995, § 102(e)
 Date Aug. 28, 1995, PCT Pub. No. WO94/19270, PCT Pub. Date Sep. 1, 1994

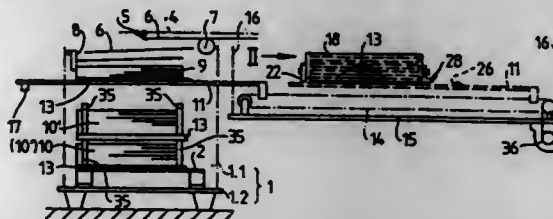
PCT Filed Jan. 27, 1994, Ser. No. 513,830

Claims priority, application Germany, Feb. 27, 1993, 43 06 219.9; Dec. 24, 1993, 43 44 361.3

Int. Cl.⁶ B65G 57/03

U.S. Cl. 414—790.1

12 Claims



1. Device for producing individual stacks of sheets from a continuous, downwardly directed stream of sheets formed of consecutively arriving, substantially horizontal sheets, comprising:

a stack lifting device with a lifting platform and a stack base disposed on said lifting platform;

an auxiliary carrying device with a plurality of mutually parallel grid rods together forming a rack, said rack being displaceable back and forth between a standby position outside a stream of sheets, and a receiving position inside the stream of sheets; and

a stack support surface formed on said stack base, said stack-support surface having mutually parallel grooves formed therein for receiving said grid rods;

wherein, when said rack is in the receiving position, said auxiliary carrying device temporarily carries an auxiliary stack formed of a partial quantity of sheets from the stream of sheets, and when said rack moves into the standby position, said rack transfers the auxiliary stack to said stack lifting device; and wherein further sheets from the stream of sheets build up the auxiliary stack, transferred to said stack lifting device, to form a stack of sheets; and

a horizontally oriented receiving plate movable by said auxiliary carrying device between a position outside the stream of sheets into a receiving position inside the stream of sheets; said receiving plate being provided in addition to said stack base, the plate having a plane, a closed stack-support surface,

and being movable independently of said stack base; and said rack carrying said receiving plate until the auxiliary stack is transferred to said stack lifting device.

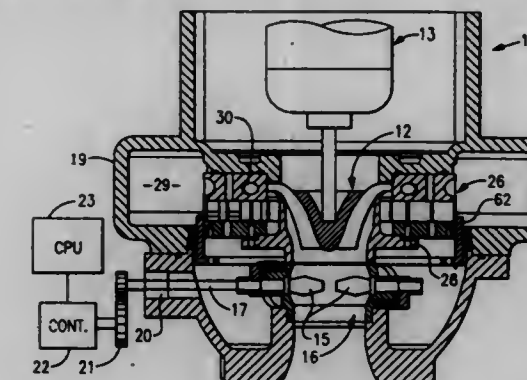
5,669,756
RECIRCULATING DIFFUSER
 Joost J. Brasz, Fayetteville, and John W. Salvage, Jamesville, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Jun. 7, 1996, Ser. No. 663,329

Int. Cl.⁶ F01D 5/04

U.S. Cl. 415—58.2

25 Claims



1. A centrifugal compressor having an impeller wheel mounted for rotation about a central axis for compressing a fluid, and a diffuser for expanding the compressed fluid into a collector chamber, said compressor further including

a plenum chamber contained in a shroud surrounding said impeller,

a series of spaced apart deswirl blades circumferentially positioned about the impeller wheel and extending between the collector chamber and the plenum chamber for establishing a first set of deswirl flow passages for placing the collector chamber in fluid flow communication with the plenum chamber,

a series of spaced apart channel vanes mounted in said plenum chamber about the impeller tip region for reestablishing a second set of channel flow passages for introducing fluid from the plenum chamber into the impeller exit flow, said first and second flow passages combining to adjust the fluid flow to about the exit speed and direction of fluid leaving the impeller, and

control means for regulating the flow of fluid moving through the deswirl passages to regulate the amount of fluid introduced into said impeller exit flow and thus maintain the total flow moving through the diffuser relatively constant under varying load conditions.

5,669,757
TURBINE NOZZLE RETAINER ASSEMBLY
 Norman C. Brackett, N. Reading, Mass., assignor to General Electric Company, Cincinnati, Ohio

Filed Nov. 30, 1995, Ser. No. 565,709

Int. Cl.⁶ F01D 9/04

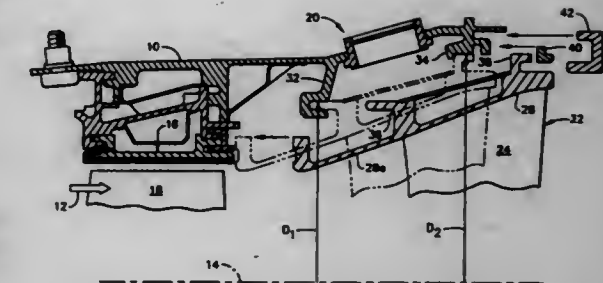
U.S. Cl. 415—209.2

7 Claims

1. A gas turbine engine nozzle assembly comprising:
 an outer casing having first and second radially inwardly extending and axially spaced apart annular support flanges;

a nozzle segment including a plurality of circumferentially spaced apart nozzle vanes extending radially between inner and outer bands, said outer band including first and second axially spaced apart retention hooks;

with said first hook being configured to axially engage said first support flange for radially supporting said nozzle segment,



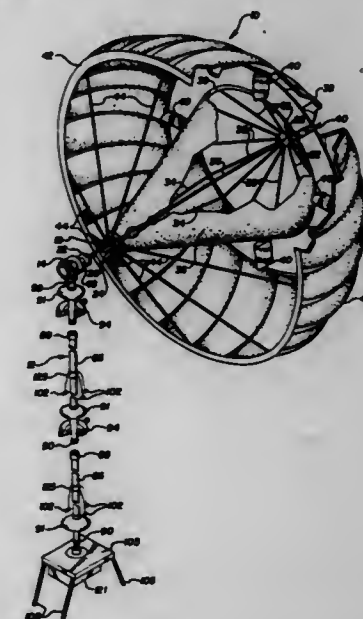
and said second support flange including means for axially receiving said second hook without tilting of said nozzle segment;

an annular retainer radially engaging said second support flange and axially abutting said second hook for axially retaining said second hook; and
 an annular C-sectioned clip axially engaging said second hook and support flange around said retainer for radially supporting said nozzle segment.

5,669,758
WIND TURBINE
 Larry D. Williamson, Rte. #1, Box 156A, Ranger, Tex. 76470
 Filed Jan. 24, 1996, Ser. No. 592,884
 Int. Cl.⁶ F03B 5/00

U.S. Cl. 416—4

16 Claims



1. A wind turbine comprising:

an apical support structure including a cylindrical shaft having a first end and a second end, a first flange provided at said first end of said cylindrical shaft, a hollow substantially frustoconical portion having a wide mouth and a narrow end attached to said second end of said cylindrical shaft, said substantially frustoconical portion defining a concavity;

a support rod having a first end and a second end, said first end of said support rod located within said concavity and attached to said narrow end of said substantially frustoconical portion, a second flange provided at said second end of said support rod;

a first support ring surrounding said support rod and axially located between said first end of said support rod and said second end of said support rod;

first set of support cables, each one of said first set of support cables extending between said second flange and said first support ring;

second set of support cables, each one of said second set of support cables extending between said substantially frustoconical portion and said first support ring, said first set of support cables and said second set of support cables being under tension to thereby maintain said first support ring in a fixed position relative to said support rod;

a fabric cover covering said second set of support cables to thereby form a central substantially conical fairing;

a second support ring concentric with and having a larger diameter than said first support ring;

a plurality of turbine blades extending between said first support ring and said second support ring;

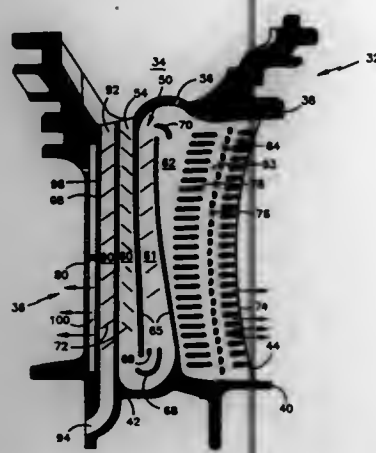
a third support ring concentric with and having a larger diameter than said second support ring and being positioned closer to said substantially frustoconical portion relative to said second support ring when wind having a speed greater than or equal to a predetermined value is passing through said wind turbine;

a third set of support cables extending between said third support ring and said substantially frustoconical portion;

a fabric ring extending between said third support ring and said second support ring, said fabric ring essentially assuming the shape of a truncated parabola when wind having a speed greater than or equal to a predetermined value is passing through said wind turbine to thereby form a shroud for said plurality of turbine blades, said third set of support cables being under tension and in cooperation with said fabric ring maintaining said third support ring in a fixed position relative to said support rod when wind having a speed greater than or equal to a predetermined value is passing through said wind turbine; and

a rotatably supported stub shaft fixedly attached to said first flange, whereby said shroud in cooperation with said conical fairing direct the wind toward said plurality of turbine blades thereby imparting rotational motion to said wind turbine to thereby derive usable power in mechanical form from the wind.

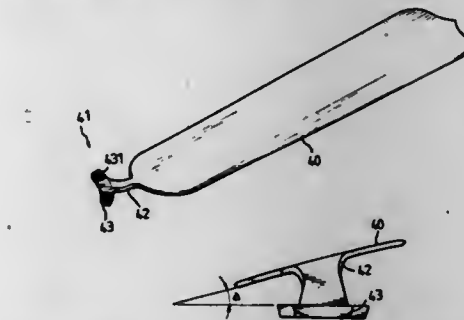
5,669,759
TURBINE AIRFOIL WITH ENHANCED COOLING
 Brian K. Beabout, Coventry, Conn., assignor to United Technologies Corporation, Hartford, Conn.
 Division of Ser. No. 382,823, Feb. 3, 1995, Pat. No. 5,511,309.
 This application Jul. 13, 1995, Ser. No. 522,169
 Int. Cl.⁶ F01D 5/08
 U.S. Cl. 416—97 R



1. In an internally air cooled gas turbine engine airfoil having first and second radially opposed ends and leading and trailing portions, said airfoil including an internal cooling air passage having an upstream portion, a downstream portion and a medial portion therebetween, and a primary cooling air inlet communicating with said passage at said upstream portion the improvement characterized by:

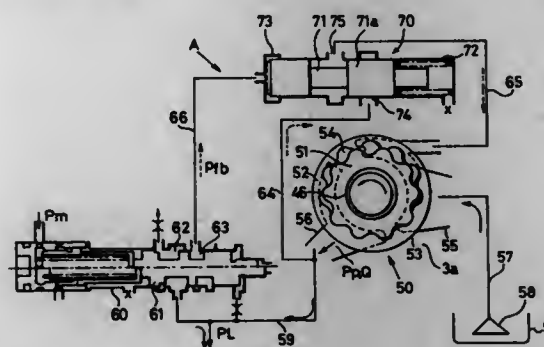
a secondary cooling air inlet communicating with said serpentine passage at said medial portion thereof for enhancing the flow of cooling air through said airfoil by increasing the flow of cooling air through said downstream portion of said cooling air passage.

5,669,760
CEILING FAN WITH INTEGRAL BLADE AND NECK
 Jung-San Chen, No. 1, Section 2, Da-Feng Rd., Da-Feng Village, Tan Tze Hsiang, Taichung Hsien, Taiwan
 Filed Jul. 11, 1996, Ser. No. 679,340
 Int. Cl.⁶ F04D 29/34; 29/38
 U.S. Cl. 416—210 R



1. A combination of a blade portion and a blade support portion of a ceiling fan, said blade portion being an elongate plate which has one end which is a free end, said support portion comprising a base and a neck which extends from said base and integrally connects to the other end of said blade portion; and said blade portion having a curved surface defined in an under surface thereof along a longitudinal axis of said blade portion, and two longitudinal sides each having an upper longitudinal edge and a lower longitudinal edge, each of said two upper longitudinal edges and said lower longitudinal edges being shaped to have an inclined longitudinal surface so as to form each of said two sides as a wedge-like side to reduce resistance of air.

5,669,761
DISCHARGE CONTROL APPARATUS OF HYDRAULIC PUMP FOR AUTOMATIC TRANSMISSION
 Toshio Kobayashi, Tokyo, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan
 Filed Nov. 8, 1995, Ser. No. 555,582
 Claims priority, application Japan, Nov. 15, 1994, 6-280604
 Int. Cl.⁶ F04B 49/08
 U.S. Cl. 417—302



1. A control system of a hydraulic pump for an automatic transmission having an engine connected to said automatic transmission for transmitting power and for directly driving said hydraulic pump, a transmission case entirely enclosing said automatic transmission, a pump cover connected to said transmission

case for covering said hydraulic pump, a wall section provided in front of said hydraulic pump for covering thereof, and a pressure regulating valve operatively connected to a delivery port of said hydraulic pump for controlling a line pressure of said control system, comprising:

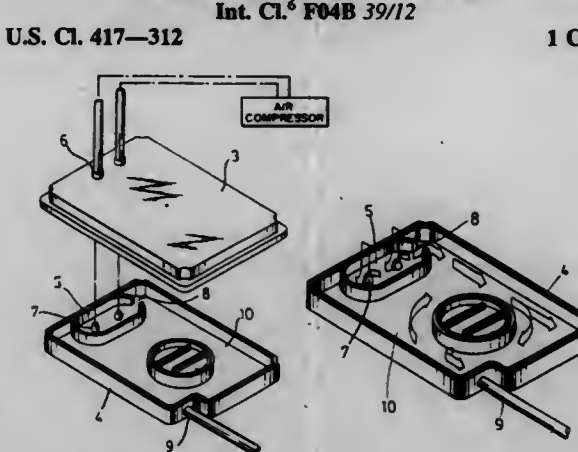
a flow control valve included in said pump cover and operatively connected between said hydraulic pump and said pressure regulating valve for controlling a supply of hydraulic oil to said control system;

an oil passage formed in said wall section for communicating between an oil chamber of said flow control valve and a feedback pressure port of said pressure regulating valve for urging an end of said flow control valve to be displaced by a feedback pressure; and

a bypass passage formed in said wall section for communicating between said delivery port and a first port of said flow control valve; wherein

said flow control valve accurately regulates a delivery pressure in accordance with said feedback pressure so as to effectively economize fuel consumption in a rigid compact configuration.

5,669,762
SOUND AND PULSATION REDUCING OUTLET CHAMBER FOR AN AIR COMPRESSOR
 Daniel Lee, Taipei, Taiwan, assignor to Apex Medical Corp., Taipei, Taiwan
 Filed Jul. 25, 1996, Ser. No. 686,027
 Int. Cl.⁶ F04B 39/12
 U.S. Cl. 417—312



1. An air chamber structure for a medical air compressor comprising:

(a) an upper housing portion including a protruding edge, a storage chamber wall disposed within the upper housing portion at one end thereof, the protruding edge and the storage chamber wall being of substantially the same height, a pair of input pipes for connecting the storage chamber to a pressure chamber of a compressor, and a first flow guiding port provided at a lateral side of the storage chamber wall;

(b) a lower housing portion including a protruding edge, a second storage chamber wall disposed within the lower housing portion adjacent an end thereof, the protruding edge and the second storage chamber wall being of substantially the same height, a bottom wall, a pair of flow guiding stubs provided on the bottom wall within the second storage chamber wall, the flow guiding stubs corresponding in location to the input pipes of the upper housing portion, a second guiding port at one lateral side of the second storage chamber wall, an output pipe extending from the lower housing portion at a location opposite to the second storage chamber wall for connection to a medical article to be inflated; and

(c) wherein when the upper and lower housing portions are secured together along their protruding edges, a pressure

stabilizing chamber is formed therebetween and the first and second storage chamber walls form an independent storage chamber disposed within the pressure-stabilizing chamber so that when air is alternately pumped into the storage chamber through the pair of input pipes, the air is scattered by the flow guiding stubs and is uniformly spread within the pressure stabilizing chamber and thereafter distributed through the output pipe at a constant flow rate.

5,669,763
FUEL PUMP UNIT AND AN ELECTRICAL CONNECTOR THEREFOR

John Edward Pryce, Hertford Heath, and Richard Johnathon Howells, London, both of Great Britain, assignors to The Whitaker Corporation, Wilmington, Del.

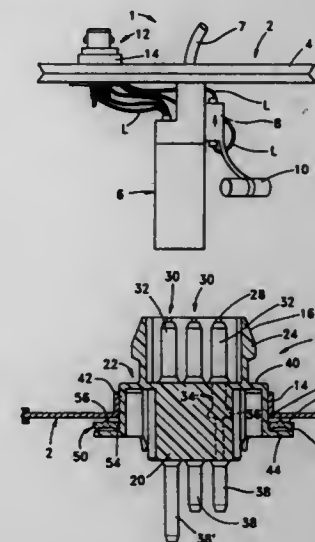
Filed Aug. 10, 1995, Ser. No. 513,467

Claims priority, application United Kingdom, Aug. 11, 1994, 9416217

Int. Cl.⁶ H01R 13/52

U.S. Cl. 417—313

8 Claims



1. A fuel pump unit for a fuel tank, the pump unit comprising a pump supporting flange for closing an opening in the fuel tank, the supporting flange thus having a wet side and a dry side, an electric fuel pump supported by the flange and projecting from the wet side thereof, and an electrical connector having an insulating housing fitted in an opening in the supporting flange, wherein the housing comprises a mating portion on the dry side of the supporting flange, an annular seal compressing flange surrounding the housing on the wet side of the supporting flange, and an insulating block with a plurality of electrical terminals therein, each terminal having a mating section extending into the mating portion of the housing, and on the wet side of the supporting flange, a lead connecting section electrically connected to a respective insulated electrical lead by means of an insulation displacing electrical clip, the leads being in turn electrically connected to respective contacts of the pump, a sealing ring on the annular flange being compressed by the annular flange against the wet side of the pump supporting flange to seal the opening therein.

5,669,764

PNEUMATIC DIAPHRAGM PUMP

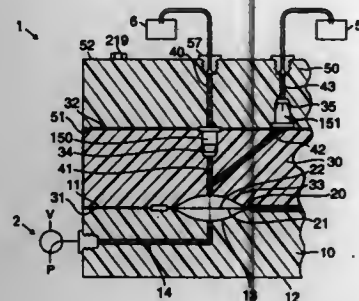
Bruce E. Behringer, Park Ridge, N.J., and James A. Mawhirt, Brooklyn, N.Y., assignors to Bayer Corporation, Tarrytown, N.Y.

Continuation-in-part of Ser. No. 319,856, Oct. 7, 1994, abandoned, and Ser. No. 319,858, Oct. 7, 1994, abandoned. This application Oct. 30, 1995, Ser. No. 549,958

Int. Cl.⁶ F04B 43/073

U.S. Cl. 417—395

20 Claims



1. An integral valve diaphragm pump comprising: a first rigid layer having a substantially planar first surface; a second rigid layer having a substantially planar second surface and a substantially planar third surface said second surface; a flexible membrane; the first and second rigid layers being connected in superposition with the flexible membrane therebetween and in contact with the first and second surfaces; an actuating chamber located in the first rigid layer demarcated by a first concave surface in the first surface and one side of the flexible membrane; a pump chamber located in the second layer demarcated by a second concave surface in the second surface and the other side of the flexible membrane; a first fluid passageway connected to the pump chamber and having a filling check valve therein; a second fluid passageway connected to the pump chamber having a dispensing check valve therein; a third fluid passageway connected to the actuating chamber at a first junction; a pressure source and a vacuum source connected to the actuating chamber through the third fluid passageway operative to flex the flexible membrane between the first and second concave surfaces; and a third rigid layer having a substantially planar fourth surface, said second and third rigid layers being connected in superposition at said third and fourth surfaces; wherein said filling check valve is disposed in a chamber in said second layer and said dispensing check valve is disposed in a chamber in said third layer.

5,669,765

PAIR OF CONVEYOR WORMS FOR ROTARY POSITIVE-DISPLACEMENT PUMPS

Heinrich Moller, and Henning Moller, both of Bohnenkampstrasse 11, Obernkirchen, Germany, D-31683

Continuation of Ser. No. 373,277, Jan. 27, 1995, abandoned. This application Jul. 19, 1996, Ser. No. 683,914

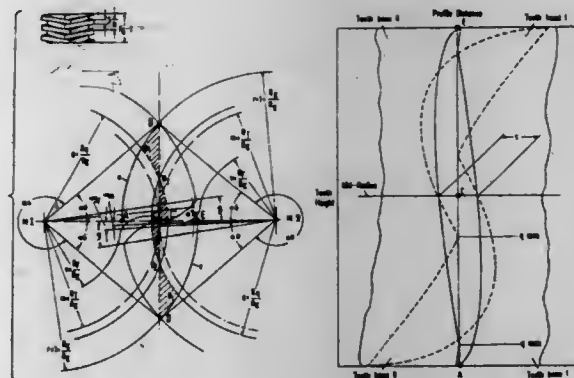
Claims priority, application Germany, Jul. 29, 1992, 42 24 969.4

Int. Cl.⁶ F04C 2/16

U.S. Cl. 418—1

19 Claims

1. A pair of conveyor screws for rotating positive-displacement pumps, the conveyor screws including a rotor and a contra-rotor, wherein said conveyor screws comprise a screw spindle pump and rotate with zero contact between said conveyor screws, said conveyor screws being positioned within a housing and



- rotating at a same speed, said conveyor screws including teeth, said teeth having opposing flanks extending along a length of said teeth, said conveyor screws forming loss gaps and having a same thread depth, a same number of threads and flank profiles which are symmetrical, and said conveyor screws including a tooth base positioned below a flank profile reversing radius and a tooth head positioned above said flank profile reversing radius, wherein a profile-produced loss gap width in an axial section on a mid-radius is kept constant for a specific rotor diameter by shifting the flank profile reversing radius as a function of a rotor pitch.

5,669,766

FOSSIL FUEL BURNERS

Peter F. Hufton, Etwell, England, assignor to Rolls-Royce Power Engineering plc, England

PCT No. PCT/GB93/01817, § 371 Date Mar. 24, 1995, § 102(e) Date Mar. 24, 1995, PCT Pub. No. WO94/05952, PCT Pub. Date Mar. 17, 1994

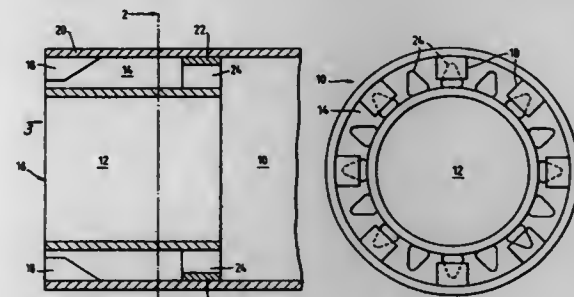
PCT Filed Aug. 26, 1993, Ser. No. 387,866

Claims priority, application United Kingdom, Sep. 2, 1992, 9218582; Dec. 16, 1992, 9226168; Apr. 28, 1993, 9308759

Int. Cl.⁶ F23D 1/00

U.S. Cl. 431—187

6 Claims



1. A fossil and air burner nozzle comprising a primary nozzle having an axis and nested, inner and outer coaxial passages, each passage being connected to a common supply conduit for receipt of a flow of mixed fossil fuel and air, said outer passage having an inlet end provided with a wall having apertures therethrough, said apertures being spaced about said axis in a symmetrical manner, said outer passage having an outlet end provided with a peripheral, equi-angular array of bluff members with each bluff member being axially aligned with a respective aperture in said wall.

5,669,767

DEVICE FOR USE WITH AN OIL LAMP TO ALLOW DIFFUSION OF THE SCENT OF A PERFUME ADDED TO THE OIL

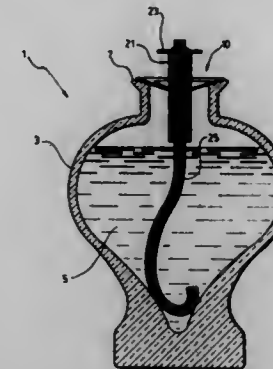
Jean-Louis Bureau, Charlesbourg, and Jacques Bureau, Ste-Anne de Beaupré, both of Canada, assignors to Rayflam Inc., Sainte-Foy, Canada

Filed Jul. 16, 1996, Ser. No. 680,862

Int. Cl.⁶ F23D 3/24

U.S. Cl. 431—320

10 Claims



1. A device for use in an oil lamp having an inside and a lip, to allow the diffusion of the scent of a perfume added to the oil, said lip lying in a generally horizontal plane, said device comprising a ring-shaped element having a plurality of inwardly downwardly protruding tabs that are spaced apart to define gaps therebetween permitting uninterrupted air flow between the inside of said bottle and the ambient air, said tabs having free ends defining an opening and sized and shaped to receive and hold a wick supporting tube, said tube having a longitudinal axis perpendicular to said plane and an upper end from which a wick projects, said tube being inserted into said opening so that said upper end is held in place at a given longitudinal distance from said lip.

whereby, in use, when said device is placed on said lip and said wick is lit, heat generated by said lighting heats said tube and said oil and causes said perfume to be released into the ambient air through said gaps.

5,669,768

APPARATUS FOR ADJUSTING A GAS INJECTOR OF FURNACE

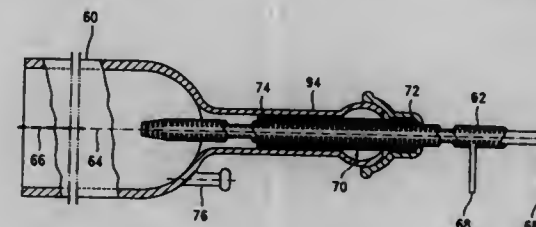
Yu-Tsai Lin; Edward Houn, both of Miao-Li, and Ben Chen, Hsinchu, all of Taiwan, assignors to United Microelectronics Corp., Hsinchu, Taiwan

Filed Mar. 15, 1996, Ser. No. 616,369

Int. Cl.⁶ F27B 5/04

U.S. Cl. 432—205

16 Claims



1. An apparatus for adjusting a gas injector of a furnace in connection with oxidation, diffusion and heat treating in semiconductor processing, the apparatus comprising:

a reaction tube for protecting a plurality of wafers therein from outside contamination and serving as a heat sink to even out the temperature therein, the gas injector having an axis superimposed approximately on an axis of the reaction tube, the gas injector being coupled to the reaction tube on one end, the

gas injector including at least one opening on the other end for passing source gas into the reaction tube; and an elongated open tube having an axis superimposed approximately on the axis of the gas injector, the elongated open tube including a first end secured to the gas injector and a second end secured to the gas injector at a joint where the gas injector is coupled to the reaction tube.

5,669,769

ILLUMINATION AND CONNECTOR DENTAL HANDPIECE ASSEMBLY

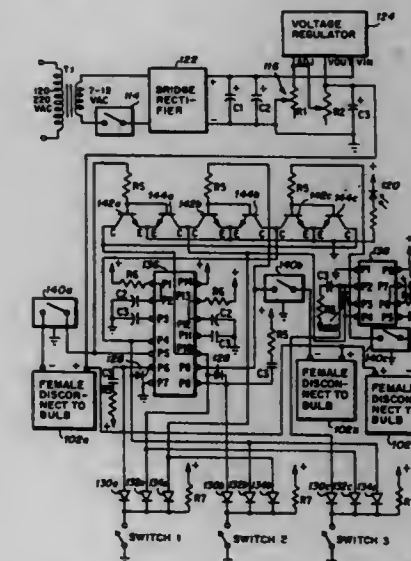
Jimmy D. Disel, San Jose, Calif., assignor to Aerotech Dental Systems, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 147,750, Nov. 4, 1993, Pat. No. 5,476,379. This application May 3, 1996, Ser. No. 642,842

Int. Cl.⁶ A61C 3/00

U.S. Cl. 433—29

4 Claims



1. A universal control circuit for an illumination system for use in connection with a dental delivery system having a plurality of a fluid-driven fiber optic dental handpieces, each of which has a body with a proximate end, a light transmitting fiber optic rod disposed in said body and a plurality of fluid transmitting conduits extending therefrom in standard configuration, and a connector assembly including a light bulb providing illumination to a work area via said fiber optic rod, comprising in operative combination: a) at least one voltage regulator providing power from its positive side to said bulb; b) a variable feedback resistor setting highside current connected to said voltage regulator so that as voltage to said bulb is adjusted, the current and voltage are adjustably controlled for use with all types of handpiece illumination bulbs.

5,669,770

DENTAL BIB WITH ATTACHED ADHESIVE TAB

Sheldon Fisher, 10715 Springdale Ave., Santa Fe Springs, Calif. 90670; Paul Allen Orofino, and Richard Allen Orofino, both of 10 Ranick Rd., Hauppauge, N.Y. 11788

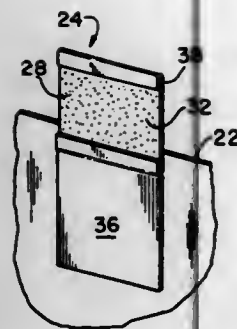
Filed Jun. 3, 1996, Ser. No. 657,313

Int. Cl.⁶ A41B 13/10; A61C 19/00

U.S. Cl. 433—137

1 Claim

1. A method for preparing for use and disposal a one-patient used dental bib with adhesive means thereon for adhesive attachment to a patient of a type heretofore having said adhesive means incident to the use of said bib exposed for attaching service upon the removal of an adhesive-inert release tab from covering relation over said adhesive means and unavoidably requiring disposal of

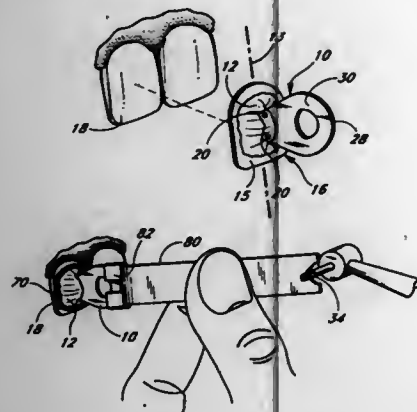


said adhesive-inert release tab, said method comprising the steps of attaching tabs with adhesive deposits thereon at spaced-apart locations along an upper edge of said bib and in an ascending extending relation therefrom, folding said tabs in a descending pivotal traverse upon tab length portions affixed to said bib to cover said adhesive deposits thereon so as to obviate any inadvertent adhesive attachments by said tabs during handling and storage of said bibs, unfolding said tab to expose said adhesive deposits preparatory to patient use of said bib incident to tab attachment to said patient without removal of release strip means as might contribute to litter accumulation, removing after a one-patient use said bib from said patient for disposal, and folding said tabs again in said descending pivotal traverse to cover said adhesive deposits preparatory to placement in a disposal repository, whereby there is obviated any inadvertent attachment to said disposal repository or any loose debris therein as might result from an uncovered adhesive deposit of said disposed dental bib.

5,669,771
DENTAL RESTORATION HOLDER SYSTEM
Robert L. Lee, 22937 Grand Terrace Rd., Grand Terrace, Calif. 92324
Continuation-in-part of Ser. No. 220,115, Mar. 30, 1994, Pat. No. 5,575,649, which is a continuation-in-part of Ser. No. 196,420, Feb. 15, 1994, Pat. No. 5,525,059, which is a continuation-in-part of Ser. No. 836,065, Feb. 12, 1992, Pat. No. 5,320,533. This application Jan. 9, 1995, Ser. No. 370,187
Int. Cl.⁶ A61C 5/08

U.S. Cl. 433—218

12 Claims

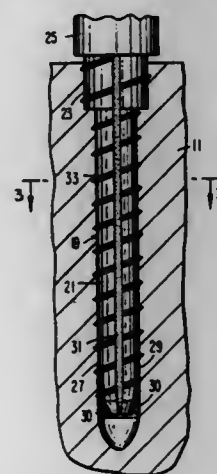


1. A method of mounting a dental restoration to a tooth to be restored comprising:
applying to an exterior surface of said restoration a primer that will facilitate the adhesion of an adhesive to the exterior surface of the restoration, said primer being removable from the restoration with isopropyl alcohol; and
attaching a restoration placement tool to the primer coated exterior of the restoration by applying hot-melt adhesive to said primer coated surface.

5,669,772
SLOTTED TAP AND LENTULO DRILL FOR DENTAL POST SYSTEM
Barry Muskant, Tenafly, N.J.; Allan S. Deutsch, New York, and Brett I. Cohen, Nanuet, both of N.Y., assignors to Essential Dental Systems, Inc., South Hackensack, N.J.
Filed Jan. 31, 1995, Ser. No. 381,428
Int. Cl.⁶ A61C 5/08; 5/02

U.S. Cl. 433—221

15 Claims

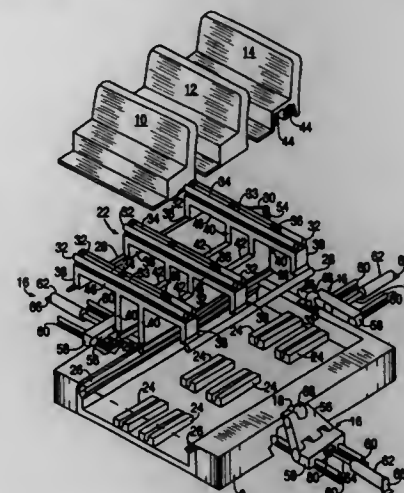


1. A post system for a dental root canal comprising:
a tap having at least one thread therealong for threaded insertion thereof in a post hole of a tooth in order to create at least one corresponding groove along said hole, and having at least one slot defined by at least a pair of substantially flexible legs and running at least a portion of the length thereof for reducing stress during insertion in said post hole;
a dental post having at least one thread therealong for threaded insertion into said post hole along said at least one corresponding groove following removal of said tap from said post hole; and
a cement for application to at least one of said post hole and said post prior to insertion of said post in said post hole.

5,669,773
REALISTIC MOTION RIDE SIMULATOR
Lewis Gluck, 14 Fox Run, Wappingers Falls, N.Y. 12590
Filed Apr. 26, 1996, Ser. No. 639,872
Int. Cl.⁶ G09B 9/00

U.S. Cl. 434—62

10 Claims



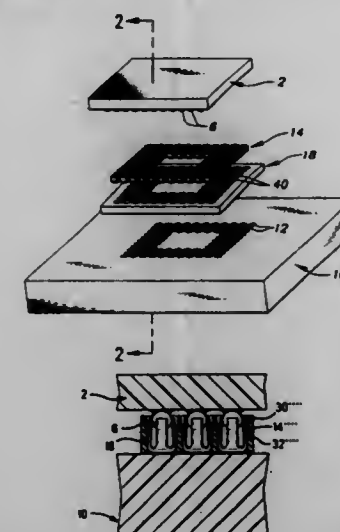
1. A ride motion simulator for a plurality of riders comprising:
a floor platform,

a first tier located above the floor platform;
a plurality of lifting mechanisms, each having an upper portion and a lower portion, wherein the upper portion is attached to the first tier and the lower portion is attached to the floor platform such that said each lifting mechanism raises and lowers the first tier with respect to the floor platform;
first actuator means attached to the lifting mechanisms for effecting the raising and lowering of the first tier with respect to the floor platform;
a second tier slidably mounted on top of the first tier wherein the second tier includes a plurality of support means for carrying the riders;
interface means communicating with the first tier and second tier for allowing the second tier and first tier to move longitudinally with respect to each other;
second actuator means attached to the first tier and second tier for effecting the longitudinal motion;
a third tier is slidably mounted on top of the support means wherein the third tier is occupied by the riders;
rail means running across the support means and affixed thereto for allowing the third tier and second tier to move laterally with respect to each other;
third actuator means attached to the second and third tiers for effecting the lateral motion and;
a plurality of force absorbing members each having a lower portion attached to the floor platform and an upper portion attached to the first tier where the first tier is moveable up and down, pitchable up and down, and tiltable fight and left and combinations thereof independent of the lateral motion of the second and third tiers with respect to each other and the longitudinal motion of the first and second tiers with respect to each other.

5,669,774
BALL GRID ARRAY SOCKET
Dimitry Grabbe, 2160 Rosedale Ave., Middletown, Pa. 17057
Continuation-in-part of Ser. No. 301,368, Sep. 6, 1994, abandoned. This application Mar. 13, 1996, Ser. No. 614,885
Int. Cl.⁶ H01R 9/09

U.S. Cl. 439—70

29 Claims



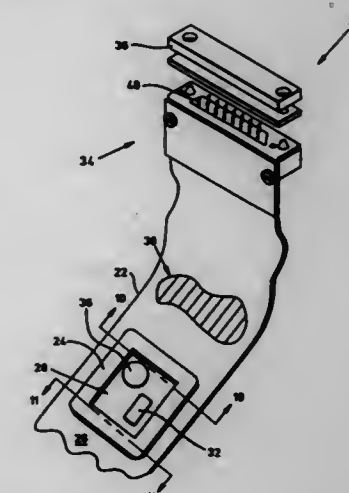
1. An electrical connection system for electrically connecting a first substrate to a second substrate comprising:
at least one ball contact disposed on a major surface of the first substrate, and;
at least one socket contact mountable on a major surface of the second substrate to receive the ball contact, the socket contact having a bottom wall, a side wall extending from the bottom wall in a direction toward a mating end and essentially perpendicular to the bottom wall, the side wall forming an opening into which the ball contact is inserted, and at least

one contact retention point provided on the side wall proximate the mating end and extending into the opening, the contact retention point cooperating with the ball contact to draw the ball contact into engagement with the socket contact during mating as the contact retention points pass over the ball contact.

5,669,775
ASSEMBLY FOR MOUNTING COMPONENTS TO FLEXIBLE CABLES
Jeffrey Scott Campbell, Binghamton; James D. Herard, Vestal; Ronald Peter Nowak, Vestal; John Robert Slack, Vestal, and David Brian Stone, Owego, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Sep. 5, 1995, Ser. No. 524,361
Int. Cl.⁶ H01R 9/09

U.S. Cl. 439—77

29 Claims



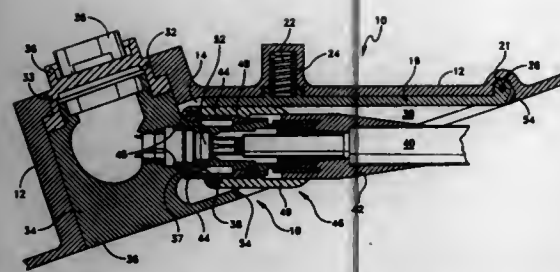
1. An assembly comprising:
a multi-conductor flexible cable having a plurality of conductors and an insulation layer; and
a reinforcer mounted on a surface of the flexible cable, the reinforcer having a length and width such that at least one dimension is less than the corresponding dimension of the flexible cable and wherein the length and width of the reinforcer define a cable enclosure area of increased local rigidity within the reinforcer that prevents flexure of the cable and is sufficiently large to permit one or more electrical components to be connected with at least one of the conductors at a location within the enclosure area.

5,669,776
CABLE CONNECTOR ASSEMBLY
Paul E. Moody, Barrington, R.I.; James M. McCarthy, Mattapoisett, Mass.; Dennis J. Langmack, deceased, late of Bristol, R.I., by Susan Langmack, administratrix, and Mark V. Chester, Tiverton, R.I., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Sep. 11, 1996, Ser. No. 712,526
Int. Cl.⁶ H01R 13/44

U.S. Cl. 439—138

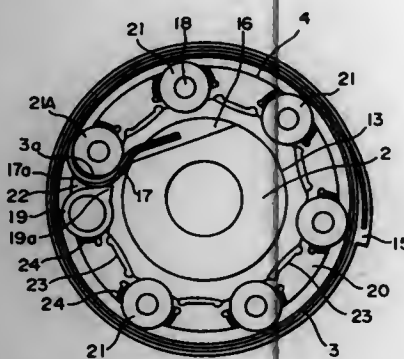
10 Claims

1. A cable connector assembly comprising:
a body having a shell and a recessed area in said shell, said recessed area having a first portion and a second portion;
a cable connection means mounted in said first portion of said recessed area and connected to said body, said cable connection means being constructed and arranged at its outermost surface to blend with the contour of said shell; and



a closure plate means connected to said shell in said second portion of said recessed area and adjacent said cable connection means and having a closure plate and means for rotating said closure plate to open and close said second portion of said recessed area, said closure plate being constructed and arranged to mate with said shell and cable connection means and blend with the contour of said shell when in the closed position.

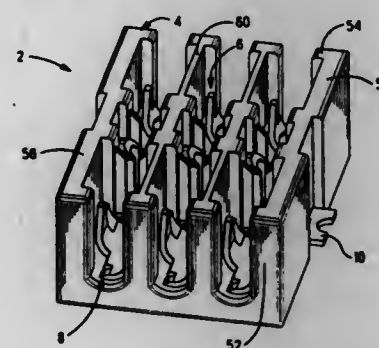
5,669,777
ROTARY CONNECTOR
Mitsunori Matsumoto; Hiroyuki Bannai, and Takehiko Ito, all of Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan
Filed Feb. 21, 1996, Ser. No. 604,278
Claims priority, application Japan, Feb. 22, 1995, 7-033908
Int. Cl.⁶ H01R 35/04
U.S. Cl. 439—164 1 Claim



1. A rotary connector comprising:
a first housing having an outer cylinder portion;
a second housing having an inner cylinder portion, the second housing being coaxially and rotatably connected to the first housing such that an annular storage space is defined between the outer cylinder portion and the inner cylinder portion;
a flexible cable received within the annular storage space, the flexible cable including a first portion wound in a first direction, a second portion wound in a second direction, and a U-shaped reverse portion connecting the first and second portions, the flexible cable having a first end fixed to said inner cylinder portion and a second end fixed to said outer cylinder portion;
a movable body rotatably received within said storage space and having an opening through which the reverse portion of said flexible cable passes; and
a resilient tongue having a fixed end connected to said inner cylinder and an extended portion projecting into said storage space, the resilient tongue being affixed along an inner surface of said flexible cable, wherein the extended portion of said resilient tongue is formed with a base portion having a first curvature, and a free end portion having a second curvature which is smaller than the first curvature in an unloaded condition;
wherein said movable body includes a reversing roller on which the reverse portion of said flexible cable is wound, and a

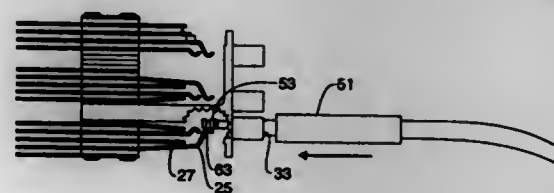
stationary cylinder facing said reversing roller, wherein a guide projection projecting along the outer peripheral surface of said reversing roller is formed on said stationary cylinder.

5,669,778
IDC BRANCH CONNECTOR FOR LARGE RANGE OF WIRE SIZES
Rudolf Krämer, Lautertal, and Harald Michael Lutsch, Dietzenbach, both of Germany, assignors to The Whitaker Corporation, Wilmington, Del.
Filed Nov. 27, 1995, Ser. No. 563,248
Claims priority, application United Kingdom, Dec. 13, 1994, 9425107
Int. Cl.⁶ H01R 4/24
U.S. Cl. 439—398 6 Claims



1. An electrical branch connector module for electrically interconnecting a plurality of conducting wires, comprising a plurality of terminal sections each having a base portion, insulation displacing contact (IDC) sections and strain relief sections for securely attaching conducting wires to the connector module, the terminal sections arranged in a juxtaposed manner and electrically interconnected by the base portion, each the IDC section comprises a pair of first IDC slots, the first slots adapted to connect electrically to small wire sizes, and a pair of the second IDC slots, the second slots adapted to connect electrically to larger sizes, and wherein each terminal section has a pair of strain relief sections, each strain relief section extending from opposed sides of the base portion, where the IDC sections are positioned between the pair of strain relief sections such that conducting wires connected thereto are securely held on opposing sides of the IDC sections.

5,669,779
METHOD AND APPARATUS FOR CONNECTING TO A CIRCUIT IN A JACK WITHOUT INTERRUPTING THE CIRCUIT
George G. Galloway, Graford, and John N. Moss, Weatherford, both of Tex., assignors to Industrial Technology, Inc., Mineral Wells, Tex.
Filed Sep. 26, 1995, Ser. No. 533,686
Int. Cl.⁶ H01R 29/00
U.S. Cl. 439—188 14 Claims

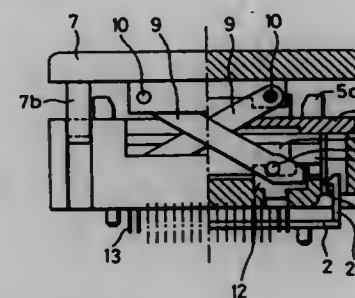


1. A method of connecting to a circuit in a jack, the jack having a port adjacent to the circuit, the circuit comprising first and second switch contacts that are normally closed together so as to provide

continuity of the circuit, the first switch contact being displaceable to first and second displacements relative to the second switch contact, with the circuit being closed when the first switch contact is displaced to the first displacement due to the first switch contact being in contact with the second switch contact, and with the circuit being opened when the first switch contact is displaced to the second displacement due to the first switch contact being out of contact with the second switch contact, comprising the steps of:

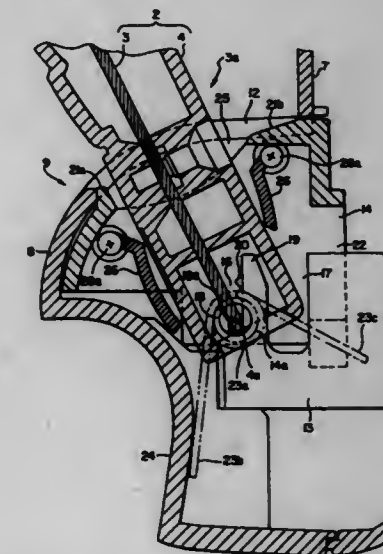
- providing a conductor with at least one surface that, when the one surface contacts the first switch contact, limits the displacement of the first switch contact to the first displacement so as to maintain circuit continuity through the first and second switch contacts;
- inserting the conductor partially into the port of the jack;
- rotating the conductor about a longitudinal axis so as to align the one conductor surface with the first switch contact;
- continuing to insert the conductor fully into the port of the jack and limiting the displacement of the first switch contact to the first displacement during contact with the conductor so as to maintain circuit continuity through the first and second switch contacts.

5,669,780
IC SOCKET
Masami Fukunaga, Kawaguchi, Japan, assignor to Enplas Corporation, Kawaguchi, Japan
Filed Mar. 29, 1996, Ser. No. 623,706
Claims priority, application Japan, Mar. 30, 1995, 7-074010
Int. Cl.⁶ H01R 11/22
U.S. Cl. 439—266 8 Claims



1. An IC socket comprising:
a socket body;
a cover member assuming a square shape with an opening formed therein as an entrance for an IC device, being mounted to said socket body to be vertically displaceable relative thereto, and being urged upward;
a stage member mounted to said socket body for mounting the IC device thereon;
a slide plate having force receiving portions, being mounted to said socket body to be vertically displaceable relative thereto for actuating a plurality of contact pins, and being urged downward; and
slide bar sets each of which is arranged on each of mutually opposite sides of the square shape and includes at least one slide bar, each of the slide bars being pivotally mounted, in one end region thereof, to said cover member and forming a pushing portion, in another end region thereof, engageable with each of said force receiving portions of said slide plate; wherein the another end region of each of the slide bars is horizontally shifted along a guide portion arranged on said socket body in accordance with vertical displacement of said cover member to displace said slide plate vertically via the pushing portion.

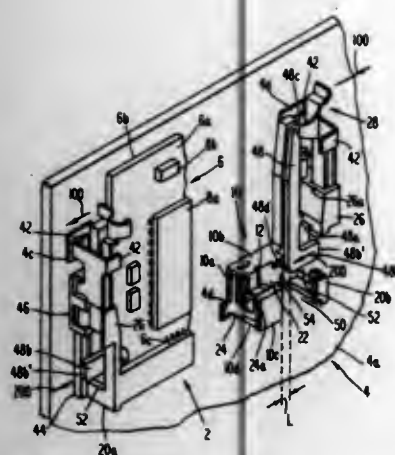
5,669,781
CARTRIDGE CONNECTION MECHANISM
Nobuaki Ishida, 2-12, Haneda 1-chome, Ohta-ku, Tokyo, Japan
PCT No. PCT/JP94/01008, § 371 Date Feb. 24, 1995, § 102(e)
Date Feb. 24, 1995, PCT Pub. No. WO95/00924, PCT Pub. Date Jan. 5, 1995
PCT Filed Jun. 23, 1994, Ser. No. 392,726
Claims priority, application Japan, Jun. 24, 1993, 5-153941
Int. Cl.⁶ H01R 13/62
U.S. Cl. 439—326 22 Claims



1. A cartridge connection mechanism for connecting a cartridge including a substrate having information recorded thereon with a body allowing external equipment to output the information of said substrate via a connector, said cartridge connection mechanism comprising:
a body member having a lower support surface and an openable cover section;
a plate-like support frame provided on said cover section for supporting said cartridge while abutting against a part or all of the back surface of said cartridge, said plate-like support frame extending approximately vertically upward from said lower support surface when the cover section is opened;
a cartridge connecting section provided on the lower part of said plate-like support frame, said cartridge connecting section having on its top surface an inlet opening for the insertion of said cartridge; and
a retainer section provided on the upper part of said plate-like support frame for retaining the upper portion of said cartridge.

5,669,782
ELECTRICAL CONNECTOR
Akihiro Yodogawa, Fujisawa, Japan, assignor to Berg Technology, Inc., Reno, Nev.
PCT No. PCT/US94/06299, § 371 Date Apr. 16, 1996, § 102(e)
Date Apr. 16, 1996, PCT Pub. No. WO94/29933, PCT Pub. Date Dec. 22, 1994
PCT Filed Jun. 3, 1994, Ser. No. 553,652
Claims priority, application Japan, Jun. 3, 1993, 5-133546
Int. Cl.⁶ H01R 13/62
U.S. Cl. 439—327 6 Claims

1. An electrical connector for electrically connecting a first circuit board to a second circuit board through a plurality of contact terminals, comprising:
an electrically insulating housing having a recess receiving the second circuit board and the plurality of contact terminals located in the recess of the housing and mountable on the first circuit board;

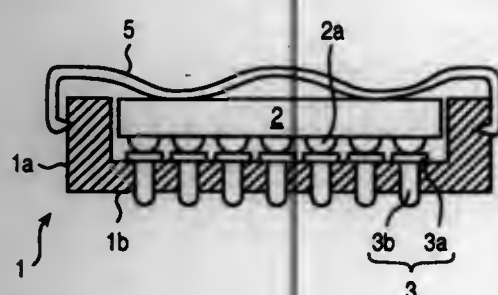


a latch for elastically latching, on at least one end of the recess, the second circuit board received in the recess of the housing; and
a lever rotatable about a fulcrum and located proximate the latch for imparting a force to the latch under a lever action to overcome an elastic force of the latch and release the second circuit board from the recess of the housing, wherein said lever comprises an input end and an output end on opposite sides of said fulcrum, and wherein a force applied at said input end in a first direction causes said output end to move in a second direction and apply a disengaging force to said latch.

5,669,785
IC SOCKET PERMITTING CHECKING CONNECTED STATE BETWEEN IC SOCKET AND PRINTED WIRING BOARD
Shuji Inoue, Ibaragi, and Kazuhisa Ozawa, Saitama, both of Japan, assignors to Intel Corporation, Santa Clara, Calif.
Filed Nov. 18, 1994, Ser. No. 342,379
Claims priority, application Japan, Mar. 17, 1994, 6-071270
Int. Cl.⁶ H01R 13/62

U.S. Cl. 439—331

11 Claims



1. An IC socket for mounting an IC package on a printed wiring board, comprising:
a socket body having a mount portion for the IC package, the mount portion having a flat bottom wall and a plurality of sides; and
pin terminals arranged in the bottom wall at predetermined intervals lengthwise and widthwise, each of said pin terminals having a flat top contact portion including a recess on an upper surface of the mount portion, which is brought into contact with a corresponding terminal of the IC package mounted on the mount portion, and a connecting portion on a lower surface of the mount portion which is connected to a corresponding pattern on the printed wiring board,
a press member attached to outer portions of the sides of the socket body, said press member having elasticity which makes said press member press an upper surface of the IC package mounted on said socket body to press each terminal

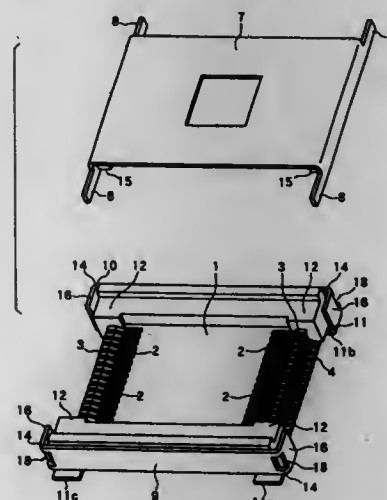
of the IC package against the contact portion of a corresponding pin terminal of said socket body, wherein said socket body is made of a transparent material.

5,669,784
SURFACE MOUNT TYPE IC SOCKET
Toshiyasu Ito, Togane, and Takeshi Nishimura, Narita, both of Japan, assignors to Yamaichi Electronics Co., Ltd., Tokyo, Japan

Filed Dec. 18, 1995, Ser. No. 574,135
Claims priority, application Japan, Dec. 16, 1994, 6-333907
Int. Cl.⁶ H01R 13/62

U.S. Cl. 439—331

3 Claims



1. A surface mount type IC socket comprising first and second cover retainers respectively disposed over full lengths of opposing side surfaces of a socket body, a seat piece disposed on each end of each of said first and second retainers and adapted to be arranged in an area in the vicinity of a lower part of each corner portion of the socket body, each of said seat pieces being soldered to a conductive pattern on a surface of a wiring board at an area in the vicinity of one of said corner portions of the socket body, an engagement piece disposed on each end of each of said first and second cover retainers and protruding sidewarwardly from a side surface of each corner portion of the socket body, engagement claws disposed on respective corner portions of an IC presser cover formed of a conductive plate, each of said engagement claws being engaged with one of said engagement pieces so that said cover is removably mounted on the socket body, wherein each of said seat pieces is provided with a seat piece portion extending sidewarwardly from a side surface of each corner portion of the socket body.

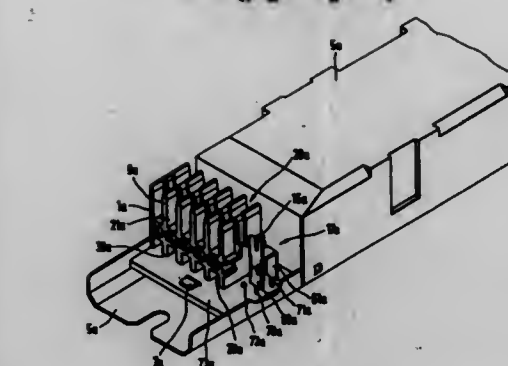
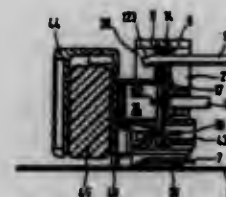
5,669,785
ELECTRICAL CONNECTION TERMINAL ARRANGEMENT
Dieter Hammer, Waiblingen; Bernhard Albeck, Lorch-Waldhausen, and Karl Biebl, Stuttgart, all of Germany, assignors to Vossloh Schwabe GmbH, Urbach, Germany
Continuation of Ser. No. 227,613, Apr. 14, 1994, Pat. No. 5,575,679. This application Jun. 5, 1996, Ser. No. 658,632
Claims priority, application Germany, Apr. 20, 1993, 43 12 778.9

Int. Cl.⁶ H01R 4/24

U.S. Cl. 439—396

17 Claims

1. An electrical connection terminal arrangement having a housing of insulating material, which has at least one insertion slit, open at an edge toward one insertion side for an electric wire and at least one slit-blade insulation-piercing connector located in the housing,



said slit-blade insulation-piercing connector (17) having two connector legs (16, 16a) and a slit-blade insulation-piercing slit (15, 15a) open at the edge and aimed at the insertion slit for an electric wire connection formed between said connector legs (16, 16a), at least portions of said legs (16, 16a) adjacent said insulation-piercing slit (15, 15a) forming a contact zone, wherein the slit-blade insulation-piercing connector is formed on a contact spring (17, 17a),

wherein
the contact spring (17, 17a) additionally has at least one plug-in contact (27, 28; 27a);
a contact (29, 70a, 71a) for an accessory apparatus connection; and
a groove-like indentation (20, 21; 20a, 21a) formed on at least one side in a portion of the housing (1) receiving the slit-blade insulation-piercing connector (17) adjoining the insertion slit (11, 11a), which is deeper and wider than said insulation-piercing slit (15, 15a), and positioned closely adjacent said insulation-piercing connector (17),
the length, depth and width of said indentation (20, 21; 20a, 21a) being dimensioned such that a cut end of the electric wire placed therein is received within the indentation in an electrical shock-hazard proof manner;
wherein the housing is formed with at least one chamber (24, 25) located beneath the groove-like indentation (20, 21; 20a, 21a) and having at least one access opening (36, 43) at a face of the housing;
wherein at least one of the plug-in contacts (27, 28; 27a) and the accessory apparatus connection contact (29, 70a, 71a) is located in said at least one chamber below the slit-blade insulation-piercing connector (17) and the slit-blade insulation-piercing slit (15, 15a) thereof; and
wherein the accessory apparatus connection includes at least one base pin (70a, 71a) protruding from the housing.

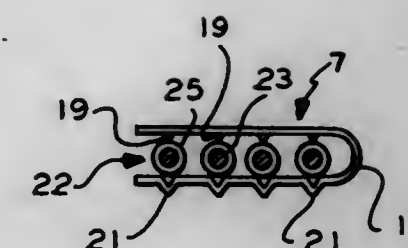
5,669,786
ELECTRICAL TERMINAL FOR HIGH CURRENT APPLICATIONS
Allen J. Bernardini, 37 Holly Hill Ln., Southbury, Conn. 06488
Filed Mar. 28, 1996, Ser. No. 623,130
Int. Cl.⁶ H01R 4/24

U.S. Cl. 439—424

6 Claims

1. A mass terminated connector for multiple wire cables, each wire having a central conductor surrounded by an insulator, comprising:

a) at least one U-shaped conductive assembly for receiving said multiple wire cable, a plurality of barbs arranged on one half of said assembly such that at least one of said plurality of barbs is aligned with an associated wire for piercing said

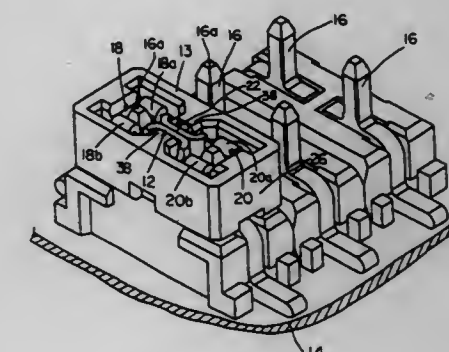


insulator and penetrating said central conductor of each said wire, said U-shaped conductive assembly being further comprised of a plurality of grooves arranged in rows on an opposite half of said assembly from said plurality of barbs for receiving individual ones of said wires, said U-shaped conductive assembly being fabricated from flat metal stock which is punched and formed to create said barbs and grooves, and folded over for alignment of said barbs and said grooves, said plurality of barbs arranged in rows and columns such that more than one barb is aligned with each of said grooves; and
b) a conductive contact having at least one U-shaped slot for receiving said at least one U-shaped conductive assembly.

5,669,787
SHUNT CONNECTOR ASSEMBLY
Junichi Miyazawa, Yokohama, Japan, assignor to Molex Incorporated, Lisle, Ill.
Continuation of Ser. No. 511,674, Aug. 7, 1995. This application Aug. 9, 1996, Ser. No. 689,436
Int. Cl.⁶ H01R 31/08

U.S. Cl. 439—510

11 Claims



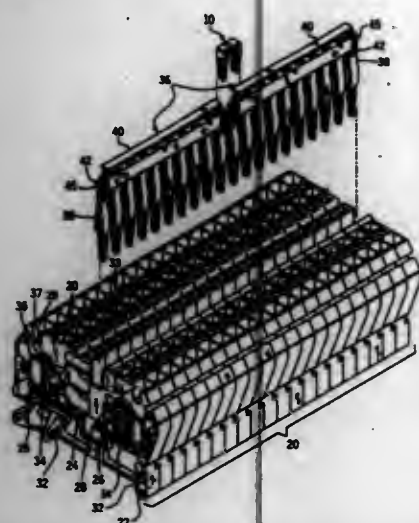
1. A shunt connector assembly including an insulative housing defining a contact-receiving cavity and a contact of a resilient metal received and fixed within the contact-receiving cavity, said contact comprising:

a pair of generally opposing support pieces extending in a longitudinal direction;
resilient arm supporting portions on each opposite end of each of the pair of opposing support pieces, and spaced a given dimension apart,
a pair of resilient arms extending inwardly from an upper edge of each arm supporting portion and projecting downwardly beyond the lower edge of each arm supporting portion; and
an anchor portion extending from a portion of each support piece and integral with an adjacent portion of the other of the pair of support pieces;
wherein each resilient arm is opposite a resilient arm from the opposing arm supporting portion and is spaced apart a dimension less than the dimension of the parallel arm supporting portions.

5,669,788
SCREWLESS TERMINAL BLOCK LINKING APPARATUS
 David J. Brockman, Cudahy, Wis., assignor to Allen-Bradley Company, Inc., Milwaukee, Wis.
 Filed Sep. 18, 1996, Ser. No. 715,205
 Int. Cl.⁶ H01R 31/08

U.S. Cl. 439—511

6 Claims

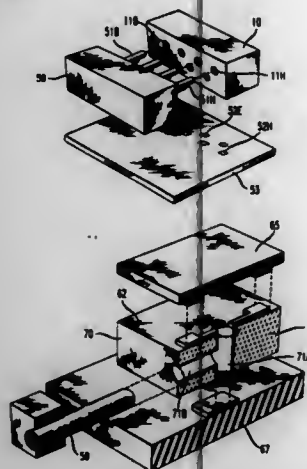


1. An apparatus for connecting a plurality of screwless terminal blocks, each terminal block comprising an insulative housing which substantially encloses a bus bar, the apparatus comprising:
 a first screwless terminal block jumper having a first plurality of parallel legs coupled to form a first body, the first body defining a first connection area;
 a second screwless terminal block jumper having a second plurality of parallel legs coupled to form a second body, the second body defining a second connection area; and
 a removable screwless link connecting the first connection area to the second connection area.

5,669,789
ELECTROMAGNETIC INTERFERENCE SUPPRESSING CONNECTOR ARRAY
 Henry Hon Law, Berkeley Heights, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.
 Continuation of Ser. No. 403,325, Mar. 14, 1995, abandoned.
 This application Nov. 6, 1996, Ser. No. 746,183
 Int. Cl.⁶ H01R 13/66

U.S. Cl. 439—620

6 Claims



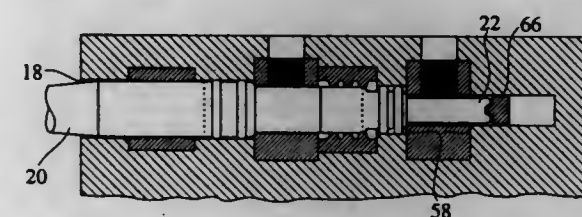
1. An electromagnetic interference suppressing connector device for connecting to an integrated circuit having an array of bonding pads comprising:

an integrated circuit;
 a body of ferrite material, said body having a plurality of channels therethrough and having at least one planar surface which does not intersect said channels;
 said channels each including a conductive coating providing a continuous electrical path through said body;
 said planar surface including a coated pattern of conductive leads and a plurality of bonding pads, said bonding pads on said surface configured in an array for electrically connecting to said integrated circuit, and said leads connecting said conductive channel coatings to respective bonding pads on said surface providing a plurality of separate interference suppressing conductive paths to said integrated circuit.

5,669,790
LEAD LUMEN SEALING DEVICE
 Dean F. Carson, and Richard J. Gable, both of Mountain View, Calif., assignors to Ventritex, Inc., Sunnyvale, Calif.
 Filed Dec. 7, 1995, Ser. No. 568,708
 Int. Cl.⁶ H01R 17/18

U.S. Cl. 439—668

8 Claims

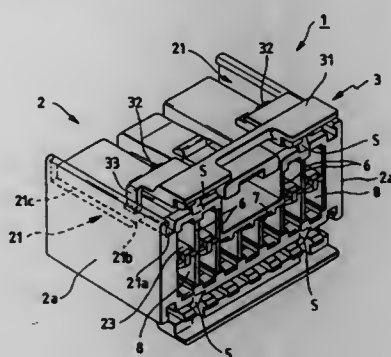


1. A medical device for use with an implantable lead comprising:
 a connector cavity having an entrance end and a proximal end and adapted to receive a lead connector pin of said lead, said pin having an open end; and
 a gasket located within said connector cavity and adapted to contact and seal the open end of the lead connector pin against fluid intrusion when the lead connector pin is residing within said connector cavity, wherein said gasket is slidable within said connector cavity and is located spaced apart from said proximal end prior to insertion of said lead connector pin in said connector cavity.

5,669,791
CONNECTOR WITH REAR HOLDER
 Takayoshi Endo, and Kimihiro Abe, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan
 Filed Jun. 26, 1996, Ser. No. 670,613
 Claims priority, application Japan, Jun. 30, 1995, 7-166110
 Int. Cl.⁶ H01R 13/514

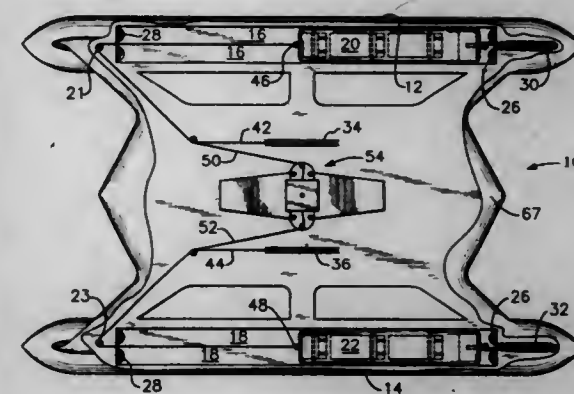
U.S. Cl. 439—752

4 Claims



1. A connector, comprising:

a housing including terminal receiving chambers for respectively receiving terminals;
 a rear holder, for retaining the terminals in the terminal receiving chambers so as to prevent a withdrawal of the terminals from the terminal receiving chambers, connected to said housing through at least one hinge, said rear holder having guide portions for limiting a movement of said rear holder and retaining projections for projecting respectively into said terminal receiving chambers in a direction of insertion of the terminals so as to abut respectively against one ends of the terminals; and
 guide grooves, for respectively slidably receiving the guide portions of said rear holder, formed in said housing, wherein a pair of the guide grooves are formed respectively in inner surfaces of opposite side walls of said housing, and a pair of the guide portions are formed respectively at opposite sides of said rear holder and wherein the guide grooves include first horizontal portions, slanting surface portions and second horizontal portions, respectively.



being movable; said seat mounted on said frame; said foot pedal connected to said slide mechanism whereby the movement of said foot pedal will move said slide mechanism;
 a tension mechanism; said tension mechanism connected to said foot pedal for biasing said foot pedal in one direction.

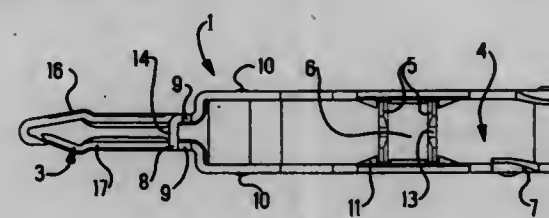
5,669,792
ELECTRICAL CONNECTOR
 Shigeru Naka, Kawasaki; Satoshi Suzuki, Inagi, and Akihito Ono, Machida, all of Japan, assignors to The Whitaker Corporation, Wilmington, Del.
 Continuation of Ser. No. 305,106, Sep. 13, 1994, abandoned.
 This application Jun. 11, 1996, Ser. No. 664,928
 Claims priority, application Japan, Oct. 29, 1993, 5-062986;
 Dec. 29, 1993, 5-075068
 Int. Cl.⁶ H01R 13/05

U.S. Cl. 439—825

20 Claims

U.S. Cl. 440—63

16 Claims



1. An electrical connector comprises a dielectric housing, and an electrical contact disposed in the housing having a wire-connecting section and a contact section in the form of plate members having interengaged free ends extending through an opening in the housing and outwardly from a surface of the housing, characterized in that said free ends interengage at the outermost tips thereof, at least one of said interengaging free ends is generally J-shaped and posts are located on said plate members engaging with a wall of said opening securing the contact in the housing.

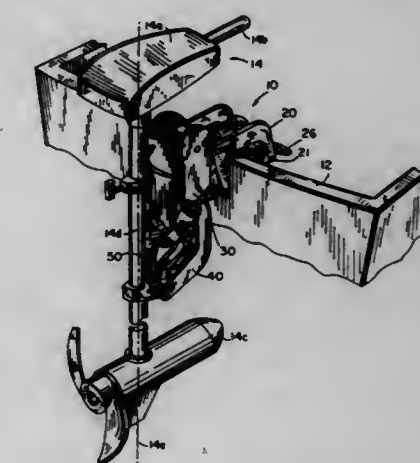
5,669,793
APPARATUS AND METHOD FOR PROPELLING A WATER VEHICLE
 William H. Walton, 32 Sun Valley Ct., Alexander, N.C. 28701
 Continuation of Ser. No. 265,024, Jun. 24, 1994, abandoned.
 This application May 19, 1995, Ser. No. 444,439
 Int. Cl.⁶ B63H 16/02

U.S. Cl. 440—25

4 Claims

1. An apparatus for propelling a water vehicle comprising:
 a slidable slide mechanism;
 at least one paddle attached to said slidable slide mechanism;
 a channel; said slide mechanism slidable within said channel; said paddle being rotatable whereby said paddle is lowered when said slide mechanism moves in one direction and is raised when said slide mechanism moves in the opposite direction;
 a frame; a seat and at least one foot pedal located on said frame; said foot pedal located adjacent to said seat; said foot pedal

5,669,794
APPARATUS FOR MOUNTING A MOTOR TO A BOAT
 Steven J. Knight, Union Grove; Mark J. Sarder, Waukesha, and William R. Baumann, Wauwatosa, all of Wis., assignors to Johnson Worldwide Associates, Inc., Sturtevant, Wis.
 Filed Dec. 19, 1995, Ser. No. 575,127
 Int. Cl.⁶ B63H 5/12



1. A mount for securing a trolling motor to a boat comprising:
 a mounting bracket adapted to be secured to the boat, the bracket including a first pivot support, and a second pivot support wherein the first pivot support is disposed substantially vertically above the second pivot support;
 first and second link arms pivotally supported on the first and second pivot supports respectively;
 a motor support adapted to receive and hold a portion of the motor, the motor support being pivotally supported on the first and second link arms and movable with the link arms between a deployed position and a stowed position; and
 a locking mechanism for selectively maintaining the motor support in at least three stable positions including the deployed position, the stowed position and at least one intermediate position between the deployed and stowed positions; wherein the first and second link arms move the motor support through first and second phases of movement between the deployed position and the stowed position, the motor support being moved in substantially vertical translation in the first phase of movement and in substantially pivotal translation in the second phase of movement.

5,669,795

LIFE-SAVING FLOAT

Mikko Petteri Lahtinen, Kirstinharju 1 B 16, FIN-02760 Espoo, Finland

PCT No. PCT/Fin94/00097, § 371 Date Sep. 13, 1995, § 102(e) Date Sep. 13, 1995, PCT Pub. No. WO94/21513, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 15, 1994, Ser. No. 522,358

Claims priority, application Finland, Mar. 15, 1993, 931131

Int. Cl.⁶ B63C 9/08

U.S. Cl. 441—88

4 Claims



1. A life float, comprising:

- a small capsule with a removable end, said capsule having therein
- a fill-in float,
- a gas inflating means coupled to said fill-in float for inflating said fill-in float, wherein said gas inflating means comprises a gas container having a sealing film which in use is burst by a pricking mechanism whereby gas is enabled to flow to said fill-in float, and
- a triggering means for triggering said gas inflating means to inflate said fill-in float, said triggering means comprising said pricking mechanism and said triggering means located between the gas container and the float; and
- a link means coupled to and extended through said capsule forming a circular link such that a predetermined pressure exerted on said link means pulls said fill-in float from said capsule and triggers said triggering means thereby causing said fill-in float to be inflated, said link means configured such that in use said link means can encircle a user by being passed over a shoulder and under one arm behind the back to keep said capsule close to the chest of a user so that said capsule can be reached with a hand of the user and further serving as a fastening link passed under the arms to keep the inflated fill-in float close to the chest.

5,669,796

GEOGRID COMPOSED OF POLYETHYLENE TEREPHTHALATE AND POLYOLEFIN BICOMPONENT FIBERS

Debra W. Harford, Lincolnton, N.C., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Filed Nov. 2, 1995, Ser. No. 556,779

Int. Cl.⁶ B32B 7/00

U.S. Cl. 442—220

7 Claims

- 1. A heat bonded geogrid fabric comprising a woven or warp knit, weft inserted grid, said fabric comprising a bicomponent fiber with filaments each having a sheath of an adhesive polyolefin material comprising a polyolefin and an adhesive and containing about 0.5 weight percent to about 2 weight percent carbon black and a core of polyethylene terephthalate having an intrinsic viscosity of at least 0.89 deciliters per gram as determined from a solvent base of orthochlorophenol at 25° C.

5,669,797

POLYURETHANE PAD COVERING

Robert J. Wolf, Woodbury; Scott M. Purrington, Maplewood; John M. Brandner; David A. Olson, both of St. Paul, and John F. Reed, North Oaks, all of Minn., assignors to Minnesota Mining and Manufacturing Co., St. Paul, Minn.

Division of Ser. No. 490,464, Jun. 14, 1995, Pat. No. 5,593,769. This application Oct. 25, 1996, Ser. No. 738,373

Int. Cl.⁶ B32B 15/00

U.S. Cl. 442—329

19 Claims

- 1. A soft conformable barrier fabric laminate comprising a smooth calendared elastic laminate of a fluid impermeable polyurethane film layer and an elastic polyurethane nonwoven fibrous web where the fibers have an average diameter of less than 50 μm and the outer face of the polyurethane nonwoven web has a friction value of less than about 200 g and the fabric hand of the laminate is less than about 200 g which barrier fabric when subjected to Taber Abrasion Testing does not exhibit significant roping or delamination after 100 wear cycles using CS-0 wheels and a 250 g load.

5,669,798

COMPOSITE NONWOVEN MATERIAL PROCESS OF MANUFACTURE AND ITS APPLICATION TO ANY ABSORBENT ARTICLE OF HYGIENE

Jean-Pierre Koczab, Bondues, France, assignor to Peandouce, Linselles, France

PCT No. PCT/FR94/00710, § 371 Date Jan. 18, 1996, § 102(e) Date Jan. 18, 1996, PCT Pub. No. WO94/29506, PCT Pub. Date Dec. 22, 1994

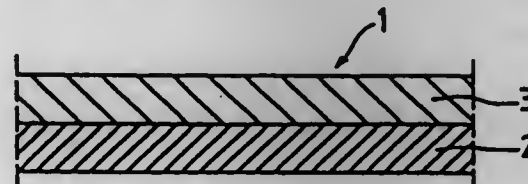
PCT Filed Jun. 14, 1995, Ser. No. 564,177

Claims priority, application France, Jun. 16, 1993, 93 07239

Int. Cl.⁶ A61F 13/54; B32B 5/08; 7/10; 7/12; 31/20

U.S. Cl. 442—362

19 Claims



- 1. Composite nonwoven material characterized in that it comprises at least one layer (2) made of a carded voile of hydrophobic thermoplastic fibers, the said fibers being partially disoriented in at least a proportion of the thickness of the voile so that a proportion of the said fibers has an angular orientation in relation to the main plane of the fibers of the said voile, and a layer (3) made of a voile of nonwoven of noncarded type, of hydrophobic, thermoplastic fibers, the fibers of at least one of the layers being chosen from fibers with a low melting point, two-component fibers, mixtures of such fibers with fibers of high melting point and fibers mixed with a binder, or at least one of the layers is made of a voile one face of which is coated with a binder, the two layers being bonded to each other solely by heat-melting.

5,669,799

VEHICLE SEAT, IN PARTICULAR FOR AIRCRAFT

Johann Möseneder, Grieskirchen, and Rudolf Weingartner, Krems, both of Austria, assignors to C.A. Greiner & Söhne Gesellschaft m.b.H., Kremsmünster, Austria

Filed Feb. 3, 1994, Ser. No. 191,519

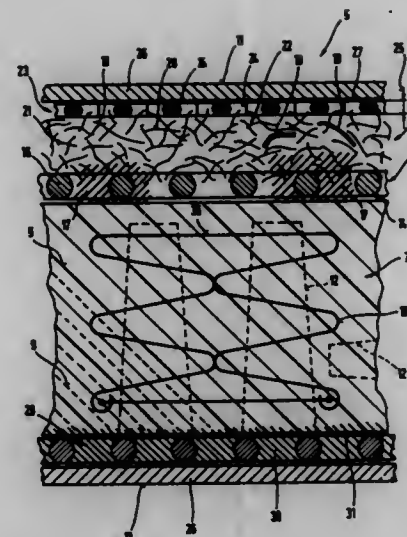
Claims priority, application Austria, Feb. 5, 1993, 205/93

Int. Cl.⁶ B32B 27/00

U.S. Cl. 442—374

44 Claims

- 1. In combination with a vehicle seat, a seat cushion comprising (a) a supporting body of an open-cell, resilient plastic foam, the plastic foam having a first relative density,



- (b) a covering material, and
- (c) a middle layer arranged between the supporting body and the covering material, the middle layer being connected to the supporting body and being comprised of a nonwoven fibrous web of at least one layer of firmly interconnected fibers or threads, the nonwoven fibrous web having a second relative density differing from the first relative density;
- (d) said fibers or threads needled together; wherein at least some of the fibers or threads are comprised of synthetic materials; and
- wherein the synthetic materials comprise thermoplastic resins, and the fibers or threads are at least partially thermally bonded to each other.

5,669,800

PROCESS OF FORMING HOLES IN A PHOTSENSITIVE RESIN LAYER TO PRODUCE CATHODES WITH MICROTIPS

Michel Ida, Voreppe, and Brigitte Montmayeul, Brignoud, both of France, assignors to Commissariat à l'Energie Atomique, Paris, France

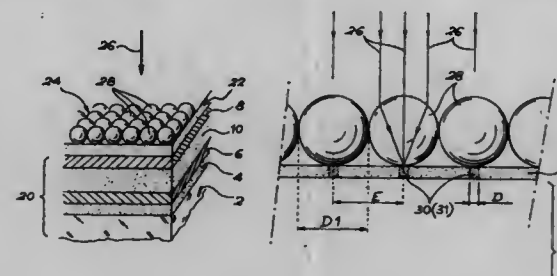
Filed Sep. 26, 1995, Ser. No. 533,719

Claims priority, application France, Oct. 10, 1994, 94 12065

Int. Cl.⁶ H01J 9/02

U.S. Cl. 445—25

14 Claims



- 1. A process for the formation of holes in a positive, photosensitive resin layer by means of an exposure light, said process comprising the steps of:
 - forming a monolayer of balls transparent to said exposure light and in direct contact with the resin layer;
 - exposing the resin layer by the exposure light through the monolayer of balls, each of said balls concentrating said light at a contact point of said ball with the resin layer on which it is placed, thus bringing about an exposure of an area of said resin layer, the exposure light forming a parallel, collimated beam with a constant light intensity over the entire monolayer of balls; and

developing the thus exposed resin layer leading to a formation of holes in said layer at a location of the exposed areas.

5,669,801

FIELD EMISSION DEVICE CATHODE AND METHOD OF FABRICATION

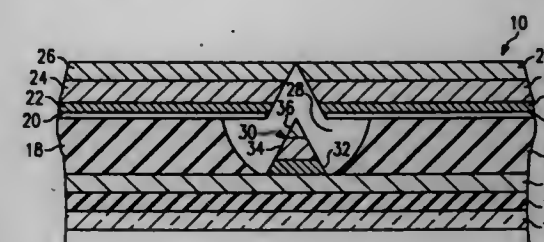
Edward C. Lee, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Sep. 28, 1995, Ser. No. 535,505

Int. Cl.⁶ H01J 9/02

U.S. Cl. 445—24

16 Claims



- 1. A method for fabricating a microtip of a field emission device cathode, comprising the steps of:
 - forming a dielectric layer, having an upper surface and a lower surface, on a resistive layer;
 - forming a gate layer on the dielectric layer;
 - forming an opening in the gate layer;
 - forming a microtip cavity in the dielectric layer through the opening in the gate layer that extends to the resistive layer;
 - forming a layer of metal on the gate layer and on the resistive layer to produce a microtip on the resistive layer within the microtip cavity; and
 - polishing off the layer of metal on the gate layer, until the microtip is exposed.

5,669,802

FABRICATION PROCESS FOR DUAL CARRIER DISPLAY DEVICE

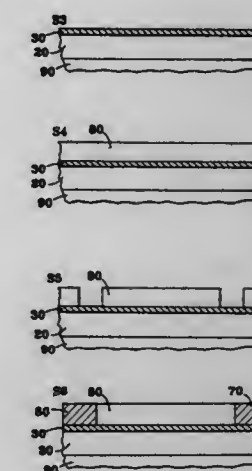
Michael D. Potter, Grand Isle, Vt., assignor to Advanced Vision Technologies, Inc., Rochester, N.Y.

Filed Oct. 30, 1995, Ser. No. 549,929

Int. Cl.⁶ H01J 1/30; 9/02

U.S. Cl. 445—24

19 Claims



- 1. A fabrication process for microelectronic light-producing devices, comprising the steps of:
 - (a) providing a base substrate;

- (b) if necessary, disposing a substrate-insulating layer on said base substrate to form a substrate having an insulating surface;
- (c) disposing and patterning a conductive thin film parallel to said base substrate;
- (d) providing an opening through said conductive thin film, thus dividing said conductive thin film into at least first and second portions to form first and second electrodes respectively, while forming a first edge on said first electrode and a second edge on said second electrode;
- (e) filling said opening at least partially with a phosphor, at least until said phosphor contacts said first and second edges; and
- (f) providing means for applying bias voltages to said first and second electrodes, said bias voltages being sufficient to inject first carriers from said first electrode and to inject second carriers from said second electrode into said phosphor to induce light emission therefrom.

5,669,803

KICK GLIDER TOY

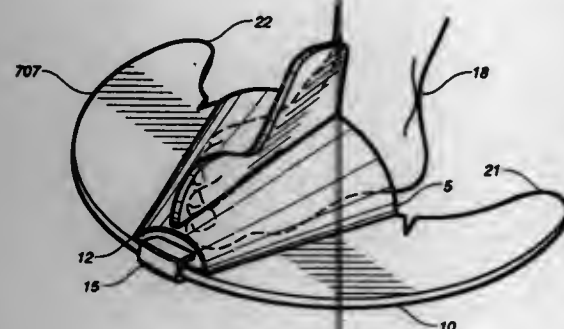
James Sweed, 12215 Wild Pine Apt. C, Houston, Tex. 77039

Filed Sep. 22, 1995, Ser. No. 532,166

Int. Cl.⁶ A63H 27/00

U.S. Cl. 446-61

4 Claims

**1. A glider toy apparatus comprising:**

- a body member made of a resilient material, said body member having a generally hollow semi-frustoconical configuration, said body member having an open rear end which is sized to receive a human foot therein, said body member having a curved top surface, said body member having an open forward end;
- a wing member having a length greater than a width of said body member, said wing member affixed generally centrally of said body member, said wing member having a greater density than said body member, said wing member extending from said body member in a swept-back boomerang shape, said body member having a flat surface secured to a top surface of said wing member; and
- a weight member secured to said body member forward of a trailing edge of said wing member and forward of a center of gravity of said body member, said weight member affixed to an inner surface of said body member at said open forward end, said weight member affixed to an underside of said wing member.

5,669,804

MAGNETIC TAPE SURFACE TREATMENT METHOD AND APPARATUS

Kazuo Takahashi; Mitsuhiro Ono, and Takumi Honma, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

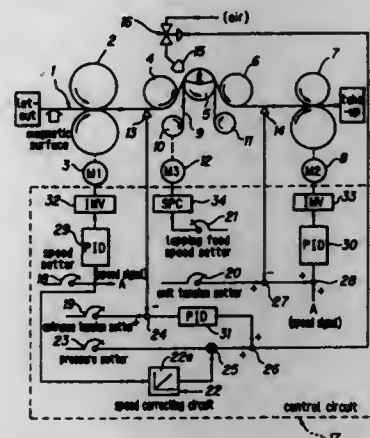
Filed Oct. 23, 1995, Ser. No. 546,955

Claims priority, application Japan, Oct. 25, 1994, 6-260120

Int. Cl.⁶ B24B 1/00

U.S. Cl. 451-59

13 Claims



1. A magnetic tape surface treatment method for transporting a magnetic tape and a lapping tape relative to each other while causing them to make contact thereby to remove projections and adhered matter from a magnetic surface of the magnetic tape, said method comprising the steps of:

blowing air onto the magnetic tape at a position where the magnetic tape and the lapping tape make contact to inhibit formation of an air gap between the tapes; and

regulating with respect to each other a force of the blowing air, a tension of the magnetic tape on an entrance side on which it is let out, and a tension of the magnetic tape on an exit side on which it is taken up.

5,669,805

Patent Not Issued For This Number

5,669,806

IMPACT SHIELDING DEVICE FOR SHOT BLASTING CHAMBERS

Robert H. Samples, Jr., 12846 Crest Ridge Dr., Jacksonville, Fla. 32258

Filed May 16, 1996, Ser. No. 645,796

Int. Cl.⁶ B24C 9/00

U.S. Cl. 451-89

14 Claims

1. An impact shielding device for use in a shot blasting chamber to absorb the impact of high velocity shot particles impelled in a particle stream by a shot impeller device to prevent damage to the shot blasting chamber, the impact shielding device comprising a shot retention chamber defining an interior compartment and which is mountable within said shot blasting chamber at any angle up to 90 degrees above or below horizontal so as to receive high velocity shot particles impelled in a particle stream by a shot impeller device, said shot retention chamber having shot retention means to retain a layer of shot particles within said interior compartment of

5,669,808

COMBINATION FILE AND ABRADING ASSEMBLY KIT FOR STRAIGHT LINE ABRADING TOOLS

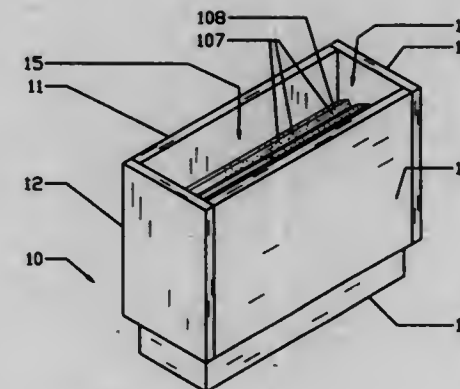
Frederick Castorf Simons, 1505 First Ave. W., Newton, Iowa 50208

Filed Mar. 10, 1995, Ser. No. 402,002

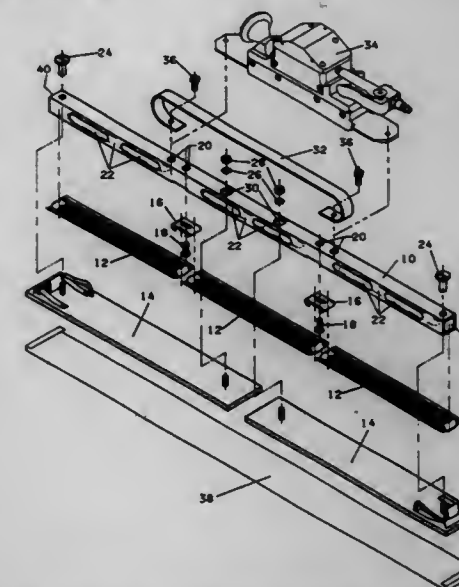
Int. Cl.⁶ B24B 23/00

U.S. Cl. 451-524

2 Claims



said shot retention chamber, whereby said layer of shot absorbs the impact of said high velocity shot particles.



1. A rail assembly for being interchangeably attached to either a power abrading tool or to a hand tool, said rail assembly comprising:

a support rail having first means for being selectively attached to either a power abrading tool or a handgrip; said support rail having second means for selectively supporting either a plurality of grafting files placed end-to-end on said support, or a plurality of sanding shoes placed end-to-end on said support.

5,669,807

PREFORM FOR ATTACHING A HOLDING MEMBER TO AN OPTICAL LENS, AND METHOD OF USING IT

Jacques Moreau, Savigny le Temple, and Jean Perrin, Mandres les Roses, both of France, assignors to Essilor International Compagnie Generale d'Optique, Charenton le Pont, France

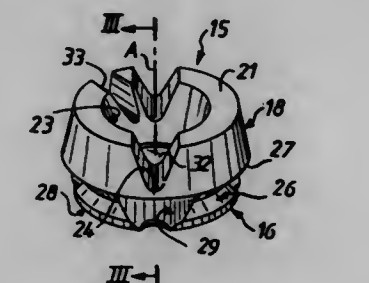
Filed May 3, 1996, Ser. No. 642,359

Claims priority, application France, May 3, 1995, 95 05278

Int. Cl.⁶ B24B 29/00

U.S. Cl. 451-460

14 Claims



13. Method of mounting an optical lens on a preform of a holding member, comprising the steps of:

- (i) providing a preform comprising (a) a base adapted to be attached to and thereby constrained to rotate with the optical lens and (b) a superstructure having a circumferential sidewall and adapted to be capped by a drive tool, (c) said base having a circumferential sidewall inwardly offset relative to the sidewall of the superstructure,
- (ii) casting in situ a low melting point metal coupling layer around and in contact with the sidewall of the base of the preform and over a portion of the optical lens for attaching the lens to the holding member so that the lens may rotate with the holding member and so that the coupling layer surrounds the sidewall of the base of the preform and forms an annular bearing surface outwardly of the sidewall of the base adapted to be gripped by a drive tool.

5,669,809

SAFETY MEANS FOR POWERED MACHINERY

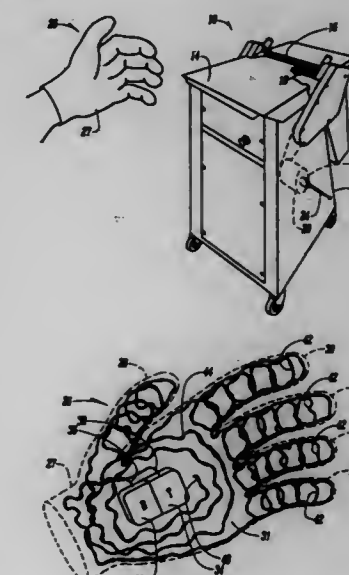
Ray T. Townsend, 3131 Fleur Dr., Des Moines, Iowa 50321

Filed May 22, 1996, Ser. No. 651,088

Int. Cl.⁶ A72B 5/16; F16P 3/00

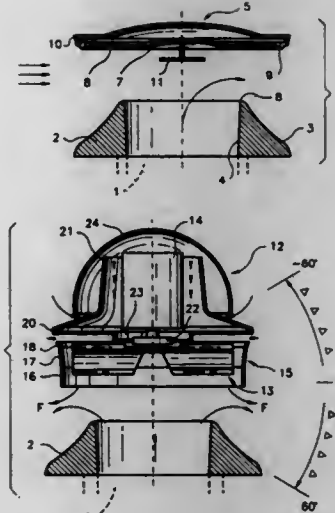
U.S. Cl. 452-125

8 Claims



1. A safety glove for use with a meat cutting machine,

a glove having a glove shell comprised of hollow thumb and finger elements, and a hand compartment, said glove being comprised of a flexible insulation material, battery and wireless signal transmitter elements on said glove, first and second wires extending from said battery and said signal transmitter elements, respectively, an insulation material on said wires, said wires being in close proximity to each other and extending through the material of said glove so that if said glove is cut with an electro-conducting instrument, said wires will be electrically connected together either through direct contact with each other or by contact of each wire with said instrument, whereby said signal transmitter element will be energized and will transmit a wireless signal.



5,669,810 **APPARATUS AND PROCESS FOR TREATING PORK BELLIES**

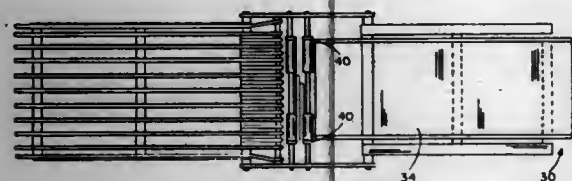
Kenneth Marvin Ware, Cedar Bluff, Miss.; Jack Wayne France, Sr., Little Rock, Ark., and Jeffrey A. Williams, Calhoun, Ga., assignors to Sara Lee Corporation, Winston-Salem, N.C.

Filed Feb. 13, 1995, Ser. No. 600,329

Int. Cl.⁶ A22C 15/00

U.S. Cl. 452—193

15 Claims



1. A process for treating pork bellies comprising the steps of: positioning a pork belly having a fatback side, a shoulder side, a flank side, a lower side and a top on a combing table with the flank side forming the leading edge; securing the fatback and lower sides and top of the front portion of the belly adjacent the leading edge; applying pressure to the fatback and lower sides to reduce the length of the leading edge; engaging the belly top to resist upward bowing of said belly top while pressure is applied to the fatback and lower sides; combing the leading edge while in the reduced length condition to maintain the leading edge in the reduced length condition; and hanging the belly by the comb for subsequent processing to induce elongation and symmetry.

5,669,811 **MODULAR DEVICES FOR THE EXTRACTION OF FUMES**

Michel Zaniewski, Avenue Ferdinand de Lesseps, 34110 Frontignan, France

Filed Oct. 25, 1994, Ser. No. 328,825

Claims priority, application France, Oct. 25, 1993, 93 13024
Int. Cl.⁶ F23L 17/02

U.S. Cl. 454—16

21 Claims

1. A ventilation and extraction apparatus for buildings comprising a base element constituting a footing of a ventilation and extraction apparatus and formed by a ring of a general external truncated-cone form and suitable to be placed at an orifice of smoke ducts on buildings, wherein a contour cone face of the footing presents a continuous and smooth curve when considered in a sectional view of the footing, wherein the continuous and smooth curve exhibits an upper bulge and a lower bulge, and wherein an area of the upper bulge assumes from about 0.25 to 0.33 of a vertical extension of the footing from a top of the footing, and wherein an area of the lower bulge assumes from about 0.67 to 0.75 of the vertical extension of the footing from the top of the footing, wherein a maximum

thickness of the upper bulge is from about 0.01 to 0.02 times the vertical extension of the footing, and wherein a maximum thickness of the lower bulge is from about 0.05 to 0.1 of the vertical extension of the footing;
one of a static member and a mechanical ventilation element associated with the base element and surmounting the base element.

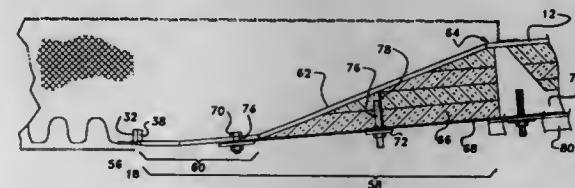
5,669,812 **EXHAUST GAS DIFFUSER INTERFACE** Gene F. Schockemoehl, Claremore; L. Matt Farabee, Owosso, and David W. Daniels, Sapulpa, all of Okla., assignors to Braden Manufacturing, Tulsa, Okla.

Filed Feb. 21, 1996, Ser. No. 604,735

Int. Cl.⁶ F16L 13/04

U.S. Cl. 454—45

17 Claims



1. An exhaust gas diffuser interface between an exhaust gas source and an exhaust gas diffuser comprising:
an interface connector to be attached to an exhaust gas outlet;
a thermally flexible member attached to said interface connector;
a thermal transition member downstream from said thermally flexible member and attached to an exhaust gas diffuser;
thermal insulation mounted on the gas side of said thermal transition member of continuously increasing thermal resistivity with increasing distance from said exhaust gas source.

5,669,813 **APPARATUS FOR STORING AND COOLING ELECTRONIC DEVICES AND/OR MODULES IN A VEHICLE**

Vivek Amir Jairazbhoy; Prathap Amerwaj Reddy, both of Farmington Hills; John Trubowski, Troy; Jay DeAvis Baker, West Bloomfield, and Lawrence Leroy Kneisel, Novi, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

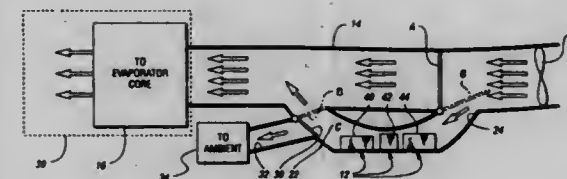
Filed May 3, 1996, Ser. No. 642,725

Int. Cl.⁶ B60H 1/26

U.S. Cl. 454—69

10 Claims

1. An apparatus for cooling electronic devices in a vehicle, comprising:



a main ventilation duct mounted in the vehicle and including a blower for forcing air through the main duct; and
a bypass duct in selective fluid communication with said main ventilation duct, and adapted to carry electronic devices on a wall thereof to be cooled by air forced through the bypass duct.

5,669,814 **FACILITY INSTALLATION STRUCTURE IN CLEAN ROOM**

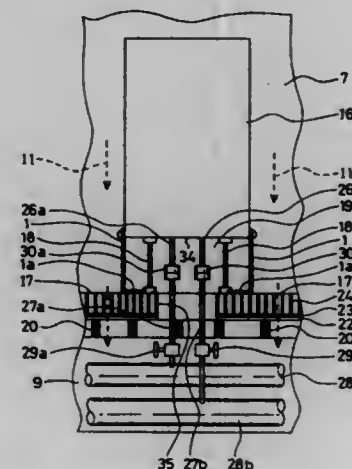
Takefusa Takeda, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 29, 1996, Ser. No. 688,041

Claims priority, application Japan, Apr. 11, 1996, 8-089211
Int. Cl.⁶ F24F 7/007

U.S. Cl. 454—187

8 Claims



1. An installation structure of a facility provided on the floor surface of a clean room, comprising:
a plurality of first penetration holes provided at said floor surface around said facility for discharging air supplied to said clean room into a space under said floor surface;
a second penetration hole having an opening area larger than that of said first penetration holes provided at said floor surface which is located directly under said facility;
a shut out member extending from the bottom part of said facility onto said floor surface around said second penetration hole for preventing the air flowing toward said floor surface from entering said second penetration hole.

5,669,815 **BAROMETRIC DAMPER WITH MAGNETIC LATCH** Kenneth D. Cakebread, Florence, Ala., assignor to Martin Industries, Inc., Florence, Ala.

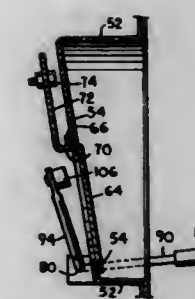
Filed Apr. 26, 1996, Ser. No. 639,210

Int. Cl.⁶ F24F 11/04

U.S. Cl. 454—255

18 Claims

16. A barometric damper for a structure comprising:
a housing adapted to be coupled with the structure, said housing defining an opening that allows spatial communication between a high pressure region and a low pressure region;

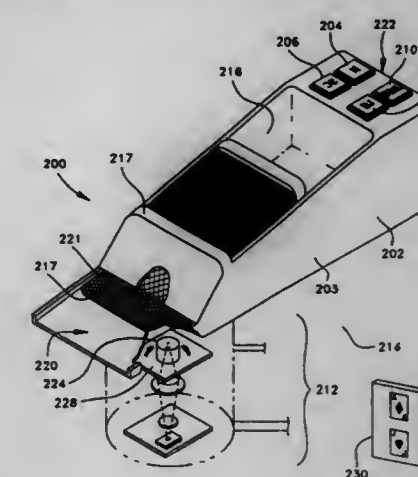


a damper blade movably coupled with said housing, said blade being movable between an open position wherein the blade accommodates air passage through said opening, and a closed position wherein the flow of air through said opening is substantially precluded; and
a lever movably coupled with said housing and having a contacting means for contacting said lever with said blade, said lever being movable between a first position wherein said lever accommodates free movement of said blade in response to barometric pressure changes on opposite sides of said blade, a second position wherein said contacting means contacts said blade to hold said blade in its closed position, and a third position wherein said contacting means holds said blade in its open position.

5,669,816 **BLACKJACK SCANNER APPARATUS AND METHOD** John S. Garczynski, Norristown, and John J. Dobson, Oreland, both of Pa., assignors to Peripheral Dynamics, Inc., Plymouth Meeting, Pa. Continuation-in-part of Ser. No. 496,355, Jun. 29, 1995, Pat. No. 5,632,483. This application Jul. 25, 1996, Ser. No. 687,245 Int. Cl.⁶ A63F 1/14

U.S. Cl. 463—12

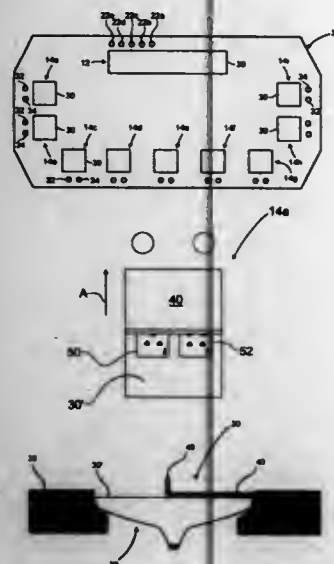
18 Claims



1. A card scanning module for use with standard playing cards, said module enabling announcement of when a hand having a first standard playing card and a second are blackjack, wherein one of said standard playing cards is dealt face down, comprising:
a. a scanner adapted to scan at least a portion of a first symbol of one of said standard playing cards dealt face down, said scanner having an array which holds the result of said scan;
b. memory for storing a plurality of references representing respective symbols of said standard playing cards;
c. analyzing means for comparing and determining the symbol of said first standard playing card based on a comparison of said array and said references;
d. inputting means for capturing the identity of said second standard playing card;

- e. announcing means for reporting when the hand having the first standard playing card and the second standard playing card comprise blackjack; and
- f. Dealer shoe, said Dealer shoe comprising sidewalls which define both a card compartment for retaining a plurality of standard playing cards and said announcing means.

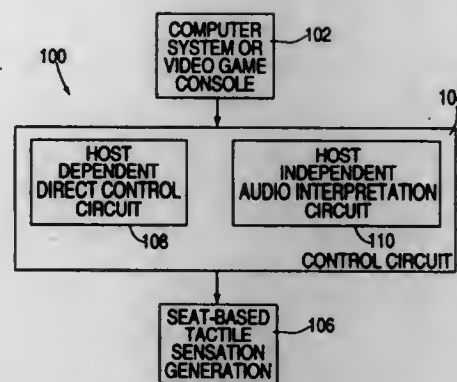
5,669,817
CASINO CARD TABLE WITH VIDEO DISPLAY
 Ella R. Tarantino, 2251 Fort Apache Rd., Las Vegas, Nev. 89117
 Filed Jan. 25, 1996, Ser. No. 591,842
 Int. Cl.⁶ A47B 25/00; A63F 1/00; 9/22
 U.S. Cl. 463—13



1. A game table, including:
 a plurality of player positions, each including a player display positioned for viewing at such player position and having means for concealing the display from viewing, and means to indicate participation in game play; and
 means operable at the dealer position for initiating a dealer position, having a dealer display viewable from the dealer position and the player positions, and means for initiating and maintaining game play to cause representations of player cards to appear on the player display of those players indicating participation in game play, and to cause representations of dealer cards to appear on the dealer display;
 the dealer position including dealer means to cause the representations of player cards to appear on the dealer display together with the representations of the dealer cards at the conclusion of game play.

5,669,818
SEAT-BASED TACTILE SENSATION GENERATOR
 Craig Thorner, 16 Nantucket Ct., Howell, N.J. 07731, and Thomas K. Glass, 277 Frank Applegate Rd., Jackson, N.J. 08527

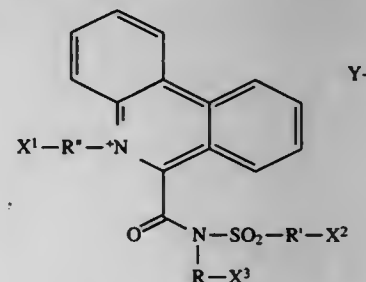
- Filed Mar. 23, 1995, Ser. No. 409,327
 Int. Cl.⁶ A63F 9/22
 U.S. Cl. 463—30
1. In a virtual reality computer system, apparatus for providing, in response to signals generated by said virtual reality computer system, a tactile sensation to a user of said virtual reality computer system, said apparatus comprising:
 a flexible pad;
 a plurality of actuators, attached to said pad, for selectively generating said tactile sensation; and



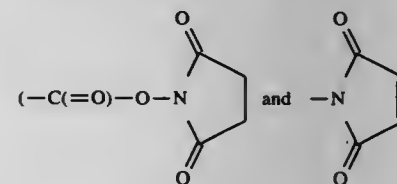
a control circuit, coupled to said plurality of actuators, where said control circuit is responsive to an audio signal for generating a control signal to control activation of said plurality of actuators, where said audio signal corresponds to action portrayed on said virtual reality computer system.

5,669,819
CHEMILUMINESCENT PHENANTHRIDINIUM
 Phillip Gregory Mattingly, and Larry Gene Bennett, both of Grayslake, Ill., assignors to Abbott Laboratories, Abbott Park, Ill.
 Division of Ser. No. 368,258, Jan. 3, 1995, Pat. No. 5,468,646, which is a continuation of Ser. No. 371,763, Jun. 23, 1989, abandoned, which is a continuation of Ser. No. 921,979, Oct. 22, 1986, abandoned. This application May 16, 1995, Ser. No. 442,052
 Int. Cl.⁶ G01N 31/00

- U.S. Cl. 436—501
1. A chemiluminescent conjugate comprising an antibody conjugated to a chemiluminescent compound of the formula:



wherein R, R', R'', X¹, X² and X³ independently comprise substituents which do not interfere with chemiluminescence measurement, linkage to the antibody is through one of X¹, X² and X³, and wherein Y⁻ is an anion with the proviso that R-X³ R'-X² and R''-X¹ may be hydrogen,
 wherein X¹, X² and X³ are independently members of the group consisting of hydrogen, (-CO₂H), (-C(=O)OZ¹) wherein Z¹ is alkyl, (-C(=O)NZ²Z³) wherein Z² or Z³ is H, alkyl or aryl, (-C(=O)OZ⁴) wherein Z⁴ is aryl, (-CN), (-C(=O)N(Z⁵)-C(=O)-Z⁵) wherein Z⁵ is H, alkyl or aryl, (F, Cl, Br, or I), (-N=C=O), (-N=C=S), (-SO₃⁻), sulfonyl halide (-SO₂Z⁶) wherein Z⁶ is (Cl or F), -C(=O)-Z⁷ wherein Z⁷ is (F, Cl, or Br),

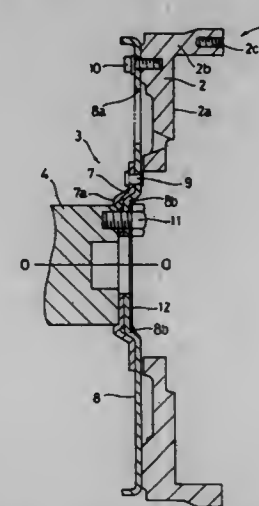


groups;
 wherein R independently comprises a member selected from the group consisting of alkylene, alkenylene and substituted alkylene groups and wherein R' and R'' independently comprise a member selected from the group consisting of alkylene, arylene, alkenylene, substituted alkylene, and substituted arylene groups, such that:
 one or more hydrogens or open valences of said member is replaced by an alkyl, aryl, alkylene, alkenylene, substituted alkyl, substituted alkylene, substituted aryl, alkoxy, aryloxy, halo, nitro, amino, protected amino, substituted amino, hydroxy, protected hydroxy, oxo, thio, imino, mercapto or substituted mercapto group;
 or such that one or more carbon atoms of the member is replaced by a heteroatom.

2. In a method for performing a chemiluminescent assay to test for the presence of a member of a specific binding pair which may be present in a test sample wherein said method comprises (a) contacting said test sample suspected of containing said specific binding pair member with a conjugate comprising an antibody attached to a chemiluminescent compound capable of generating a detectable signal, which conjugate specifically reacts with said specific binding pair member and (b) determining the presence of said specific binding pair member by detecting the signal generated by said conjugate, wherein the improvement comprises the step of contacting said test sample suspected of containing said specific binding pair member with said chemiluminescent conjugate as recited in claim 1 wherein said antibody of said conjugate specifically binds said specific binding pair member.

5,669,820
FLEXIBLE PLATE FOR TRANSMITTING TORQUE
 Hirotaka Fukushima, Hirakata, Japan, assignor to Exedy Corporation, Osaka, Japan
 Filed Dec. 13, 1995, Ser. No. 572,220
 Claims priority, application Japan, Dec. 15, 1994, 6-312206
 Int. Cl.⁶ F16D 3/00

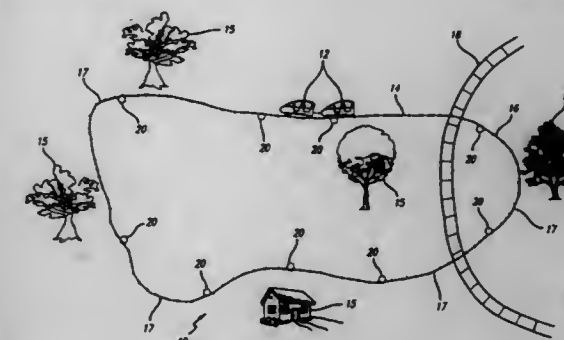
- U.S. Cl. 464—98



1. A flexible plate for use with a clutch mechanism, comprising a first flexible disc element configured for connection to a distal end of a crank shaft of an engine, said first flexible disc having an outer diameter greater than that of the distal end of the crankshaft, and
 a second flexible disc element having an inner circumferential portion thereof connected to said first disc element;
 wherein the inner circumferential portion of both first and second disc elements are connected to the crank shaft; and
 an outer circumferential portion of said second disc element has an outer diameter greater than an outer diameter of said first disc element and said outer circumferential portion is configured for connection to a flywheel.

5,669,821
VIDEO AUGMENTED AMUSEMENT RIDES
 James G. Prather, 18392 Vista Del Lago, Yorba Linda, Calif. 92686, and Richard T. Headrick, 5200 Irvine Blvd., Sp. 24, Irvine, Calif. 92720
 Filed Apr. 12, 1994, Ser. No. 226,902
 Int. Cl.⁶ A63G 31/16

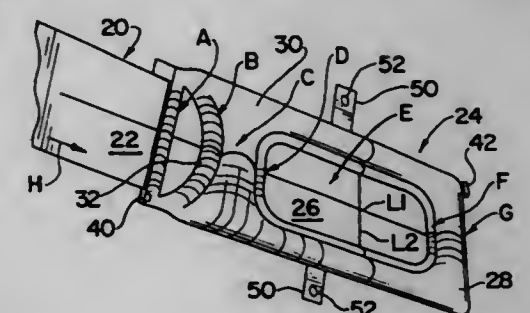
- U.S. Cl. 472—59



1. A recreational system, comprising:
 a car for carrying at least one passenger along a fixed track to produce G-forces on the passenger;
 detecting means for generating a synchronizing signal representative of motion of the car as it travels along the track;
 at least one display device for displaying a series of stored images to the passenger to create a displayed scenario of an amusement ride; and
 synchronization means responsive to said detecting means for changing said displayed scenario in response to said movements, to thereby match the displayed scenario to the motion and/or position of the car.

5,669,822
WATER SLIDE
 Marvin Smollar, Northbrook, and Richard Barry Mazursky, Glenview, both of Ill., assignors to Empire Industries, Inc., Delray, Fla.
 Continuation of Ser. No. 263,017, Jun. 20, 1994, abandoned, which is a continuation of Ser. No. 212,897, Jun. 29, 1988, abandoned. This application Nov. 21, 1995, Ser. No. 561,592
 Int. Cl.⁶ A63G 21/18

- U.S. Cl. 472—117



9. A water slide comprising in sequential combination an elongated sheet of material which becomes slippery when wet, a ramp for elevating a person sliding on said elongated sheet off said sheet and into the air, said ramp being formed from at least two segments with a first segment being spaced apart upstream a sufficient distance from a second segment so that each segment individually elevates the sliding person, said two segments comprising a first substantially linear segment and a second substantially semicircular concave segment wherein said first segment extends along a chord of said second segment, and a pool located at a point downstream where said sliding person lands after having passed over said ramp.

5,669,823

ADJUSTABLE PUTTER GRIP

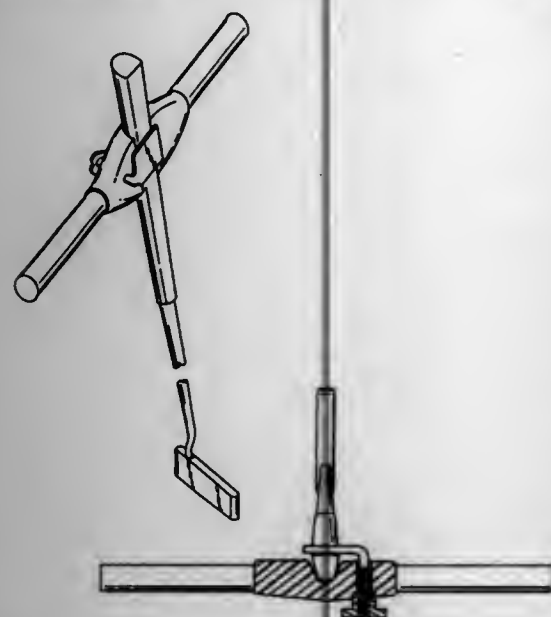
Stephen McCready, 1936 Illinois Ave., Metairie, La. 70062

Filed Jun. 28, 1996, Ser. No. 672,579

Int. Cl.⁶ A63B 53/16

U.S. Cl. 473—294

6 Claims



2. A putter in combination with an adjustable putter grip comprising:

- an attachment handle comprising a base member, the base member having generally cylindrical configuration, the base member having a recess formed in a front portion thereof intermediate end portions thereof, the recess being dimensioned for receiving a rounded rearward surface of a handle of the putter therein, the attachment handle further comprising a pair of integrally formed outer handles in axial alignment extending linearly from opposing ends of the base member;
- a clamping mechanism for coupling a putter to the attachment handle, the clamping mechanism comprising an L-shaped clamp portion, the L-shaped clamp portion having a planar exterior member and a cylindrical threaded interior member, the cylindrical threaded interior member extending orthogonally from an end of the planar exterior member, the clamping mechanism adjustably coupling the attachment handle along a length of a handle of the putter at any portion beneath an upper end of the handle of the putter.

5,669,824

IRON CLUB AND IRON CLUB SET

Yuichi Aizawa, and Yutaka Oku, both of Tokyo, Japan, assignors to Daiwa Seiko, Inc., Tokyo, Japan

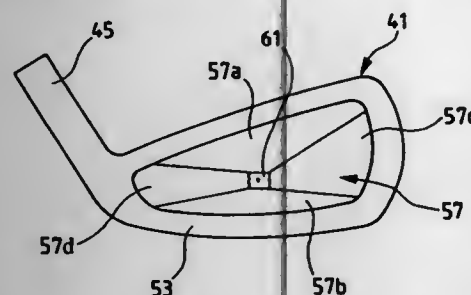
Filed Mar. 11, 1996, Ser. No. 613,619

Claims priority, application Japan, Mar. 9, 1995, 7-049777

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—291

13 Claims



9. An iron club set comprising a long iron club, a middle iron club and a short iron club, each of the clubs including a head having a face portion, a back portion, and top, sole, toe, and heel sides, wherein:

- the back portion, except for a peripheral portion thereof, is recessed extending to a thin surface to define a recessed portion which decreases the thickness of the face portion gradually from the top, sole, toe, and heel sides to a thin portion corresponding to a sweet spot;
- the thin portion defines a minimum thickness of the face portion in each club along an area corresponding to said thin surface; and
- the shorter the iron club from the long iron club through the middle iron club to the short iron club, the smaller the thickness of the thin portion being provided.

5,669,825

METHOD OF MAKING A GOLF CLUB HEAD AND THE ARTICLE PRODUCED THEREBY

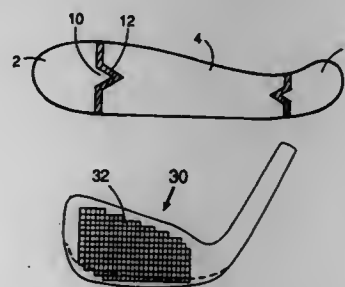
Chester S. Shira, San Diego, Calif., assignor to Carbite, Inc., San Diego, Calif.

Filed Feb. 1, 1995, Ser. No. 384,713

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—324

16 Claims



7. A golf club head which comprises at least two adjacent metallic load bearing components, one of said metallic load bearing components being heavier than the other metallic load bearing component, said metallic load bearing components having been joined together by welding, brazing, or diffusion or adhesive bonding, at least one of said metallic load bearing components having been previously formed from sintered metal powders prior to being joined to said other metallic component, said heavier metallic load bearing component being located at one of the extremities of said golf club head.

5,669,826

STRUCTURE OF GOLF CLUB HEAD

Poh-Heng Chang, Malim Jaya, Malaysia, and Chung-Jong Sung, Tainan, Taiwan, assignors to Sung Ling Golf & Casting Co., Ltd., Tainan, Taiwan

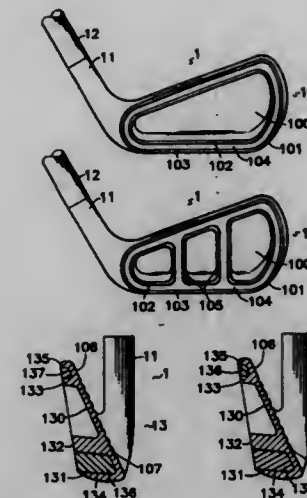
Filed Jan. 19, 1996, Ser. No. 588,782

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—332

7 Claims

1. A golf club head comprising a front, a back, a top, a bottom, a toe and a heel, said front having a club face with a uniform thickness and a periphery, said back including a peripheral wall extending backward from said periphery of said front at an angle; said peripheral wall extending about said top, said bottom, said toe and said heel; said back additionally including an upright flange extending backward at said angle and forming a continuous groove with said peripheral wall, said back further including a cavity formed by said upright flange and two ribs including transverse grooves extending from said top to said bottom and communicating with said continuous groove; said club face, said peripheral



wall and said flange are integrally formed; and a counter weight element is secured in said continuous groove.

5,669,827

METALLIC WOOD CLUB HEAD FOR GOLF

Itsushi Nagamoto, Hamamatsu, Japan, assignor to Yamaha Corporation, Japan

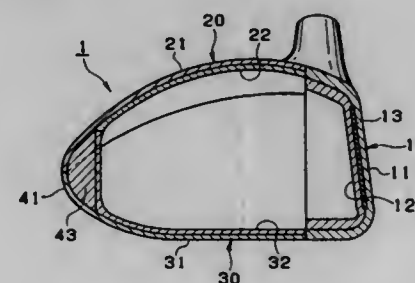
Filed Feb. 27, 1996, Ser. No. 607,771

Claims priority, application Japan, Feb. 27, 1996, 7-061517

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—345

5 Claims



1. A metallic wood club head for golf comprising a metallic shell structure made up of a plurality of shell pieces united together,

- at least one of said shell pieces including, at least locally, a plurality of laminated layers made up of a first material and at least one intermediate layer made up of a second material having a specific gravity different from said first material to thereby position the center of gravity of said shell structure toward the location of said laminated layers.

5,669,828

GOLF CLUB METALLIC HEAD FORMATION

Glenn H. Schmidt, Malibu, Calif., assignor to Callaway Golf Company, Carlsbad, Calif.

Division of Ser. No. 436,020, May 5, 1995, Pat. No. 5,577,550.

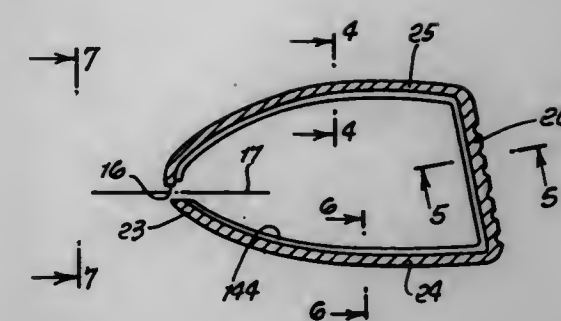
This application Aug. 1, 1996, Ser. No. 690,761

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—345

5 Claims

1. A hollow metallic golf club head having wall structure defining a front wall, a heel, a toe, a rear wall, a sole and a top wall, said rear wall having a downwardly curved portion, said head having at least one through opening formed in said rear wall downwardly curved portion at a level above the sole and so as to underlie a rear



portion of the top wall, the front wall being entirely closed to block access into the hollow head via said front wall, said opening being elongated laterally.

5,669,829

GOLF CLUB HEAD

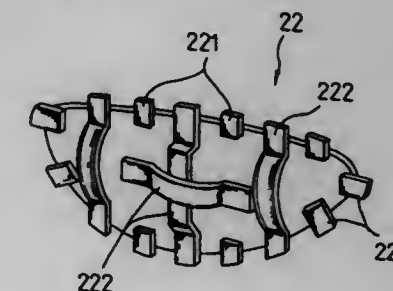
Hai-Sheng Lin, Kaohsiung Hsien, Taiwan, assignor to Pro Saturn Industrial Corporation, Taiwan

Filed Jul. 31, 1996, Ser. No. 688,922

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—346

5 Claims



1. A golf club head comprising:

- a face plate made of a first metal material and having a front side which serves as a hitting surface, and a rear side which is provided with a plurality of angularly spaced positioning pieces that extend radially outward from a peripheral edge of said face plate, said rear side of said face plate being further provided with a plurality of elongated reinforcing strips, each of which has a rearwardly protruding intermediate curved portion; and
- a head body made of a second metal material which has a melting point lower than that of said first metal material, said head body having a front portion with a front surface, said face plate being embedded in said front portion of said head body such that said hitting surface of said face plate is flush with said front surface of said front portion; whereby, said head body encloses each of said positioning pieces and said reinforcing strips during molding of said head body to result in a durable connection between said head body and said face plate.

5,669,830

PERIMETER WEIGHTED GOLF CLUBS

Jeffrey Vincent Bamber, 5023 Village Dr., Cincinnati, Ohio 45244

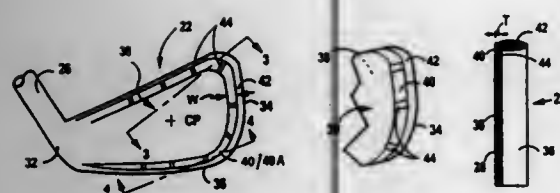
Division of Ser. No. 394,695, Feb. 24, 1995, Pat. No. 5,540,437, which is a continuation-in-part of Ser. No. 213,622, Mar. 15, 1994, Pat. No. 5,419,560. This application Apr. 25, 1996, Ser. No. 637,860

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—350

9 Claims

1. A golf club head comprising a club face which includes a hitting surface, a back surface having a cavity therein, said cavity



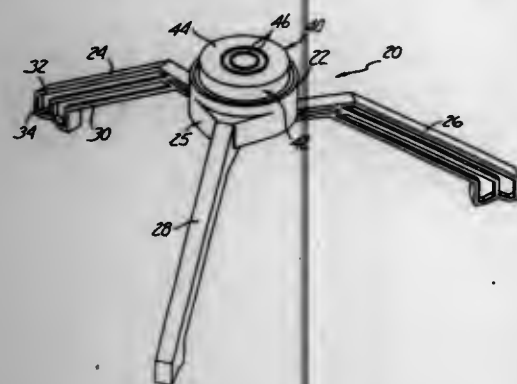
having an upper portion, said club head having a heel portion, a toe portion, and a sole portion extending generally between said heel portion and said toe portion, an upper edge portion, a weighted perimeter portion which forms at least a portion of the perimeter of said club head, and at least two raised members on the back surface of said club head that extend from said upper portion of said cavity toward said upper edge portion of the perimeter of the club head.

5,669,831
POLYORGANO-SILOXANE CLEAR COATS FOR GOLF BALLS
Mitchell E. Lutz, Fairhaven, Mass., assignor to Acushnet Company, Fairhaven, Mass.
Filed Jun. 7, 1995, Ser. No. 484,242
Int. Cl.⁶ A63B 37/12

U.S. Cl. 473—377 18 Claims
1. A golf ball comprising a core, a cover and a clear coat layer, wherein said clear coat layer is the outermost layer and comprises at least about 10 percent by weight of a polyorgano-siloxane polymer.

5,669,832
INCLINATION INDICATING APPARATUS AND METHOD FOR USING THE SAME
David J. Lehse, 4871 Heather Ridge Rd., Oakdale, Minn. 55128
Filed Jan. 11, 1996, Ser. No. 582,369
Int. Cl.⁶ A63B 57/00

U.S. Cl. 473—404 24 Claims



1. An inclination indicating apparatus for indicating the slope of a surface, the inclination indicating apparatus comprising:
a housing having a base defining a first plane;
a plurality of support legs for supporting the base of the housing above the surface in an operational configuration so that the first plane of the base is capable of being located above the surface by a fixed distance, at least one of the support legs being rotatable to form a generally coplanar storage configuration; and
a multi-directional level indicator on the housing for indicating the slope of the first plane relative to the surface when the inclination indicating apparatus is located on the surface in the operational configuration.

5,669,833
SOCCER TRAINING SYSTEM
David B. Stone, 139 Denman Rd., Cranford, N.J. 07016
Filed Aug. 21, 1996, Ser. No. 701,156
Int. Cl.⁶ A63B 69/00

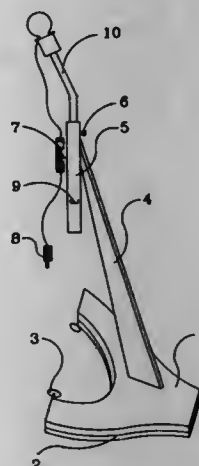
U.S. Cl. 473—422 26 Claims



1. A system for training an athlete in a kicking dribble skill with a soccer ball on a playing surface, the system comprising:
flexible dribble path defining means for defining a dribble path on the playing surface along which the athlete is to be trained; and
a plurality of stanchion means for maintaining said flexible dribble path defining means along the dribble path at a predetermined height above the playing surface, the predetermined height being sufficient to permit the soccer ball to be dribbled by the athlete between the playing surface and said flexible dribble path defining means.

5,669,834
VOLLEYBALL BLOCKING TRAINING DEVICE
Lentij Slupski, 240 Mt. Vernon, Newark, N.J. 07106
Filed Feb. 15, 1996, Ser. No. 602,062
Int. Cl.⁶ A63B 69/00

U.S. Cl. 473—459 9 Claims

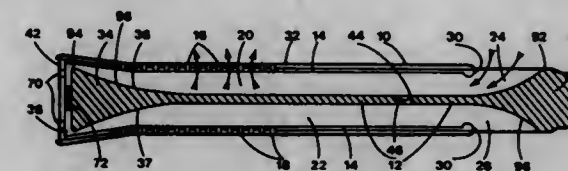


1. A volleyball blocking training device, comprising a substantially upright support having an upper end; a ball imitating element arranged on said upper end of said support and adapted to be acted upon by a player during training in a blocking mode; an indicating means for indicating when the player has acted upon said ball imitating element in a blocking mode; and spring means provided between said ball imitating element and said substantially upright support so that when a player acts on said ball imitating element

during training in a blocking mode, said spring means compresses, and then after the action said spring means relaxes and displace said ball imitating element to its initial position.

5,669,835
RACKET HANDLE
Oliver Tiura, 50 Etta Wylie Road, Unit 503, Etobicoke, Ontario, Canada, M8V 3Z8
Filed Jul. 19, 1996, Ser. No. 684,360
Int. Cl.⁶ A63B 49/08

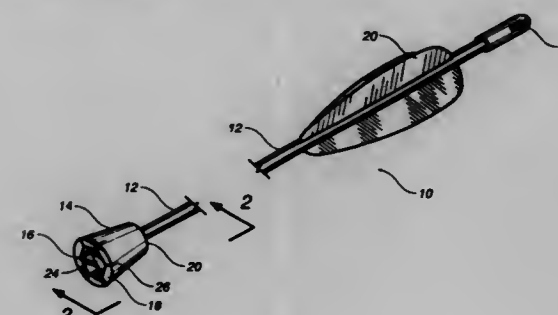
U.S. Cl. 473—550 19 Claims



1. A ball hitting device for a ball game such as tennis or paddle ball, said device having a generally wide and flat head portion and a handgrip connected to said head portion, said handgrip comprising:
a central body having concavely curved front and rear surfaces which extend longitudinally a substantial distance along said handgrip;
an exterior shell disposed on opposite sides of said central body and covering said front and rear surfaces, said shell having a plurality of ventilation openings formed therein and communicating with two separate ventilation chambers formed between each of said front and rear surfaces and said shell; and
two air inlets formed on opposite sides of said handgrip at a head end thereof, each air inlet opening into a respective one of said ventilation chambers at a head end thereof, wherein each ventilation chamber is substantially deeper along a central longitudinal portion thereof than along an end portion thereof adjacent a butt end of the handgrip.

5,669,836
ARROW WITH MARKING HEAD
Jack O'Neill Hill, 14515 Wunderlich Dr. Apt. #1111, Houston, Tex. 77069
Filed Jun. 6, 1996, Ser. No. 659,342
Int. Cl.⁶ F42B 6/08

U.S. Cl. 473—574 9 Claims



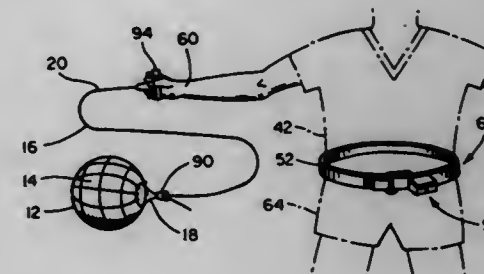
1. An arrow comprising:
a shaft;
a head affixed to the shaft, said head being formed of an elastomeric material, said head being a truncated cone having a narrow end attached to said shaft;
a rigid disk having insert protrusions extending into said elastomeric material of said head, said narrow end of said shaft having a flat surface juxtaposed against said rigid disk;

a rod extending outwardly from a side of said rigid disk opposite said insert protrusions and said head, said rod being threadedly received by said shaft; and
a marker receiving means formed at an end of said head opposite said shaft, said marker receiving means for receiving a marker material and for releasing said marker material upon contact between said head and a target.

5,669,837
SOCCER TRAINING APPARATUS
Bradley David Hunter, 433 Harvest Gate, Lake In The Hills, Ill. 60102

Division of Ser. No. 591,755, Jan. 25, 1996, which is a continuation-in-part of Ser. No. 510,357, Aug. 2, 1995, Pat. No. 5,586,760, which is a continuation-in-part of Ser. No. 273,761, Jul. 12, 1994, Pat. No. 5,443,576. This application Oct. 31, 1996, Ser. No. 740,625
Int. Cl.⁶ A63B 67/10

U.S. Cl. 473—576 10 Claims



1. A soccer training apparatus, comprising:
(a) a mesh soccer net sized and configured for encapsulating a soccer ball and loosely holding the soccer ball within the mesh soccer net enabling the encapsulated soccer ball to freely rotate within;
(b) a waist belt adapted for securement around a waist of a user;
(c) a cord having a first portion operatively attached to the mesh soccer net; and
(d) a hand grip connected to the second portion of the cord and means for detachably securing the hand grip to the waist belt so that a user may selectively hold the hand grip in a user's hand or secure the hand grip to the waist belt leaving the mesh soccer net carrying the soccer ball suspended from the waist belt.

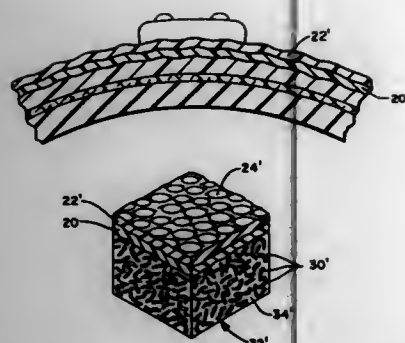
5,669,838
GAME BALL WITH SYNTHETIC LEATHER COVER
Thomas Kennedy, Wilbraham, and Derrick K. Brantley, East Longmeadow, both of Mass., assignors to Lisco, Inc., Tampa, Fla.

Continuation of Ser. No. 322,775, Oct. 13, 1994, abandoned.
This application Dec. 7, 1995, Ser. No. 568,655

Int. Cl.⁶ A63B 41/08

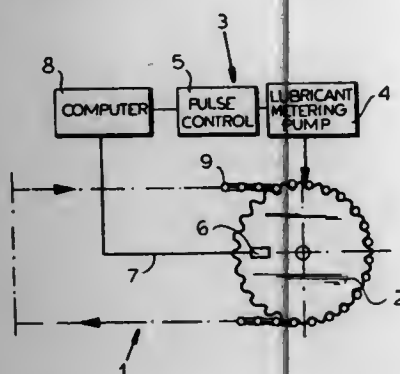
U.S. Cl. 473—596 15 Claims

1. A game ball, comprising:
a center,
a cover secured over the center, the cover including a backing comprising a fiber reinforced polyurethane material, a first coating layer formed over the backing having a Shore A hardness of at least about 65, and a second coating layer surrounding the first coating layer, the second coating layer



having a Shore A hardness which is lower than the Shore A hardness of the first coating layer.

5,669,839
METHOD OF METERING A FLOWABLE LUBRICANT OF A CHAIN DRIVE
 Walter Graf, Euerdorf; Ulrich Immisch, Bed Kissingen, and Anton May, Burkardroth, all of Germany, assignors to Satzinger GmbH & Co., Euerdorf, Germany
 Filed Jan. 30, 1996, Ser. No. 594,243
 Claims priority, application Germany, Feb. 7, 1995, 195 03 861.4
 Int. Cl.⁶ F16H 57/04; F16N 7/24; 13/22
 U.S. Cl. 474-91 16 Claims

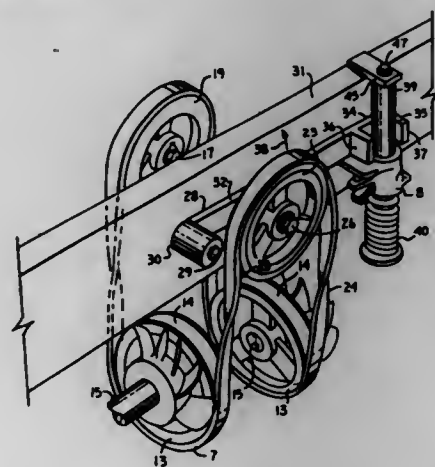


1. A method of metering a flowable lubricant to a chain drive having a sprocket element and a chain element passing around said sprocket element, said method comprising the steps of:
 (a) dispensing a lubricant fluid in pulsed incremental quantities onto at least one of said elements during operation of said drive and rotation of said sprocket element;
 (b) measuring rotation of said sprocket element and controlling pulsing of the dispensing of the lubricant fluid in accordance with the measured rotation; and
 (c) terminating the dispensing of the lubricant fluid in pulsed incremental quantities onto said one of said elements in response to a measurement of said rotation signalling a threshold speed above which said lubricant fluid tends to be centrifugally flung from said elements.

5,669,840
TENSION DEVICE FOR BICYCLE DERAILEUR
 Chi Chao Liao, Chang Hua Hsien, Taiwan, assignor to Tektro Technology Corporation, Chang Hua Hsien, Taiwan
 Filed Sep. 20, 1996, Ser. No. 716,969
 Int. Cl.⁶ F16H 59/00
 U.S. Cl. 474-80 1 Claim
 1. A tension device for a derailleur system of a bicycle, the derailleur system comprising a frame including a first end portion

pivotaly coupled to the bicycle and including at least one sprocket for engaging with a chain, the frame including a second end portion, a spring member for tensioning the chain, said tension device comprising:
 an arm including a first end secured to the bicycle and including a second end,
 a block secured to the second end portion of the frame, said block including an extension extended therefrom and having a free end portion, and
 a spring element including a first end secured to said second end of said arm and including a second end secured to said free end portion of said extension of said block, for tensioning the frame and the chain and for preventing the chain from disengaging from the derailleur system.

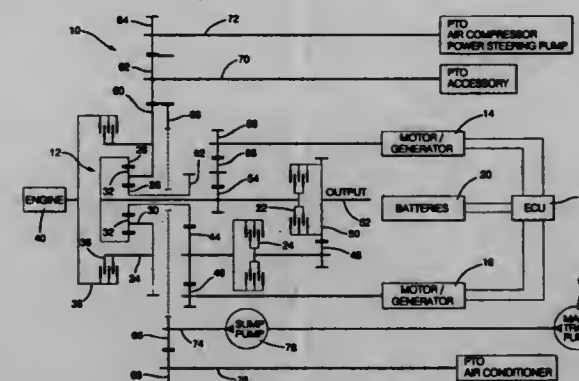
5,669,841
TWISTED BELT TENSIONER
 Scott Schick, Corydon, Iowa, assignor to Shilvers, Inc., Corydon, Iowa
 Filed Jan. 18, 1996, Ser. No. 588,349
 Int. Cl.⁶ F16H 7/12
 U.S. Cl. 474-135 16 Claims



16. A tensioning mechanism for a drive belt comprising:
 a) a tensioning pulley adapted for operably engaging the drive belt and applying tension thereto;
 b) a tensioning pulley carrier rotatably supporting the tensioning pulley and adapted to be connected to a frame such that an axis of rotation of said tensioning pulley is moveable along a path with respect to said frame;
 c) a tensioning device connected to said tensioning pulley and operably applying a force to said tensioning pulley to urge said pulley axis along said path so as to tension the drive belt;
 d) a locking mechanism operably unidirectionally moveable along said path and connected to said tensioning device and operably allowing said tensioning pulley axis to move in only one direction along said path;

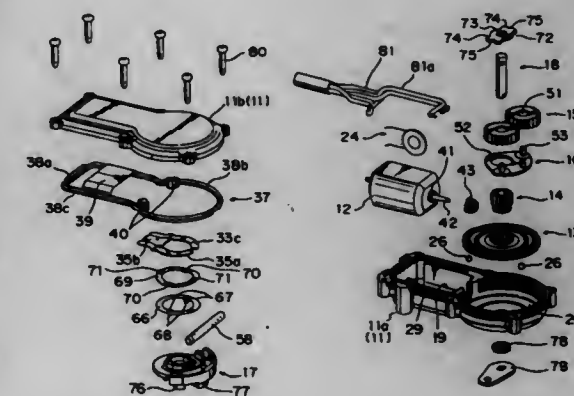
e) an elongate arm with said tensioning pulley being rotatably mounted onto said arm;
 f) said arm having a first end spaced from a connection with said tensioning pulley; said first end being adapted to be pivotally connected to the frame;
 g) said arm operably engaging said tensioning device at a location therealong spaced from said first end such that said tensioning device biases said arm to swing about said first end;
 h) said path follows a shaft and includes a body sleeved on and slidable along said shaft; and
 i) at least one locking cam plate operably positioned in said body so as to allow sliding of said body along said shaft in a forward direction and so as to lock and prevent sliding of said body along said shaft in a reverse direction.

5,669,842
HYBRID POWER TRANSMISSION WITH POWER TAKE-OFF APPARATUS
 Michael Roland Schmidt, Carmel, Ind., assignor to General Motors Corporation, Detroit, Mich.
 Filed Apr. 29, 1996, Ser. No. 638,664
 Int. Cl.⁶ F16H 3/72; B60K 1/00
 U.S. Cl. 475-5 3 Claims



1. An electro-mechanical hybrid drive and accessory drive comprising:
 an electrical power and storage source;
 a first motor/generator;
 a second motor/generator;
 control means for selectively connecting said power and storage source with said first and second motor/generators for controlling their respective operation thereof;
 an internal combustion engine prime mover having an idle speed;
 a planetary gear arrangement having a first member drivingly connected with said first motor/generator, a second member drivingly connected with said second motor/generator, and a third member drivingly connected with a plurality of accessory drive shafts, one of which is drivingly connected with a hydraulic power source;
 a hydraulically operated clutch which is selectively engageable to connect said prime mover with said third planetary member; and
 said first and second motor/generators being operable through said planetary gear arrangement to operate said hydraulic power source and to control the speeds of the first and second members to rotate said third member of said planetary gear arrangement at a speed proportional to said idle speed when said clutch is disengaged to permit selective engagement of said clutch at a speed synchronous with said idle speed.

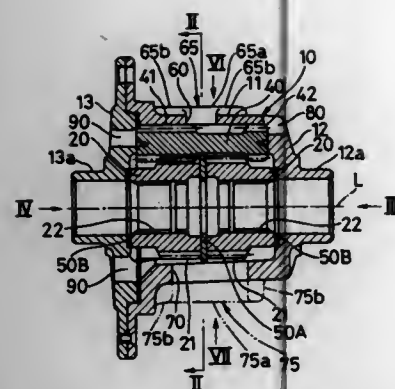
5,669,843
ACTUATOR
 Brian Lewis Bolton, Kirksville, Mo.; Yoshio Yuyama, Hiroshima, Japan; Katsutoshi Akutagawa, Aki-gun, Japan, and Hiromi Matsuura, Higashihiroshima, Japan, assignors to U-Shin Ltd., Tokyo, Japan
 Filed Apr. 10, 1996, Ser. No. 629,499
 Claims priority, application Japan, Apr. 21, 1995, 7-096970; Apr. 28, 1995, 7-106191; Apr. 28, 1995, 7-106215; May 24, 1995, 7-124948; May 24, 1995, 7-124950; May 24, 1995, 7-124958; May 24, 1995, 7-124974
 Int. Cl.⁶ F16H 35/00
 U.S. Cl. 475-149 13 Claims



1. An actuator comprising:
 a housing member including a motor compartment and a gear compartment, the gear compartment having inner teeth formed on the inner periphery thereof;
 a motor having a rotary shaft with a motor gear mounted thereon, the motor being housed in the motor compartment in such a way as to permit the motor gear to project into the gear compartment;
 an output shaft projecting outwardly from the housing member;
 a larger diameter gear housed in the gear compartment which is rotatable about the output shaft and held in mesh engagement with the motor gear;
 a smaller diameter gear disposed coaxially with the larger diameter gear and rotatable in conjunction with the rotation of the larger diameter gear;
 at least one planet gear held in mesh engagement with both the smaller diameter gear and the inner teeth formed in the gear compartment so that each such planet gear can shift its engagement position with respect to the inner teeth as the smaller diameter gear rotates; and
 a rotary member engaging the planet gear(s) for rotation within the gear compartment, the output shaft being rotatable in response to the rotation of the rotary member.

5,669,844
LUBRICATION SYSTEM FOR A PARALLEL-AXIS DIFFERENTIAL
 Akinori Homan; Kiyonari Ishikawa, both of Toyota, and Hirofumi Okuda, Saitama-ken, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi-ken, and Zexel Corporation, Tokyo, both of Japan
 Filed Oct. 24, 1995, Ser. No. 547,610
 Claims priority, application Japan, Nov. 16, 1994, 6-306984
 Int. Cl.⁶ F16H 57/04
 U.S. Cl. 475-160 8 Claims

1. A parallel-axis differential, comprising:
 (a) a housing rotatable about a rotational axis upon receipt of a rotational torque, said housing having in a peripheral wall thereof a window opening for allowing the passage of lubricating oil;



- (b) a pair of sun gears rotatably received in said housing and coaxial with said housing, said pair of sun gears being connected with end portions of a pair of coaxial output shafts, respectively;
- (c) at least a pair of planetary gears rotatably received in said housing and being parallel with the rotational axis of said housing, said planetary gears of the pair being in engagement with said pair of sun gears, respectively and also in engagement with each other; and
- (d) a fin mounted on an outer surface of the peripheral wall of said housing, said fin including a primary portion and a secondary portion, said primary portion of said fin being disposed along a rear edge of said window opening with reference to one rotating direction of said housing, said secondary portion of said fin extending from said primary portion and away from said window opening toward an end of said housing in a direction of said rotational axis.

5,669,845

SHIFT CONTROL SYSTEM FOR TROIDAL CONTINUOUSLY VARIABLE TRANSMISSION

Itsuro Muramoto, Yokosuka, and Hitoshi Kidokoro, Yokohama, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

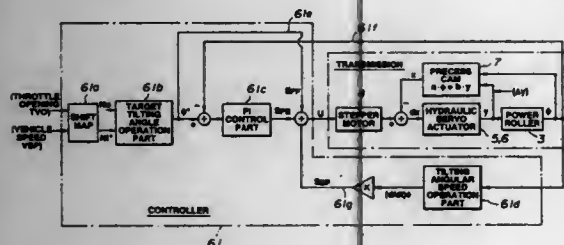
Filed Mar. 28, 1996, Ser. No. 624,660

Claims priority, application Japan, Mar. 29, 1995, 7-071495

Int. Cl.⁶ F16H 15/04; 59/38

U.S. Cl. 475—186

16 Claims



1. A shift control system for a troidal continuously variable transmission provided with input and output discs and power rollers frictionally engaged with the input and output discs for ensuring power transmission therebetween, the shift control system serving to make, in accordance with a shift command value, the power rollers be offset with respect to a position wherein a rotation axis thereof and a rotation axis of the input and output discs cross each other so as to produce tilting of the power rollers about an oscillating axis perpendicular to the rotation axis thereof, the shift control system serving to return the power rollers to the position so as to maintain the shift command value as achieved, the shift control system comprising:

- an electronic system arranged to calculate the shift command value;
- a first electronic feedback system connected to said electronic system, said first electronic feedback system serving to feed

back a first physical quantity indicative of a tilting angle of the power rollers; and

a second electronic feedback system connected to said electronic system, said second electronic feedback system serving to feed back a second physical quantity indicative of a speed of change of said tilting angle of the power rollers, said electronic system calculating the shift command value in accordance with said first and second physical quantities.

5,669,846

CONTINUOUSLY VARIABLE TRANSMISSION WITH CONTROL OF SWITCHING BETWEEN A HIGH MODE AND A LOW MODE

Shuzo Moroto, Nagoya; Takao Taniguchi; Shoichi Miyagawa, both of Okazaki; Shiro Sakakibara, Anjo; Kazumasa Tsukamoto, Toyota; Takeshi Inuzuka, and Masashi Hattori, both of Anjo, all of Japan, assignors to Aisin AW Co., Ltd., Japan

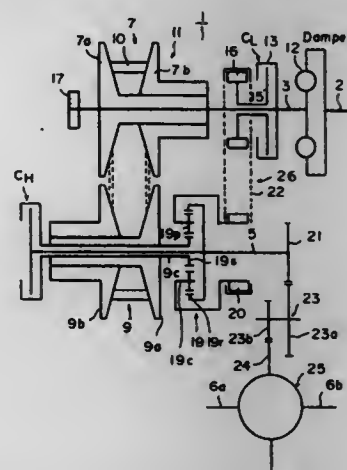
Filed Mar. 22, 1996, Ser. No. 620,190

Claims priority, application Japan, Mar. 24, 1995, 7-66234; May 26, 1995, 7-128701; May 26, 1995, 7-128702

Int. Cl.⁶ F16H 9/26

U.S. Cl. 475—211

12 Claims



1. A continuously variable transmission system for speed change of rotation received from an engine output shaft and for transmitting that rotation, at the changed speed to vehicle wheels, said system comprising:

- an input shaft for receiving engine torque from the engine output shaft;
- an output shaft for outputting torque to the vehicle wheels;
- a belt type continuously variable transmission unit having a first pulley for receiving engine torque from said input shaft, a second pulley, a belt trained around both of said first and second pulleys and axial force actuating means for changing the pulley ratio of said first and second pulleys by applying axial forces to said first and second pulleys;
- a planetary gear unit having a first rotary element rotatable with said input shaft, a second rotary element rotatable with said second pulley and a third rotary element rotatable with said output shaft;
- a first clutch, interposed between said input shaft and said first rotary element, for engaging and disengaging power transmission therebetween;
- a second clutch, interposed between any two of said first, second, and third rotary elements of said planetary gear unit, for engaging and disengaging power transmission therebetween;
- low-high shifting means for shifting between a low mode for providing a comparatively high torque ratio by engaging said first clutch and a high mode for providing a comparatively low torque ratio by engaging said second clutch, wherein direction of torque transmission between said first pulley and said second pulley of said belt type continuously variable

transmission unit is changed by switching between said low mode and said high mode;

control means for controlling said axial force actuating means so that axial forces acting on said first and second pulleys produce a difference corresponding to the pulley ratio of said first and second pulleys; and

switching means for changing the relative relationship in magnitude between the axial forces which act on said first and second pulleys, responsive to switching between said low mode and said high mode by said low-high shifting means, so that said relative relationship in magnitude is reversed.

5,669,847

CONTROL APPARATUS FOR VEHICLE

Masuo Kashiwabara, Atsugi, Japan, assignor to Unisia Jecs Corporation, Atsugi, Japan

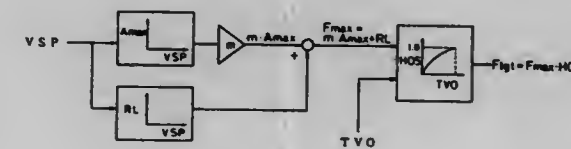
Filed Jun. 7, 1995, Ser. No. 475,994

Claims priority, application Japan, Jun. 9, 1994, 6-127519

Int. Cl.⁶ F16H 59/06; 59/66

U.S. Cl. 477—46

6 Claims



1. A control apparatus for a vehicle having a drive system including an engine and a transmission arranged between the engine and an output drive shaft of the vehicle, comprising:
- means for calculating a first value related to a hill-climbing resistance of the vehicle;
 - means for calculating a second value related to a driving force to be produced according to driving conditions of the vehicle;
 - means for calculating a third value related to the speed of the vehicle;
 - means for calculating a target horsepower according to the first, second, and third values; and
 - means for controlling an operating parameter of the drive system of the vehicle to achieve the target horsepower.

5,669,848

CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION FOR VEHICLE

Noboru Kondo, and Kenzo Nishida, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 31, 1996, Ser. No. 594,448

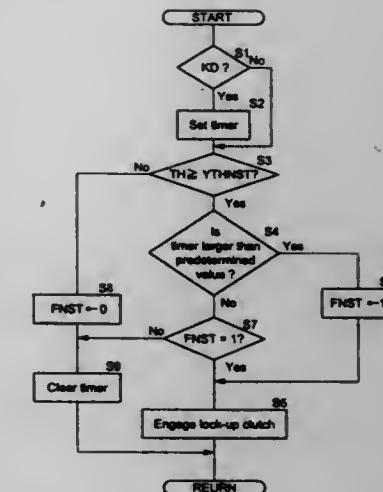
Claims priority, application Japan, Feb. 1, 1995, 7-015094

Int. Cl.⁶ F16H 61/58

U.S. Cl. 477—64

6 Claims

1. A control system for an automatic transmission for a vehicle, comprising:
- a torque converter connected at its input side to an engine and at its output side to a gear shifting mechanism having a plurality of gear shift stages;
 - a lock-up clutch for interconnecting said input and output sides of said torque converter; and
 - a control means for controlling the engagement and disengagement of said lock-up clutch based on at least a value corresponding to an engine load, wherein said control means causes said lock-up clutch to be brought into an engaged state during acceleration of the vehicle, wherein said acceleration of the vehicle is a time of increasing of a throttle opening



degree to a degree larger than a predetermined value after commanding of a downshifting by a depressing operation of an accelerator pedal.

5,669,849

APPARATUS FOR CONTROLLING CONCURRENT RELEASING AND ENGAGING ACTIONS OF FRICTIONAL COUPLING DEVICES FOR SHIFTING VEHICLE AUTOMATIC TRANSMISSION

Atsushi Tabata, Okazaki; Nobuaki Takahashi, and Tetsuo Hamajima, both of Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

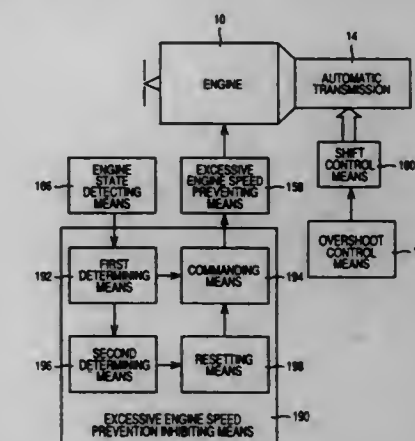
Filed Feb. 2, 1996, Ser. No. 595,850

Claims priority, application Japan, Feb. 3, 1995, 7-017060; Mar. 6, 1995, 7-045444; Jun. 27, 1995, 7-160210

Int. Cl.⁶ F16H 61/04; B60K 41/06

U.S. Cl. 477—102

18 Claims



1. A shift control apparatus for controlling an automatic transmission of a motor vehicle having an engine, said transmission having a plurality of operating positions and including two hydraulically operated frictional coupling devices one and the other of which are released and engaged, respectively, to effect a clutch-to-clutch shift of said transmission from one of said operating positions to another of said operating positions, said shift control apparatus comprising (a) excessive engine speed preventing means for preventing a rise of a speed of said engine above an upper limit, (b) hydraulic control means for regulating hydraulic pressures of said two frictional coupling devices such that an amount of overshoot of said speed of the engine is held within a predetermined range during a period of said clutch-to-clutch shift, and (c) overshoot control means for compensating at least one of said hydraulic pressures as regulated by said hydraulic control means, when said

amount of overshoot of the speed of said engine is outside said predetermined range, said shift control apparatus further comprising:

engine state detecting means for detecting an operating state of said engine during said clutch-to-clutch shift of said transmission; and

inhibiting means for inhibiting an operation of said overshoot control means, if said operating state of said engine detected by said engine state detecting means is expected to cause activation of said excessive engine speed preventing means during said clutch-to-clutch shift of said transmission.

5,669,850

SHIFT HUNTING PREVENTION FOR AN AUTOMATIC TRANSMISSION

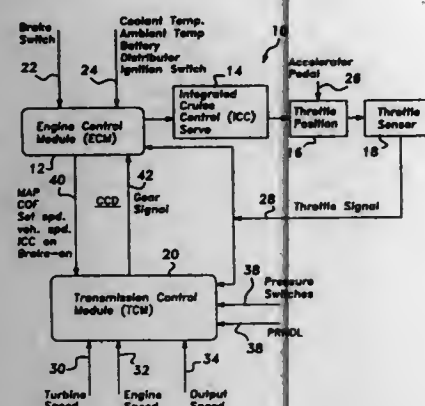
Hans A. Dourra, Dearborn Heights; Howard L. Benford, Bloomfield Hills, and Maurice B. Leising, Clawson, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed Jun. 13, 1996, Ser. No. 662,593

Int. Cl. B60K 41/04

U.S. Cl. 477-108

7 Claims



1. A method of controlling transmission gear shifts in an automatic transmission of a vehicle so as to prevent the occurrence of shift hunting, said method comprising the steps of: engaging the automatic transmission in a first gear; determining torque required to maintain a predetermined speed in the first gear; predicting a maximum torque available in an upshift condition of the transmission to a second gear; inhibiting an upshift from the first gear to the second gear when the predicted maximum torque available in the second gear is less than the determined torque required to maintain the predetermined speed in the first gear; providing an upshift to the second gear once the determined maximum torque available in the second gear exceeds the determined torque required to maintain the predetermined speed in the first gear; determining torque required to maintain the predetermined speed in the second gear; predicting a maximum torque available in an upshift condition of the transmission to a third gear, said third gear being the next highest gear above said second gear; and inhibiting an upshift from the second gear to the third gear when the predicted maximum torque available in the third gear is less than the determined torque required to maintain the predetermined speed in the second gear.

5,669,851 AUTOMATIC GEAR CHANGE CONTROL METHOD FOR A MOTOR VEHICLE AUTOMATIC DISCRETE STEP GEARBOX

Frank Tietze, Stuttgart, Germany, assignor to Mercedes-Benz AG, Germany

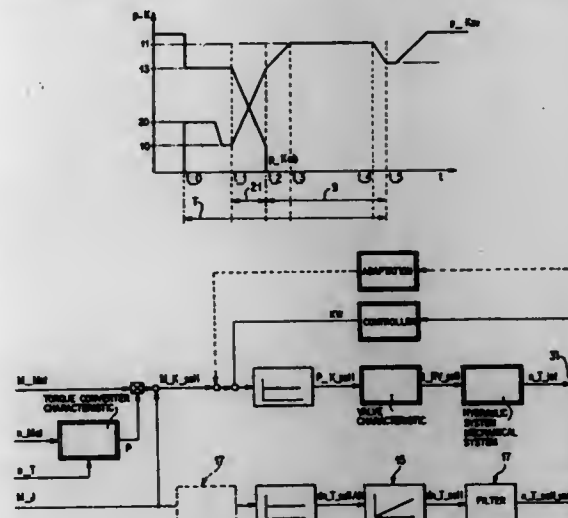
Filed Apr. 1, 1996, Ser. No. 625,892

Claims priority, application Germany, Mar. 31, 1995, 195 11 996.7

Int. Cl. B60K 41/04

U.S. Cl. 477-109

2 Claims



1. A method for controlling a gear change in an automatic discrete step gearbox of a motor vehicle, having a first engageable and disengageable frictional connection associated with an old gear and having a second engageable and disengageable frictional connection associated with a new gear between associated gearbox elements and having a controller for working pressures for actuating the first and second frictional connections participating in the gear change, comprising the steps of providing a rotational speed adaptation phase within a gear-changing period; measuring the rotational speed adaptation phase from appearance of a gear-changing signal which initiates a beginning of control of the working pressures to attainment of a rotational speed value of a gearbox input rotational speed associated with the new gear; in the rotational speed adaptation phase one of reducing to zero and controlling to a low constant value near zero a transmission torque of one frictional connection; controlling a transmission torque, which determines a variation of the gearbox input rotational speed, of the other frictional connection to an adaptation value; controlling, at a beginning of the rotational speed adaptation phase, the transmission torque determining the variation of the gearbox input rotational speed to a current value of torque of the gearbox input shaft with the gearbox input rotational speed having the value associated with the old gear; and ending the rotational speed adaptation phase at a time at which the gearbox input rotational speed has reached a value associated with the new gear,

wherein in the rotational speed adaptation phase a delay regulation is superimposed on control of the transmission torque determining the variation of the gearbox input rotational speed such that a required value for the control of the transmission torque is determined by a correction value which is formed from the deviation of the actual value of the gearbox input rotational speed by a required deceleration value of the gearbox input rotational speed,

and the required value of the transmission torque is formed from a deceleration torque, from the gearbox input torque and from the transmission torque under the conditions such that

- (1) $p_{K_soll} \cdot C_{Kzu} = M_{Kzu}$ for change-up operations,
- (2) $p_{K_soll} \cdot C_{Kab} = M_{Kab}$ for release gear changes,
- (3) the transmission torque determining the variation of the gearbox input rotational speed

$= M_{Kzu} = M_{Mot} \cdot \mu + M_{J}$ for change-up operations, and

$= M_{Kab} = M_{Mot} \cdot \mu + M_{Kzu} - M_{J}$ for release gear changes,

- (4) a torque converter step-up ratio (μ) is determined from a torque converter characteristic with the parameters (n_{Mot}) and (n_T) and
- (5) a deceleration torque (M_J) is determined as a function of parameters comprising engine torque (M_{Mot}) and gearbox output rotational speed (n_{Getr_aus}), and that the required deceleration value is formed from a required value of the gearbox input rotational speed, from the deceleration torque (M_J), from the mass moment of inertia (I) of the rotating masses and taking account of at least one delay time under conditions such that

$$(6) \frac{d(n_{T_soll})}{dt} = \frac{M_J}{2 \cdot \pi \cdot I}$$

- (7) the deceleration torque (M_J) is determined as a function of parameters such as the gearbox output rotational speed (n_{Getr_aus}) and the engine torque (M_{Mot}), and
- (8) a delay element is arranged either before or after an integrating element for the formation of the required value, or, in lieu of conditions (7) and (8),
- (9) the deceleration torque (M_J) is determined from the required value determined by the correction value and from the torque of the gearbox input shaft, where
- (10) a required value for the transmission torque is equal to $M_{K_soll_verz} = p_{K_soll} \cdot C_{Kzu}$ for change-up operations, and
- (11) $M_{K_soll_verz} = p_{K_soll} \cdot C_{Kab}$ for release gear changes, and
- (12) $M_J = M_{K_soll_verz} - M_{Mot} \cdot \mu$, and
- (13) a proportional element for formation of a delayed required value of the transmission torque in accordance with one of the conditions (10) and (11) is arranged before or after a delay element.

5,669,852

TWO-POSITION NEUTRAL SWITCH FOR MULTI-SPEED TRANSMISSION

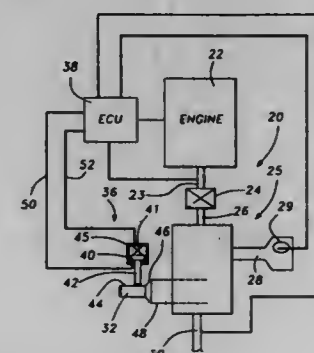
Thomas Desautels, West Bloomfield; Charles E. Allen, Jr., Rochester Hills, both of Mich.; Jon M. Huber, Laurinburg, N.C.; Edward M. Bacon, Northville; Steve M. Weisman, Farmington Hills, both of Mich., and Steven E. Radue, Southern Pines, N.C., assignors to Rockwell International Corporation, and Detroit Diesel Corporation

Filed Jul. 27, 1995, Ser. No. 508,067

Int. Cl. B60K 41/08

U.S. Cl. 477-111

24 Claims



1. A vehicle drive comprising: an engine having an output shaft; a transmission having a plurality of selectively actuated speed ratios; a manual stick shift for shifting said transmission between said speed ratios;

an electronic control unit for controlling the output speed of said engine; and a switch system for monitoring when said multi-speed transmission is engaged and when said multi-speed transmission is in neutral, said switch system completing one circuit for providing a positive electric signal to said electronic control unit when said transmission is a gear-engaged state, and completing another circuit to provide a separate signal when said transmission is in neutral.

5,669,853

HYDRAULIC CONTROL SYSTEM FOR FOUR-SPEED AUTOMATIC TRANSMISSION OF AUTOMOTIVE VEHICLE

Jaeduk Jang, Kyungki-do, Rep. of Korea, assignor to Hyundai Motor Company, Rep. of Korea

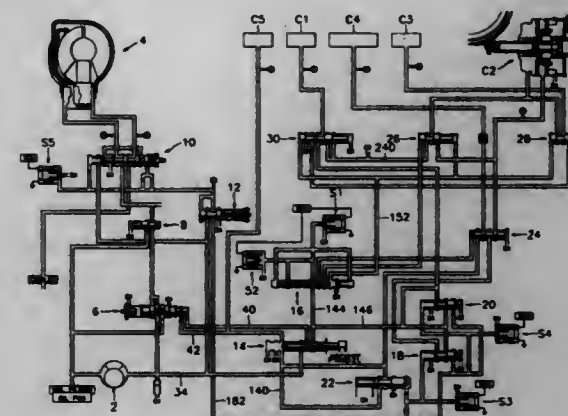
Filed Mar. 25, 1996, Ser. No. 621,453

Claims priority, application Rep. of Korea, Aug. 22, 1995, 95-25936

Int. Cl. F16H 59/20

U.S. Cl. 477-133

9 Claims



1. A hydraulic control system for automatic transmissions, comprising:

- a hydraulic pump for pressurizing fluids;
- a torque converter for transmitting engine power to the automatic transmission; a pressure regulating valve connected to the hydraulic pump, together with a damper clutch, for varying line pressure by a damper clutch control solenoid valve controlled according to a duty ratio when converting a drive mode and driving at high speeds;
- a reducing valve connected to the hydraulic pump for reducing line pressure;
- a manual valve operated by a shift select lever for selectively feeding pressure from the hydraulic pump to a drive pressure conduit at a "D" range and to a fifth friction member via a reverse pressure conduit at an "R" range;
- a shift control valve connected to the drive pressure conduit for feeding drive pressure to a plurality of shift valves by operation of two shift control solenoid valves which are controlled to ON/OFF states or controlled according to duty ratios by a transmission control unit according to vehicle speed and throttle valve opening;
- a 2-4/3-4 shift valve for feeding drive pressure to a first friction member at first, second and third speeds of the "D" range and to a third friction member at a fourth speed of the "D" range and exhausting pressure from the first friction member when third-to-fourth and second-to-fourth speed shifting;
- a first pressure control valve controlled by a first pressure control solenoid valve for feeding drive pressure to the second and third friction members at the second, third and fourth speeds of the "D" range;
- a second pressure control valve controlled by a second pressure control solenoid valve according to a duty ratio for feeding pressure to the first friction member at the first, second and

third speeds of the "D" range and to the third friction member at the fourth speed of the "D" range by the 2-4/3-4 shift valve; a 1-2 shift valve for feeding pressure to the second and third friction members and for feeding drive pressure from the 2-4/3-4 shift valve to the third friction member at the fourth speed according to second speed line pressure of the shift control valve; an end clutch valve for feeding pressure to the third friction member according to fourth speed line pressure of the shift control valve; and a 2-3/4-3 shift valve for feeding pressure to the actuating conduit of the third friction member at the third speed according to third and fourth speed line pressure from the shift control valve and for releasing pressure of the second and third friction members when third-to-fourth, fourth-to-second, fourth-to-first and third-to-second speed shifting; wherein the first pressure control solenoid valve is controlled to an ON state to prevent drive pressure from being fed to the 1-2 shift valve at the first speed of the "D" range and to feed drive pressure from the second pressure control solenoid valve to the first friction member via the second pressure control valve and the 2-4/3-4 shift valve.

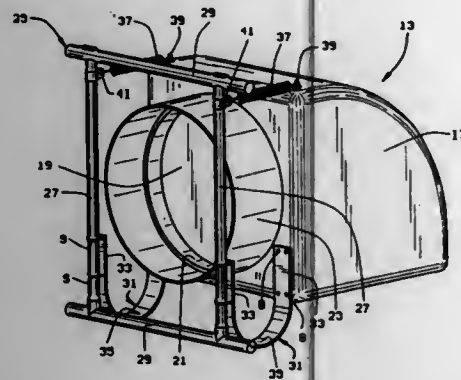
5,669,854

Patent Not Issued For This Number

5,669,855
VERTICALLY MOVABLE RECREATIONAL EQUIPMENT DEVICE
James O. Dunn, Jr.; Grant M. Strawcutter; Jonathan E. Brooks, all of Charlotte, and Todd A. Coble, Stanfield, all of N.C., assignors to Soft Play, L.L.C., Charlotte, N.C.
Filed Apr. 17, 1996, Ser. No. 634,044
Int. Cl.⁶ A63B 9/00

U.S. Cl. 482—35

15 Claims

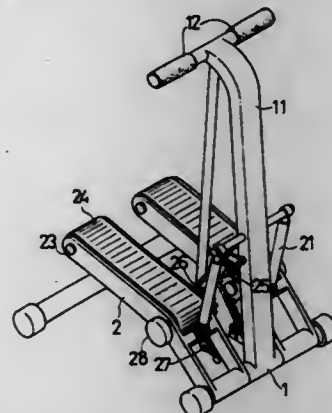


1. A movable recreational equipment device, including: an enclosure having multiple sides and an opening in one side for entry of an occupant; proximate support structure immediately adjacent only the one side of the enclosure having the opening for suspending the enclosure above a floor surface; said support and enclosure being constructed and connected to one another to facilitate movement of the enclosure relative to the proximate support in a vertical path while restricting movement in a lateral path; and spring means extending between the one side of the enclosure having the opening and the proximate support structure for resilient mounting of the enclosure relative to the proximate support structure in the vertical path in order to permit resilient movement of the enclosure relative to the support in the vertical path when an occupant enters the enclosure.

5,669,856
EXERCISER
Chien-Hsing Liu, No. 460, Kuang-Fu Road, Pei-Tou Chen, Chang-Hua Hsien, Taiwan
Filed Jul. 16, 1996, Ser. No. 680,954
Int. Cl.⁶ A63B 22/04

U.S. Cl. 482—51

5 Claims

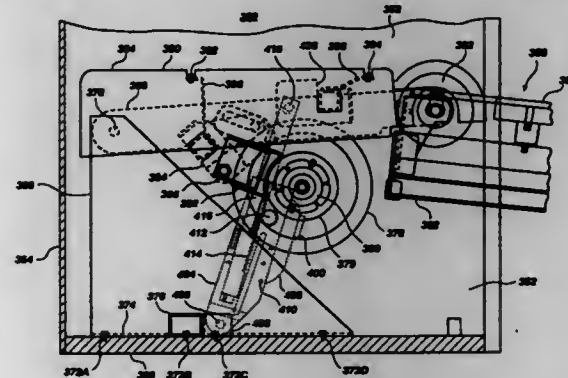


1. An exerciser comprising a base having an extension portion upward extending from a top side of the base, a handle portion being disposed at top end of the extension portion, two pedals being side by side disposed on rear side of the base and spaced by a predetermined distance each of said pedals being pivotally coupled to a frontal portion of said base, each pedal being connected to the extension portion via a hydraulic cylinder, said exerciser being characterized in that: each pedal is disposed with a first rotary shaft and a second rotary shaft, a rolling belt being drivingly wound around the first and second rollers, the first rotary shaft being disposed with a sprocket, a chain being wound around the sprocket, two ends of the chain being respectively secured to the base and the extension portion.

5,669,857
TREADMILL WITH ELEVATION
Scott R. Watterson; William T. Dalebout; Frank Troy Miller, all of Logan; Rodney L. Hammer, Lewiston, and Jason Lee Wooden, Mendon, all of Utah, assignors to ICON Health & Fitness, Inc., Logan, Utah
Continuation-in-part of Ser. No. 539,249, Oct. 5, 1995, Pat. No. 5,607,375, which is a continuation of Ser. No. 363,194, Dec. 23, 1994, abandoned. This application Jan. 30, 1996, Ser. No. 593,862
Int. Cl.⁶ A63B 22/02

U.S. Cl. 482—54

39 Claims



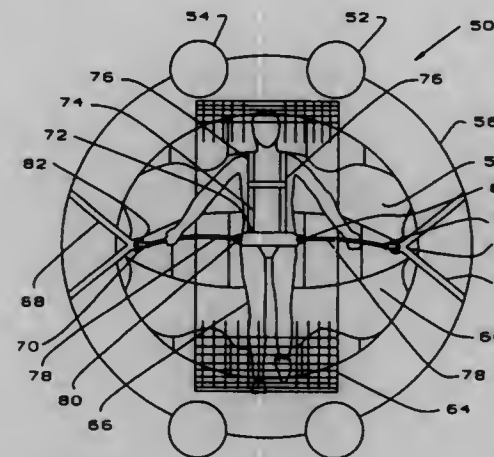
1. A treadmill comprising: a freestanding housing having surface engaging means for engaging a support surface, and enclosure structure extending upwardly from said surface engaging means;

a tread base having a left side and a right side with an endless belt positioned therebetween, said tread base being movably attached to said freestanding housing to be orientable between a first position in which said tread base extends away from said freestanding housing with said endless belt positioned to support a user performing exercise thereon and a second position in which said tread base is positioned into said freestanding housing; and inclination means interconnected between said freestanding housing and said tread base to vary the inclination of said tread base in said first position relative to the support surface.

5,669,858
PORTABLE INFLATABLE STRUCTURE
Rodney Lee Blair, 11009 Dapple Way, Bakersfield, Calif. 93312, and Phillip G. Chanvet, 6644 Rippling Brook Dr., SE., Salem, Oreg. 97301
Division of Ser. No. 354,359, Dec. 13, 1994, Pat. No. 5,462,505, which is a continuation-in-part of Ser. No. 134,693, Oct. 12, 1993, abandoned. This application Oct. 23, 1995, Ser. No. 546,719
Int. Cl.⁶ A63B 21/00

U.S. Cl. 482—78

8 Claims



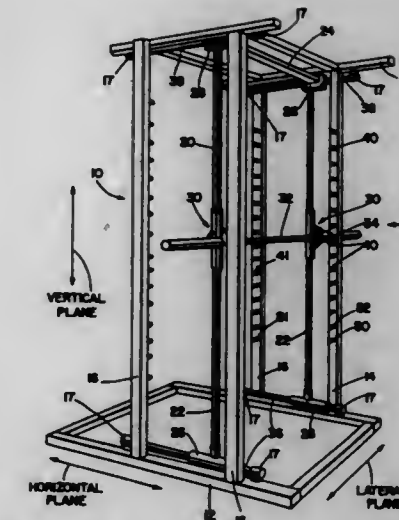
1. An inflatable recreational structure comprising: a first pair of circular tubes mounted in parallel, spaced relation and joined by a supporting structure extending therebetween, and a plurality of second tubes lying in planes perpendicular to the axes of said first pair of tubes and each joining said first pair of tubes, said plurality of second circular tubes meeting at a juncture point outside said first tubes and protecting beyond said first tubes.

5,669,859
WEIGHTLIFTING APPARATUS
Mariah T. Liggett, 1784 Kings Ct., Apartment D, Columbus, Ohio 43212; Stephen A. Skillen, 383 S. Third St., Columbus, Ohio 43215, and Pierce L. Miller, 7235 Davis Rd., Hilliard, Ohio 43026
Filed Nov. 21, 1995, Ser. No. 590,270
Int. Cl.⁶ A63B 21/078

U.S. Cl. 482—94

16 Claims

1. A weightlifting apparatus that simulates free weight barbell exercise motions while preventing injury to the weightlifter comprising: a first front upright brace support member, with a first and a second end; a second front upright brace support member, with a first and a second end;



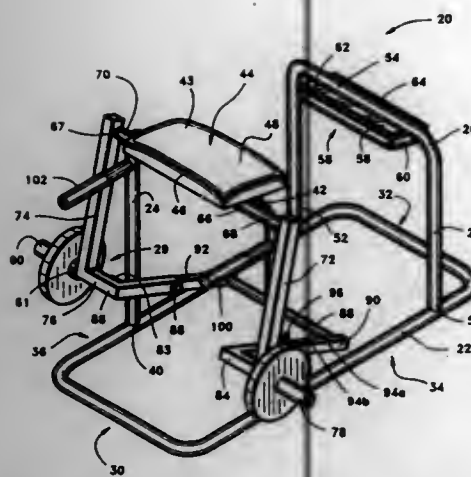
a first back upright brace support member, with a first and a second end; a second back upright brace support member, with a first and a second end; a pair of vertical guide track support members with a first and a second end; a pair of lower and upper horizontal guide track members, wherein said first and second front and back upright brace support members serve as stationary support for said pair of lower and upper horizontal guide track members; a pair of lower movable guide sleeves, attached to said first ends of said pair of vertical guide track support members and wherein said lower movable guide sleeves move horizontally along said pair of lower horizontal guide track members; a pair of upper movable guide sleeves, attached to said second ends of said pair of vertical guide track support members and wherein said upper movable guide sleeves move horizontally along said pair of upper horizontal guide track members; a pair of guide sleeve assemblies, movably attached to said pair of vertical guide track support members and wherein said guide sleeve assemblies move parallel to each other along said pair of vertical guide track support members; a pair of safety catch mechanisms which form a part of said pair of guide sleeve assemblies; a weight bearing bar supported by said pair of guide sleeve assemblies; and pins attached to said first and second front upright brace support members for placing said pair of safety catch mechanisms.

5,669,860
DEVICE FOR EXERCISING THE LOWER BACK
Gilbert Reyes, Las Vegas, Nev., assignor to Reyes Equipment, Inc., Las Vegas, Nev.
Filed Dec. 30, 1994, Ser. No. 367,086
Int. Cl.⁶ A63B 21/08; 23/02

U.S. Cl. 482—97

12 Claims

1. An exercise device comprising: a frame having a front end, a rear end and a support surface contacting means; a generally horizontally extending waist support member connected to said frame near the front end thereof and located above said support surface contacting means, said waist support member adapted to support an exerciser's body above said support surface contacting means when a front said of an exerciser's body at a waist area engages said waist support; a generally horizontally extending leg stop member connected to said frame near the rear end thereof and located above said support surface contacting means, said leg stop member adapted to prevent upward movement of an exerciser's legs when the exerciser is in a generally horizontal position with his waist engaging said waist support member;



a carriage movably mounted to said frame and movable by an exerciser between a rest position and an extended position wherein said carriage is downwardly depending from said waist support member in said rest position and is outwardly depending in said extended position;

a resistance means for opposing movement of said carriage from said rest position to said extended position;

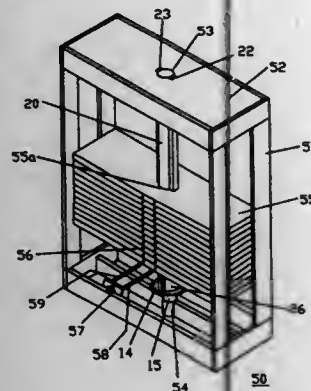
a hand grip means located on said carriage for enabling an exerciser to hold said carriage while exercising, said hand grip means located below said waist support member and rearward of said front end of said frame when said carriage is in said rest position.

5,669,861
INCLINE RESISTANCE WEIGHT UNIT FOR EXERCISE MACHINE

Lanny J. Toups, 338 Meadowcreek Dr., Ducanville, Tex. 75137
Filed Apr. 18, 1996, Ser. No. 648,803
Int. Cl.⁶ A63B 21/00

U.S. Cl. 482—98

9 Claims



1. A device for use in conjunction with weights, to produce a controlled infinitely variable transpositional resistant force greater than the resistant force created by such weights being lifted alone, comprising:

- a vertically mounted shaft having at least one groove of increasing slope from a first end to a second end of the shaft in the surface thereof in a spiral around the shaft;
- a pulley mounted at one end of said shaft for rotating said shaft;
- a roller, having a roller shaft extending out one side of the roller, for moving in said groove;
- a sleeve over said shaft with the roller shaft extending through an opening in said sleeve;
- a pair of brackets around said sleeve holding said roller in the shaft groove;
- a frame and top part for mounting said shaft and holding said sleeve to prevent it from turning during rotation of said shaft;

and means on said sleeve for connecting a plurality of weights to move with the sleeve;

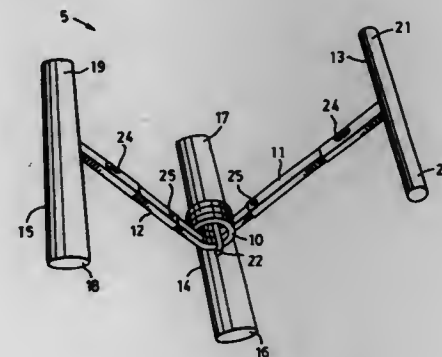
wherein as said pulley is turned, rotating said shaft, said roller moves upward in said groove moving said sleeve vertically up the shaft.

5,669,862
PORTABLE EXERCISE DEVICE
Gunduz Sayman, 2316 Delaware Ave., Ste 604, Buffalo, N.Y. 14216

Filed Oct. 5, 1994, Ser. No. 328,279
Int. Cl.⁶ A63B 21/045

U.S. Cl. 482—127

2 Claims



1. A portable exercising device comprising:
- a pair of length adjustable first and second arms;
 - a first, generally flattened elliptical-shaped, longitudinal member adapted to bear comfortably against a user's body;
 - a second longitudinal member adapted to be grasped by the user, said second member attached to one end of said first arm at a substantially perpendicular angle, the first arm attached to the first member at a substantially perpendicular angle;
 - a third, generally flattened elliptical-shaped, longitudinal member adapted to bear comfortably against a user's body, said third member attached at one end to the second arm at a substantially perpendicular angle, the second arm attached to the first member at a substantially perpendicular angle;
 - at least one of said arms pivotally attached to the first member; and
 - a torsion spring means mounted to the first member wherein the first and second arms are removably attached to the spring means, said spring means biases the first and second arms when a user attempts to change the relative position between said first and second arms.

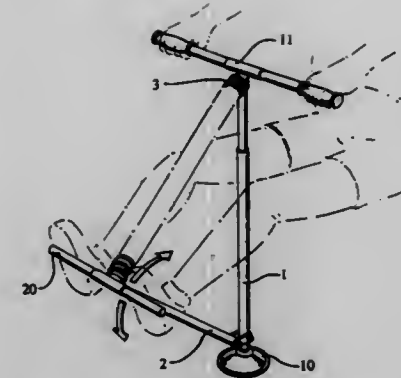
5,669,863
LEG EXERCISING APPARATUS
Sung-Chao Ho, 3E45, No. 5, Sec. 5, Hsin Yi Road, Taipei, Taiwan

Filed Jun. 21, 1996, Ser. No. 670,217
Int. Cl.⁶ A63B 21/02

U.S. Cl. 482—129

3 Claims

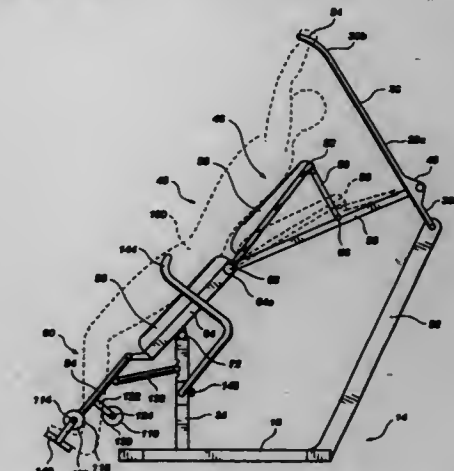
1. A leg exerciser for use by a person in a seated position comprising:
- a) a single support bar having a top end and a bottom end, the single support bar being adjustable in length such that the distance between the top end and the bottom end is adjustable;
 - b) a single linking-up bar having a first end pivotally connected to the single support bar adjacent to the bottom end of the single support bar, the single linking-up bar having a second end;
 - c) a handlebar attached to, and extending laterally from the top end of the single support bar such that the handlebar and the support bar form a first substantially "T"-shaped assembly;



5,669,865
BODY FOLD AND EXTENSION EXERCISE APPARATUS
Trace O. Gordon, 3880 W. Lariat Rd., Park City, Utah 84098
Filed Feb. 22, 1996, Ser. No. 604,857
Int. Cl.⁶ A63B 26/00

U.S. Cl. 482—142

70 Claims

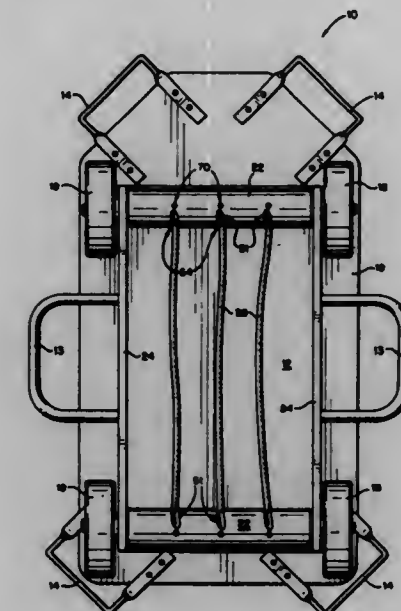


- d) a foot rest attached to and extending laterally from the second end of the linking-up bar such that the foot rest and the linking-up bar form a second substantially "T"-shaped assembly;
- e) a suction disk attached to the bottom end of the support bar for releasably attaching the single support bar to a floor; and,
- f) a resilient member connected to the top end of the single support bar adjacent to the handlebar and to the second end of the linking-up bar, whereby movement of the second end of the linking-up bar away from the single support bar causes the resilient member to resiliently expand.

5,669,864
ROLLING EXERCISE BENCH
Timothy G. Brister, 631 75th St., Tuscaloosa, Ala. 35405
Continuation-in-part of Ser. No. 515,016, Aug. 14, 1995, abandoned. This application May 16, 1996, Ser. No. 648,955
Int. Cl.⁶ A63B 26/00

U.S. Cl. 482—132

27 Claims

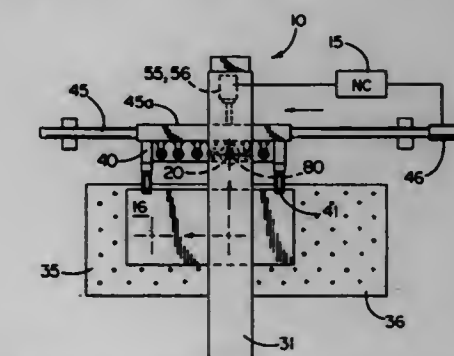


1. An exercise device, comprising:
- a bench having front and back faces;
 - a pair of parallel axles rotatably mounted on said back face;
 - rolling means secured to said axles for allowing rolling movement of said bench; and
 - tensioning means secured to at least one of said axles for increasing resistance to the rolling movement of said bench in a first direction and providing assistance or decreasing resistance to the rolling movement of said bench in a second direction reciprocal to said first direction.

5,669,866
PUNCH PRESS WITH TOOL CHANGER
Alfred Joseph Julian, Roscoe, and Kevin C. Nitz, Rockford, both of Ill., assignors to W. A. Whitney Co., Rockford, Ill.
Filed Jun. 10, 1996, Ser. No. 662,460
Int. Cl.⁶ B23Q 3/156; B21D 37/14

U.S. Cl. 483—1

6 Claims



1. A method of operating an N/C punch press to produce a programmed pattern of punched apertures in a workpiece using a plurality of tool sets selectively mountable in a work head and comprising the steps of:
- gripping the workpiece in work clamps attached to a back table adapted for indexing along an X axis defined by a back rail;

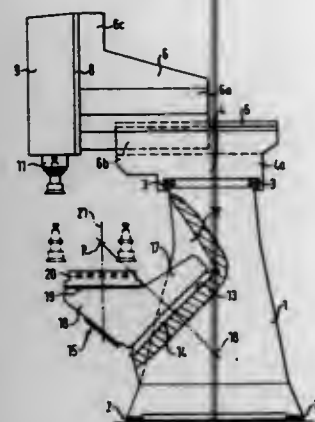
providing a plurality of tool sets for selection by the work head, mounting the tool sets in tool holders along the back table for translation along the X axis only along with translation of the workpiece;

for each punched aperture positioning the workpiece along the X axis only and a work head along the Y axis only for X, Y positioning of a selected tool set With respect to the workpiece;

when it becomes necessary to select a new tool, positioning the back table along the X axis to bring a selected tool holder to a tool change position and indexing the tool head along the Y axis only to the tool change position, transferring a tool set, then withdrawing from the tool change position so that the tool set is transferred directly from the tool holder to the work head without requiring any Y direction movement of the workpiece.

5,669,867
MACHINE TOOL
Gerd Hoppe, Habichtswald, Germany, assignor to Deckel Maho GmbH, Pfronten, Germany
Filed Dec. 13, 1995, Ser. No. 572,167
Claims priority, application Germany, Dec. 14, 1994, 44 44 614.4

Int. Cl.⁶ B23Q 3/157; B23C 1/14
U.S. Cl. 483—55

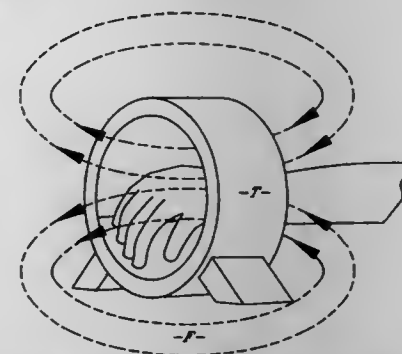


1. A machine tool for multi-axial machining of a workpiece in a chuck, said machine tool comprising:
 - a dimensionally stable machine column having a recess on one side thereof, said recess being formed with a bottom surface inclined downward toward the front at a 45° angle to form a support;
 - a supporting console pivotably mounted on said support, said supporting console having an axis of rotation and having a circular cross-section foot and a supporting shoulder, said supporting shoulder having a supporting surface oriented at a 45° angle with respect to said axis of rotation;
 - a work table mounted to said supporting surface of said console;
 - a cross slide horizontally movably mounted on said machine column;
 - a vertical milling head vertically movably mounted on said cross slide; and
 - a programmable control unit coupled to said machine tool elements for the operation of the various functions of said machine tool.

5,669,868
TREATMENT OF WRINKLED DISCOLORED OR AGING SKIN WITH MAGNETIC FIELD THERAPY

Richard Markoll, Middlebury, Conn., assignor to Bio-Magnetic Therapy Systems, Boca Raton, Fla.
Continuation of Ser. No. 471,853, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 162,694, Dec. 7, 1993, abandoned, which is a continuation-in-part of Ser. No. 867,362, Apr. 13, 1992, Pat. No. 5,387,176, which is a continuation-in-part of Ser. No. 519,410, May 4, 1990, Pat. No. 5,131,904. This application Mar. 22, 1996, Ser. No. 625,089

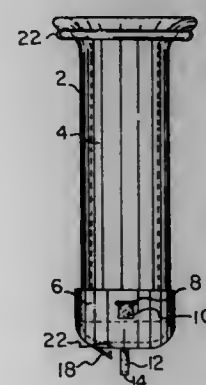
Int. Cl.⁶ A61N 1/00
U.S. Cl. 600—14



1. A process for treating wrinkled, discolored or aging skin in the absence of any electrical field and including the step of subjecting the skin to an electromagnetic field of under 20 Gauss generated by an annular coil into which the body part having the skin is placed, the coil being driven by a pulsed DC voltage having a rectangular wave form consisting of an abruptly rising and abruptly deteriorating current pulsing at the rate of 1-30 pulse bursts per second.

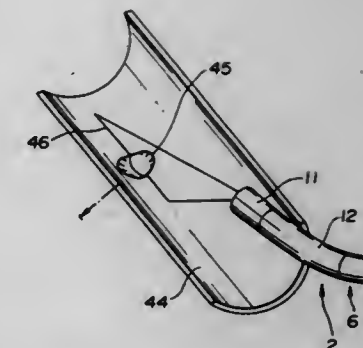
5,669,869
IMPOTENCE AID
Arnold J. Strom, 175-No. McKnight Rd., Apt. 308, St. Paul, Minn. 55119
Filed May 20, 1996, Ser. No. 650,810

Int. Cl.⁶ A61F 5/00
U.S. Cl. 600—38



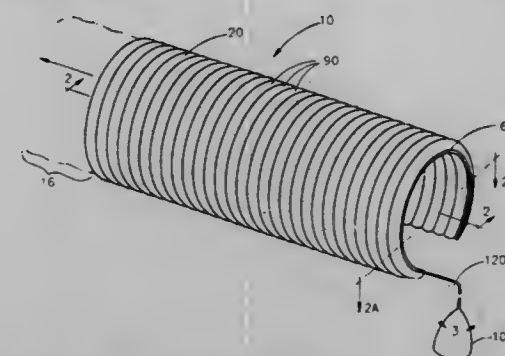
1. Apparatus for insertion therein of a penis for aiding in the drawing of blood into said penis thereby causing enlargement of said penis, said apparatus having a principle of operation similar to that of a conventional piston and cylinder assembly whereby said piston enters said conventional cylinder forcing air out of said conventional cylinder through a one-way air valve, said one-way air valve closing when said piston is drawn back thereby creating a vacuum within said conventional cylinder, said apparatus comprising an open-ended cylinder having a first open end with a plurality of external threads thereon and a second open end; an internally

threaded cap having an aperture therethrough, said internal threading of said cap configured for mating with said external threads on said first open end, said cap attached to said first open end of said cylinder; a flexible collar having an opening therethrough, said opening of adequate size to allow insertion therethrough of said penis but small enough to create a tight seal around said penis, said flexible collar connected to said cylinder over said second open end; and a one-way valve positioned over said aperture in said cap so that when said penis is inserted into said cylinder said penis displaces air and said displaced air is forced out of said cylinder through said one-way valve and when said cylinder is partially drawn away from said penis, said one-way valve closes and a vacuum is created which causes said blood to be drawn into said penis forcing said enlargement thereof.



5,669,870
PENILE IMPLANT FOR IMPROVED APPEARANCE
James J. Elist, 9301 Wilshire Blvd. #401, Beverly Hills, Calif. 90210
Filed Jun. 13, 1996, Ser. No. 662,707

Int. Cl.⁶ A61F 2/26; 5/00
U.S. Cl. 600—40



1. A penile implant for providing a natural appearance to a malformed penis, the implant comprising:
 - a flexible double walled partial cylindrical tube providing, concentrically oriented, an outside partial cylindrical wall adapted to be positioned under a penile outer skin, and an inside partial cylindrical wall adapted to be positioned around a penile shaft, both of the ends of the partial cylindrical tube being closed between the outside and the inside walls by a membrane-like end wall;
 - and positioned between the inside and outside partial cylindrical walls, and attached to the end walls at both ends of the partial cylindrical tube, an elastic, absorbent, sponge material impregnated with a liquid;
 - the outside and the inside walls each providing a plurality of annular, circumferential folds enabling longitudinal extension and retraction of the partial cylindrical tube with changes in penile length.

5,669,871
ENDOSCOPE MEASUREMENT APPARATUS FOR CALCULATING APPROXIMATE EXPRESSION OF LINE PROJECTED ONTO OBJECT TO MEASURE DEPTH OF RECESS OR THE LIKE
Katsunori Sakiyama, Itsukaichi-machi, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Jan. 12, 1995, Ser. No. 371,979

Claims priority, application Japan, Feb. 21, 1994, 6-022579
Int. Cl.⁶ A61B 1/00

1. An endoscope measurement apparatus comprising:
 - an endoscope having an elongated insertion part, an illumination optical system provided on the distal end of said insertion

part, for outputting an illumination light to an object, an object optical system provided on the distal end of said insertion part for focusing an image of the object which is illuminated by said illumination light, reference-line projection means provided on the distal end of said insertion part for projecting a single reference line which passes through a recess or a projection residing on a plane of said object, and an image pickup element for photoelectrically converting an image on the basis of said object optical system;

signal processing means which conducts signal processing with respect to said image pickup element, to generate an image signal;

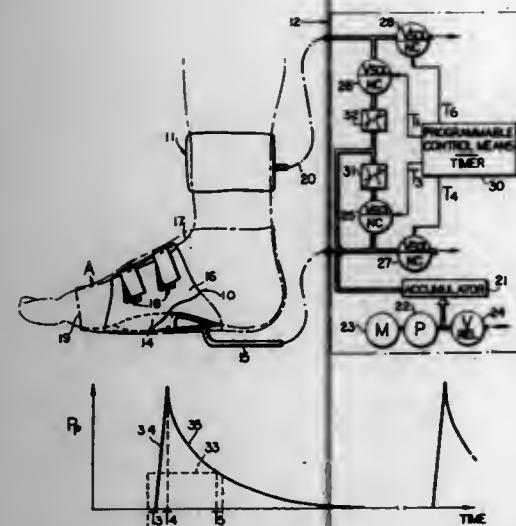
display means into which said image signal is inputted, for displaying an image corresponding to said object upon which said reference line is superimposed;

position assignment means for assigning a position of said image; and

operation means for carrying out calculation of an expression of an approximate line which three-dimensionally approximates the reference line passing through said plane, the operation means calculating a three-dimensional coordinate position corresponding to a point which is assigned by said position assignment means, on the reference line which passes through said recess or said projection, and the operation means calculating the depth of said recess or the height of the projection by an operation using a distance between said approximate line and said three-dimensional coordinate position.

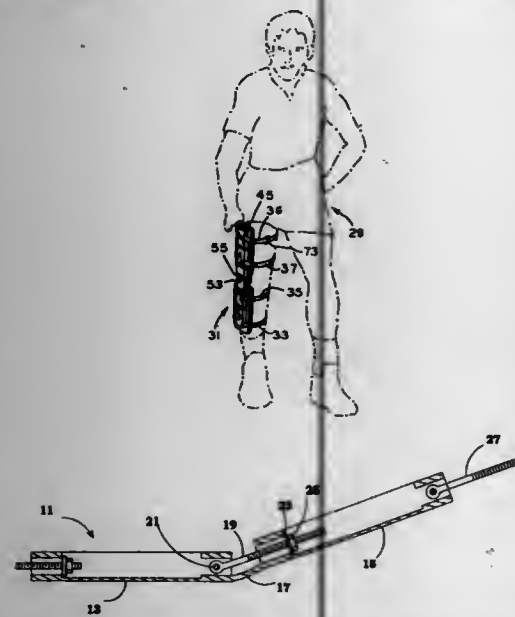
5,669,872
METHOD FOR FOCUSED DELIVERY OF VENOUS FLOW FOR ARTIFICIAL IMPLUSE COMPRESSION OF AN ANATOMICAL FOOT PUMP
Roger Harrington Fox, Torquay, England, assignor to Novamedix Limited, Andover, England
Continuation of Ser. No. 156,319, Nov. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 980,580, Nov. 23, 1992, abandoned. This application Mar. 6, 1995, Ser. No. 398,853

- Int. Cl.⁶ A61H 7/00
- U.S. Cl. 601—152
1. The method of treating a leg which is suspended in a raised position above the level of the body of a patient who must lie in bed, which method comprises the following sequence of steps:
 - (a) transiently applying a first level of tourniquet pressure to the leg solely at a distal-calf location and along no other region of the leg;
 - (b) retaining the applied tourniquet pressure for a preliminary period of time to enable blood to accumulate in the plantar veins of the leg;
 - (c) injecting a thrombolytic agent into a vein in the dorsum of the foot;
 - (d) thereafter applying transient venous-pumping pressure to the plantar region of the leg, wherein the venous-pumping pressure peaks at a level in excess of the retained transient tourniquet pressure;
 - (e) relieving the retained tourniquet pressure, and thereafter relieving the venous-pumping pressure; and



(f) cyclically repeating steps (a) to (e) in a pattern wherein the application of venous-pumping pressure is rapid and wherein the period of cyclical repetition is greater than the combined period of tourniquet-pressure application and of venous-pumping pressure.

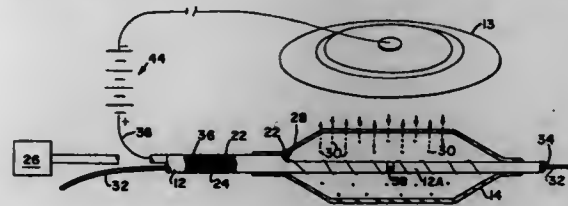
5,669,873
FLEXIBLE KNEE AND LEG BRACE
 Harold E. Towsley, 1821 Greenstone Dr., New Haven, Fort Wayne, Ind. 46774
 Filed Aug. 24, 1995, Ser. No. 519,082
 Int. Cl.⁶ A61F 5/00
 U.S. Cl. 602—26 23 Claims



1. An externally applied non-invasive body appliance adapted to span a body joint comprising:
 at least two rigid members;
 means pivotable coupling the two rigid members for relative angular movement about a bending moment axis;
 means for selectively restricting the angular movement of the two rigid members about the bending moment axis including means engaging each of the two rigid members for pulling the two rigid members angularly toward one another; and
 strap means for encircling portions of a body to secure the rigid members to the body and to transfer bending moment forces to the body joint.

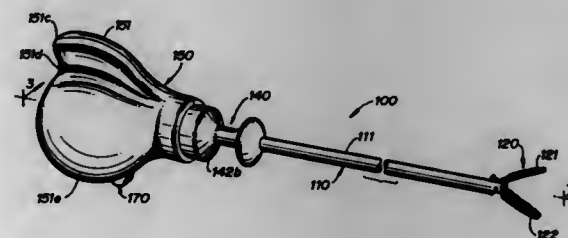
5,669,874
METHOD AND APPARATUS FOR INDUCING THE PERMEATION OF MEDICATION INTO INTERNAL TISSUE

Andrew Jonathan Feiring, 4454 N. Murray Ave., Milwaukee, Wis. 53211
 Continuation of Ser. No. 345,984, Nov. 28, 1994, Pat. No. 5,549,603, which is a continuation of Ser. No. 183,130, Jan. 14, 1994, Pat. No. 5,425,703, which is a continuation of Ser. No. 33,648, Mar. 17, 1993, abandoned, which is a continuation of Ser. No. 520,033, May 7, 1990, Pat. No. 5,236,413. This application Jul. 3, 1996, Ser. No. 675,598
 Int. Cl.⁶ A61N 1/30
 U.S. Cl. 604—21 15 Claims



1. A method for selectively inducing the permeation of liquid to a targeted portion of internal tissue in the body of a patient comprising the steps of:
 generating a polar electric field in which one pole of the field is disposed in a first position relative to the targeted portion of the tissue and the return pole is disposed in a second position relative to the targeted portion of the tissue;
 supplying liquid having polar molecules to a location in the body adjacent the targeted portion of the tissue;
 said electric field being polarized with respect to the polarization of the polar molecules such that the electric field will induce flow of the polar molecules through the targeted portion of the internal tissue toward the other pole of the field.

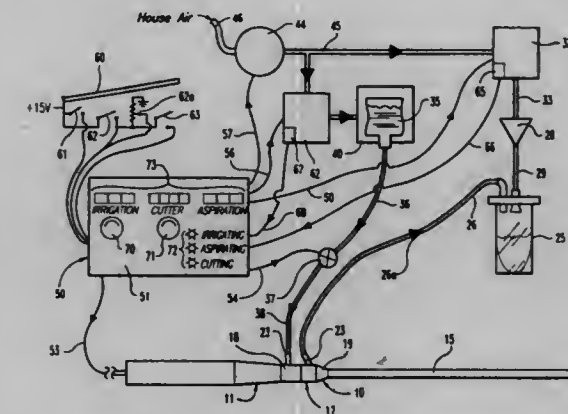
5,669,875
ENDOSCOPIC SURGICAL APPARATUS WITH LONGITUDINAL ACTUATION
 Nicole van Eerdenburg, Voorburg, Netherlands, assignor to United States Surgical Corporation, Norwalk, Conn.
 Filed Apr. 16, 1996, Ser. No. 634,314
 Int. Cl.⁶ A61B 17/32
 U.S. Cl. 604—22 20 Claims



1. An apparatus for use in minimally invasive surgery, which comprises
 a) an endoscopic portion including an elongated tubular member defining a longitudinal axis, and an operating portion positioned at the distal end thereof, and
 b) a non-endoscopic portion having a housing and at least one actuator slidably attached to said housing, said actuator being movable between a distal position and a proximal position along said longitudinal axis in response to user applied pressure, and said actuator having a relatively wide diameter proximal portion with a distal facing surface for contact with a user's finger, and a relatively narrow middle portion into which the user's finger is received.

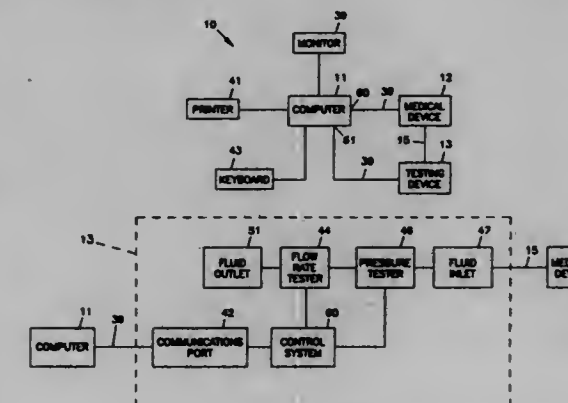
5,669,876
METHOD FOR MINIMALLY INVASIVE TISSUE REMOVAL

Alan M. Schechter, Long Beach, Calif., and Joseph L. Mark, Indianapolis, Ind., assignors to Danek Medical, Inc., Memphis, Tenn.
 Division of Ser. No. 18,045, Feb. 16, 1993, Pat. No. 5,403,276.
 This application Oct. 6, 1994, Ser. No. 319,126
 Int. Cl.⁶ A61M 31/00
 U.S. Cl. 604—50 25 Claims



1. A method for excision of target tissue from the body using a cutting tool having a reciprocating motor driving a cutting blade across a cutting opening in a percutaneously introduced cannula, comprising:
 determining the properties of the target tissue and the surrounding tissue, the properties including the elasticity and strength of the target tissue and the surrounding tissue;
 determining a characteristic frequency of the target tissue and the surrounding tissue based upon the properties of the respective tissues;
 controlling the cutting tool motor to reciprocate the cutting blade across the cutting opening at the characteristic frequency of the target tissue to thereby cut the target tissue drawn at the cutting opening without cutting the surrounding tissue.

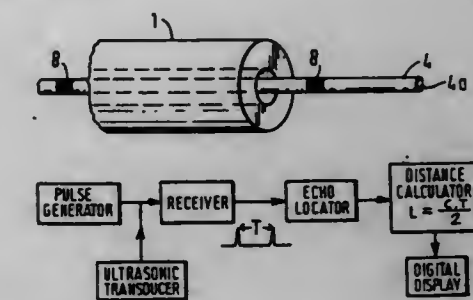
5,669,877
SYSTEMS AND METHODS FOR AUTOMATED TESTING OF MEDICAL EQUIPMENT
 Michael L. Blomquist, Coon Rapids, Minn., assignor to SIMS Deltec, Inc., St. Paul, Minn.
 Filed Mar. 7, 1994, Ser. No. 206,737
 Int. Cl.⁶ A61M 1/00
 U.S. Cl. 604—67 32 Claims



1. A closed-loop system for automated testing of medical equipment comprising:

a medical device having a tube for transporting a fluid, the medical device having a control system for controlling the flow of the fluid through the tube;
 testing means connected to the tube of the medical device for testing the flow of the fluid from the medical device; and
 control means electrically connected to the control system of the medical device and to the testing means for controlling the operation of the testing means and the control system of the medical device so that the testing of the medical device is substantially automated.

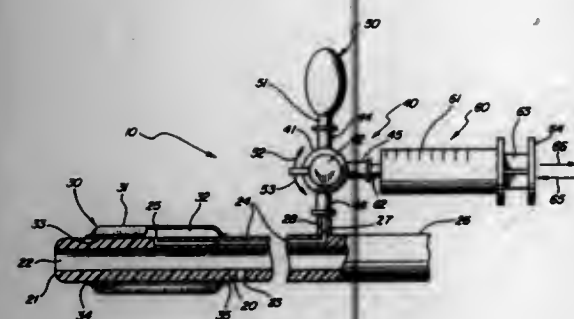
5,669,878
GUIDE WIRE FOR A CATHETER WITH POSITION INDICATING MEANS
 Robert Julian Dickinson, and Martin Terry Rothman, both of London, United Kingdom, assignors to Intravascular Research Limited, London, United Kingdom
 Continuation of Ser. No. 256,980, Jul. 29, 1994, abandoned.
 This application Jun. 4, 1996, Ser. No. 659,091
 Claims priority, application United Kingdom, Jan. 30, 1992, 9202031
 Int. Cl.⁶ A61B 5/00 5 Claims



1. A catheter provided with a guide wire over which the catheter can be slid, said guide wire consisting essentially of:
 a single uncoiled wire which is exposed in use; and
 a plurality of X-ray opaque markers set at regular intervals such that each of the markers is spaced from adjacent markers by a fixed distance along the length of the single wire, said plurality of markers being grouped into two sets of opaque markers,
 the markers in one set being distinguishable from the markers in the other set by having a different thickness from the markers in the other set, and
 the markers in one set being in spaced apart relation from the markers of the set.

5,669,879
CATHETER ASSEMBLY FOR DILATION OF CONSTRICTED BLOOD VESSEL
 Edward Yeend Duer, 31-2, Mekamiyama-cho, Koyoen, Nishinomiya-city, Hyogo-pref., Japan
 Filed Jun. 15, 1994, Ser. No. 259,982
 Int. Cl.⁶ A61M 29/00 9 Claims

1. For use in dilating a constricted blood vessel during angioplasty, athrectomy or other arterial procedures, a vascular catheter assembly comprising:
 a catheter defining a blood vessel insertable end, a remote end, and a lumen passage having a first outlet proximate said insertable end and a second outlet spaced from said insertable end;
 a radiopaque balloon formed of an inelastic material supported upon said insertable end and coupled to said first outlet of said lumen passage, said radiopaque balloon having at least a portion characterized by radiopaque properties;

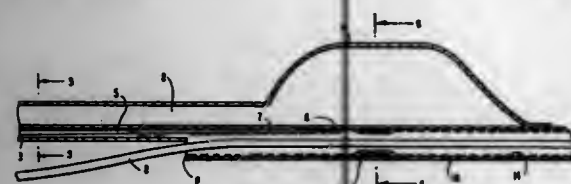


a source of liquid under pressure;
valve means coupled to said second outlet of said lumen passage and said source of liquid under pressure, said valve means being capable of intercoupling said source of liquid to said second outlet of said lumen; and
an expandable pressure reservoir having an inflatable elastic member,
said valve means being coupled to said expandable pressure reservoir as well as said second outlet of said lumen passage and said source of liquid under pressure, said valve means being capable of alternatively intercoupling said source of liquid to said expandable pressure reservoir, or intercoupling said source of liquid to said second outlet of said lumen or intercoupling said expandable pressure reservoir to said second outlet of said lumen passage.

5,669,880
STENT DELIVERY SYSTEM
Ronald J. Solar, San Diego, Calif., assignor to Cordis Corporation, Miami Lakes, Fla.
Continuation-in-part of Ser. No. 4,853,646, Apr. 7, 1995, Pat. No. 5,569,199, which is a continuation-in-part of Ser. No. 111,304, Aug. 24, 1993, Pat. No. 5,413,557. This application Jun. 16, 1995, Ser. No. 491,136
Int. Cl. A61M 29/00

U.S. Cl. 604—96

43 Claims



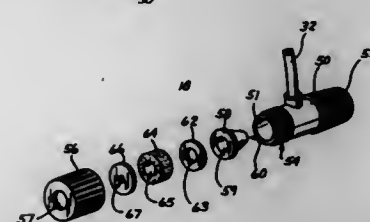
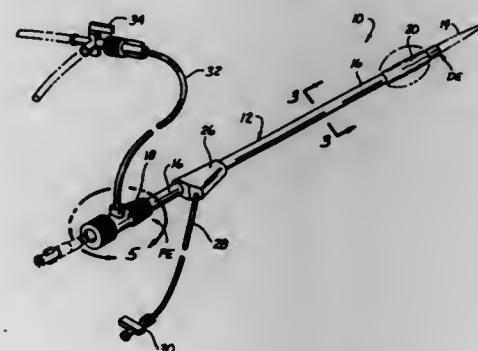
1. In a method for delivering a balloon-expandable stent wherein the stent in non-expanded form is firmly positioned around the balloon on the distal portion of a balloon dilatation catheter, the distal portion of said catheter is inserted percutaneously into a patient's body to a desired site, the balloon is inflated to cause the stent to expand, the balloon is deflated, and the catheter is removed proximally from the patient's body, the improvement wherein the balloon dilatation catheter comprises

a catheter shaft defining a first, inflation lumen and a second lumen, each of said first and second lumens having proximal and distal ends, and
an inflatable dilatation balloon having proximal and distal ends, wherein the distal end of said first lumen opens into and is in fluid communication with the interior of the dilatation balloon and the second lumen extends longitudinally with the first lumen, the proximal end of the second lumen being adjacent to the proximal end of the first lumen, the distal end of the second lumen being open and distal to the distal end of the first lumen, the section of the second lumen distal to the proximal end of the dilatation balloon being exterior to the dilatation balloon, the distal end of the second lumen being open and distal to the distal end of the dilatation balloon, and the second lumen being sufficiently linear to allow the catheter to be slidably advanced over a guidewire.

5,669,881
VASCULAR INTRODUCER SYSTEM INCORPORATING INFLATABLE OCCLUSION BALLOON
Joyce Dunshee, Corona Delmar, Calif., assignor to Baxter International Inc., Deerfield, Ill.
Filed Jan. 10, 1995, Ser. No. 370,705
Int. Cl. A61M 29/00

U.S. Cl. 604—164

60 Claims



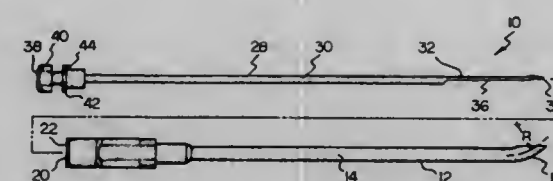
1. A vascular introducer apparatus having an occlusion balloon, said apparatus comprising:
an elongate pliable introducer body insertable into a blood vessel, said introducer body having a proximal end, a distal end, an outer surface and a working lumen extending longitudinally therethrough;
an inflatable occlusion balloon mounted on the outer surface of the introducer body;
a balloon inflation lumen extending through at least a portion of the introducer body to permit infusion of inflation fluid into said balloon;
a hemostasis valving apparatus associated with the working lumen of said introducer apparatus, said valving apparatus comprising a self sealing passageway which will become fully closed and prevent fluid from backflowing out of the proximal end of said working lumen when no elongate object is inserted therethrough, and which will permit insertion of an elongate object through said valving apparatus and through the working lumen of the introducer;
said valving apparatus including a sealing apparatus to seal against an elongate object inserted through said valving apparatus to thereby prevent fluid from backflowing out of the proximal end of said working lumen when an elongate object is inserted therethrough; and
a dilator member insertable through the working lumen of the introducer apparatus, said dilator member having a tapered distal portion which extends beyond the distal end of the introducer apparatus, and said dilator member comprising a guidewire lumen extending longitudinally therethrough.

5,669,882
CURVED EPIDURAL NEEDLE SYSTEM
Stephen Pyles, P.O. Box 1626, Ocala, Fla. 34478
Filed Apr. 23, 1996, Ser. No. 636,855
Int. Cl. A61M 5/178

U.S. Cl. 604—164

2 Claims

1. A needle and stylus system comprising:
a hollow tubular needle formed of a rigid material having an elongated linear intermediate section constituting the majority of the length of the needle and with a curved distal section



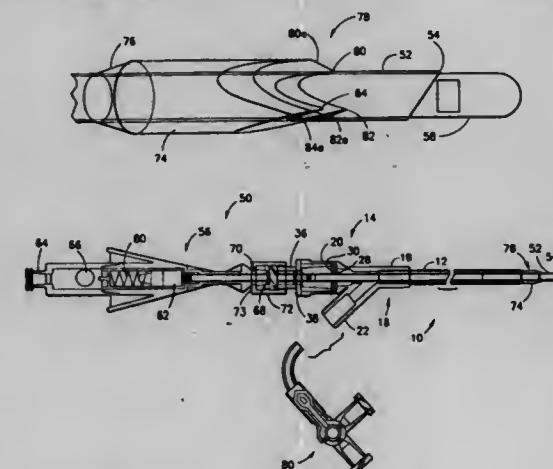
terminating in an oval opening, the oval opening having an upturned bevel which improves directional control by a physician during rotation of the needle, a bore formed through the intermediate and distal section of an essentially common diameter and with the oval opening at the distal section located in a plane essentially parallel with an axis of the intermediate section and spaced from an exterior surface of the intermediate section, the needle also having a proximal end formed as a radially exterior enlargement with an enlarged cylindrical bore; and

a tubular stylet having an elongated linear intermediate section and with a curved distal section with an oval planar face positionable at the opening at the distal end of the needle when the stylet is inserted within the needle, the stylet also having a semi-cylindrical section between the intermediate section and the distal section to allow the bending thereof as the stylet is moved into the needle with its distal section approaching the distal section of the needle, the stylet having a proximal end with an exterior radial enlargement for being grasped by an operator and an intermediate radial enlargement receivable within the enlarged cylindrical bore at the proximal end of the needle.

5,669,883
VERESS NEEDLE AND CANNULA ASSEMBLY
Frank A. Scarfone, Miramar, and Juan J. Arias, Hialeah, both of Fla., assignors to Symbiosis Corporation, Miami, Fla.
Filed Apr. 12, 1995, Ser. No. 420,864
Int. Cl. A61M 5/178

U.S. Cl. 604—167

13 Claims



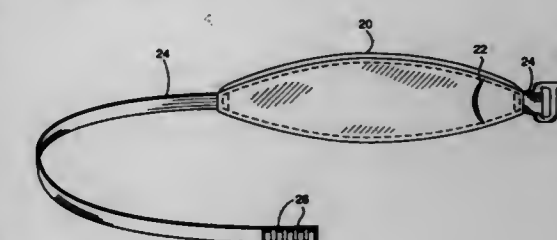
1. A medical apparatus, comprising:
a) a cannula assembly having
i) a hollow cannula with a proximal end, a distal end, and an interior diameter,
ii) a valve assembly coupled to said proximal end of said cannula; and
b) a Veress needle assembly fitting closely within said hollow cannula and having
i) an outer hollow needle having a proximal end, a sharp distal end, and an exterior diameter which is smaller than said interior diameter of said hollow cannula, wherein said valve assembly permits insertion of said outer hollow needle into said cannula and fluidly seals the proximal end of said cannula,

ii) an inner stylet having a proximal end and a blunt distal end, said inner stylet extending through said outer hollow Veress needle;
iii) a handle coupled to said proximal end of said outer hollow needle, said handle having biasing means for biasing said stylet to a position where said blunt distal end of said stylet extends beyond said sharp distal end of said outer hollow needle; and
iv) a transition collar mounted on a portion of said outer hollow needle, said transition collar having an inner diameter substantially equal to said exterior diameter of said outer hollow needle and an outer diameter substantially equal to said interior diameter of said hollow cannula to cause said Veress needle assembly to fit closely within said cannula.

5,669,884
TUCK-AWAY BELT FOR PERITONEAL DIALYSIS PATIENTS
Solita M. Benes, 199 Highland St., Valparaiso, Fla. 32580, and Cathy Dickson, 4535 Nancy Ward Ln., Niceville, Fla. 32578
Filed Sep. 11, 1995, Ser. No. 526,167
Int. Cl. A61M 5/32

U.S. Cl. 604—179

1 Claim



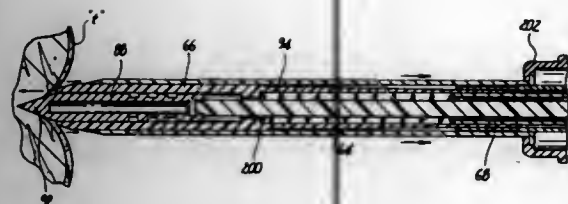
1. A Tuck Away belt for holding a dialysis transfer tube comprising:
A flexible, elongated pocket having a first end and a second end, an upper side and a lower side, the pocket including a first outer panel formed from a flexible, self lined material having a first horizontal length, and a second panel attached to the first panel along said upper and lower sides and along one of said ends and having a second horizontal length, the second horizontal length being less than the first horizontal length so as to define an opening having a fixed width between the first and second panels capable of accommodating a dialysis transfer tube;
a flexible elastic belt fixedly attached to the first end and the second end of said pocket, one end of said belt having at hook attachment and an opposite end of said belt having multiple loop attachments;
wherein said width of said opening is greater than the width of said belt so as to accommodate insertion and removal of the transfer tube.

5,669,885
TROCAR ASSEMBLY WITH SPRING-LOADED MECHANISM
Robert C. Smith, Danbury, Conn., assignor to United States Surgical Corporation, Norwalk, Conn.
Filed May 14, 1996, Ser. No. 645,885
Int. Cl. A61B 17/32

U.S. Cl. 606—184

16 Claims

1. A trocar assembly, which comprises:
a cannula including a cannula housing and a cannula sleeve extending from the cannula housing; and
an obturator mounted to the cannula, the obturator including:
an obturator housing;



an elongated obturator portion mounted with respect to the obturator housing, the obturator portion including proximal and distal ends, and having a penetrating tip associated with the distal end for penetrating tissue, the obturator portion longitudinally moveable between a disarmed position wherein the penetrating tip is contained within the cannula sleeve and an armed position wherein the penetrating tip at least partially extends beyond the distal end of the cannula sleeve;

retaining means for releasably retaining the obturator in the armed position;

release means for releasing the retaining means to permit the obturator portion to return to the disarmed position, the release means actuable in response to forces exerted on the penetrating tip; and

a protective guard coaxially mounted about the penetrating tip and being moveable relative to the penetrating tip between an extended position and a retracted position, wherein in the armed position of the obturator portion the protective guard moves to the retracted position in response to counterforce exerted by tissue on the protective guard during insertion through the tissue to thereby at least partially expose the penetrating tip for tissue penetration.

5,669,886

Patent Not Issued For This Number

5,669,887

RETRACTABLE NON-REUSABLE NEEDLE

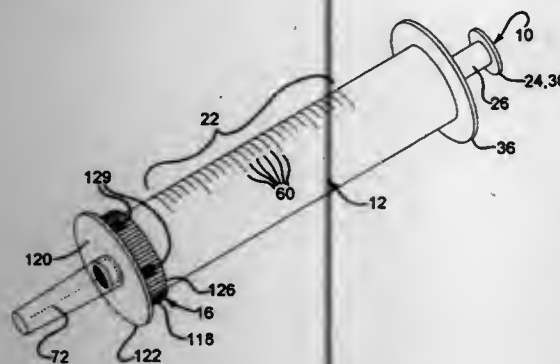
William L. Cooper, 1722 Union Ave., Niceville, Fla. 32578

Filed Apr. 22, 1996, Ser. No. 635,659

Int. Cl.⁶ A61M 5/32

U.S. Cl. 604-195

20 Claims



1. A retractable syringe comprising:

- a) a hollow syringe body, having a plunger end, a needle end, and a fluid reservoir located therebetween;
- b) a plunger assembly, having a shaft, a base located on one end of the shaft, and a handle located on the opposing end of the shaft, slidably disposed within the syringe body at the plunger end;
- c) a needle in fluid connection with the fluid reservoir;

- d) a fluid connection means, disposed within the syringe body at the needle end, for selectively enabling and disabling fluid connection between the needle and the fluid reservoir;
- e) a rotation means, engaging the fluid connection means, for facilitating rotation of the fluid connection means; and
- f) a retraction means, hydrostatically engaging the fluid connection means with the plunger, for facilitating retraction of the fluid connection means and the needle into the syringe body.

5,669,888

INJECTION NEEDLE PROTECTION DEVICE

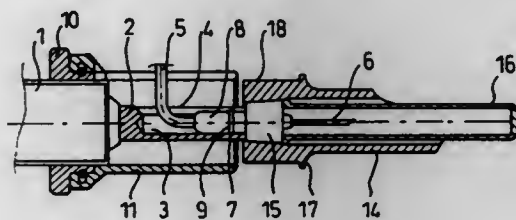
Claude Trapp, Rueil Malmaison, France, assignor to Matef, France

Filed Jan. 31, 1994, Ser. No. 188,875

Int. Cl.⁶ A61M 5/00

U.S. Cl. 604-263

3 Claims



1. An injection apparatus with injection needle protection device, comprising:

- (a) an injection needle carried by a joining piece,
- (b) a cylindrical guide support with a member extending therefrom, said member presenting a bore receiving said joining piece,
- (c) an engaging piece rigid with said guide support and surrounding said member,
- (d) a guard along said joining piece having two positions, a protection position surrounding said injection needle and a second position in which said guard engages a bore provided axially between the member and a peripheral wall of said engaging piece exposing said needle,
- (e) a pushing piece bearing on said joining piece and disposed around said injection needle and within said guard, said pushing piece when actuated pushing said joining piece into said bore of said member and said guard to its second position into the bore of said engaging piece,
- (f) connection surfaces provided on said joining piece and slanted with relation to the axis of said joining piece and complementary connection surfaces provided on said guard and slanted with relation to the guard axis, said connection surfaces mutually engaging when said guard is moved from its second position to its protection position thus ensuring separation of said joining piece from said member.

5,669,889

NEEDLE SHIELD ASSEMBLY HAVING A SINGLE-USE LOCK

Sandor Gyure, West Orange; Niall Sweeney, Rutherford, and Albert Newman, West Orange, all of N.J., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

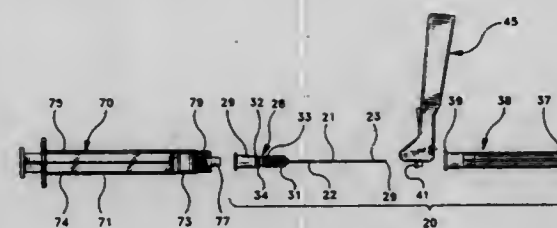
Filed Jul. 3, 1996, Ser. No. 675,753

Int. Cl.⁶ A61M 5/32

U.S. Cl. 604-263

20 Claims

- 1. A needle shield assembly having a single-use lock comprising:
 - a) a needle cannula having a proximal end, a distal end and a lumen therethrough;
 - b) a hub having a proximal end for connecting to a fluid transfer device and a distal end connected to said proximal end of said needle cannula;



a collar connected to said hub;

an elongate rigid needle cover removably engaging said hub and covering said needle cannula;

an elongate needle shield having a distal end and a proximal end hingedly connected to said collar

said needle shield including two side walls defining a longitudinal opening, said needle shield capable of pivoting from an open position wherein said needle cannula is exposed, to a closed needle protecting position wherein said needle cannula is within said longitudinal opening of said needle shield;

means for preventing said needle shield from being pivoted into said closed position while said needle cover is engaging said hub;

means for automatically and permanently locking said needle shield in said closed needle protecting position when said needle shield is pivoted into said closed position, said means for locking including a locking arm at said proximal end of said needle shield, a locking pin on one of said collar or said locking arm and a locking aperture the other of said collar or said locking arm positioned so that when said needle shield is pivoted to said closed needle protecting position said locking arm is deflected outwardly until said locking pin engages said locking aperture.

5,669,890

METAL TIP ATTACHMENT FOR PLASTIC NEEDLES

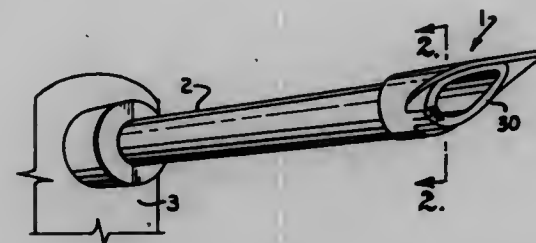
C. Louis Grimm, Shawnee, Kans., assignor to Ivy Laboratories, Inc., Overland Park, Kans.

Filed Oct. 3, 1995, Ser. No. 538,474

Int. Cl.⁶ A61M 5/32

U.S. Cl. 604-272

21 Claims



1. A plastic needle in combination with a metal tip attachment wherein said needle includes an outer surface and a point at one end thereof; said attachment comprising a metal sheet having a pointed end and shaped to conform to the outer surface of said needle; said combination further including mating structure on said plastic needle and said attachment cooperating to allow said attachment to be selectively secured to said needle such that a user can utilize said needle with or without said attachment and such that said metal sheet extends around at least a portion of said needle and at least a portion of said pointed end of said metal sheet extends at least slightly beyond said point of said needle when said attachment is secured to said needle.

5,669,891

FEMALE LUER CONNECTOR

Vincent L. Vaillancourt, 14 Bunyan Dr., Livingston, N.J. 07039

Continuation-in-part of Ser. No. 365,900, Dec. 29, 1994, Pat.

No. 5,509,912, which is a continuation-in-part of Ser. No.

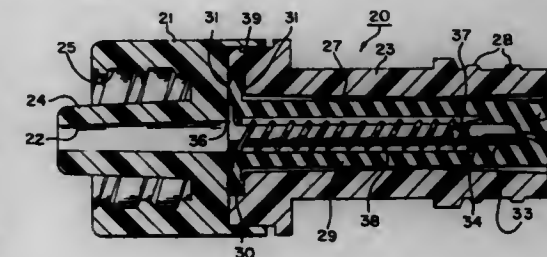
328,045, Oct. 24, 1994, Pat. No. 5,514,116. This application

Mar. 29, 1996, Ser. No. 622,867

Int. Cl.⁶ A61M 5/00

U.S. Cl. 604-283

21 Claims



1. A female luer connector comprising

a housing having a passage for a flow of fluid;

a rigid tubular part extending from said housing coaxially of said passage;

a longitudinal collapsible tubular member disposed concentrically within said rigid tubular part, said tubular member having a proximal end secured relative to said rigid tubular part;

a septum integral with a distal end of said collapsible tubular member and having a recess disposed concentrically of said rigid tubular part; and

a hollow needle having a distal end slidably received in said recess of said septum and a proximal end unsecured to said housing and said rigid tubular part whereby said needle is free to move transversely relative to said housing and said rigid tubular part with said septum.

5,669,892

OVERFILL PROTECTION FOR SUCTION DRAINAGE SYSTEM

Alan P. Keogh, Donegal Town; John J. Ferris, and Pascal J. Maher, both of Donegal, all of Ireland, assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation of Ser. No. 173,537, Dec. 27, 1993, abandoned.

This application Sep. 11, 1995, Ser. No. 526,656

Int. Cl.⁶ A61M 1/00

U.S. Cl. 604-320

1 Claim



1. A system for collecting fluid from a fluid source, the system comprising:

- a container having a lid defining a chamber for receiving fluid;
- a fluid inlet port formed in said container, said inlet port in fluid communication with an upper portion of the chamber;
- an outlet port formed in the lid of said container, said outlet port in fluid communication with an upper portion of the

chamber, said outlet port constructed for connecting the chamber to a suction source;

- a fluid-activated shut-off valve associated with said outlet port, said shut-off valve extending into the chamber; and
- a sleeve, said sleeve extending from said lid of said container, and surrounding said shut-off valve, and extending further into the chamber than said shut-off valve, said sleeve having a distal portion located within the chamber and beyond the shut-off valve, said distal portion having an open end, said chamber in fluid communication with said outlet port via only said distal portion of said sleeve, whereby received fluid reaching the level defined by said open end of said sleeve is drawn by suction into the sleeve to cause said fluid-activated valve to close the outlet port while the level of fluid in the chamber remains at the level defined by said open end of said sleeve.

5,669,893

EXTERNAL URINARY CATHETER

Allan Tanghsj, Frederiksberg, Denmark, assignor to Coloplast A/S, Denmark

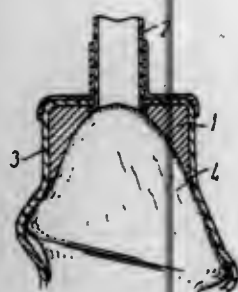
PCT No. PCT/DK94/00268, § 371 Date Dec. 29, 1995, § 102(e) Date Dec. 29, 1995, PCT Pub. No. WO95/01144, PCT Pub. Date Jan. 12, 1995

PCT Filed Jun. 29, 1994, Ser. No. 569,192

Claims priority, application Denmark, Jul. 2, 1993, 0793/93 Int. Cl.⁶ A61F 5/44

U.S. Cl. 604—349

13 Claims



1. An external urinary catheter for the relief of male urinary comprising an inner catheter comprising a catheter member (1, 13, 17, 20, 24, 27) and connected thereto a tubular discharge spout (2) for connection with a hose, said inner catheter being arrangeable in a position under the foreskin (3) of a penis in surface contact with the head (glans) (4) thereof, and a separate outer holder member (10) for circumferential engagement with the external side of the foreskin thereby to maintain the position of the inner catheter wherein the inner catheter has a short axial length of 5 to 35 mm so as to cover the extreme portion of glans (4) outside the point where glans has its largest diameter, the outer holder member (10) including a tubular spout part (11) axially displaceable around the discharge spout (2) of the inner catheter to permit axial displacement of the holder member towards a position of engagement with at least part of the external side of the foreskin opposite the underlying inner catheter.

5,669,894

ABSORBENT MEMBERS FOR BODY FLUIDS HAVING GOOD WET INTEGRITY AND RELATIVELY HIGH CONCENTRATIONS OF HYDROGEL-FORMING ABSORBENT POLYMER

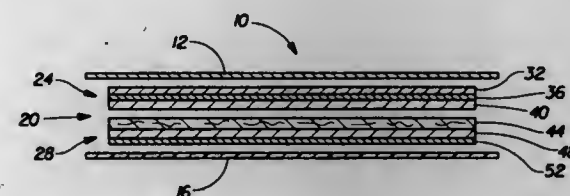
Stephen Allen Goldman, Wyoming; Nancy Ann Haynes, Okeana; Todd Leon Mansfield, Cincinnati, all of Ohio; Manfred Plischke, Steinbach, Germany; Herbert Louis Retzsch, Cincinnati, Ohio; Trevor Walker, Cincinnati, Ohio, and Gerald Alfred Young, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 219,574, Mar. 29, 1994, Pat. No. 5,599,335. This application Oct. 1, 1996, Ser. No. 725,010

Int. Cl.⁶ A61F 13/15;13/20

U.S. Cl. 604—368

35 Claims



1. An absorbent member for the containment of aqueous body fluids, which comprises at least one region comprising hydrogel-forming absorbent polymer in a concentration of from about 60 to 100% by weight, said hydrogel-forming polymer providing a gel continuous fluid transportation zone when in a swollen state and having:

- (a) a Saline Flow Conductivity (SFC) value of at least about $30 \times 10^{-7} \text{ cm}^2 \text{ sec/g}$;
- (b) a Performance under Pressure (PUP) capacity value of at least about 23 g/g under a confining pressure of 0.7 psi (5 kPa);
- (c) a basis weight of at least about 10 gsm; said region having, when subjected to normal use conditions, sufficient wet integrity such that said gel continuous zone substantially maintains its ability to acquire and transport said body fluids through said gel continuous zone.

5,669,895

ABSORBENT ARTICLE HAVING RAPID DISTRIBUTION STRIP

Setsuko Murakami, Yamanashi, and Yumi Masuda, Kobe, both of Japan, assignors to The Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US92/09717, § 371 Date Sep. 29, 1994, § 102(e) Date Sep. 29, 1994, PCT Pub. No. WO93/09745, PCT Pub. Date May 27, 1993

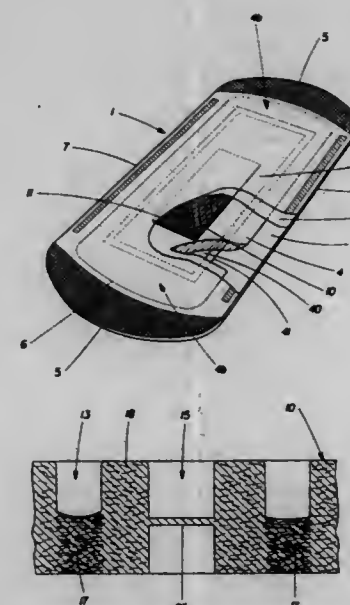
PCT Filed Nov. 6, 1992, Ser. No. 232,243

Claims priority, application Japan, Nov. 11, 1991, 3-294665 Int. Cl.⁶ A61F 13/15

U.S. Cl. 604—380

7 Claims

1. An absorbent article for absorbing a liquid exuded from a human body, said absorbent article having a longitudinal centerline defining a longitudinal direction and a lateral centerline defining a lateral direction and comprising a liquid permeable topsheet, a liquid impermeable backsheet, a liquid absorbent pad positioned therebetween and having longitudinal ends, and a liquid distribution strip being positioned between said topsheet and said absorbent pad, said liquid distribution strip comprising a nonwoven web having portions of said web compressed into areas of high fiber density and also having portions of said web compressed from both sides of said web into thin film segments of a density greater than



that of said high fiber density areas, such that substantially all of said liquid distributes around said thin film segments.

5,669,896

ABSORBENT GARMENT COMPRISING DUAL CONTAINMENT FLAPS

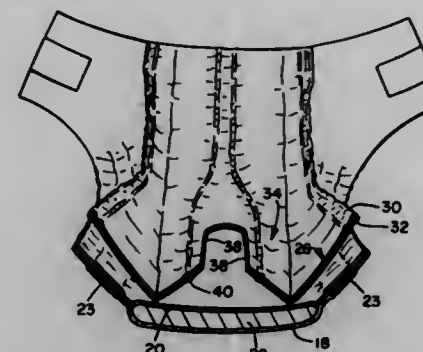
David Peter Kielplkowski, Appleton, Wis., assignor to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Filed Jun. 16, 1994, Ser. No. 260,659

Int. Cl.⁶ A61F 13/15

U.S. Cl. 604—385.2

4 Claims



1. An absorbent garment having a front portion, a rear portion, and a crotch portion between said front portion and said rear portion, said garment comprising:

- an outer cover;
- a bodyside liner;
- an absorbent core located between said outer cover and said bodyside liner;
- a pair of outer containment flaps having a proximal edge attached to said bodyside liner, a distal edge opposite said proximal edge, and a first elastic member adjacent said distal edge; and
- a pair of inner containment flaps having a proximal edge attached to said bodyside liner, a distal edge opposite said proximal edge, and a second elastic member adjacent said distal edge, said outer and inner containment flaps being formed from a first integral sheet of containment flap material having a length, said inner containment flaps having a length less than the length of said first sheet of containment flap material wherein said second elastic members are spaced

further apart in said crotch portion than in said rear portion and wherein said second elastic members are non-parallel.

5,669,897

ABSORBENT ARTICLES PROVIDING SUSTAINED DYNAMIC FIT

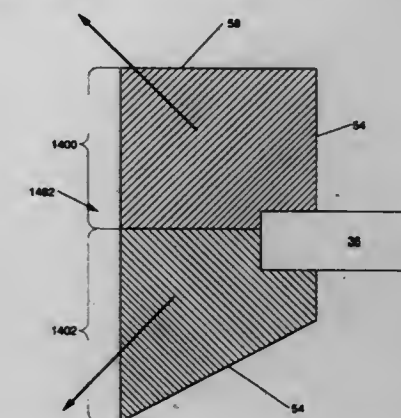
Gary Dean Lavon, Harrison, and Thomas Allen Desmarais, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 466,310, Jun. 6, 1995, Pat. No. 5,634,910, which is a division of Ser. No. 322,633, Oct. 13, 1994, abandoned, which is a continuation of Ser. No. 72,300, Jun. 3, 1993, Pat. No. 5,358,500. This application Sep. 3, 1996, Ser. No. 707,346

Int. Cl.⁶ A61F 13/15;13/20

U.S. Cl. 604—385.2

11 Claims



1. An absorbent article having a front waist region and a back waist region, the absorbent article comprising:

- a) a containment assembly having a pair of longitudinal edges, said containment assembly comprising a topsheet, a backsheet joined to said topsheet, and an absorbent core disposed between said topsheet and said backsheet; and
- b) an elastic side panel disposed along each of said longitudinal edges of said containment assembly in said back waist region, each said side panel comprising a first portion and a second portion, said first portion being longitudinally outboard of said second portion, said first portion having a first direction of expansion and said second portion having a second direction of expansion which is nonparallel to said first direction of expansion.

5,669,898

ABSORBENT ARTICLE WITH ADJUSTABLE UNDERGARMENT PROTECTION SYSTEM

Nicholas Albert Ahr, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 268,694, Jun. 30, 1994, Pat. No. 5,562,651. This application May 24, 1996, Ser. No. 653,523

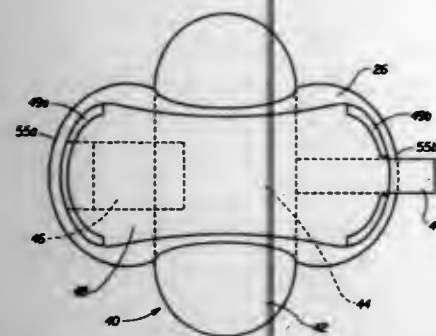
Int. Cl.⁶ A61F 13/15

U.S. Cl. 604—387

5 Claims

1. A unitary sanitary napkin for protecting an undergarment from soiling, said sanitary napkin having a longitudinal centerline, said sanitary napkin comprising:

- a central absorbent body having a transverse centerline, longitudinal edges, and end edges, said central absorbent body comprising:
- a liquid pervious topsheet;
- a liquid impervious backsheet joined with said topsheet, said backsheet having a garment facing surface;
- an absorbent core between said topsheet and said backsheet; and



an adjustable undergarment protection system, said system comprising:

- a slip element having first and second transverse ends, said transverse ends of said slip element being divided into central and side portions, said first transverse end being joined to said garment facing surface of said backsheet at one of said end edges of said central absorbent body across the full width of said end edge, said side portions of said second transverse end of said slip element being joined to said garment facing surface of said backsheet adjacent each of said longitudinal edges of said central absorbent body at the opposite end edge of said central absorbent body, said central portion of said transverse end of said slip element adjacent said longitudinal centerline of said sanitary napkin remaining unjoined to said backsheet, and means for attaching said sanitary napkin to said undergarment being disposed on said slip element;
- a flap connecting member, positioned between said backsheet and said slip element, said flap connecting member having longitudinal sides and transverse ends;
- two flaps joined to and transversely extending from each of said longitudinal sides of said flap connecting member, each of said flaps extending transversely beyond said longitudinal edges of said central absorbent body, and means for attaching said flaps to said undergarment disposed on each of said flaps; and
- at least one adjustment tab joined to and extending longitudinally from one of said transverse ends of said flap connecting member, said adjustment tab passing through said unjoined central portion intermediate said slip element and said central absorbent body, said adjustment tab extending longitudinally beyond said end edges of said central absorbent body.

5,669,899

SANITARY NAPKIN WITH IMPROVED RELEASE LINER
Thomas W. Osborn, III, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Jul. 12, 1996, Ser. No. 679,039
Int. Cl.⁶ A61F 13/15

U.S. Cl. 604—390

16 Claims



1. A sanitary napkin comprising:
 - a liquid pervious topsheet;
 - a backsheet joined to said topsheet, said backsheet having an inner surface and an outer surface;

an absorbent core positioned between said topsheet and said backsheet;
adhesive attachment means located on the outer surface of said backsheet for securing said sanitary napkin to a user's panty; and
a release liner releasably affixed to said adhesive attachment means, said release liner comprising an apertured polymeric web.

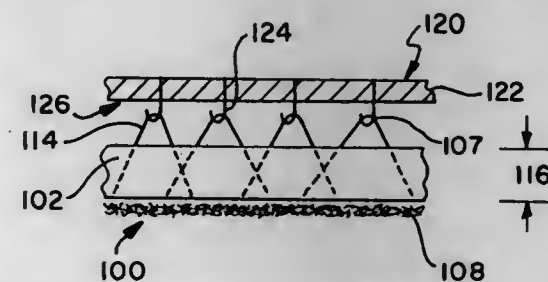
5,669,900

SPUNBOND LOOP MATERIAL FOR HOOK AND LOOP FASTENING SYSTEMS

Edward Paul Bullwinkel, Roswell; Leon Eugene Chambers, Jr., Cumming; Robert Gillette Geer, Canton, and Jay Sheldon Shultz, Roswell, all of Ga., assignors to Kimberly-Clark Worldwide, Inc., Irving, Tex.
Continuation-in-part of Ser. No. 148,078, Nov. 3, 1993, Pat. No. 5,538,019. This application Nov. 3, 1994, Ser. No. 333,803
Int. Cl.⁶ A61F 13/15

U.S. Cl. 604—391

16 Claims



1. A loop material for a hook and loop fastening system comprising:
 - a backing material; and
 - a layer of a nonwoven spunbond web attached to the backing material and having a loop material surface, the nonwoven spunbond web comprising a plurality of continuous intertwined filaments, each having a diameter of about 25 to about 100 microns, the plurality of filaments laid randomly to define a plurality of intertwined loop springs tending to maintain a "z" axis orientation 90° from said loop material surface, each of said plurality of springs having a diameter of about 0.5 to about 3 millimeters.

5,669,901

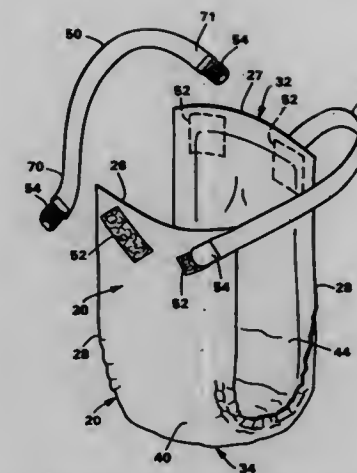
ABSORBENT ARTICLE HAVING AN IMPROVED MECHANICAL FASTENING SYSTEM

Jeffrey Mark LaFortune, Appleton, and Lynn Kirkpatrick LeMahieu, Hortonville, both of Wis., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.
Filed Apr. 18, 1996, Ser. No. 634,542
Int. Cl.⁶ A61F 13/15

U.S. Cl. 604—391

14 Claims

1. An absorbent article, comprising:
 - a garment comprising a moisture barrier, a bodyside liner, and an absorbent assembly between said moisture barrier and said bodyside liner, the garment having first and second waist regions and an intermediate section which interconnects the waist regions;
 - at least one first interlocking fastening component disposed in the first and second waist regions; and
 - a pair of strap members, each strap member having opposite forward and rearward end portions and comprising a second interlocking fastening component bonded to each of the forward and rearward end portions, each second interlocking fastening component adapted to refastenably engage the first interlocking fastening component, each second interlocking



fastening component having a longitudinal axis, a transverse axis, a proximal edge, a distal edge longitudinally spaced from the proximal edge, and first and second side edges extending between the proximal and distal edges, each second interlocking fastening component comprising:
a backing substrate having a grasping section contiguous with the distal edge, a primary attachment section longitudinally disposed between the grasping section and the proximal edge, and secondary attachment sections transversely disposed between the grasping section and each of the first and second side edges; and
a plurality of upstanding engaging elements disposed exclusively in the primary attachment section and each of the secondary attachment sections.

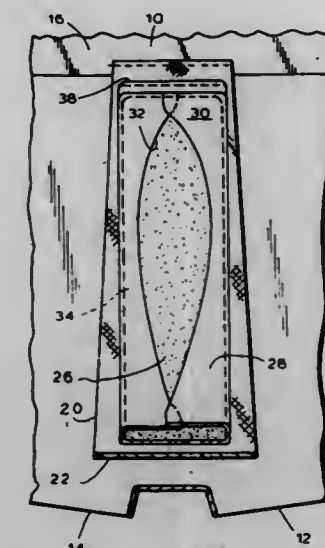
5,669,902

INCONTINENCE GARMENT IN THE FORM OF BOXER SHORTS

Daniel M. Sivilich, Freehold Township, N.J., assignor to Humanicare International, Inc., North Brunswick, N.J.
Filed Jun. 24, 1996, Ser. No. 668,903
Int. Cl.⁶ A61F 13/15

U.S. Cl. 604—396

5 Claims



1. An incontinence garment adapted to be worn on a body with legs, said garment comprising an exterior portion in the form of boxer shorts with a waistband, said waistband having a front portion and a rear portion, an internal elastic shell comprising a front part attached to said front waistband portion, a crotch part adapted to extend between the legs and a relatively wider seat part

attached to said second waistband portion, a liquid absorbent pad, a pouch adapted to removeably receive said pad, said pouch having a first surface with an opening, a second substantially liquid impermeable surface and first and second ends, said first and second ends being affixed at spaced locations along said shell, said first surface facing the body and said second surface supported by said shell, such that said pad is retained closely adjacent to the body.

5,669,903

OSTIOMEATAL COMPLEX SINUS CRYOSURGICAL PROCEDURE

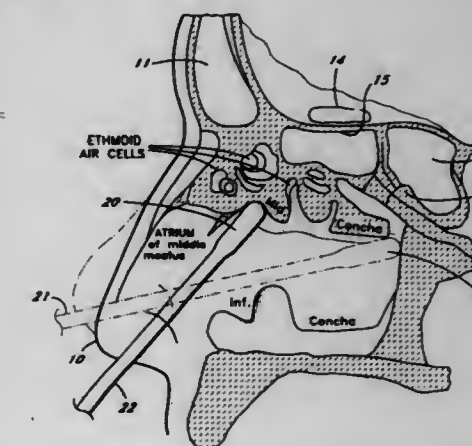
Eugene P. O'Donnell, 8038 S. Painter Ave., Whittier, Calif. 90602

Filed Jul. 21, 1995, Ser. No. 505,474

Int. Cl.⁶ A61B 17/36

U.S. Cl. 606—20

1 Claim



1. A process for removing obstructions to sinus drainage of a patient having right and left nostrils comprising:
 - inserting a cryoprobe into one of said right and left nostrils and lodging said cryoprobe cooled to about -100° C. inferiorly against the sphenoid bone and the lateral wall of the nose of the patient;
 - maintaining the cryoprobe against the sphenoid bone and lateral wall of the nose of the patient for a period of about 90 seconds;
 - moving said cryoprobe in said one of said right and left nostrils to an superior position and lodging the cryoprobe cooled to about -100° C. superiorly against the sphenoid bone and the cribriform plate of the ethmoid bone of the patient;
 - maintaining the cryoprobe against the sphenoid bone and cribriform plate of the ethmoid bone for a period of about 90 seconds;
 - inserting a cryoprobe into the other of said right and left nostrils and lodging said cryoprobe cooled to about -100° C. inferiorly against the sphenoid bone and lateral wall of the nose of the patient;
 - maintaining the cryoprobe against the sphenoid bone and lateral wall of the nose of the patient for a period of about 90 seconds;
 - moving said cryoprobe in said other of said right and left nostrils to an superior position and lodging the cryoprobe cooled to about -100° C. superiorly against the sphenoid bone and the cribriform plate of the ethmoid bone of the nose of the patient;
 - maintaining the cryoprobe against the sphenoid bone for a period of about 90 seconds; and
 - removing the cryoprobe.

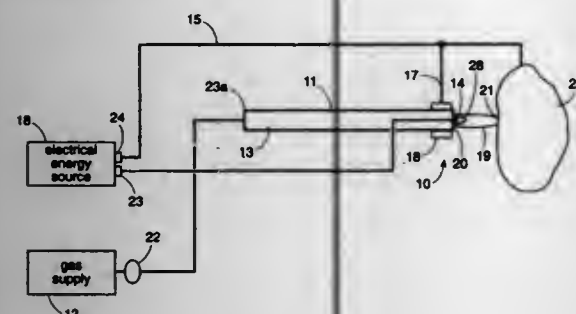
5,669,904 SURGICAL GAS PLASMA IGNITION APPARATUS AND METHOD

Robert C. Platt, Jr., and Robin Budih Bek, both of Boulder, Colo., assignors to Valleylab Inc., Boulder, Colo.

Filed Mar. 7, 1995, Ser. No. 399,682
Int. Cl.⁶ A61B 17/36

U.S. Cl. 606—27

11 Claims



1. A corona ignition system for initiating a plasma arc in an electrosurgical tool, the corona ignition system comprising:
 - a holder having a proximal end and a distal end;
 - a regulated source of ionizable gas;
 - a passage through the holder, forming a tube, connected proximally with the regulated source of ionizable gas so that ionizable gas may pass through the passage;
 - an active electrode in the passage and in contact with the regulated ionizable gas;
 - a source of high frequency electrical energy having first and second terminals with alternating potential thereacross, the first terminal connected to the active electrode;
 - a return electrode connected to the second terminal on the source of high frequency electrical energy and remote from the holder;
 - a corona return electrode attached to the holder and connected to the second terminal on the source of high frequency electrical energy to establish an electrical field with the active electrode;
 - a dielectric member located between the active electrode and corona return electrode such that the corona return electrode does not protrude over the dielectric member, the dielectric member creating a high electrical impedance barrier between the active electrode and the corona return electrode to enable a corona to be created adjacent to the active electrode that can aid initiation of the plasma arc.

5,669,905 ENDOVASCULAR EMBOLIC DEVICE DETACHMENT DETECTION METHOD AND APPARATUS

Ronald W. Scheldrup, Menlo Park, and Laurent B. Schaller, Los Altos, both of Calif., assignors to Target Therapeutics, Inc., Fremont, Calif.

PCT No. PCT/US95/02635, § 371 Date Jul. 11, 1995, § 102(e) Date Jul. 11, 1995, PCT Pub. No. WO95/23558, PCT Pub. Date Sep. 8, 1995

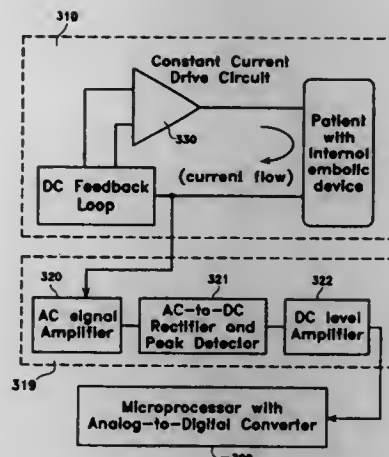
Continuation of Ser. No. 205,512, Mar. 3, 1994, abandoned.
This PCT application Mar. 2, 1995, Ser. No. 481,453

Int. Cl.⁶ A61B 17/38

U.S. Cl. 606—32

22 Claims

1. An implant detachment detection system comprising:
 - an implant suitable for implanting in a mammal;
 - a delivery member for delivering the implant to a selected site in the mammal;



- a link coupling said delivery member to said implant;
- a power supply circuit for supplying DC power with AC power superposed thereon;
- a conductive path, said power supply circuit and link being in said path; and
- an AC impedance monitoring circuit coupled to said path.

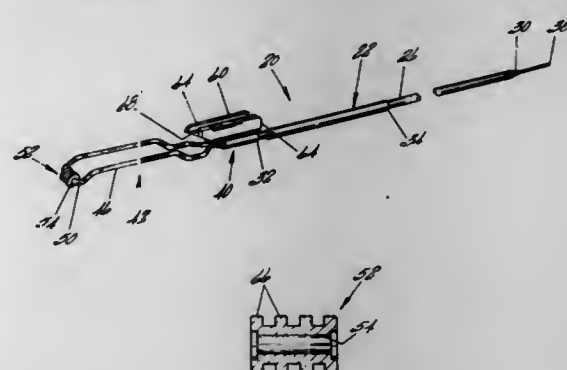
5,669,906 GROOVED ROLLER ELECTRODE FOR A RESECTOSCOPE

Benedetto Grossi, Stamford, Conn., and Robert Quint, Jamaica, N.Y., assignors to Circon Corporation, Santa Barbara, Calif.

Filed Sep. 30, 1994, Ser. No. 316,494
Int. Cl.⁶ A61B 17/36

U.S. Cl. 606—46

19 Claims



1. An electrode for use with a resectoscope comprising
 - a conductive grooved roller having a selected width and a central opening extending therethrough for rotatably mounting said grooved roller between a bifurcated arm, said grooved roller having at least two grooves each having a selected width defining at least one protrusion having edges and sidewalls wherein the ratio of each groove width to the grooved roller selected width is selected to be about 0.13 to enable the electrosurgical current to concentrate along said edges of the protrusion for defining areas of increased current densities which generate sufficient current flow to vaporize tissue and coagulate remaining treated tissue.

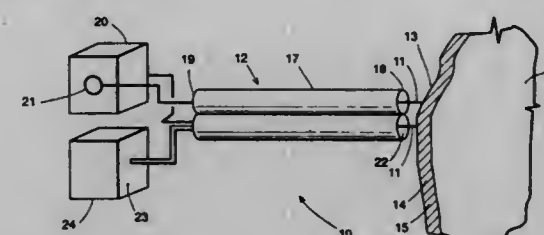
5,669,907 PLASMA ENHANCED BIPOLAR ELECTROSURGICAL SYSTEM

Robert C. Platt, Jr.; Dale F. Schmaltz, both of Boulder, and Steve Buysee, Longmont, all of Colo., assignors to Valleylab Inc., Boulder, Colo.

Filed Feb. 10, 1995, Ser. No. 386,898
Int. Cl.⁶ A61B 17/36

U.S. Cl. 606—48

7 Claims



1. A surgical system comprising:
 - a holder having a hollow interior which forms at least one passage;
 - a distal end on the holder;
 - a proximal end on the holder;
 - a source of electrosurgical energy having first and second terminals with an alternating potential thereacross;
 - first and second electrodes attached to the holder, wherein the first and second terminals are electrically connected to the first and second electrodes, respectively;
 - a source of ionizable gas of a selectable flow rate connected to the proximal end of the holder and in fluid communication with the at least one passage for transport of ionizable gas therethrough; and
 - an electrical circuit including the source of electrosurgical energy, and the first and second electrodes, whereby electrosurgical energy creates ionized conductive pathways in the ionizable gas, the ionized conductive pathways forming at least a portion of the electrical circuit between the first and second electrodes.

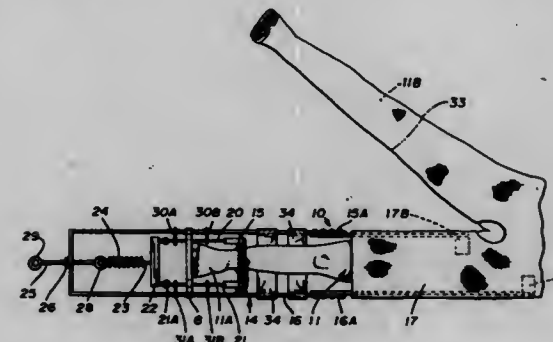
5,669,908 CAST BRACE FOR FEMORAL SHAFT FRACTURES IN CHILDREN

R. V. Gracilla, 302 Clay Furnace Rd., Sharpville, Pa. 16150
Filed Jan. 16, 1996, Ser. No. 585,512

Int. Cl.⁶ A61F 5/04

U.S. Cl. 606—53

9 Claims



1. A surgical device for setting fractures of a human leg comprises in combination,
 - a pair of parallel longitudinally adjustable support brackets extending along a patient's leg, said support brackets interconnected at their distal end portion
 - a cast on said patient engaging said support brackets,
 - a bow with a wire engageable through a portion of said patient's leg,

a tension adjustment means for applying distal direct force to said leg on said distal end portion of said support brackets in spaced longitudinal relation to said leg.
rigid support wires extending from said bow in parallel spaced co-planar alignment with one another and the longitudinal axis of said leg, and an intermediate yoke engageable by said rigid support wires and said tension adjustment means on said support brackets.

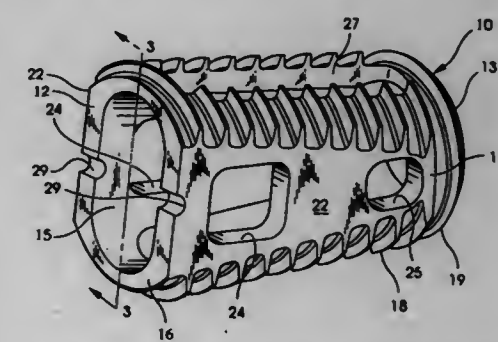
5,669,909 INTERBODY FUSION DEVICE AND METHOD FOR RESTORATION OF NORMAL SPINAL ANATOMY

Thomas Zdeblick, Madison, Wis.; Eddie Ray, III, Cordova, and Lawrence M. Boyd, Memphis, both of Tenn., assignors to Danek Medical, Inc., Memphis, Tenn.
Continuation-in-part of Ser. No. 411,017, Mar. 27, 1995. This application Mar. 30, 1995, Ser. No. 413,353

Int. Cl.⁶ A61B 17/56

U.S. Cl. 606—61

7 Claims



1. A fusion device for facilitating arthrodesis in the disc space between adjacent vertebrae, comprising:
 - an elongated body having a length, a first diameter at a first end and a larger second diameter at a second end opposite said first end, said first and second diameters sized to be greater than the space between the adjacent vertebrae;
 - said body having an outer surface that is substantially continuously tapered from said first end to said second end with external threads defined on said outer surface and extending substantially entirely along said length of said body.

5,669,910 CROSSLINK FOR IMPLANTABLE RODS

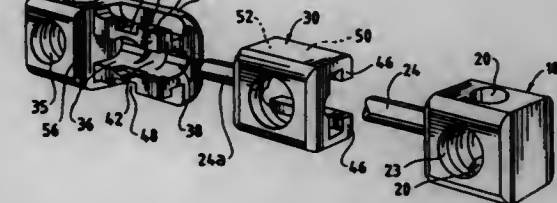
Francis J. Korhonen, Negaunee, and Matthew N. Songer, Marquette, both of Mich., assignors to Pioneer Laboratories, Inc., Marquette, Mich.

Filed Jan. 2, 1996, Ser. No. 582,166

Int. Cl.⁶ A61B 17/70

U.S. Cl. 606—61

11 Claims



connector being permanently attached to a crosslink rod that extends from said first connector transversely away from said one support rod when the support rod occupies said first recess;

a second connector having a second recess for receiving and retaining the other of said pair of support rods, and a third recess for receiving and retaining a portion of said crosslink rod that is spaced from the first connector in a position where the other support rod and the crosslink rod have substantially coplanar longitudinal axes; and
retainers for holding said crosslink member and support rods together in a desired position.

5,669,911

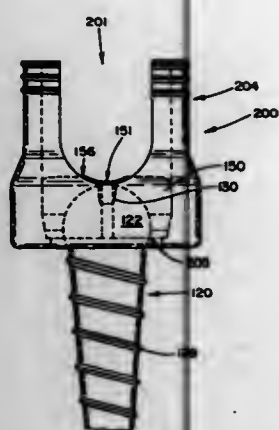
POLYAXIAL PEDICLE SCREW

Joseph P. Errico, Far Hills; Thomas J. Errico, Summit, and James D. Ralph, Oakland, all of N.J., assignors to Fastenex, L.L.C., Summit, N.J.

Continuation-in-part of Ser. No. 559,196, Nov. 13, 1995, which is a continuation-in-part of Ser. No. 421,087, Apr. 13, 1995, Pat. No. 5,520,690. This application Jun. 13, 1996, Ser. No. 663,383

Int. Cl.⁶ A61B 17/70

U.S. Cl. 606—61



1. A device for stabilizing spinal column segments, comprising:
a pedicle screw having a threaded shaft portion and a semi-spherical head at the end of said threaded shaft portion;
a locking collar having a semi-spherical interior volume for flexibly retaining said semi-spherical head, said locking collar having a linearly tapered cylindrical exterior surface;
a receiver member having
a rod receiving channel,
a bore having first and second ends,
a receiving chamber being provided at said second end, said chamber having a linear taper for receiving the locking collar, and
an opening being provided opposite said bore, at said first end for inserting said locking collar through said bore, and
said second end being provided to receive the head of said screw therethrough for positioning thereof in the semi-spherical interior volume of said locking collar, such that said shaft portion of said screw extends downwardly from said receiving member; and

said device further comprising a compression member for exerting a force onto said locking collar such that said semi-spherical interior chamber contacts and is pressed against said semi-spherical head by cooperation between the tapered exterior surface and the chamber linear taper thereby compression locking said head to said locking collar.

5,669,912

APPARATUS FOR SECURING A CRANIAL PIECE IN POSITION

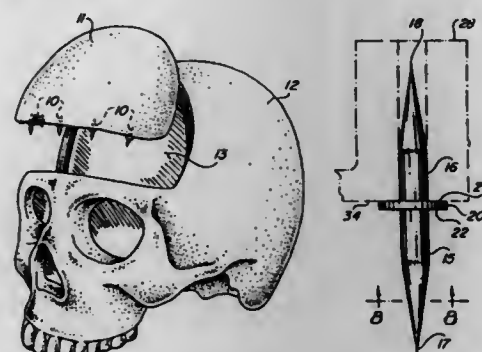
Robert F. Spetzler, 6107 N. Palo Cristi, Paradise Valley, Ariz. 85253

Continuation of Ser. No. 233,851, Apr. 26, 1994, Pat. No. 5,501,685. This application Aug. 22, 1995, Ser. No. 518,103

Int. Cl.⁶ A61B 17/56

U.S. Cl. 606—72

8 Claims



1. A surgical pin for securing a cranial plate in position to prevent the plate from shifting from adjacent bone edges during the process of knitting or healing, said pin comprising:

a cylindrical, distal shank and a cylindrical, proximal shank, each of said shanks having an end tapering to a relatively sharp point,

a central collar between the cylindrical portions of said shanks and having a dimension transverse to the longitudinal axis of the shanks greater than the diameters of the shanks,

wherein said collar has a diameter approximately equal to the thickness of the medullar portion of the cranial bone for limiting the insertion depth of the pin into the medullar portion of a cranial bone without causing disfigurement and wherein said cylindrical portions and said collar provide gripping surfaces for manipulating said pin and for inserting said pin into the medullar portion of a cranial bone.

5,669,913

METHOD AND APPARATUS FOR SMOOTHING AN ANATOMICAL JOINT BEARING SURFACE DURING HEMI-JOINT REPLACEMENT

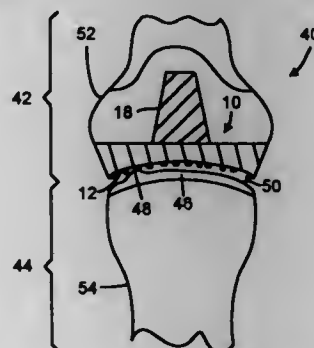
Robert A. Zobel, 3333 E. Downing, Mesa, Ariz. 85213

Filed Dec. 22, 1995, Ser. No. 577,446

Int. Cl.⁶ A61B 17/56

U.S. Cl. 606—85

12 Claims



1. A surgical method for implanting a prosthesis into a first bone located on a first side of a joint to mate to a second bone located on a second side of the joint, the method including a step of smoothing a bearing surface of the second bone, the smoothing step comprising the steps of:

a) removing a portion of the first bone adjacent the joint to create a cavity therein;

b) inserting a joint preparation device into the cavity so that an abrasive surface of the preparation device is juxtaposed to a joint surface located on the second bone; and
c) articulating the joint to smooth the joint surface of the second bone to conform to the abrasive surface of the joint preparation device.

5,669,914

ROTATION ALIGNMENT INSTRUMENT

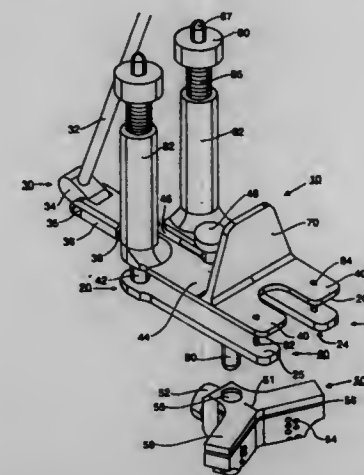
Donald G. Eckhoff, Denver, Colo., assignor to Board of Regents of the University of Colorado, Boulder, Colo.

Filed Feb. 16, 1996, Ser. No. 602,996

Int. Cl.⁶ A61B 17/56

U.S. Cl. 606—88

19 Claims



1. A rotation alignment device for positioning the tibia relative to the femur of a patient prior to placement of prosthetic knee components, comprising:

a femoral component having femoral leaves separated by a space large enough to accommodate the patient's anterior cruciate ligament, the femoral leaves being in the form of plates having proximal and distal surfaces, the proximal surfaces adapted to abut a patient's distal femur in use;

tibial leaves corresponding to the femoral leaves also being in the form of plates cooperatively engaged with the femoral component and having flat proximal surfaces parallel to the distal surfaces of the femoral leaves;

means for adjusting and maintaining a desired distance between the distal surface of each femoral leaf and the proximal surface of the corresponding tibial leaf;

means for preventing disengagement of the tibial leaves from the femoral leaves in use;

sheath means attached to the femoral leaves and leg barrel means attached to the tibial leaves, wherein the leg barrel means are slidably engaged with the sheath means and wherein the means for preventing disengagement of the tibial and femoral leaves comprises a keyway on the outer surface of the leg barrel means and a key on the inner surface of the sheath means.

5,669,915

DRILLING JIG FOR SURGICAL DRILLING TOOLS

Wolfhard Caspar, Contwig; Gebhard Herrmann, Irndorf; Thodor Lutz, Balgheim, and Dieter Weisshaupt, Immendingen, all of Germany, assignors to Aesculap AG, Tuttlingen, Germany

Filed Mar. 22, 1996, Ser. No. 620,392

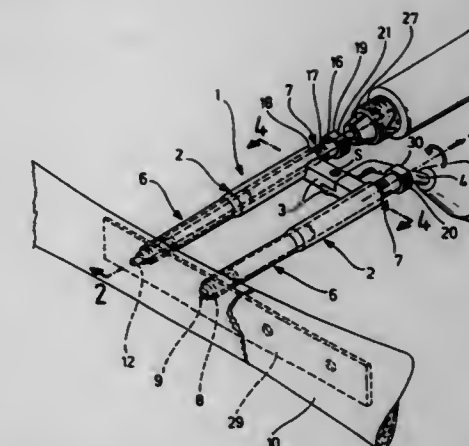
Claims priority, application Germany, Mar. 22, 1995, 195 10 372.6

Int. Cl.⁶ A61B 17/17

U.S. Cl. 606—96

13 Claims

1. Drilling jig for a surgical drilling tool, comprising:



two sleeves of identical design alongside each other on a common holder;

each sleeve being mounted on said holder so as to be pivotable in relation to each other about an axis of rotation extending perpendicular to their longitudinal axis;

each of said sleeves being positionable with its front end on a bone, into which the drilling tool is screwable, thereby passing through the interior of said sleeve, and at the rear end a stop surface for a stop of said drilling tool to rest thereon, said stop delimiting the depth to which said drilling tool penetrates said sleeve; and
means for adjusting the spacing between said stop surface and said front end of said sleeve, wherein:

said sleeve is of two-part design and includes a bearing part and an adjusting part, in that said bearing part carries said front end and said adjusting part carries said stop surface, and in that said bearing part and said adjusting part are screwed to each other in such a way that the spacing between said stop surface and said front end of said sleeve is adjustable by turning said adjusting part in relation to said bearing part.

5,669,916

METHOD OF HAIR REMOVAL

Richard Rox Anderson, Lexington, Mass., assignor to The General Hospital Corporation, Boston, Mass.

Filed Sep. 28, 1994, Ser. No. 314,082

Int. Cl.⁶ A61B 17/50

U.S. Cl. 606—133

12 Claims



1. A method of removing a hair from the skin of a mammal, said method comprising

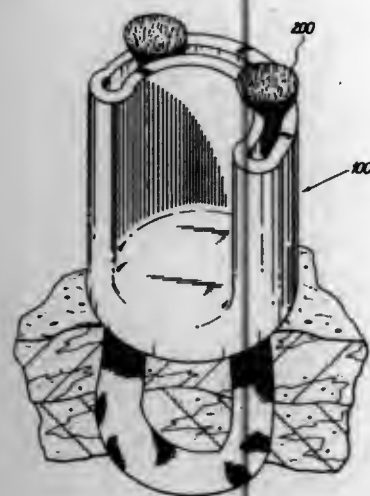
a) mechanically or chemically removing said hair from its follicle to expose the follicle of said hair, and then

b) treating said follicle to inhibit its ability to regenerate a hair.

5,669,917
SURGICAL CRIMPING DEVICE AND METHOD OF USE
 Jude S. Sauer, Pittsford; Louis N. Rapp, Dansville, and Thomas A. Tiberio, Rochester, all of N.Y., assignors to Laser-Surge, Inc., Rochester, N.Y.
 Division of Ser. No. 201,864, Feb. 24, 1994. This application May 12, 1995, Ser. No. 440,403
 Int. Cl.⁶ A61B 17/10

U.S. Cl. 606—139

7 Claims



1. A suture securing member comprising a first end portion, a second end portion and a bore having a first dimension and extending from said first end portion to said second end portion, said bore dimensioned to receive a length of suture material so that the suture material extends through said first and second end portions, said securing member being comprised of compressible material so that upon compression of said securing member the size of said bore is reduced to a second smaller dimension to thereby cinch the suture material to maintain tension therein.

5,669,918
SURGICAL INSTRUMENT FOR PREPARING AN ANASTOMOSIS IN MINIMALLY INVASIVE SURGERY
 Matthias Balazs, Grafrath, and Peter Spitzweck, Inning, both of Germany, assignors to Deutsche Forschungsanstalt für Luft-und Raumfahrt e.V., Köln, Germany
 Filed Mar. 18, 1996, Ser. No. 617,170
 Claims priority, application Germany, Mar. 16, 1995, 195 09 115.9

U.S. Cl. 606—139

Int. Cl.⁶ A61B 17/00

19 Claims

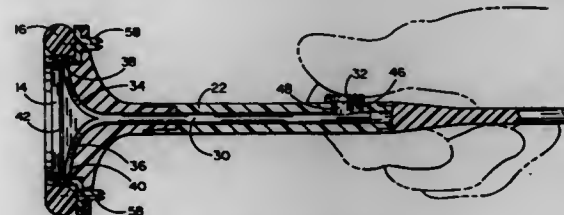
1. A surgical instrument for preparing an anastomosis by minimally invasive surgery, in which an instrument serving as an applicator and being insertable from the distal end to the proximal end into a retrieval trocar, has the following:

- an interchangeable insertion head (1) with radially oriented staple-bending indentations (11);
- a staple holder (30) with receptacles for radially oriented U-shaped staples (32) and with a circular groove (33), provided in the free interior thereof, into which groove a thread (34) is placed;
- an ejector unit (35), on which the staple holder (30) is retained axially displaceably;
- a joint (6) that can be gently bent at an angle and adjusted and fixed, on the free end portion (60) of which the ejector unit (35) is secured;
- an annular knife (4) with a blade (41) in the form of a circular line, the knife being held between the end portion (60) of the joint and the ejector unit (35);
- a hollow-cylindrical holder part (2) that is axially displaceable in the annular knife (4) and the end portion (60) of the joint and

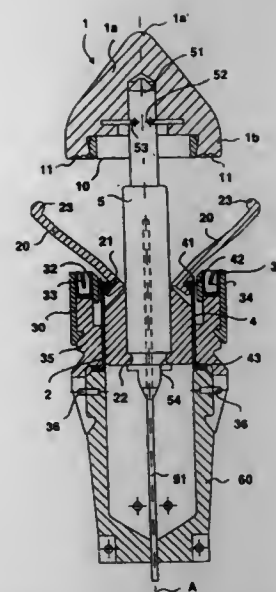
5,669,919
ANNULOPLASTY SYSTEM
 Elliott H. Sanders, Westminster, Calif., and Carlos M. G. Duran, Missoula, Mont., assignors to Medtronic, Inc., Minneapolis, Minn.
 Filed Aug. 16, 1996, Ser. No. 700,620
 Int. Cl.⁶ A61B 17/00

U.S. Cl. 606—148

4 Claims



1. An annuloplasty holder system, comprising:
- a) a holder adapted to hold an annuloplasty ring;
 - b) a handle having an end arranged to be releasably engaged with said holder;
 - c) a plurality of tabs on said handle, said tabs being movable transversely of said handle and being arranged to releasably lockingly engage said holder when moved transversely outwardly of said handle;
 - d) a tab moving member positioned on said handle, said tab moving member being longitudinally movable with respect to said handle and arranged to move said tabs transversely to engage said holder when said tab moving member is longitudinally moved; and



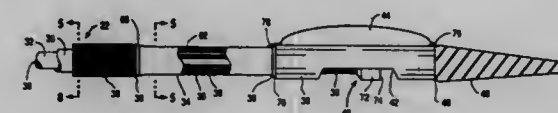
- that has a number of elastically resilient, radially pivotable gripper and holding arms (20);
- a mandrel (5), on which for its axial displacement an actuating element (91, 94) is secured and on which the insertion head (1) and gripper arm holder part (2) are disconnectably retained;
 - a circular-cylindrical hollow shaft (7) mounted on the proximal end of the joint (6);
 - a handle (9) with a toggle lever mechanical (90, 93) pivotably connected to it, so that with one hand when it is actuated by means of the actuating element (91, 94) the mandrel (5) and thus the gripper arm holder part (2) and the insertion head (1) can be retracted in the direction of the hollow shaft (7), as a result of which the staples (32) are ejected and bent closed and the thread (34) is fixed to the bowel, and excess protruding bowel is cutoff circularly all the way around.

- c) an actuating member on the outside of said handle connected to said tab moving member for moving the same.

5,669,920
ATHERECTOMY CATHETER
 Daniel J. Conley, Redwood City; Mark E. Deem, San Francisco; Kent D. Dell, Redwood City, and Bernard H. Andreas, Fremont, all of Calif., assignors to Devices for Vascular Intervention, Inc., Santa Clara, Calif.
 Division of Ser. No. 348,289, Dec. 1, 1994, Pat. No. 5,527,325, which is a continuation of Ser. No. 89,957, Jul. 9, 1993, abandoned. This application Mar. 20, 1996, Ser. No. 618,943
 Int. Cl.⁶ A61B 17/22

U.S. Cl. 606—159

33 Claims



1. A method of making a catheter, the method comprising: providing a tubular inner layer of a first polymer having a first melting point; forming over the inner layer an outer layer of a second polymer having a second melting point, the second melting point being lower than the first melting point; heating the outer layer to a temperature of at least the second melting point and less than the first melting point; and impregnating the outer layer with a wire braid such that the braid penetrates the outer layer to the inner layer.

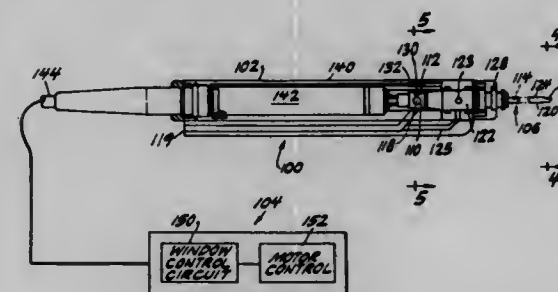
5,669,921
ENDOSCOPIC SHAVER BLADE WINDOW POSITIONING SYSTEM

Phillip J. Berman, St. Petersburg, and Raymond A. Carr, Clearwater Beach, both of Fla., assignors to Linvatec Corporation, Largo, Fla.

Continuation-in-part of Ser. No. 276,979, Jul. 19, 1994, abandoned. This application Mar. 15, 1996, Ser. No. 617,524
 Int. Cl.⁶ A61B 17/32

U.S. Cl. 606—167

8 Claims



1. A method for performing a surgical procedure with a rotatable shaver driven by a powered handpiece having a drive means for driving said shaver comprising the steps of: providing a shaver assembly comprising:
- an elongated outer tube having a proximal end, a distal end, an outer opening at said distal end and a hub at said proximal end, said hub for enabling attachment of said outer tube to said handpiece; and
 - an elongated inner tube, for being received in said outer tube, having a proximal end, a distal end, an inner opening at said distal end, a cutting edge at said inner opening for cooperating with said outer opening to cut tissue and a hub at said proximal end, said hub for enabling attachment of

- said inner tube to said drive means, said inner and outer openings cooperating to produce a lumen aperture of cyclically varying size;
- an indicator means secured to said hub of said inner tube at a predetermined angular position relative to said inner opening;
 - sensing the angular position of said indicator means relative to said outer opening;
 - selecting a predetermined angular position of said indicator means representative of a predetermined size opening of said lumen aperture;
 - stopping the motion of said inner tube relative to said outer tube to produce said predetermined size opening.

5,669,922
ULTRASONICALLY DRIVEN BLADE WITH A RADIAL HOOK THAT DEFINES A CIRCULAR RECESS
 Larry Hood, 25652 Nottingham Ct., Laguna Hills, Calif. 92653-7504
 Filed Feb. 20, 1996, Ser. No. 603,059
 Int. Cl.⁶ A61B 17/32

U.S. Cl. 606—169

16 Claims

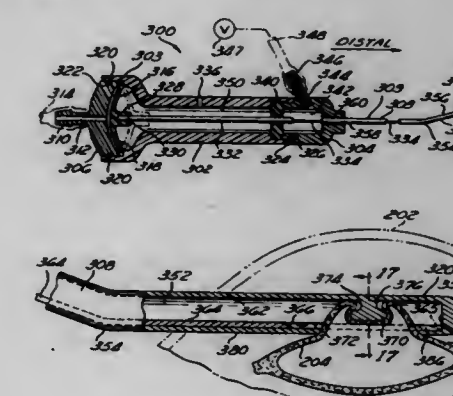


1. An ultrasonic blade, comprising: a blade which has a proximal end, a distal end and a pair of steps located between said proximal and distal ends, said blade having a hook at said distal end and a tip the extends toward said proximal end, said blade having a uniform width from said proximal end to said distal end, and said hook having a diameter that is no greater than said blade width.

5,669,923
ANTERIOR CAPSULOTOMY DEVICE AND PROCEDURE
 Mark G. Gordon, 615 Orchid, Corona Del Mar, Calif. 92625
 Filed Jan. 24, 1996, Ser. No. 593,532
 Int. Cl.⁶ A61B 17/32

U.S. Cl. 606—170

23 Claims



1. A device for performing an anterior capsulotomy procedure, said device comprising:
- a) a body;
 - b) an elongate tubular member extending from said body and having proximal and distal ends, said tubular member comprising a wall and also having a lumen formed generally therethrough, an opening being formed in the wall proximate the distal end, the distal end of said tubular member being closed;

- c) a cutter movably disposed within the lumen of said tubular member, said cutter having a blade formed thereon;
- d) a vacuum port in fluid communication with the lumen of said tubular member;
- e) an actuator for effecting movement of said cutter so as to move the blade across the opening formed in the wall of said tubular member;
- f) a form disposed within said tubular member proximate said opening about which a portion of an anterior capsule folds so as to increase the size of the opening cut in the anterior capsule by said cutter; and
- g) wherein the tubular member, the opening formed therein, and the form are configured to draw in and cut a sufficient portion of an anterior capsule to perform an anterior capsulotomy.

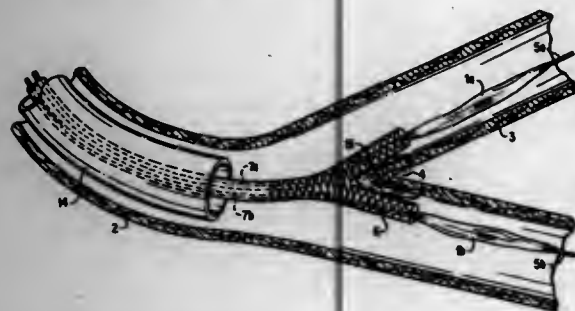
5,669,924

Y-SHUTTLE STENT ASSEMBLY FOR BIFURCATING VESSELS AND METHOD OF USING THE SAME
Alexander Shakhovich, 1349 Lexington Ave., New York, N.Y. 10128

Filed Oct. 26, 1995, Ser. No. 548,459
Int. Cl.⁶ A61F 2/06

U.S. Cl. 606—108

4 Claims



1. A stent delivery system comprising:
 - (a) a shuttle for delivering one or more stents in a bifurcating vessel in a patient in need of such treatment comprising a tubular catheter having, at or near its distal end, a Y-shaped deployment segment having an expandable portion;
 - (b) a stent mounted on the expandable portion of the Y-shaped deployment segment of the shuttle; and
 - (c) two balloon catheters, each having a shaft and each comprising a balloon at its distal end;
 wherein the Y-shaped deployment segment of the shuttle may be passed over the shafts of the balloon catheters and its expandable portion may be expanded by inflation of the balloons to deliver the stent in a desired location in a bifurcating vessel in the patient.

5,669,925

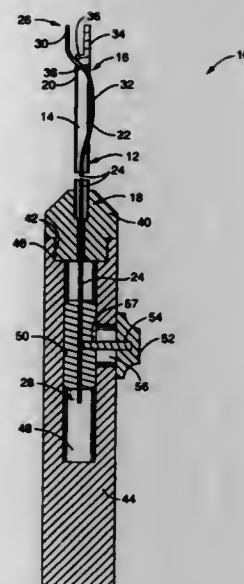
SOFT TISSUE GRAFT INTRODUCER
Michael R. Saunders, 9728 Snowberry Way, Orangevale, Calif. 95662

Filed Feb. 6, 1996, Ser. No. 597,176
Int. Cl.⁶ A61F 11/00

U.S. Cl. 606—108

16 Claims

1. A soft tissue graft introducer, comprising:
 - (a) a tubular sheath having proximal and distal ends;
 - (b) a guide wire having proximal and distal ends, said guide wire slidably disposed in said sheath;
 - (c) said guide wire including a retractable tip at said distal end of said guide wire, said retractable tip of said guide wire extending through a first opening in said sheath positioned adjacent said distal end of said sheath;
 - (d) said guide wire including a transverse bend adjacent said distal end of said guide wire, said transverse bend of said guide wire extending through a second opening in said sheath



- positioned adjacent said distal end of said sheath, said second opening positioned longitudinally between said first opening and said proximal end of said sheath;
- (e) said sheath having a fixed tip at said distal end of said sheath; and
 - (f) guide means positioned adjacent said fixed tip for guiding said retractable tip laterally relative to said fixed tip upon extension or retraction of said guide wire, said guide means positioned between said first and second openings in said sheath.

5,669,926

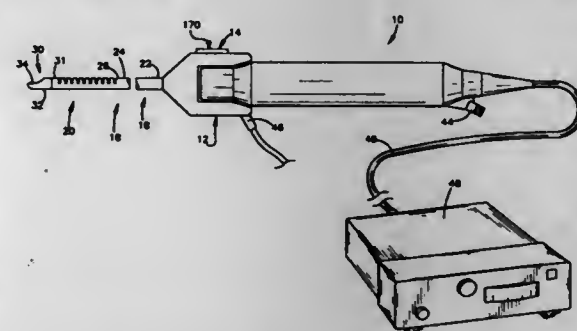
SURGICAL INSTRUMENT

Gilbert M. Aust, Huntsville, and Timothy E. Taylor, Orr, both of Ala., assignors to Aust & Taylor Medical Corporation, Huntsville, Ala.

Continuation-in-part of Ser. No. 8,670, Jan. 25, 1993, Pat. No. 5,540,706. This application Jul. 26, 1996, Ser. No. 686,571
Int. Cl.⁶ A61B 17/32

U.S. Cl. 606—170

17 Claims



1. A surgical instrument comprising:
 - a manually engageable handle;
 - a first stem section having a longitudinal axis and extending from said handle;
 - a cutting tool including a rotatable shaver;
 - a second stem section connected between said first stem section and said cutting tool, said second stem section having at least a portion which is bendable;
 - a rotatable drive shaft connected with said shaver and extending axially through said first stem section and said second stem section, said drive shaft having a flexible portion disposed in said bendable portion of said second stem section;

- a passage extending axially through said drive shaft for conducting tissue from a location adjacent to said cutting tool through said second stem section toward said handle; and
- a mechanism connected to said bendable portion of said second stem section for bending said bendable portion to change the orientation of said cutting tool relative to said axis and to said first stem section from a first orientation to a second orientation;
- said bendable portion of said second stem section comprising means for enabling bending movement of said bendable portion by said mechanism to locate said cutting tool at the same angle relative to said longitudinal axis of said first stem section at more than one location along the length of said bendable portion.

5,669,927

INSTRUMENT FOR MORCELLATING

Manfred Boebel, Oetisheim, and Hossein Messroghli, Groß-Gerau, both of Germany, assignors to Richard Wolf GmbH, Knittlingen, Germany

Filed Oct. 24, 1995, Ser. No. 547,642

Claims priority, application Germany, Nov. 10, 1994, 44 40 035.7

Int. Cl.⁶ A61B 17/14; 17/32; 17/28

U.S. Cl. 606—180

13 Claims



1. An instrument for morcellating, in particular for endosurgical operation, comprising a cutting tube (3) having a distal end formed as a cutter (11) which can be rotated and axially moved from said tube's proximal end, a gripping instrument (1) arranged inside the tube (3), said gripping instrument comprising a distal gripper (5) and a proximal handle (4) connected by a hollow shank (9), characterized in that there is a protective sheath (2) arranged between the gripping instrument (1) and the cutting tube (3), wherein the protective sheath is a separate piece from the gripping instrument, and the gripping instrument is insertable through and removable from the protective sheath.

5,669,928

Patent Not Issued For This Number

5,669,929

INTEGRAL EAR PIERCING SYSTEM

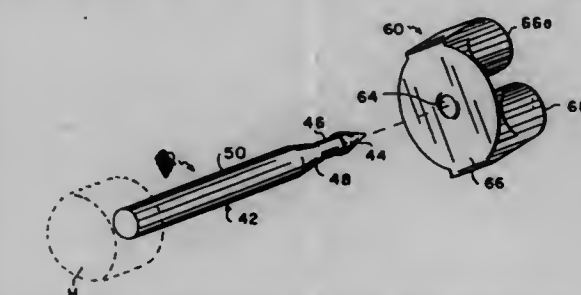
Vladimir Reil, 32450 Nautilus Dr., Rancho Palos Verdes, Calif. 90274

Filed Jan. 21, 1996, Ser. No. 667,671

Int. Cl.⁶ A61B 17/34

U.S. Cl. 606—188

26 Claims



1. An integral ear piercing system for easily piercing ears in a sterile manner, comprising:

- a pierced earring stud, said earring stud having a head coupled to a post, said post comprising a sloping stop for engaging a flange surrounding an aperture in a pierced earring clutch, said sloping stop sloping at an angle sufficiently gradual to avoid trapping and/or pinching flesh between said post and said clutch flange when said post pierces flesh to form a temporary wound that upon healing allows attachment of said earring stud;
- a disposable and sterilizable blister pak holding said earring stud in a sterile environment until said earring stud is ready for use, said blister pak including a base for holding said earring stud and a sealed case sealingly surrounding said base and preserving said sterile environment about said earring stud until ready for use, said base having a notch and said case having a flexible dimple engaging said notch so that when said case is opened, said base is removably retained by said dimple to preserve sterility and prevent accidental contamination of said earring stud, said dimple retaining said base until said base is intentionally removed from said case;
- a stud gun for piercing a body part with said earring stud, said stud gun having outer and inner jaws movable together and apart with respect to each other to snugly engage and hold still a body part for piercing with said earring stud, one of said jaws including a spring, said spring configured to resiliently engage said body part to provide better engagement by said outer and inner jaws of said body part when said outer and inner jaws move towards each other to snugly engage and hold still said body part; wherein in use,
- said outer and inner jaws of said stud gun being cleaned, said blister pak opened and said base removed from said case to expose said sterile earring stud, said stud gun engaging said earring stud in a sterile manner for piercing said body part, said body part made sterile before piercing; whereby
- said body part may be pierced in a sterile manner by said stud gun to reduce or preclude chances of deleterious results, while said sloping stop prevents tissue trapping and/or pinching between said post and said clutch flange.

5,669,930

STENT FOR INTRACORPOREAL RETENTION

Akira Igarashi, Yokohama, Japan, assignor to Fuji Systems Corporation, Tokyo, Japan

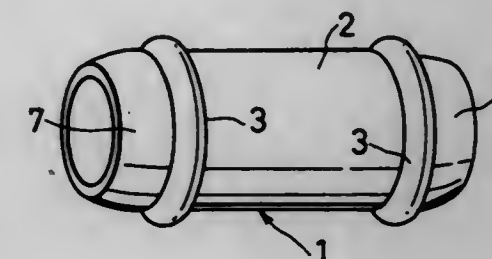
Filed Nov. 20, 1995, Ser. No. 560,673

Claims priority, application Japan, Dec. 8, 1994, 6-304591

Int. Cl.⁶ A61M 29/00

U.S. Cl. 606—191

9 Claims



1. A stent for intracorporeal retention inside a bore of an internal organ to prevent the occlusion thereof, said stent comprising a hollow, elongated cylindrical body having internal and external surfaces and open edge portions provided at opposing ends thereof, the hollow, elongated cylindrical body being made of a silicone rubber, the internal surface of said hollow, elongated cylindrical body having a member selected from the group consisting of a silicone resin coating provided thereon, a fluorine-based resin tube adhered thereto, a layer of polyparaxylene, and a layer of poly-monochloro-para-xylylene, deposited thereon and the external surface of said hollow, elongated cylindrical body having either polyparaxylene, or poly-monochloro-para-xylylene deposited

thereon or portions of said external surface adjacent said edge portions gradually rounded and tapered toward said edge portions and softer than other portions of said external surface.

5,669,931

LIQUID COILS WITH SECONDARY SHAPE

David Kupiec, Cupertino; Cong Thach, Fremont; John E. Ortiz, East Palo Alto, and Nell J. Sheehan, Palo Alto, all of Calif., assignors to Target Therapeutics, Inc., Fremont, Calif. Continuation-in-part of Ser. No. 413,970, Mar. 30, 1995. This application Apr. 2, 1996, Ser. No. 624,669

Int. Cl.⁶ A61B 17/12

U.S. Cl. 606—191

36 Claims



1. An occlusive implant comprising an elongated member having a proximal portion and a distal portion, said proximal portion having a flexibility of at least a 20° deflection from horizontal under its own weight when a 1 cm section of said proximal portion having an unrestrained free end is horizontally supported and said deflection is measured at said free end, at least a portion of said distal portion having a first configuration when restrained in a first state within a catheter and a second different configuration when in an unrestrained second state, said proximal portion therefore, capable of maintaining the first configuration both when restrained and when unrestrained, said distal portion second configuration having a flow resistance substantially greater than that of said first configuration proximal portion.

5,669,932

MEANS FOR ACCURATELY POSITIONING AN EXPANDABLE STENT

Robert E. Fischell, Dayton, Md., and Michael E. Kopp, Burlingame, Calif., assignors to IsoStent, Inc., Belmont, Calif. Filed May 29, 1996, Ser. No. 654,990

Int. Cl.⁶ A61M 29/00

U.S. Cl. 606—198

6 Claims



1. A stent delivery catheter having a distal portion and having an inflatable balloon located at the distal portion of the stent delivery catheter, the stent delivery catheter also having an expandable stent releasably attached to the inflatable balloon, the stent delivery catheter also having a proximal radiopaque marker band and a distal radiopaque marker band each fixedly attached to the distal portion of the stent delivery catheter, the longitudinal length between the proximal marker band and the distal marker band being essentially the same length as the length of the stent after the inflatable balloon is inflated to its nominal diameter.

5,669,933

REMOVABLE EMBOLUS BLOOD CLOT FILTER

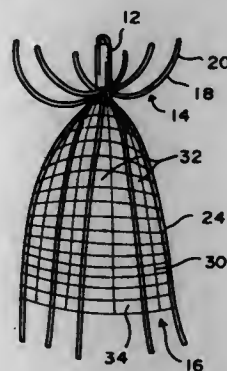
Morris Simon, Boston; Stephen J. Kleshinski, Scituate, and Thomas F. Kinst, Chelsea, all of Mass., assignors to Nitinol Medical Technologies, Inc., Boston, Mass.

Filed Jul. 17, 1996, Ser. No. 682,192

Int. Cl.⁶ A61M 29/00

U.S. Cl. 600—200

20 Claims



1. A blood clot filter having a central longitudinal axis and comprising a plurality of spaced, elongate arms having first and second ends, said first ends of said elongate arms being connected together at said central longitudinal axis, said elongate arms curving outwardly from said central longitudinal axis in a first direction and reversing direction to a second opposite direction to space said second ends of said elongate arms outwardly around said central longitudinal axis, and

a plurality of spaced elongate legs having first and second ends, said first ends of said elongate legs being connected together at said central longitudinal axis, said elongate legs angling outwardly away from said central longitudinal axis in said first direction.

5,669,934

METHODS FOR JOINING TISSUE BY APPLYING RADIOFREQUENCY ENERGY TO PERFORMED COLLAGEN FILMS AND SHEETS

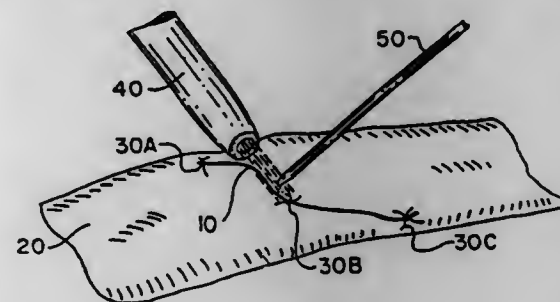
Philip N. Sawyer, Brooklyn, N.Y., assignor to Fusion Medical Technologies, Inc., Mountain View, Calif.

Continuation of Ser. No. 370,552, Jan. 9, 1995, abandoned, which is a continuation of Ser. No. 7,691, Jan. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 832,171, Feb. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 654,860, Feb. 13, 1991, Pat. No. 5,156,613. This application Jun. 5, 1995, Ser. No. 461,228

Int. Cl.⁶ A61H 5/06

U.S. Cl. 606—213

5 Claims



1. A method of joining or restructuring tissue, said method consisting essentially of: providing a preformed film or sheet of a solid filler material which fuses to tissue upon the application of energy, wherein the film or sheet comprises collagen, gelatin, or a mixture thereof;

placing the preformed film or sheet of filler material over the tissue to be joined or restructured; and applying radiofrequency energy at between about 20 and 120 watts to the filler material and the tissue after said filler material has been placed over the tissue for about 1–60 seconds, so that about 20–1800 joules are delivered to the filler material and tissue.

5,669,935

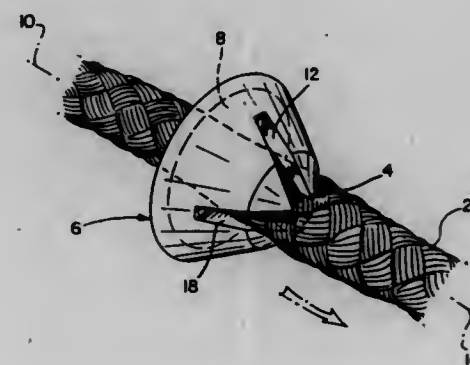
ONE-WAY SUTURE RETAINING DEVICE FOR BRAIDED SUTURES

Daniel C. Rosenman, San Mateo, Calif., and Donald G. Hill, Hopatcong, N.J., assignors to Ethicon, Inc., Somerville, N.J. Filed Jul. 28, 1995, Ser. No. 508,600

Int. Cl.⁶ A61B 17/04

U.S. Cl. 606—232

5 Claims



1. A sterile one piece, one-way adjustable suture retaining device suitable for use in arthroscopic surgery to secure a braided suture comprising a frustum having an end and a base wherein a passage extends from the end to the base the end has a plurality of slits extending from the end towards the base defining at least two flexible fingers that are configured to engage the braided suture when the braided suture is advanced from the end toward the base.

5,669,936

ENDOVASCULAR GRAFTING SYSTEM AND METHOD FOR USE THEREWITH

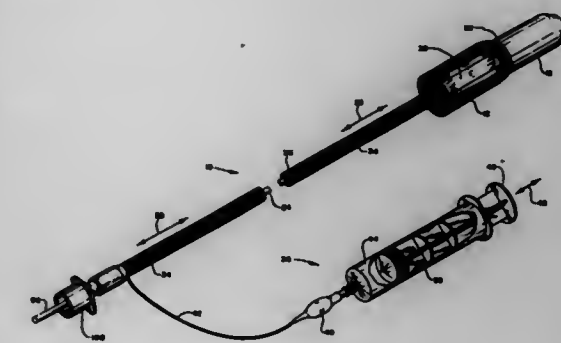
Harrison M. Lazarus, Salt Lake City, Utah, assignor to Endovascular Technologies, Inc., Menlo Park, Calif.

Continuation of Ser. No. 103,442, Aug. 6, 1993, abandoned, which is a continuation of Ser. No. 553,530, Jul. 13, 1990, Pat. No. 5,275,622, which is a continuation-in-part of Ser. No. 166,093, Mar. 9, 1988, Pat. No. 5,104,399, which is a continuation-in-part of Ser. No. 940,907, Dec. 10, 1986, Pat. No. 4,787,899, which is a continuation of Ser. No. 559,935, Dec. 9, 1993, abandoned. This application Feb. 27, 1995, Ser. No. 395,157

Int. Cl.⁶ A61F 2/06; A61M 29/00

U.S. Cl. 623—1

24 Claims



1. An endovascular grafting system for intraluminal emplacement of a prosthesis in a corporeal lumen, comprising: a prosthesis configured to repair the corporeal lumen; and a catheter having an inflatable portion, said catheter being operatively associated with said prosthesis for intraluminally deploying said prosthesis within the corporeal lumen, said inflatable portion configured to engage said prosthesis to implant said prosthesis within the corporeal lumen so that said prosthesis repairs the corporeal lumen.

CHEMICAL

5,669,937

METHOD TO REMOVE IODINE STAIN

Daniel T. McBride, Chesnee, and John D. Bruhnke, Spartanburg, both of S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Mar. 7, 1996, Ser. No. 612,161

Int. Cl.⁶ D06L 1/00; 1/12

U.S. Cl. 8—137

14 Claims

1. A method of treating a substrate to decolorize an iodine stain, comprising the steps of staining a substrate with iodine, and applying a carboxyalkene to the substrate either before or after said staining so as to decolorize the iodine stain, the carboxyalkene having a site of unsaturation at the 4, 5-, 5, 6- or 6, 7-position relative to the carboxy group.

5,669,938

EMULSION DIESEL FUEL COMPOSITION WITH REDUCED EMISSIONS

Scott Daniel Schwab, Richmond, Va., assignor to Ethyl Corporation, Va.

Filed Dec. 21, 1995, Ser. No. 576,323

Int. Cl.⁶ C10L 1/22

U.S. Cl. 44—301

20 Claims

1. A fuel composition which consists of (i) a water-in-oil emulsion comprising a major proportion of a hydrocarbonaceous middle distillate fuel and about 1 to about 40 volume percent water, (ii) a CO emission, and particulate matter emission reducing amount of at least one fuel-soluble organic nitrate ignition improver, and optionally containing (iii) at least one component selected from the group consisting of di-hydrocarbyl peroxides, surfactants, dispersants, organic peroxy esters, corrosion inhibitors, antioxidants, anti-rust agents, detergents, lubricity agents, demulsifiers, dyes, inert diluents, and a cyclopentadienyl manganese tricarbonyl compound.

5,669,939

POLYALKYLPHENOXYAMINOALKANES AND FUEL COMPOSITIONS CONTAINING THE SAME

Richard E. Cherpeck, Cotati, Calif., assignor to Chevron Chemical Company, San Ramon, Calif.

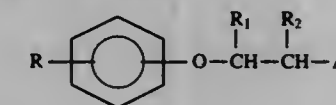
Filed May 14, 1996, Ser. No. 645,992

Int. Cl.⁶ C10L 1/22; C07C 217/64

U.S. Cl. 44—425

63 Claims

1. A compound of the formula:



or a fuel-soluble salt thereof, wherein R is a polyalkyl group having an average molecular weight in the range of about 600 to 5,000;

R₁ and R₂ are independently hydrogen or lower alkyl having 1 to 6 carbon atoms; and

A is amino, N-alkyl amino having about 1 to about 20 carbon atoms in the alkyl group, N,N-dialkyl amino having about 1 to about 20 carbon atoms in each alkyl group, or a polyamine moiety having about 2 to about 12 amine nitrogen atoms and about 2 to about 40 carbon atoms.

5,669,940

ABRASIVE ARTICLE

Roy Stubbs, Nuneaton, England, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 9, 1995, Ser. No. 512,799

Int. Cl.⁶ B24D 3/02; 3/20

U.S. Cl. 51—295

43 Claims

1. An abrasive article comprising a substrate having a first major surface and an adhesive layer having abrasive particles embedded

therein coated on said first major surface of said substrate, the adhesive layer comprising a hot melt adhesive comprising a polymer cross-linked via hydrolyzed or condensed silyl groups.

5,669,941

COATED ABRASIVE ARTICLE

Larry L. Peterson, Hudson, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 5, 1996, Ser. No. 582,325

Int. Cl.⁶ B24D 3/34

U.S. Cl. 51—295

26 Claims

1. A coated abrasive article comprising:
(a) a reinforced thermoplastic backing having a front and a back surface, wherein said backing comprises:
(i) a tough, heat resistant, thermoplastic binder material; and
(ii) a fibrous reinforcing material distributed throughout said tough, heat resistant, thermoplastic binder material;
(b) a binder adhesive; and
(c) rare earth oxide-modified alpha alumina-based abrasive grain bonded to said front surface of said backing by said binder adhesive; wherein said rare earth oxide-modified alpha alumina-based abrasive grain comprise:
(i) about 70–99.9% by weight alumina based on the total weight of the abrasive grain, wherein at least about 35% by weight of said alumina is present as alpha alumina;
(ii) about 0.1–30% by weight rare earth oxide selected from the group consisting of praseodymium oxide, samarium oxide, ytterbium oxide, neodymium oxide, europium oxide, lanthanum oxide, gadolinium oxide, cerium oxide, dysprosium oxide, erbium oxide and mixtures of two or more thereof, based on the total weight of the abrasive grain;
wherein said coated abrasive article, when used to abrade 1018 mild steel using a hydraulic slide action test, exhibits a grinding performance at least about 20% greater than a coated abrasive article having an iron oxide-nucleated alpha alumina-based ceramic abrasive grain, said binder adhesive, and a vulcanized fiber backing.

5,669,942

ABRASIVE SANDING PASTE

David Keith McCullough, 908 Margaret Ave., Coeur d'Alene, Id. 83814

Filed Mar. 16, 1994, Ser. No. 213,545

Int. Cl.⁶ B24D 3/34

U.S. Cl. 51—307

16 Claims

1. A water based abrasive paste composition consisting essentially of:

- (a) from about 45% to about 65% by weight of a substantially water insoluble abrasive, and wherein said abrasive has an effective particle size in the range of less than approximately 90 microns, so as to provide a fine scratch size during use;
- (b) from about 3.0% to about 15% by weight of a synthetic or natural clay suspending and thickening agent;
- (c) from about 2.0% to about 20% by weight of a liquid detergent; and
- (d) from about 20% to about 50% by weight water.

5,669,943

CUTTING TOOLS HAVING TEXTURED CUTTING SURFACE

M. Duane Horton, Provo, Utah; Marcus R. Skeem, Northbridge, Mass., and Paul K. Huber, Salt Lake City, Utah, assignors to Norton Company, Worcester, Mass.

Continuation of Ser. No. 476,160, Jun. 7, 1995, abandoned.

This application Nov. 14, 1996, Ser. No. 749,045

Int. Cl.⁶ B24D 11/00

U.S. Cl. 51—307

15 Claims

1. An abrasive tool comprising:
a) a core having at least one cutting surface;



- b) superabrasive grain having at least one flat surface; and
c) a metal bond brazed to the cutting surface of the core and the superabrasive grain;
wherein the cutting surface of the core has indentations forming a texture, the indentations forming a texture being sized to contain a single layer of superabrasive grain oriented such that any flat surface of the superabrasive grain is inclined at an angle of at least 15° relative to the plane of the cutting surface.

5,669,944

METHOD FOR PRODUCING UNIFORMLY HIGH QUALITY ABRASIVE COMPACTS

David B. Cerutti, Worthington, and James A. Adkins, Columbus, both of Ohio, assignors to General Electric Company, Pittsfield, Mass.

Filed Nov. 13, 1995, Ser. No. 555,672

Int. Cl.⁶ B24D 3/00

U.S. Cl. 51—309

11 Claims

1. A method for producing an abrasive compact which comprises:

- (1) forming a substrate material comprising a carbide support material and a binder metal wherein said substrate material has a titanium content no greater than 100 ppm; and
- (2) subjecting a combination of said substrate material, a catalyst/solvent material and abrasive particles to high pressure, high temperature conditions effective to sweep said catalyst/solvent material through said abrasive particles to bond and sinter said abrasive particles.

5,669,945

ABRASIVE BLAST MEDIA CONTAINING CORROSION INHIBITOR

Benny S. Yam, Holmdel, N.J., assignor to Church & Dwight Co., Inc., Princeton, N.J.

Division of Ser. No. 426,581, Apr. 21, 1995, which is a continuation-in-part of Ser. No. 378,801, Jan. 10, 1995, Pat. No. 5,575,705, which is a continuation-in-part of Ser. No. 105,406, Aug. 12, 1993, Pat. No. 5,384,990. This application Sep. 30, 1996, Ser. No. 723,351

Int. Cl.⁶ C09C 1/68

U.S. Cl. 51—309

19 Claims

1. A blast media for cleaning a metal surface by wet blasting comprising particles of an abrasive and a water soluble corrosion inhibitor comprising an alkali metal phosphate.

5,669,946

AIR PARTICULATE FILTRATION DEVICE

Earl W. Blair, Jr., 430 Maple Crest St., Spartanburg, S.C. 29303

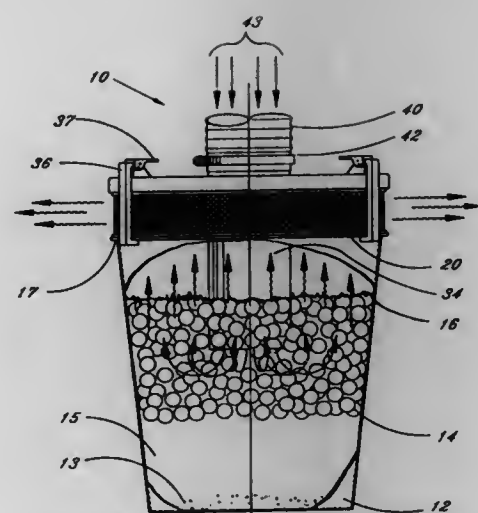
Filed Jan. 26, 1996, Ser. No. 592,688

Int. Cl.⁶ B01D 47/02

U.S. Cl. 55—234

14 Claims

1. An air scrubbing device for removing particulates, comprising, in combination:



- a. a receptacle having an open end for holding a quantity of liquid, said quantity of liquid having a liquid surface;
- b. a removable air filter secured to said receptacle above said liquid surface;
- c. a removable lid for covering said open end of said receptacle;
- d. a layer of unsupported, buoyant packing material comprising a plurality of mobile, unattached, individual bodies floating on top of said liquid surface inside said receptacle; and
- e. means for conveying a positive pressure air stream downward into said layer of buoyant packing material and through said air filter into the ambient air environment such that, in the process, said positive pressure air stream becomes thoroughly mixed with said quantity of liquid inside said receptacle causing said mobile, unattached, individual bodies to circulate from said liquid surface throughout said quantity of liquid whereby fine dust and particulates in said positive pressure air stream are captured by said quantity of liquid.

5,669,947

LATCH FOR MODULAR AIR HANDLING SYSTEM

Wolodymyr Diachuk, Golden Valley, Minn., assignor to Helical Dynamics, Inc., Golden Valley, Minn.

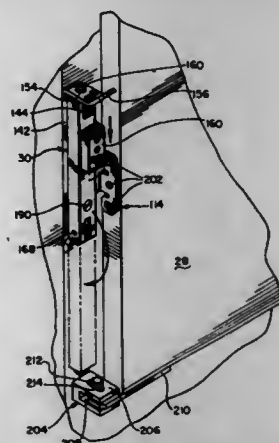
Division of Ser. No. 409,828, Mar. 23, 1995, Pat. No.

5,637,124. This application Dec. 21, 1995, Ser. No. 576,340

Int. Cl.⁶ B01D 50/00

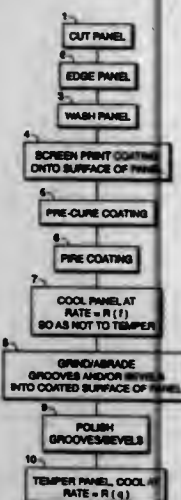
U.S. Cl. 55—342

9 Claims



in communication with said actuation means and sensing means in communication with said valve means.

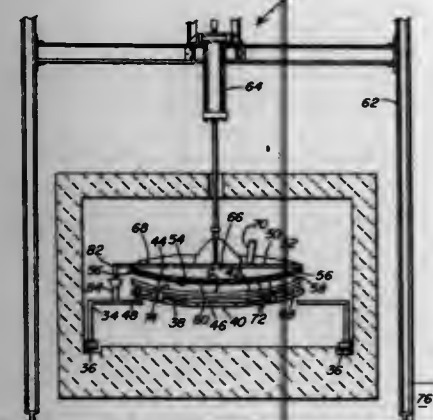
5,669,951
METHOD FOR FORMING A GROOVED, COATED DECORATIVE GLASS SHEET
 Keith L. Elchhorn, High Point, N.C., assignor to Glass Unlimited of High Point, Inc., High Point, N.C.
 Filed Sep. 29, 1995, Ser. No. 537,237
 Int. Cl.⁶ C03C 17/00; 25/02; 1/00; C03B 21/00
 U.S. Cl. 65—60.1 **25 Claims**



1. A method for forming a tempered, coated, grooved and/or beveled decorative glass sheet from an annealed glass panel, comprising the steps of:

- applying a coating to a surface of the glass panel;
- firing the coating so as to set the coating into the glass panel;
- after said step of firing, forming at least one of a groove and a bevel in the glass panel through the coating; and
- tempering the glass panel.

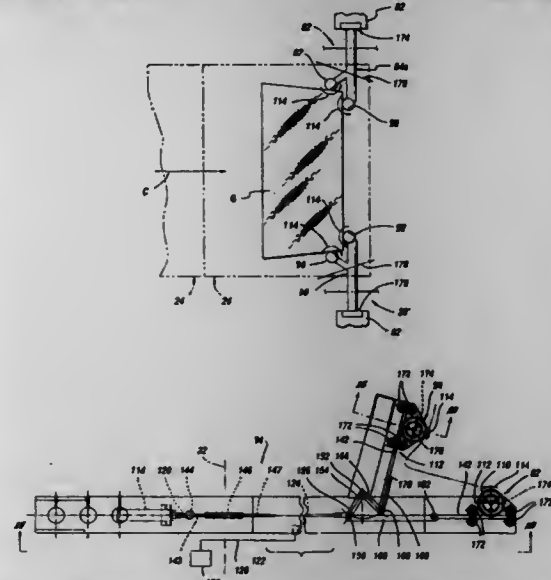
5,669,952
PRESSURE FORMING OF GLASS SHEETS
 George R. Claassen, New Kensington; Irvin A. Wilson, Apollo; David B. Rayburn, Vandergrift; John L. McLaughlin, Apollo; Rudolph A. Karlo, Creighton, and Jeffrey L. Marietti, Tarentum, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.
 Filed Oct. 14, 1994, Ser. No. 323,480
 Int. Cl.⁶ C03B 23/02
 U.S. Cl. 65—106 **49 Claims**



1. A method for shaping heat softenable sheet material, comprising:

supporting at least one sheet to be shaped on an outline mold having a sheet engaging surface generally corresponding to a desired curvature of peripheral portions of said sheet to be shaped, said sheet having an upper major surface and a lower major surface;
 heating said sheet to its heat softening temperature such that said peripheral portions of said sheet along said lower major surface of said sheet sag by gravity into contact with said outline mold and generally conform to said sheet engaging surface of said outline mold and unsupported central portions of said sheet within said outline mold sag by gravity to preliminarily shape said sheet;
 first moving said outline mold and an upper mold, having a sheet shaping surface which includes peripheral shaping portions that generally correspond to said desired curvature of said peripheral portion of said sheet and a central portion that has a predetermined curvature which is less than a desired curvature of said unsupported central portions of said sheet, relative to each other such that said peripheral shaping portions of said sheet shaping surface of said upper mold are spaced from but in close proximity to said peripheral portions of said sheet;
 directing pressurized gas from said upper mold toward said upper major surface of said sheet at least along said unsupported central portions of said sheet to urge said unsupported central portions away from said central portion of said sheet shaping surface of said upper mold and shape said unsupported central portions of sheet to said desired curvature of said unsupported central portions which is greater than said predetermined curvature of said central portion of said sheet shaping surface of said upper mold; and
 subsequently moving said outline mold and said upper mold relative to each other such that said peripheral shaping portions of said sheet shaping surface of said upper mold are removed from being in close proximity to said peripheral portions of said sheet, wherein said sheet is contacted only by said sheet engaging surface of said outline mold during said heating, first moving, directing and subsequent moving steps.

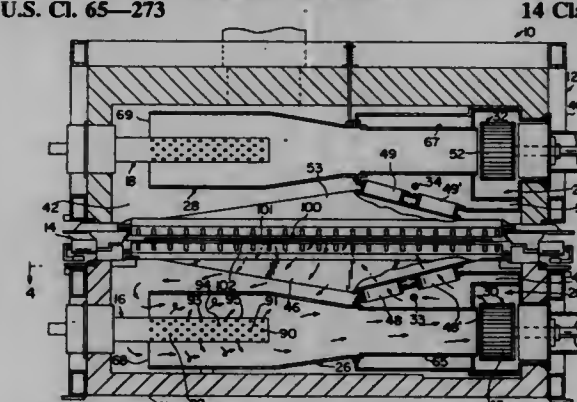
5,669,953
GLASS SHEET FORMING SYSTEM
 James P. Schnabel, Jr., Maumee; Paul D. Ducat, Perrysburg, and Robert L. Boyles, Jr., Toledo, all of Ohio, assignors to Glasstech, Inc., Perrysburg, Ohio
 Filed Mar. 7, 1995, Ser. No. 400,093
 Int. Cl.⁶ C03B 18/00
 U.S. Cl. 65—182.2 **22 Claims**



1. A glass sheet forming system for use in a factory having a factory ambient temperature, the glass sheet forming system comprising:
 a housing defining a heated chamber that is heated above the factory ambient temperature sufficiently to permit glass sheet forming;

a conveyor within the heated chamber for horizontally conveying a heated glass sheet to be formed along a direction of conveyance;
 a topside support device located within the heated chamber and having a downwardly facing surface that is inclined downwardly along the direction of conveyance and to which vacuum and pressurized air are supplied to provide upside down suspended floating of the heated glass sheet upon being received from the conveyor;
 a locating assembly including a support that is mounted outside of the housing and is at the factory ambient temperature, said locating assembly including a horizontal arm mounted by the support and extending through the housing into the heated chamber and having first and second locators for locating the suspended glass sheet below the topside support device in a thermally stable location, at least one of the first and second locators including a rotary locating member and a rotary drive for rotating the rotary locating member, and a third locator for cooperating with the first and second locators to locate the suspended glass sheet below the topside support device along and transverse with respect to the direction of conveyance; and
 a mold shuttle for supporting a mold below the located glass sheet suspended by the topside support device to receive the glass sheet therefrom for forming.

5,669,954
FORCED CONVECTION HEATING APPARATUS AND PROCESS FOR HEATING GLASS SHEETS THEREWITHIN
 Kenneth R. Kormanyos, Sylvania, Ohio, assignor to Gas Research Institute, Chicago, Ill.
 Filed Jun. 20, 1994, Ser. No. 263,612
 Int. Cl.⁶ C03B 29/08
 U.S. Cl. 65—273 **14 Claims**

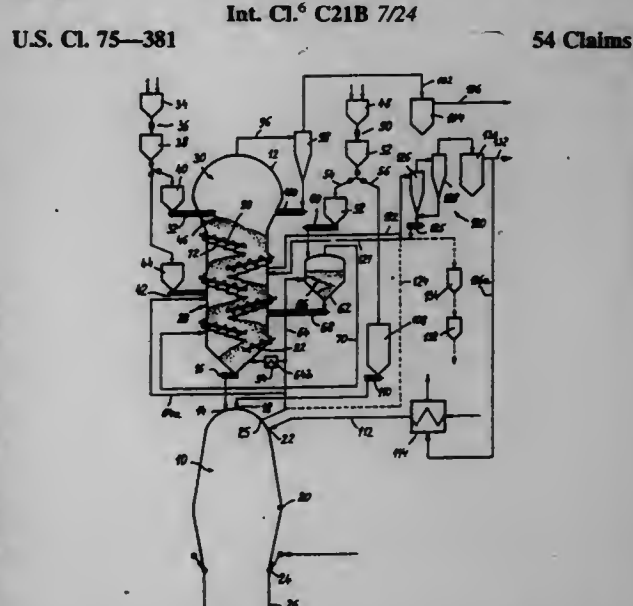


1. A forced convection heating apparatus for heating glass sheets, wherein the glass sheets each have a top surface and a bottom surface, the forced convection heating apparatus comprising:

- a housing having an interior region, having at least first and second portions;
- means for conveying a glass sheet through the interior region of the housing,
- including means for supporting the glass sheet in a substantially horizontal manner, including at least one solid support member for supporting the sheet in said substantially horizontal manner;
- first and second gas burner means operably associated with the first and second portions of the interior region of the housing, respectively, for producing hot fluid at a predetermined temperature;
- first means for distributing, and, in turn, impinging, at least a portion of the hot combustion fluid from the gas burner means to the bottom surface of a glass sheet within the interior region of the housing, operably associated with the first gas burner means and disposed within the first portion of the interior region;
- second means for distributing, and, in turn, impinging, at least a portion of the hot combustion fluid from the gas burner means to the top surface of the glass sheet within the interior region

of the housing, operably associated with the second gas burner means and disposed within the second portion of the interior region;
 the first and second means for distributing hot combustion fluid being operably configured for operation substantially completely independently of each other;
 first means for adjusting the temperature of the hot combustion fluid prior to impingement of same on the bottom surface of the glass sheet within the interior region of the housing operably disposed within the first portion of the interior region; and
 second means for adjusting the temperature of the mixed hot combustion fluid prior to impingement of same on the top surface of the glass sheet within the interior region of the housing operably disposed within the second portion of the interior region, the first and second temperature adjustment means being operable, and, in turn, adjustable, independent of each other; and
 means for facilitating the direction of a portion of the hot combustion fluid which after impingement against the glass sheet has become spent working fluid, back toward the gas burner means for mixing with the hot combustion fluid.

5,669,955
PROCESS FOR PRODUCING PIG IRON FROM IRON ORES, AND APPLICANCE FOR THE THERMAL AND/OR CHEMICAL TREATMENT OF A READILY DISINTEGRATING MATERIAL OR FOR PRODUCING PIG IRON BY MEANS OF SAID PROCESS
 Bogdan Vuletic, Bilker Strasse 19, 40213 Dusseldorf; Bojan Vuletic, Zweibruckenstrasse 8, Hans A4, D-80331 Munich, and Vladan Vuletic, Baaderstrasse 10b, D-80469 Munich, all of Germany
 PCT No. PCT/EP93/03340, § 371 Date Jul. 17, 1995, § 102(e) Date Jul. 17, 1995, PCT Pub. No. WO94/12672, PCT Pub. Date Jun. 9, 1994
 PCT Filed Nov. 29, 1993, Ser. No. 446,710
 Claims priority, application Germany, Nov. 30, 1992, 42 40 197.6
 Int. Cl.⁶ C21B 7/24 **54 Claims**



1. Process for producing pig iron from iron ores, in which the iron ores travel from the top downwards through a reduction unit through which a hot reduction gas containing carbon monoxide and hydrogen flows from the bottom of the reduction unit upwards via a succession of oblique trays which are staggered in a cascade-like manner, and the reduction product is drawn off at the bottom end of the reduction unit and is fed to a unit serving for further treatment thereof, and the reduction gas being generated in a gas generator by partial oxidation of carbon carriers or by cracking of natural gas or petroleum, characterized in that, the method of

processing iron ores having at least a high proportion of dust-like and/or fine-granular iron ores comprises sorting the iron ore into fractions according to grain size and introducing the iron ore into the reduction unit, in which the iron ore is passed downwards via a system of gas distributor trays, which is located in the reduction unit, in such a way that the coarse fraction of the iron ore is introduced into the top section of the system and the fine fraction of the iron ore is introduced into the middle zone or into the middle and bottom zone of the system.

5,669,956 **APPARATUS AND METHOD FOR MOLTEN METAL DEPTH DETECTION**

James A. Behring, and William Falk, both of Waukesha, Wis., assignors to Midwest Instrument Co., Inc., Hartland, Wis.
PCT No. PCT/US93/05658, § 371 Date May 22, 1996, § 102(e)
Date May 22, 1996, PCT Pub. No. WO94/29823, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 11, 1993, Ser. No. 381,968
Int. Cl.⁶ C21B 7/24

U.S. Cl. 75—386



1. A method of determining when the depth of metal poured into a vessel has reached a selected level comprising:
providing a gas flow conduit having an orifice at the distal end thereof, to restrict the flow of gas through said conduit, positioned so that the distal end of said conduit is at said selected level, said conduit being provided with means to measure and indicate the changes in pressure within said conduit,
pouring molten metal into said vessel until, upon reaching said selected level, a portion of said conduit is melted,
detecting a change in pressure within said conduit resulting from opening of the conduit to the atmosphere, and
discontinuing the pouring of molten metal into said vessel upon detection of such pressure change.

5,669,957 **DROSS COMPRESSION APPARATUS AND METHOD UTILIZING RIBS ON COLLECTOR AND HEAD**

David J. Roth, Downingtown, Pa., assignor to Altek International, Inc., Exton, Pa.

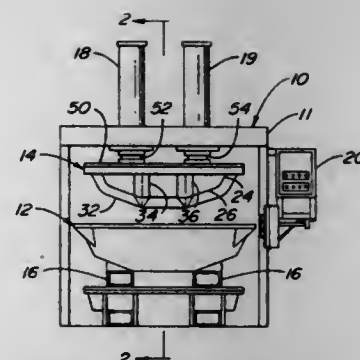
Filed Jun. 12, 1996, Ser. No. 662,176

Int. Cl.⁶ C22B 7/00; 21/00

U.S. Cl. 75—585

9 Claims

1. A dross compression apparatus, comprising:
a dross collector, said collector including a receptacle with at least one rib on an inner surface of said collector; and
a compression head adapted to cooperate with said receptacle of said dross collector, said head being of a shape substantially conforming to the shape of said dross collector and provided with at least one rib on an outer surface of said head with said rib being positioned to mate with said rib of said receptacle of



said dross collector such that mating grooves are formed in both sides of the material formed between said head and said receptacle.

5,669,958 **METHANE/NITROGEN SEPARATION PROCESS**

Richard W. Baker, Palo Alto; Kaeid A. Lokhandwala, Menlo Park; Ingo Pinnau, Palo Alto, and Scott Segelke, Mountain View, all of Calif., assignors to Membrane Technology and Research, Inc., Menlo Park, Calif.

Filed Feb. 29, 1996, Ser. No. 608,743

Int. Cl.⁶ B01D 53/22; 53/047

U.S. Cl. 95—50

41 Claims

1. A process for treating a gas stream comprising methane and nitrogen, said process comprising the following steps:
(a) providing a membrane having a feed side and a permeate side and being selective for methane over nitrogen;
(b) passing said gas stream across the feed side of said membrane at a temperature at which the membrane exhibits a selectivity for methane over nitrogen of at least about 5;
(c) withdrawing from said feed side a residue stream depleted in methane and enriched in nitrogen compared with said gas stream;
(d) withdrawing from said permeate side a permeate stream enriched in methane and depleted in nitrogen compared with said gas stream.

5,669,959 **PROCESS FOR SAFE MEMBRANE OPERATION**

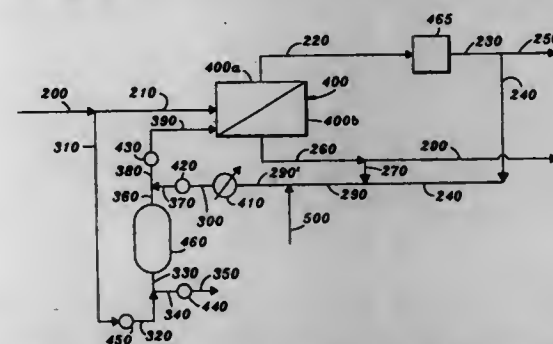
Kishore J. Doshi, Lake Zurich, and William B. Dolan, Mt. Prospect, both of Ill., assignors to UOP, Des Plaines, Ill.

Filed May 16, 1996, Ser. No. 648,785

Int. Cl.⁶ B01D 53/22; 53/04

U.S. Cl. 95—51

25 Claims



1. A process for the shut-down of a membrane separation zone for the removal of a readily permeable component from a feed gas mixture comprising said readily permeable component, a non-permeable component, and a less-readily permeable, condensable component, said process comprising:
a) passing said feed gas mixture at separation conditions to said membrane zone having a non-permeate side and a permeate

side to provide a non-permeate stream withdrawn from the non-permeate side and a permeate stream withdrawn from the permeate side at a permeate pressure;
b) intermittently passing a purge stream at a pressure greater than the permeate pressure reduced in said less-readily permeable, condensable component relative to said non-permeate side of said membrane separation zone when said feed gas mixture is not passed to the membrane separation zone to remove at least a portion of a residual gas remaining in the non-permeate side before said residual gas condenses in said membrane separation zone.

5,669,960 **HYDROGEN GENERATION PROCESS**

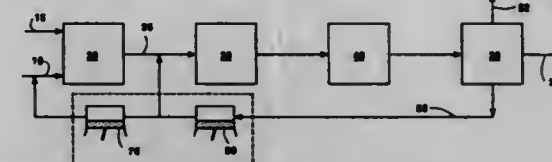
Michael Robert Couche, Williamsville, N.Y., assignor to Praxair Technology, Inc., Danbury, Conn.

Filed Nov. 2, 1995, Ser. No. 552,327

Int. Cl.⁶ B01D 53/047

U.S. Cl. 95—96

17 Claims



1. A process for the production of H₂ comprising:
(a) providing a synthesis gas stream, containing H₂, CO₂ and combustibles to a PSA unit;
(b) purifying the synthesis gas stream in the PSA unit to remove CO₂ and to produce at least three streams: (1) a H₂ product stream, (2) a combustible-rich first tail gas stream and (3) a combustible-lean second tail gas stream;
wherein no additional CO₂ removal step is required in the process for the production of the three streams of step (b) and wherein the combustible lean second tail gas contains at least 90 mole % CO₂.

5,669,961 **METHOD FOR THE PURIFICATION OF NOBLE GASES, NITROGEN AND HYDROGEN**

John D. Baker, Blackfoot; David H. Melkrantz, Idaho Falls, both of Id., and Dale G. Tuggle, Los Alamos, N. Mex., assignors to Lockheed Martin Idaho Technologies Company, Idaho Falls, Id.

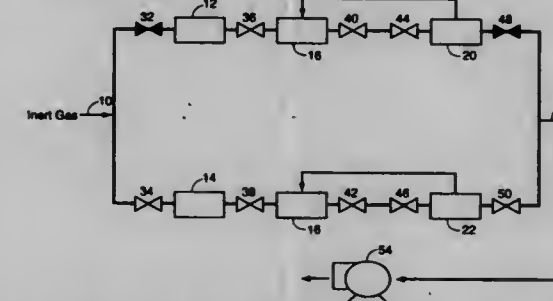
Continuation of Ser. No. 88,941, Jul. 12, 1993, abandoned.

This application Nov. 10, 1994, Ser. No. 337,574

Int. Cl.⁶ B01D 53/04

U.S. Cl. 95—115

35 Claims



1. A method for the purification of a gaseous mixture containing reactive impurities, comprising the steps of:
(a) providing a bulk purifying getter in a casing, said purifying getter being comprised of a zirconium-manganese-iron-aluminum alloy having the capability of sorbing non-hydrogen reactive impurities and the capability of not sorbing hydrogen isotopes;
(b) heating the bulk purifying getter;

(c) introducing the gaseous mixture into the purifying getter casing for a sufficient residence time and at an effective temperature to cause the cracking and sorption of the non-hydrogen reactive impurities from the gaseous mixture by the purifying getter; and
(d) removing the remaining non-sorbed gaseous mixture from the purifying getter casing.

5,669,962 **RAPID THERMAL SWING DRYER FOR COMPRESSED GASES**

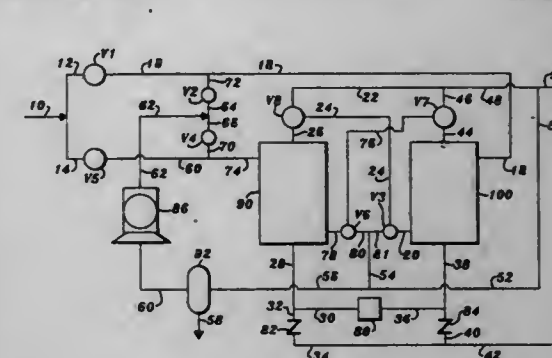
Stephen R. Dunne, Algonquin, Ill., assignor to UOP, Des Plaines, Ill.

Filed Mar. 15, 1996, Ser. No. 616,867

Int. Cl.⁶ B01D 53/04; 53/26

U.S. Cl. 95—115

13 Claims



1. A cyclic process for drying a compressed gas stream comprising:
a) passing a feed gas stream comprising moisture at ambient conditions to a shell side passage of a first adsorber heat exchanger of at least two adsorber heat exchangers each of said adsorber heat exchangers comprising a shell-side passage and a tube-side passage wherein the tube-side passage comprises at least one tube having an outside tube surface within the shell-side passage and a hollow interior surface and an adsorbent disposed on said hollow interior surface within the tube-side passage to provide a first exchanged stream comprising moisture;
b) passing said first exchanged stream to a compressor to raise the first exchanged stream to a delivery pressure and a delivery temperature and to provide a pressurized stream and passing the pressurized stream to the shell-side passage of another adsorber heat exchanger of the at least two adsorber heat exchangers to exchange heat with the tube-side passage, to deposit a portion of the moisture on the outside tube surface within the shell-side passage, and to provide a second exchanged stream;
c) passing said second exchanged stream to the tube-side passage of the first adsorber heat exchanger and therein contacting said second exchanged stream with the adsorbent to adsorb moisture from said second exchanged stream and to produce a dry compressed gas stream;
d) passing at least a portion of said dry compressed gas stream to the tube-side passage of the other adsorber heat exchanger to purge said adsorbent and produce a waste stream; and
e) periodically interchanging the first adsorber heat exchanger with the other adsorber heat exchanger and repeating steps (a) through (d) to provide said cyclic process.

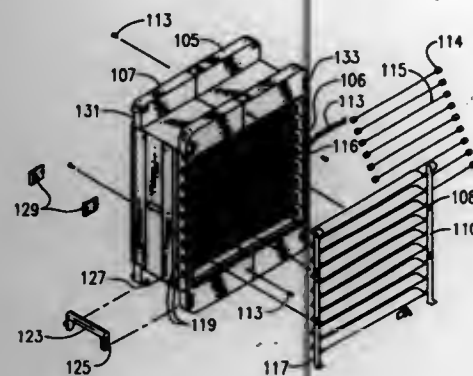
5,669,963

ELECTRONIC AIR CLEANER

Woodson Horton, Corryton; Mark D. Lane, Powell, both of Tenn.; Ronald R. Smith, and Timothy R. Mitchell, both of Indianapolis, Ind., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Dec. 26, 1995, Ser. No. 578,353
Int. Cl.⁶ B03C 1/12

U.S. Cl. 96—77



1. An improved electrostatic air cleaner cell having an ionizer section which includes a plurality of ionizer elements to be electrically charged for ionizing particles contained in the air flowing therethrough, and having axially spaced from the ionizer section, a collector section which includes a plurality of collector elements to be electrically charged for attracting or repelling the ionized particles, wherein the improvement comprises:

a pair of laterally spaced support elements having the ionizer and collector elements supportably interconnected therebetween, said support elements comprising a non-conductive material so as to electrically isolate the supported ionizer and collector elements from other structural elements of the cells; ionizer charging means for electronically interconnecting a portion of the ionizer elements to a source of high voltage electricity; and collector charging means for electrically interconnecting alternate collector elements to a source of high voltage electricity.

5,669,964

FLUORALKYLCARBOXYLIC ACID AND DERIVATIVE THEREOF

Yoshiaki Kai, Neyagawa, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Japan

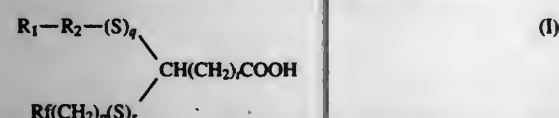
Filed Feb. 16, 1996, Ser. No. 601,360

Claims priority, application Japan, Feb. 16, 1995, 7-028486; Jul. 24, 1995, 7-186798

Int. Cl.⁶ C07C 53/21; 57/52; 323/52; 323/54

U.S. Cl. 106—2

1. A fluoroalkylcarboxylic acid of the general formula:



wherein R_1 is a fluoroalkyl, fluoroalkenyl or aliphatic hydrocarbon group having 1 to 20 carbon atoms; R_2 is an alkylene or alkenylene group having 1 to 11 carbon atoms; R is a fluoroalkyl or fluoroalkenyl group having 1 to 20 carbon atoms; p is an integer of 1 to 11; $q+r$ is 0 or 1; and t is 0 or an integer of 1 to 8; provided that p is an integer of 3 to 11 when R_1 is an aliphatic hydrocarbon group, R_2 is an alkylene group, $q+r$ is 0 and t is 0.

5,669,965

HOT MELT INK

Hidemasa Sawada, Gifu, and Jun Sakai, Nagoya, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Apr. 9, 1996, Ser. No. 630,090

Claims priority, application Japan, Apr. 12, 1995, 7-086773

Int. Cl.⁶ C09D 11/12

11 Claims

U.S. Cl. 106—31 R

1. A hot melt ink, comprising:

at least one wax substance having a melting point at a temperature ranging from 50° C. to 150° C.; and a coloring material substantially free of insoluble ingredients not soluble in the at least one wax substance, wherein the insoluble ingredients are inorganic salts, analogous compounds having a number average molecular weight greater than that of the coloring material main body, analogous compounds having terminal groups different from those of the coloring material main body, or composite materials thereof.

20 Claims

5,669,966

FILLER FOR A BITUMINOUS MIXTURE

Erhard Goldbach, Herne, Germany, assignor to ReDeLa Herstellung und Vertrieb von Baustoffen GmbH, Blankenhain-Grosspöhlingsdorf, Germany

Continuation-in-part of Ser. No. 108,819, Aug. 17, 1993, abandoned. This application Dec. 7, 1995, Ser. No. 568,791

Claims priority, application Germany, Aug. 17, 1992, 42 27 153.3

Int. Cl.⁶ C08L 93/00; 1/00

U.S. Cl. 106—242

1 Claim

1. A filler for a bituminous mixture, the filler comprising a mixture of stone dust and a pulverized industrial by-product, wherein a ratio of stone dust to industrial by-product is 2:1, wherein the industrial by-product comprises 5% to 20% by weight pulverized phenol/cresol resin and 2% to 20% by weight elastic, hook-shaped fiber materials of cellulose or aramid, and a material obtained from grinding or cutting hardened clutch linings and/or brake linings comprising mineral wool, rubber, brass/copper, talcum, graphite, soot, magnesium oxide, vulcanizing agents, sulphur, zinc oxide and barium sulphate, and wherein approximately 80% of the filler has a grain size of less than 0.09 mm.

5,669,967

PIGMENT COMPOSITIONS

Byron G. Hays, Chagrin Falls, Ohio, assignor to Engelhard Corporation, Iselin, N.J.

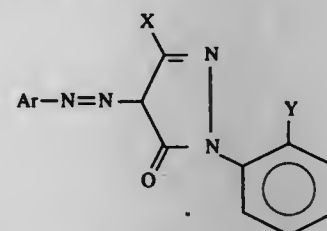
Filed May 30, 1996, Ser. No. 672,386

Int. Cl.⁶ C09B 29/36; 29/03

U.S. Cl. 106—496

26 Claims

10. An azo pigment composition comprising one or more compounds of the formula:



wherein X is a hydrocarbyl, carboxylic acid ester, sulfonic acid ester, carboxylic acid amide or sulfonic acid amide group; Y is a hydrocarbyl, halogen or hydrocarbyloxy group; and Ar is an aromatic moiety characterized by the formula:

5,669,970

STENCIL APPARATUS FOR APPLYING SOLDER PASTE

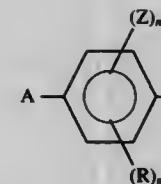
Robert J. Balog, North Attleboro, Mass., and David P. Prince, Wakefield, R.I., assignors to MPM Corporation, Franklin, Mass.

Filed Jun. 2, 1995, Ser. No. 458,710

Int. Cl.⁶ B05C 1/00

U.S. Cl. 118—213

25 Claims



wherein A is a halogen group; each Z is independently a salt of a $-COOH$ or $-SO_3H$ group; m is 1 or 2; each R is independently a halogen, hydrocarbyl, hydrocarbyloxy, carboxylic acid ester, sulfonic acid ester, carboxylic acid amide, imidazolone, sulfonic acid amide or nitro group; and n is 0, 1 or 2.

5,669,968

INORGANIC HARDENING COMPOSITION

Shigeji Kobori, Saito; Jotaro Morimoto, Kokubunji, and Yuji Hatakeyama, Isehara, all of Japan, assignors to Toyo Chemical Co., Ltd., Kanagawa-ken, Japan

Continuation of Ser. No. 322,685, Oct. 13, 1994, abandoned.

This application Oct. 17, 1995, Ser. No. 544,315

Claims priority, application Japan, Oct. 29, 1993, 5-272511

Int. Cl.⁶ C04B 7/34; 9/00

U.S. Cl. 106—696

8 Claims

1. An inorganic hardening composition consisting essentially of 100 parts by weight of MgO , and 5 to 80 parts by weight of ethylene carbonate.

5,669,969

PROCESS FOR FORMING AGGREGATE; AND PRODUCT

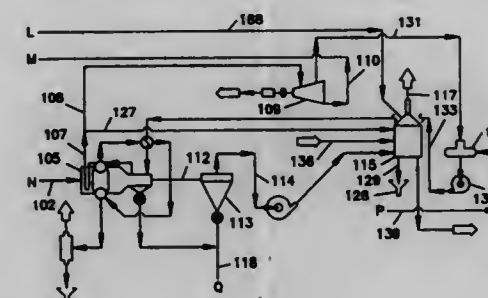
William Delbert Meade, Brooklyn Park, Minn., and John William Pearson, Appleton, Wis., assignors to Greengrove Corporation, Brooklyn Park, Minn.

Continuation of Ser. No. 138,247, Oct. 15, 1993, Pat. No. 5,500,044. This application Oct. 30, 1995, Ser. No. 550,065

Int. Cl.⁶ C04B 7/12

U.S. Cl. 106—697

19 Claims



1. A process for preparing a hardened aggregate; said process comprising the steps of:

- mixing a raw material mixture including a paper/pulp mill sludge component and an ash component;
- said raw material mixture comprising at least 66% by weight, based on dry weight, paper/pulp mill sludge component; and at least 20%, by weight, based on dry weight, ash component; a ratio of dry weight sludge to ash component being within a range of 2/1 to 4/1; said sludge component being selected from the group consisting essentially of pulp mill sludge, paper mill sludge and mixtures thereof;
- said ash component comprising at least 82%, by weight, fly ash; and
- indurating said raw material mixture.

5,669,971

SELECTIVE COATING APPARATUS

Hendrick F. Bok, Fairhaven, Mass.; William Richard Johnson; Joseph Patrick O'Connor, both of Carmel, Ind.; Matthew Martin Shade, and Lamar Duane Young, both of Indianapolis, Ind., assignors to Specialty Coating Systems, Inc., Indianapolis, Ind.

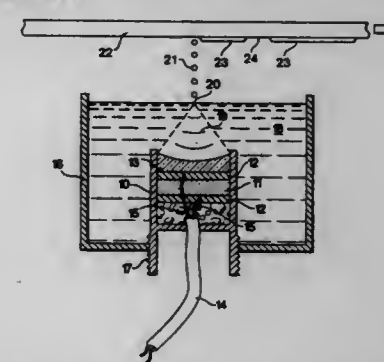
Continuation of Ser. No. 223,646, Apr. 6, 1994, abandoned.

This application Nov. 13, 1995, Ser. No. 557,381

Int. Cl.⁶ B05C 5/00

U.S. Cl. 118—300

8 Claims



1. Apparatus for selectively coating a surface of an object with a coating material comprising:

- a plurality of individual transducers disposed in a row in a generally horizontal plane, each transducer being capable of generating acoustical pressure waves in a generally upward direction;
- an elongate reservoir for receiving a liquid coating material, said liquid coating material having an upper surface;
- means for mounting each of said transducers in said reservoir such that said transducers are submerged beneath the surface of said liquid coating material, each of said transducers comprising a housing have an open top, a crystal element mounted in said housing for generating acoustical pressure waves upwardly, and a lens element mounted in said housing above said crystal element for focusing said acoustical pressure waves at a focal point in the vicinity of the upper surface of the liquid coating material, each of said mounting means being operative for permitting adjustment of a vertical eleva-

tion of said transducer, and adjustment of a rotational alignment of said transducer;
 means for maintaining a constant liquid level of said liquid coating material in said reservoir;
 means for selectively supplying electrical energy to each of said transducers, said energy being sufficient to cause said transducers to generate acoustical pressure waves and cause droplets of said coating material to be expelled from the surface of said coating material; and
 means for advancing an object in a generally horizontal direction above said reservoir.

5,669,972

FLEX TAB THICK FILM METAL MASK

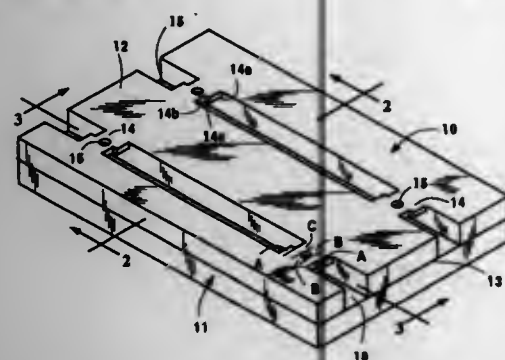
Harry David Cox, Rifton; Connie Fassett Littell, Poughkeepsie; Richard Michael Shroedl, Staatsburg; John Amodio Trumpetto, Hopewell Junction, and Michael Stephen Vanca, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 27, 1995, Ser. No. 430,042

Int. Cl.⁶ B05C 1/11

U.S. Cl. 118—504

10 Claims



1. A mask for printing a pattern of a deposition material on a printing substrate comprising:

a mask substrate in the form of a sheet having a printing pattern thereon in the form of through openings in the mask substrate extending from the top face of the mask substrate to the bottom face of the mask substrate;

one or more interconnecting tabs bridging one or more of the through openings, the tabs having a thickness less than the thickness of the mask substrate and wherein the tab has at least one through tab opening therein which the tab opening provides a bending moment in at least one portion of the tab so that when a force is applied to the tab the bending moment causes the tab to flex.

5,669,973

APPARATUS FOR ELECTROSTATICALLY DEPOSITING AND RETAINING MATERIALS UPON A SUBSTRATE

Timothy Allen Fletcher, Eastampton, N.J., assignor to David Sarnoff Research Center, Inc., Princeton, N.J.

Filed Jun. 6, 1995, Ser. No. 467,647

Int. Cl.⁶ B05B 5/10

U.S. Cl. 118—624

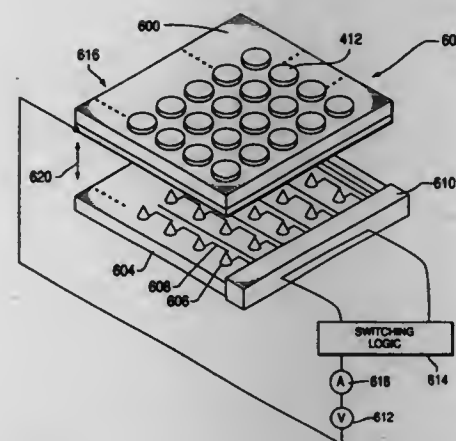
22 Claims

1. Apparatus for electrostatically retaining a deposition material upon a substrate, said apparatus comprising:

a dielectric layer having a first and second surface and wherein the dielectric layer defines at least one first opening;

a conductive plate disposed on the first surface of said dielectric layer, wherein the conductive plate defines a second opening that is coaxially aligned with the first opening;

a collection trace, disposed on the second surface of said dielectric layer, proximate the first opening and extending into the first opening, where said conductive plate and said collection



trace have a parallel spaced-apart relation and wherein the collection trace has a first charge polarity; and
 a deposition material, having a second charge polarity that is opposite the first charge polarity, where said collection trace electrostatically attracts and retains said deposition material.

5,669,974

SPRAY COATING PROCESS AND APPARATUS

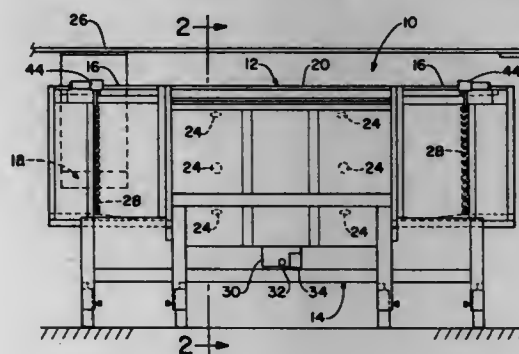
Salome J. Cueller; Robert J. Radawski, both of Fort Wayne; Michael R. Barth, Auburn; Jack V. Jerrald, Fort Wayne; John A. Keyes, Kendallville, and Earl V. Gleason, Fort Wayne, all of Ind., assignors to Dana Corporation, Toledo, Ohio

Division of Ser. No. 158,423, Nov. 29, 1993, Pat. No. 5,482,745. This application Jun. 7, 1995, Ser. No. 482,776

Int. Cl.⁶ B05C 5/00

U.S. Cl. 118—686

19 Claims



1. An apparatus for spray coating articles comprising,

a housing defining a coating chamber having inlet and outlet openings, and a conveyor system to carry articles to be coated through said coating chamber from said inlet to said outlet opening,

automatic doors provided to cover said inlet and outlet openings, and a control system to selectively open and close said doors allowing entrance and exit of an article into and from said chamber, wherein movement of said conveyor system causes said control system to operate said doors such that at least one of said doors is closed at all times during the spray coating operation,

means for supplying a coating material into said coating chamber for coating of articles within said chamber, wherein the introduction of said coating material into said chamber creates a predetermined atmosphere within said chamber, with said automatic doors and control system substantially preventing the introduction of the outside atmosphere into said chamber to maintain said predetermined atmosphere therein.

5,669,975

PLASMA PRODUCING METHOD AND APPARATUS INCLUDING AN INDUCTIVELY-COUPLED PLASMA SOURCE

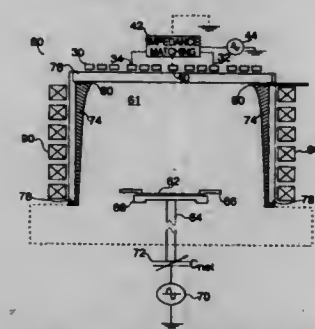
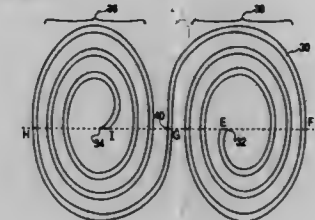
Kaihan Abidi Ashtiani, Nanuet, N.Y., assignor to Sony Corporation, Tokyo, Japan, and Materials Research Corp., Orangeburg, N.Y.

Filed Mar. 27, 1996, Ser. No. 624,010

Int. Cl.⁶ C23C 16/00

U.S. Cl. 118—723 I

41 Claims



1. An apparatus for processing at least a surface of an article with plasma formed from a process gas, comprising:

a processing chamber defining a processing space and having at least one inlet port through which said process gas may be input into said processing space for processing said article with said plasma; and,

a plasma source coupled to an end of said processing chamber to seal said processing chamber and for inducing the formation of said plasma, said plasma source comprising:

a dielectric plate having a first surface forming part of an inner wall of said processing chamber;

an electrical energy source disposed outside said processing chamber, said electrical energy source for providing energy through said dielectric plate into said processing space to interact with said process gas to form said plasma, wherein

said electrical energy source includes an induction coil having at least two spiral portions which are symmetrical about at least one point of said induction coil, and wherein said induction coil is disposed on a second surface of said dielectric plate for creating said plasma proximate said surface of said article to bombard said surface and produce a substantially uniform process rate across said article surface.

5,669,976

CVD METHOD AND APPARATUS THEREFOR

Akimasa Yuuki; Takaaki Kawahara; Kouitirou Tsutahara, and Tsuru Yamaguchi, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 806,892, Dec. 16, 1991, abandoned. This application Feb. 24, 1994, Ser. No. 201,154

Claims priority, application Japan, Dec. 28, 1990, 2-408754; Mar. 20, 1991, 3-016793 U; Jul. 1, 1991, 3-160349

Int. Cl.⁶ C23C 16/00

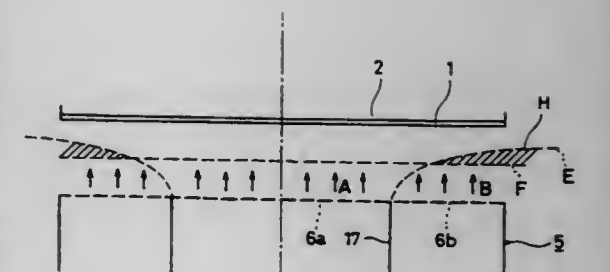
U.S. Cl. 118—725

8 Claims

1. A CVD apparatus comprising:

a CVD reaction chamber,

a circular-shaped heating stage for holding a substantially circular semiconductor wafer set thereupon at a predetermined temperature in said reaction chamber, said semiconductor wafer having opposing surfaces, each opposing surface



including a peripheral surface, said circular-shaped heating stage having a specified diameter,

an exhaust port surrounding said heating stage being outward of an edge of said wafer,

a CVD reaction gas source and an inert gas source, said inert gas source supplying only inert gas,

a gas head provided opposing said wafer for emitting gas towards said wafer, said gas head including a first gas blowing region in communication with said CVD reaction gas source for emitting CVD reaction gas towards at least a central major region of said wafer, said first gas blowing region being substantially circular in shape and having a diameter smaller than a diameter of said substantially circular semiconductor wafer, and a second gas blowing region in sole communication with said inert gas source, said second gas blowing region including an annular plate, the plate having gas blowing openings densely arranged therein, the second gas blowing region surrounding the periphery of said first gas blowing region and being sized with respect to the diameter of the wafer so that the gas blowing openings of said second gas blowing region perpendicularly face one of the peripheral surfaces of said wafer so that inert gas is directed to said one of the peripheral surfaces of the wafer, said first gas blowing region including a circular plate having gas blowing openings therein, the gas blowing openings densely arranged over substantially the entire circular plate such that said CVD reaction gas flows from said gas blowing openings toward said semiconductor wafer and radially outwardly toward said exhaust port, said first and second gas blowing openings being in a common plane apart from said wafer by a predetermined distance such that a face plane of the gas head is substantially parallel to a surface of the wafer and

wherein the diameter of said first gas blowing region is less than the diameter of said circular-shaped heating stage and said first gas blowing region is separated from the second gas blowing region by a thin wall,

whereby a CVD film of high quality can be formed in uniform thickness of said wafer, and the consumed amount of reaction gas and the amount of the undesirable precipitated particles can be reduced.

5,669,977

SHAPE MEMORY ALLOY LIFT PINS FOR SEMICONDUCTOR PROCESSING EQUIPMENT

Paul Kevin Shuffelbotham, San Jose, and Christopher Griffin, Milpitas, both of Calif., assignors to LAM Research Corporation, Fremont, Calif.

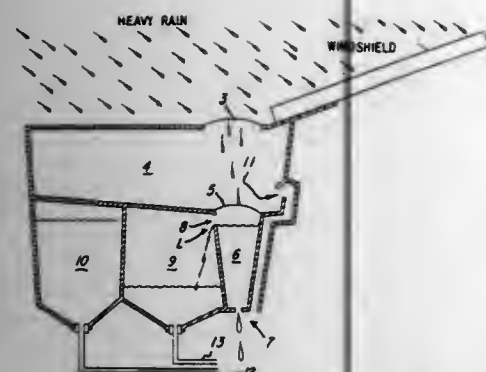
Filed Dec. 22, 1995, Ser. No. 577,520

Int. Cl.⁶ C23C 16/00

U.S. Cl. 118—728

25 Claims

1. A lift pin of a lift pin mechanism of a substrate processing



d) after flushing and bleeding, capturing rainwater in the reservoir, using said fluid director.

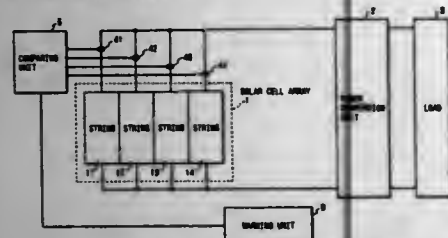
5,669,987 **ABNORMALITY DETECTION METHOD, ABNORMALITY DETECTION APPARATUS, AND SOLAR CELL POWER GENERATING SYSTEM USING THE SAME**

Nobuyoshi Takehara, Kyoto, and Kimitoshi Fukae, Nara, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 10, 1995, Ser. No. 419,115
 Claims priority, application Japan, Apr. 13, 1994, 6-074527
 Int. Cl.⁶ H01L 31/042

U.S. Cl. 136-244

33 Claims



1. A power generator apparatus comprising:
 - a. generator means comprising a plurality of photoelectric conversion elements connected in a parallel circuit; and
 - b. detection means comprising a detector for detecting outputs from the photoelectric conversion elements of the parallel circuit independently per each of the elements, and comparing means for setting as a standard value a particular value derived based on plural output values from the detector, and for comparing the output values obtained from measurement of the plurality of elements with the standard value, wherein, as a result of the comparing, when an output value from at least one of the photoelectric conversion elements is less than a predetermined value determined in relation to the standard value, the comparing means produces an indication that the output from the at least one photoelectric conversion element is less than the predetermined value.

5,669,988 **CORRUGATING ROLL AND MANUFACTURING METHOD THEREOF**

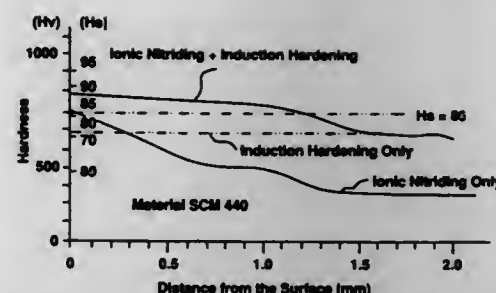
Hiroyuki Takenaka, Yorishige Tsuka, Yasunobu Sahara, all of Mihara; Yoshiaki Maruyama; Eidenori Yamane, both of Hiroshima, and Akio Izuwa, Mihara, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Japan

Filed Aug. 9, 1995, Ser. No. 513,082
 Claims priority, application Japan, Aug. 12, 1994, 6-190491
 Int. Cl.⁶ C23C 8/26; 8/32

U.S. Cl. 148-210

13 Claims

1. A manufacturing method of a corrugating roll useful for forming a wave-shaped core paper of corrugated board, comprising the steps of:



- a) forming tooth-shaped corrugation portions on the outer circumference of a corrugating roll; and
- b) forming a high hardness outer layer of a thickness of at least 0.6 mm and a Shore hardness (Hs) of at least 80 in the corrugation portions, said step b) including:
 - i) applying a nitriding treatment or a carbo-nitriding treatment to the corrugation portions;
 - ii) then applying a local heating quenching and tempering treatment to the corrugation portions; and
- c) then forming a corrosion resistant and wear resistant coating on the surface of the corrugation portion.

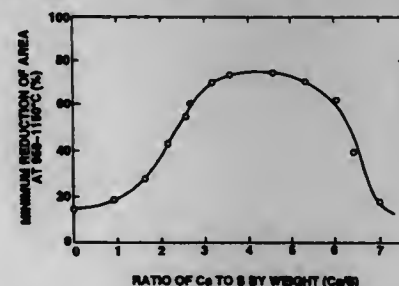
5,669,989 **NI-FE MAGNETIC ALLOY AND METHOD FOR PRODUCING THEREOF**

Tadashi Inoue; Kiyoshi Tsuru; Shinichi Okimoto; Naokazu Yamamura; Tetsuo Yamamoto, and Hirohisa Haiji, all of Kawasaki, Japan, assignors to NKK Corporation, Tokyo, Japan

Division of Ser. No. 400,858, Mar. 8, 1995, Pat. No. 5,525,164, which is a division of Ser. No. 130,369, Oct. 1, 1993, Pat. No. 5,500,057. This application Oct. 19, 1995, Ser. No. 547,705
 Claims priority, application Japan, Apr. 30, 1993, 5-128496
 Int. Cl.⁶ H01F 1/04

U.S. Cl. 148-312

16 Claims



1. A magnetic Ni-Fe alloy sheet having excellent magnetic permeability and excellent hot workability, said alloy consisting essentially of:

77 to 80 wt. % Ni,	3.5 to 5 wt. % Mo,	1.5 to 3 wt. % Cu,
0.1 to 1.1 wt. % Mn,	0.1 wt. % or less Cr,	0.003 wt. % or less S,
0.01 wt. % or less P,	0.005 wt. % or less O,	0.003 wt. % or less N,
0.02 wt. % or less C,	0.001 to 0.5 wt. % Al	1 wt. % or less Si,

a weight ratio Ca to S, (Ca/S) is 2.6 to 6, and the balance being Fe and inevitable impurities;
 said alloy satisfying an equation of:

$$3.2 \leq (2.02 \times [\text{Ni}] - 11.13 \times [\text{Mo}] - 1.25 \times [\text{Cu}] - 5.03 \times [\text{Mn}] / (2.13 \times [\text{Fe}])) \leq 3.8$$

where [Ni] is Ni content, [Mo] is Mo content, [Cu] is Cu content, [Mn] is Mn content, and [Fe] is Fe content; and said alloy having a Mo segregation ratio defined by the segregation equation satisfying 5% or less, the segregation equation being:

$$[(\text{Mo content in a segregation region} - \text{Mo average content}) / (\text{Mo average content})] \times 100\%; \text{ and wherein}$$

said alloy has an initial magnetic permeability (μ) of 200,000 or more.

5,669,990 **SI-CONTAINING MAGNESIUM ALLOY FOR CASTING WITH MELT THEREOF**

Mitsuru Adachi; Satoru Sato, and Hiroto Sasaki, all of Ube, Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan
 Continuation of Ser. No. 219,355, Mar. 29, 1994, Pat. No. 5,551,996. This application May 21, 1996, Ser. No. 646,818
 Claims priority, application Japan, Mar. 30, 1993, 5-71977;
 Oct. 7, 1993, 5-251868

Int. Cl.⁶ C22C 23/02; 23/04

U.S. Cl. 148-420

8 Claims



1. A Si-containing magnesium alloy for high pressure casting from a melt thereof to produce a cast alloy part with an ultimate tensile strength of not more than 281 MPa and with reduced hot cracking, comprising 6 to 12% by weight of aluminum, 0.3 to 1.5% by weight of silicon, from more than 0.1 to 0.2% by weight of strontium, and 0.01 to 2.0% by weight of zinc, the balance being magnesium.

5,669,991 **ELECTRICAL DISCHARGE MACHINING OF COMPLEX HOLES USING SHAPE MEMORY ALLOY ELECTRODES**

James DeFilippo, Manchester, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Mar. 1, 1995, Ser. No. 396,837

Int. Cl.⁶ B23H 7/08; C22F 1/18

U.S. Cl. 148-563

7 Claims



1. A method of electrical discharge machining at least one shaped hole in a metallic article using a shape memory alloy electrode comprising the steps of:
 - processing at least one shape memory alloy wire electrode to retain a trained shape, said processing step comprising the steps of: i) forming the electrode to a desired end shape by coiling the electrode around a fixture to capture the shape of the fixture, ii) restraining the electrode to the desired end shape by heat treating the electrode, followed by water quenching the electrode;
 - loading the electrode in an electrical discharge machining device; and
 - electrical discharge machining at least one shaped hole in the article, whereby the hole approximates the trained shape of the electrode.

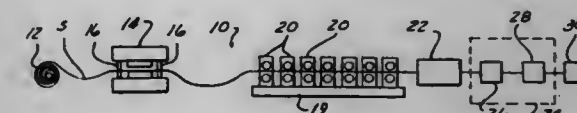
5,669,992 **BUMPER BEAM MAKING PROCESS** Brand Bronsema, 725 Prairie Creek, Ionia, Mich. 48846; Jeffrey A. Anderson, 425 Breezy Pt., Clarksville, Mich. 48815, and John J. Kary, 199 S. Cranbrook Cross Rd., Bloomfield, Mich. 48301

Filed Jan. 30, 1996, Ser. No. 593,393

Int. Cl.⁶ C21D 8/02

U.S. Cl. 148-602

18 Claims



1. A method for forming a bumper beam for a vehicle comprising the steps in the sequence set forth:
 - feeding a steel sheet from a coil along a pathway wherein the sheet is made of a sheet material having a tensile strength less than 80 ksi and a yield strength between 50-60 ksi;
 - feeding the steel sheet through a roll mill to shape the cross-sectional area of the steel sheet into a bumper beam form;
 - hardening the steel sheet by heat treating the steel sheet, then quenching the steel sheet to provide a steel sheet having a yield strength greater than 80 ksi and a tensile strength greater than 100 ksi and then cutting the steel at specified lengths to provide completed bumper beams.

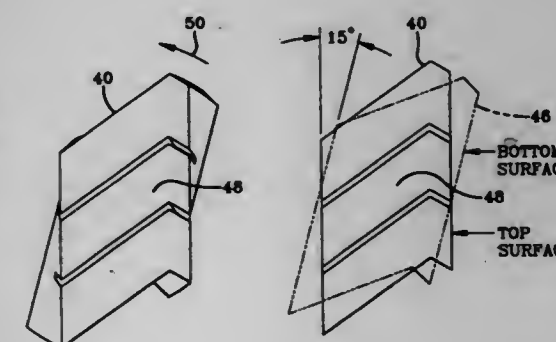
5,669,993 **TIRE TREAD ELEMENTS WITH BUILT-IN TWIST** Dale Jay Moseley, Hudson, and Samuel Patrick Landers, Uniontown, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jun. 29, 1995, Ser. No. 496,657

Int. Cl.⁶ B60C 107/00

U.S. Cl. 152-209 R

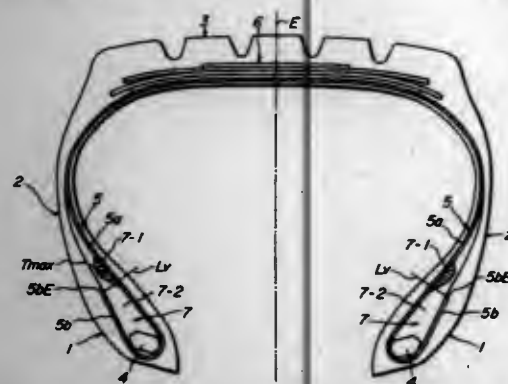
3 Claims



1. A tire comprising a tread wherein the tread includes a tread element,
 - the tread element having a centroid, a top surface, a base surface displaced radially inwardly from the top surface, and side surfaces extending radially between the top surface and the base surface,
 - the tread element being twisted so that the side surfaces are twisted and so that the top surface is rotated relative to the bottom surface by a predetermined angle of rotation about a radial line through the centroid and
 - wherein a net torque is generated about the radial line passing through the centroid when the tread element is compressed.

5,669,994
PNEUMATIC RADIAL TIRES WITH ONE-PIECE MOLDED STIFFENER HAVING AT LEAST TWO RUBBER COMPOSITIONS OF DIFFERENT HARDNESS
 Makoto Tsuruta, Kodaira, Japan, assignor to Bridgestone Corporation, Tokyo, Japan
 Filed Aug. 24, 1995, Ser. No. 518,886
 Claims priority, application Japan, Aug. 26, 1994, 6-225803; Dec. 21, 1994, 6-335624; Jul. 24, 1995, 7-187187
 Int. Cl.⁶ B60C 15/00; 15/06
 U.S. Cl. 152-541

9 Claims



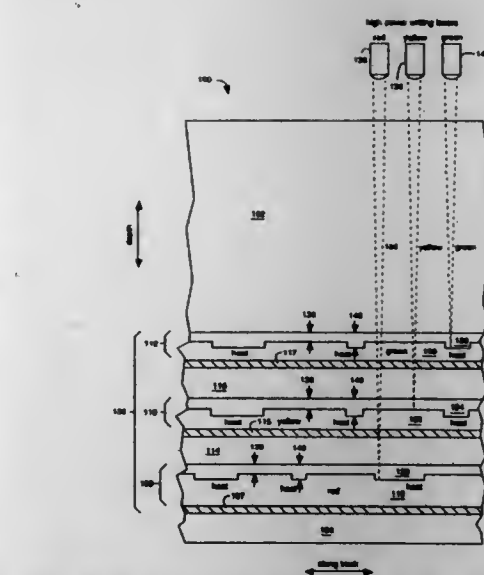
1. A pneumatic radial tire comprising: a radial carcass having a rubberized cord ply extending between a pair of bead cores, each bead core embedded in a bead portion for reinforcing a sidewall portion of said tire and a tread portion; said carcass comprised of a main body portion reinforcing the above portions and a turnup portion wound around each bead core from inside toward outside, and a stiffener arranged in each bead portion between the main body portion and the turnup portion of the carcass and tapering extending from the bead core toward the tread portion along the main body portion of the carcass, the stiffener comprising one-piece molded body of at least two rubber compositions having different hardnesses, and a rubber composition having a highest hardness among these rubber compositions is arranged close to the main body portion of the carcass as a deformation-isolating rubber member having a greatest thickness at a position separated from a line (Lv), which is drawn perpendicular from an end of the turnup portion toward an outer surface of the carcass main body portion in tire cross-section, at least in a side of the tread portion among both sides sandwiching the line (Lv), and a rubber composition having a hardness lower than that of the rubber composition having the highest hardness is arranged along an inner surface of the turnup portion.

5,669,995
METHOD FOR WRITING AND READING DATA ON A MULTI-LAYER RECORDABLE INTERFEROMETRIC OPTICAL DISC AND METHOD FOR FABRICATING SUCH
 Gilbert H. Hong, 12820 Alta Tierra, Los Altos Hills, Calif. 94022

Filed Jan. 29, 1996, Ser. No. 593,694
 Int. Cl.⁶ B29C 41/00; B32B 31/00
 U.S. Cl. 156-74

24 Claims

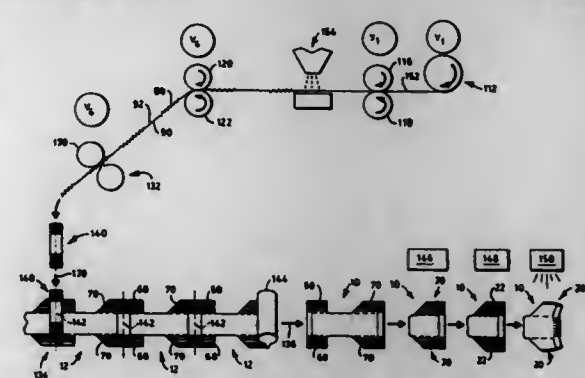
1. A method for making and recording data in an optical disc, the method comprising the steps of:
 depositing a polymer solution or UV curable monomer liquid on a master disc with pre-recording grooves;
 spin-coating said master disc with said polymer solution or UV curable monomer liquid to form a first clear film having a first thickness between zero to 10 microns;
 curing said first clear film to harden it;
 fabricating a clear plastic or glass substrate in the shape of a flat disk approximately between zero and 1.2 millimeters thick;
 peeling-off said first clear film from said master and attaching it to said clear plastic or glass substrate with the grooved side exposed;



spin-coating a first color dye layer over said first clear film, wherein the material of said first color dye layer and said first clear film have substantially different indices of refraction;
 depositing a first reflective layer over said first color dye layer to complete the first recordable layer; and
 applying a protective lacquer coating to complete the single layer disc.

5,669,996
METHOD OF JOINING AN ELASTIC BAND TO A CONTINUOUSLY MOVING PARTIALLY ELASTIC SUBSTRATE
 James Lyle Jessup, Appleton, Wis., assignor to Kimberly-Clark Worldwide, Inc., Neenah, Wis.
 Division of Ser. No. 267,272, Jun. 28, 1994, Pat. No. 5,500,063. This application Sep. 12, 1995, Ser. No. 526,731
 Int. Cl.⁶ A61F 13/15; B32B 31/10; 31/18; 31/26
 U.S. Cl. 156-85

5 Claims

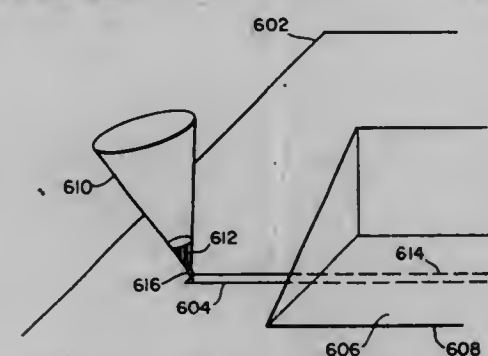


1. A method of joining a plurality of elastic bands to a continuously moving, partially elastic substrate, comprising the steps of:
 continuously moving in a first direction a substrate including a plurality of non-elastic segments and a plurality of elastic segments that are extensible in a direction different from the first direction;
 providing a supply of a heat-elasticizable band,
 elastically activating selected portions of the heat-elasticizable band,
 cutting the heat-elasticizable band into individual heat-elasticizable bands so that each individual heat-elasticizable band includes at least one elastically activated portion and at least one non-activated heat-elasticizable portion,
 sequentially orienting each individual heat-elasticizable band so that it is extensible in substantially the same direction as the elastic segments of the continuously moving substrate,

positioning each individual heat-elasticizable band over the continuously moving substrate so that each elastically activated portion is over one of the elastic segments of the substrate, and each non-activated heat-elasticizable portion is over one of the non-elastic segments of the substrate, and
 joining each individual heat-elasticizable band to the continuously moving substrate.

5,669,997
METHOD OF BONDING OPTICAL MEMBERS TOGETHER
 Charles F. Robbert, Newton Center, and Steven M. Daigneault, Rockland, both of Mass., assignors to Hughes Danbury Optical Systems, Inc., Danbury, Conn.
 Filed Jul. 13, 1995, Ser. No. 502,160
 Int. Cl.⁶ B32B 17/00; 31/18
 U.S. Cl. 156-101

12 Claims

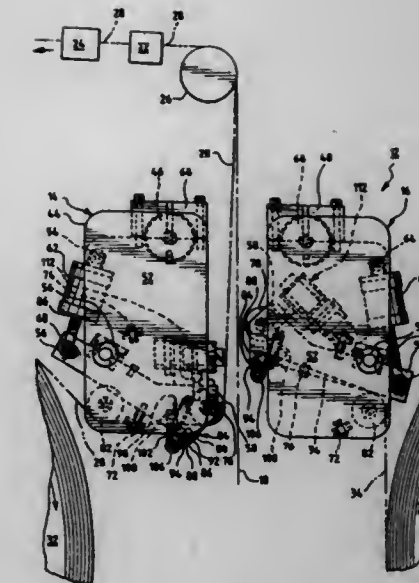


1. A method of bonding two optical members together while minimizing optical distortion during bonding comprising:
 forming a mounting surface on a first member and a registration surface on a second member;
 forming a groove in the registration surface of uniform depth with defined groove sides and groove ends;
 mounting the first member on the second member such that the mounting surface makes contact with the registration surface and is retained by molecular forces and covers the groove leaving an end of the groove exposed; and
 filling the groove with an optically transparent adhesive by contacting the exposed end of the groove with the adhesive and allowing the adhesive to flow into the groove by capillary action, whereby, as the adhesive sets, the members are bonded together to function as a single operative unit.

5,669,998
HEAT-SEAL SPlicing ASSEMBLY AND METHOD
 James K. Ward, Rockton; Daniel S. Kelly, Rockford, both of Ill., and Timothy J. Searies, Brodhead, Wis., assignors to Martin Automatic Inc., Rockford, Ill.
 Filed May 4, 1995, Ser. No. 434,748
 Int. Cl.⁶ B65H 69/06

10 Claims

1. An improved method of heat-seal splicing a trailing end of a running first, two-sided plastic material web and a leading end of a second, two-sided plastic material web together, and then for heat-seal splicing a leading end of a third, two-sided plastic material web and a trailing end of the then running second web together, and so on; where when running, the first web is being unwound from a roll which is located in one predetermined location relative to a web splicing assembly; where the first web runs along a predetermined path of travel from the first roll, past the splicing assembly, through a web festoon, and through the web processing operation; where the second web is adapted to be unwound from a second roll which is located at another predetermined location relative to the web splicing assembly; where the third web is adapted to be unwound from a third roll, which will be located in the one location after the second web is spliced to the first web and the second web is running along the path of travel;



where the plastic material of the first, second and third webs is the same material and will melt when heat, above a predetermined web melting temperature, is applied to the material; where the first, second and third webs each having a first surface with common characteristics and having a second surface; and where after the webs have been spliced and are running along the path of travel, downstream from the web splicing assembly, the first surfaces of the webs are to face the same direction, the improved method comprising the steps of:

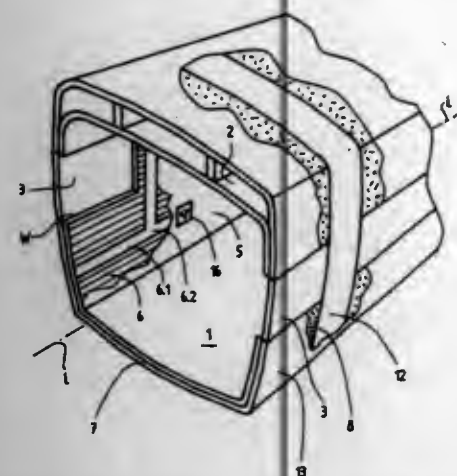
- disposing a portion of the leading end of the second web in the splicing assembly adjacent to the first web running by the splicing assembly so that the first surface of the second web faces in the opposite direction from the first surface of the first web;
- momentarily stopping the running of a portion of the trailing end of the first web adjacent to the splicing assembly by clamping at least a part of the trailing end portion of the first web, in second surface to second surface contact, with at least a part of the leading end portion of the second web so that the parts of the first and second web portions are clamped in a second surface to second surface relationship;
- applying heat to a localized area of the first and second web portions, which area extends the full width of the first and second webs so that the webs are melt-severed at and along the area and are heat-sealed together adjacent to the area;
- maintaining the parts of the first and second web portions clamped together for a relatively short time after the first and second web portions have been severed so that the heat-seals, formed adjacent to the area, may cool below the predetermined temperature; and
- unclamping the parts of the first and second web portions and permitting the first web portion to begin running again and to take the second web with it, due to the downstream heat-seal between the first and second web portions, so that the first surface of the first web and the first surface of the second web face in the same direction.

5,669,999
METHOD OF MANUFACTURING A VEHICLE STRUCTURE
 Kurt Anderegg, Rheineck; Guido Oesch, Rorschacherberg, and Andreas Stettler, Lutzenberg, all of Switzerland, assignors to Inventio AG, Hergiswil, Switzerland
 Filed Jun. 12, 1995, Ser. No. 489,500
 Claims priority, application Switzerland, Jun. 14, 1994, 01871/94

Int. Cl.⁶ B65H 81/00; B61D 17/04
 U.S. Cl. 156-173

14 Claims

1. A method of manufacturing a self-supporting lightweight vehicle structure comprising the steps of:



- winding a fiber reinforced synthetic material on a vehicle structure winding form about a longitudinal axis of the winding form forming an inner layer portion of a hollow vehicle structure;
- applying an inner insulation layer over the inner layer portion, forming grooves in said inner insulation layer and inserting at least one cable channel in said grooves;
- winding a fiber reinforced synthetic material on the winding form over the cable channel and about the inner insulation layer forming a generally planar middle layer portion of the hollow vehicle structure;
- winding at least two annular frame elements on a generally planar outer surface of the middle layer at spaced apart positions along the longitudinal axis of the winding form, the annular frame elements being formed of a synthetic material;
- winding a fiber reinforced synthetic material on the winding form over the annular frame elements and about the middle layer forming an outer layer portion of the hollow vehicle structure; and
- removing the hollow vehicle structure from the winding form.

5,670,000

METHOD OF MAKING A HONEYCOMB PANEL

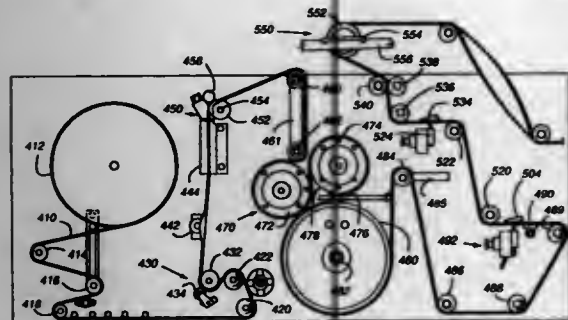
Wendell B. Colson, Boulder, and James M. Anthony, Denver, both of Colo., assignors to Hunter Douglas Inc., Upper Saddle River, N.J.

Division of Ser. No. 720,163, Jun. 27, 1991, Pat. No. 5,482,750, which is a continuation-in-part of Ser. No. 635,198, Jan. 2, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 479,611

Int. Cl. B32B 3/12

U.S. Cl. 156—197

3 Claims



1. A method of making an expandable and contractible honeycomb panel including a plurality of parallel laterally adjacent rows of elongated tubular cells, comprising the steps of:
 - providing a longitudinally extending length of a flat, foldable, creasable and drapable material, said material having a first surface and an opposed second surface;

forming a pair of longitudinally extending creases in said material thereby defining two longitudinal margins of said material and a central web portion of the material between said creases;

folding said longitudinal margins of said material over said central web portion along said creases;

applying at least a first longitudinal glue line to the first surface of said material;

applying a second longitudinal glue line and a third longitudinal glue line to said material, at least one of said second and third longitudinal glue lines being applied to the opposed second surface of said material; and

stacking said folded material with the first, second and third longitudinal glue lines thereon such that said first longitudinal glue line secures one of said longitudinal margins of the material to the central web portion of the material and such that the second and third longitudinal glue lines secure the two marginal portions of said material to at least one adjacent length of said folded material.

5,670,001

HONEYCOMB FABRICATION

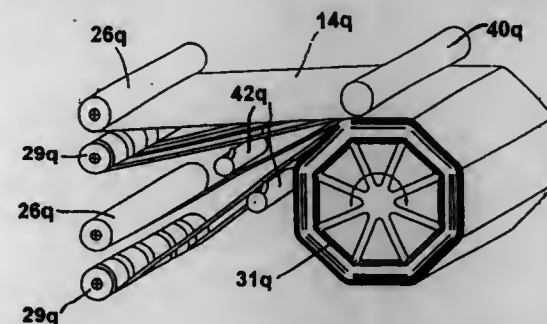
Fritz Huebner, and Gerard J. Schoeb, both of Holland, Mich., assignors to Plascor, Inc., Zeeland, Mich.

Continuation of Ser. No. 226,939, Apr. 13, 1994, abandoned. This application May 21, 1996, Ser. No. 651,001

Int. Cl. B32B 31/08; 31/26

U.S. Cl. 156—197

48 Claims



30. A method for forming a precursor block expandable into a honeycomb structure, comprising the steps of:
 - providing and advancing substrate layers, and stacking said substrate layers;
 - providing and advancing successive sets of pluralities of solid polymeric node strips in parallel relationship, at equal spacings, onto said substrate layers before or while said substrate layers are stacked, one set for each layer, and each set laterally offset halfway relative to the strip spacing of the set therebelow; and
 - softening said solid node strips and pressing them into bonding relationship with said substrate layers to form a block, to thereby form an expandable block.

5,670,002

PROCESS FOR COVERING CUT EDGE OF A CONTAINER OPENING WITH PROTECTIVE LAYER

Werner Stahlecker, Stuttgart, and Berthold Mueller, Suessen, both of Germany, assignors to Ruediger Haaga GmbH, Germany

Filed Apr. 7, 1995, Ser. No. 418,801

Claims priority, application Germany, Apr. 7, 1994, 44 11 925.9

Int. Cl. B32B 31/02; 31/04; 31/16; 31/26

U.S. Cl. 156—216

14 Claims

1. Process for covering a cut edge of an opening of a wall of a container with a protective covering layer, the wall being provided



with an inner layer on the planar inner surface thereof to provide protection of contents of the container and of the wall, comprising the steps of

- providing the protective covering layer in the form of a one-piece foil having physical characteristics similar or identical to the inner layer,
- selectively feeding the one-piece foil to the wall from above or below the opening whereby the foil has the capability of being applied from above or below the opening, and
- deforming the one-piece foil such that it has a tube-shape covering the cut edge of the opening, a first plane area adhered to an outer surface of the wall and present only in an immediate region adjoining the cut edge and a second plane area adhered to the inner layer, at least one of the plane areas being formed and adhered to the wall.

5,670,003

HOLOGRAPHIC DOCUMENT AND METHOD FOR FORMING

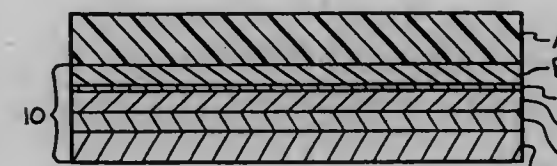
David R. Boswell, Woodley, England, assignor to NovaVision, Inc., Bowling Green, Ohio

Division of Ser. No. 222,283, Apr. 4, 1994, Pat. No. 5,464,690. This application Jun. 27, 1995, Ser. No. 495,181

Int. Cl. B32B 31/00

U.S. Cl. 156—220

16 Claims



1. A method for forming a holographic image or diffraction grating image on a substrate comprising the steps of:

- forming a composite sheet by
 - (i) depositing directly on one surface of a plastic film a layer of metal having a thickness in the range of 20 millimicrons to 100 millimicrons;
 - (ii) applying to said layer of metal a heat softenable lacquer coating;
 - (iii) applying to said lacquer coating a heat activatable adhesive;
- bringing a substrate into contact with said adhesive;
- applying heat and pressure to said film to compress said composite sheet against said substrate to
 - (i) cause said adhesive to adhere to said substrate, and
 - (ii) cause said composite sheet to delaminate from said film;
- removing said film from said composite sheet thereby leaving said composite sheet with a first surface engaged to said substrate and a second surface exposed, said second exposed surface being a surface of said metal layer; and
- thereafter directly engaging said second surface under heat and pressure with a die having a holographic image or diffraction grating image formed therein to form an image in said layer of metal and said lacquer coating.

5,670,004

METHODS OF MAKING SAME ABSORBENT ARTICLES WITH INTEGRAL RELEASE SYSTEMS

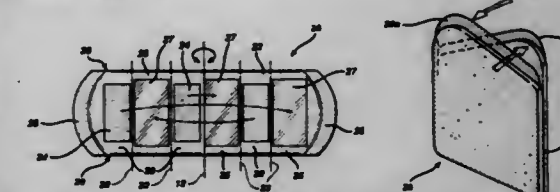
William B. Mattingly, III, Ithaca, N.Y., assignor to McNeil-PPC, Inc., Skillman, N.J.

Division of Ser. No. 935,145, Aug. 24, 1992, Pat. No. 5,591,153, which is a continuation of Ser. No. 569,103, Aug. 17, 1990, abandoned. This application May 10, 1995, Ser. No. 438,290

Int. Cl. B31F 53/00; B32B 31/00; A61F 13/15

U.S. Cl. 156—227

10 Claims



1. A method of manufacturing an absorbent article comprising an absorbent substrate having a body facing side and a garment facing side, the absorbent article being folded prior to use, the method of manufacturing comprising the steps of:

- (a) providing a substantially fluid impervious barrier means;
- (b) applying one or more adhesive means to corresponding attachment zones on the garment-facing side of the barrier means and applying one or more release means to corresponding release zones on the garment-facing side of the barrier means;
- (c) treating the barrier means to increase one or more of an adhesive means-attachment zone bond strength and a release means-release zone bond strength, or both;
- (d) affixing the barrier means to the garment facing side of the absorbent article; and
- (e) folding the absorbent article,

such that each of the adhesive means is brought into contact with at least a portion of one or more of the release means such that said article may be unfolded without damaging said article, said release means or said attachment means.

5,670,005

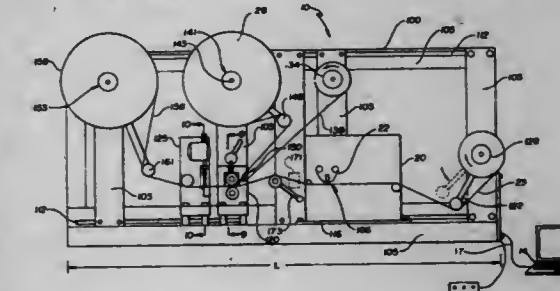
METHOD FOR MANUFACTURING IMPROVED DATA DISPLAY RETROREFLECTIVE SHEETING

Thomas F. Look, Ham Lake; Robert V. O'Keefe, New Brighton; Craig A. Schmidt, Wyoming; Bruce D. Orenstein, St. Paul; Joseph M. McGrath, Lake Elmo; Steven E. Poss, Shoreview; Thomas I. Bradshaw, Afton, all of Minn., and Franklin C. Bradshaw, Scottsdale, Ariz., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn. Continuation of Ser. No. 186,752, Feb. 2, 1994, abandoned, which is a continuation-in-part of Ser. No. 33,625, Mar. 16, 1993, abandoned, which is a continuation-in-part of Ser. No. 17,573, Feb. 16, 1993, abandoned. This application Apr. 16, 1996, Ser. No. 632,694

Int. Cl. B44C 1/165; B32B 31/00; C09J 5/00

U.S. Cl. 156—230

52 Claims



1. A method of making a durable, weather-resistant retroreflective article, the article having buried, readable indicia printed by a thermal printer, comprising the steps of:

- providing first and second polymeric layers, one of said layers being retroreflective and one being non-retroreflective, one of said layers having at least one surface suitable for receiving print indicia from a thermal printer;
- providing a definition of an image to a computer, the image to be printed as indicia on said at least one surface by said printer;
- generating a computerized version of the image with the computer;
- employing the thermal printer to transfer the computerized version of the image to the at least one surface using a wax colorant/binder to form said print indicia; and
- adhering the first and second polymer layers together, so that the print indicia is positioned between the first and second layers.

5,670,006

VIBRATION DAMPING CONSTRUCTIONS USING ACRYLATE-CONTAINING DAMPING MATERIALS

Debra L. Wilfong, Lake Elmo; David J. Drath; Michael C. Palazzotto, both of St. Paul; Peggy S. Willett, Stillwater, and Henry B. Clark, III, Roseville, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 99,181, Jul. 29, 1993, abandoned, which is a division of Ser. No. 823,472, Jan. 22, 1992, Pat. No. 5,262,232. This application Jun. 2, 1995, Ser. No. 464,001.

Int. Cl.⁶ B32B 9/06

U.S. Cl. 156—236

9 Claims

1. A method for damping the vibration of a vibrating solid article at temperatures in the range of -20° to 200° C. at 1 Hz, wherein said method comprises providing a viscoelastic layer construction with at least one layer comprising a cured epoxy-acrylate thermosetting resin consisting essentially of an interpenetrating network of polymerized epoxy monomers and polymerized acrylate monomers.

5,670,007

PROCESS FOR THE PRODUCTION OF REINFORCED SLABS OF STONE MATERIAL

Marcello Toncelli, Via Papa Giovanni XXIII, 2 - Bassano del Grappa, Italy

Filed Aug. 11, 1995, Ser. No. 513,687

Claims priority, application Italy, Aug. 25, 1994, TV94A0102
Int. Cl.⁶ B32B 9/00; E04C 2/26; E04F 13/14

U.S. Cl. 156—257

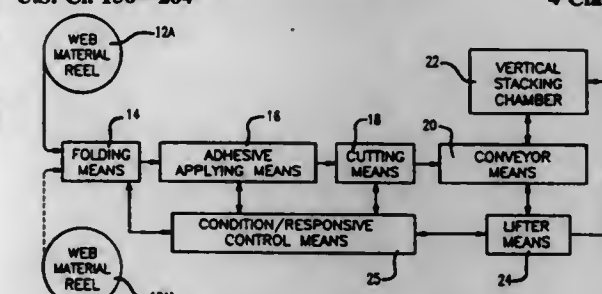
20 Claims

1. A process for producing reinforced slabs of products made of stone material, having a reinforcement which includes a hardened resin combined with a rear face of the slab, comprising providing a slab of stone material having a rear substantially smooth face free of grooves or recess; providing non-twisted linear reinforcing elements; coating the non-twisted linear reinforcing elements with a coating of a resin to form a reinforcement having a percentage ratio by weight of resin to the non-twisted linear reinforcing elements of at most 50:50; inserting a reinforcing layer between the coated non-twisted linear reinforcing elements and the rear face of the slab of stone material; and hardening of the resin.

5,670,008
METHOD FOR FABRICATING HONEYCOMB INSULATING MATERIAL
Kay L. Ruggles, Salt Lake City, Utah, assignor to Newell Operating Company, Freeport, Ill.
Continuation of Ser. No. 870,574, Apr. 17, 1992, Pat. No. 5,441,592, which is a continuation-in-part of Ser. No. 773,843, Oct. 7, 1991, Pat. No. 5,308,435. This application Jul. 15, 1994, Ser. No. 276,174
Int. Cl.⁶ B32B 31/12

U.S. Cl. 156—264

4 Claims



1. A method of producing one or more individual stacks of superimposed, expandable tubular strips forming an expandable honeycomb panel, said method comprising the steps of: providing a continuous strip of material containing at least one line of adhesive, feeding the continuous strip of material through a cutter for cutting the continuous strip into individual strips of flexible material each forming a flat, expandable tubular body and having at least a central region on one side thereof which is adapted to be adhered to an adjacent strip when it is in contact therewith; accelerating said strips sequentially to the inlet of a stacking chamber having a floor with longitudinally extending slot of a length to receive each strip and which is narrower than the width of the strips to be delivered thereto, then sequentially pushing each strip through the narrower slot when in alignment with said slot and the strip or strips already in said chamber and adhering the adjacent strips together in the chamber wherein said stacking chamber is an elevated stacking chamber above said inlet thereto and said slot is in the bottom of said stacking chamber so each strip of the stack is pushed upwardly through said slot and against the strip above it.

5,670,009

ASSEMBLY TECHNIQUE FOR AN IMAGE SENSOR ARRAY

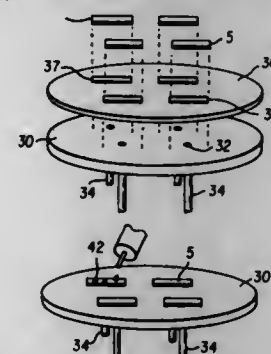
Terry Tarn, Pittsford, and Thomas G. Bailey, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 28, 1995, Ser. No. 395,750

Int. Cl.⁶ H05K 13/04

U.S. Cl. 156—299

8 Claims



1. An improved method of placing an array of CCD image sensors on a substrate to maintain a single focal plane among the CCD image sensors comprising the steps of: providing a substrate having interface means for transmitting signals from at least one of the CCD image sensors;

creating a template having at least one cutout for relative positioning of the CCD image sensors in a compatible manner upon the substrate such that the CCD image sensors are within a single plane;

providing a base having a predetermined degree of flatness to allow the sensors to exist within a single focal plane, and having at least one aperture within the base at points coinciding with the cutouts within the template;

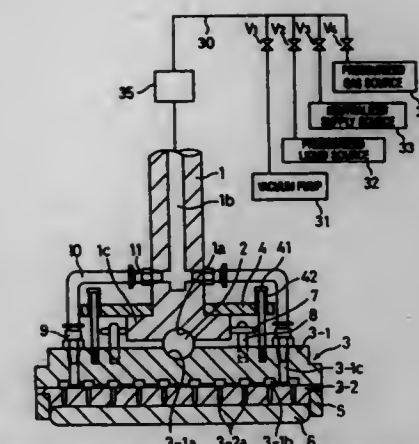
attaching vacuum means to the aperture(s) for securing the CCD image sensors to the base;

placing the CCD image sensors within the cutouts in the template and turning the vacuum means on to secure placement of the sensors;

removing the template;

applying an adhesive to a side of the CCD image sensors opposite the aperture(s), the adhesive having a predetermined thickness that is determined by tolerances of the substrate flatness, the predetermined thickness being used to compensate for lack of flatness within the substrate; and

engaging the substrate with the base in a predetermined manner.



surface of the workpiece and said holding surface of said top ring to prevent the upper surface of the workpiece from being etched by said abrasive solution.

5,670,010

PROCESS FOR ADHERING A FLUORORESIN FILM TO A METAL SURFACE USING A PRIMER

Minoru Hagiwara; Kenji Kiwa, both of Yokohama; Tatsuya Ogita, Tokyo, and Luc Germain Pierre Joseph D'Haenens, Yokohama, all of Japan, assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 182,633, Jan. 26, 1994, abandoned. This application Jul. 28, 1995, Ser. No. 508,510

Int. Cl.⁶ C09J 4/00

U.S. Cl. 156—330.9

2 Claims

1. A process for adhering a thermoplastic fluororesin film to a metal surface comprising applying to the metal surface a primer composition comprising a solution or a dispersion in an organic solvent of (a) a polyether sulfone, (b) a fluorinated resin, (c) at least one polymer selected from the group consisting of a polyamideimide, and a polyimide, and (d) a particulate aluminum metal or alloy, in which the proportion of the polyether sulfone to one or both of polyamideimide and polyimide is from 55:45 to 95:5 by weight and the ratio of the total polyether sulfone and one or both of polyamideimide and polyimide to the fluororesin is 20:80 to 70:30 by weight, and in which the particulate aluminum metal or alloy is in the form of flake and is present in an amount of 1-15% based on the solids of the composition by weight and applying onto said layer a thermoplastic fluororesin film by hot melt adhesion.

5,670,011

APPARATUS AND METHOD FOR POLISHING WORKPIECE

Tetsuji Togawa, and Norio Kimura, both of Fujisawa, Japan, assignors to Ebara Corporation, Tokyo, Japan

Filed May 2, 1996, Ser. No. 643,099

Claims priority, application Japan, May 2, 1995, 7-132853

Int. Cl.⁶ B24B 7/22

U.S. Cl. 156—345

9 Claims

1. An apparatus for polishing a lower surface of a workpiece, said apparatus comprising:

a turntable with an abrasive cloth mounted on an upper surface thereof;

a top ring disposed above said turntable and having a holding surface for holding a workpiece to be polished and pressing the workpiece against said abrasive cloth;

a nozzle for supplying an abrasive solution onto said abrasive cloth;

a plurality of openings formed in said top ring and being open at said holding surface of said top ring; and

a neutralizer supply source communicating with said openings of said top ring for supplying a neutralizer between an upper

5,670,012

ELECTRICALLY WELDABLE PLASTIC FITTING

Erasmus Porfido, Schaffhausen, Switzerland, and Michael Bamberger, Gailingen, Germany, assignors to Georg Fischer Rohrleitungssysteme AG, Schaffhausen, Switzerland

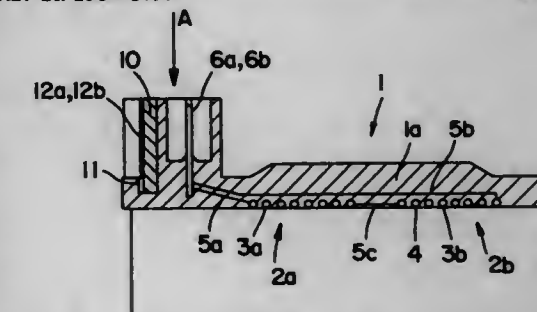
Filed Jan. 5, 1995, Ser. No. 369,405

Claims priority, application Switzerland, Jan. 10, 1994, 00 057/94

Int. Cl.⁶ B27G 11/02; B31F 5/04; B32B 31/24

U.S. Cl. 156—379.7

6 Claims



1. An electrically weldable plastic fitting having at least one welding part having a heating element consisting of a resistance wire for the production of a weld connection wherein the heating element is connected with plug contacts for the feeding of current from a welding apparatus, the improvement which comprises a resistor having a given resistance located on the fitting, the resistor having connections for connection to the welding apparatus wherein the resistance of the resistor serves to identify the fitting type wherein the resistor together with the connections are arranged on a plastic plate which is placed in a recess formed on the fitting.

5,670,013

DIES FOR MANUFACTURING A PACK OF SELF-OPENING BAGS

Frank Feng Jung Huang, and Daniel C. Huang, both of Irvine, Calif., assignors to Durabag Co., Inc., Tustin, Calif.

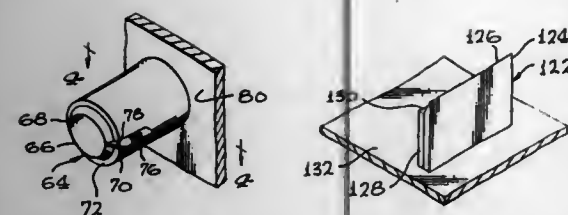
Division of Ser. No. 17,636, Feb. 12, 1993, abandoned. This application Oct. 24, 1994, Ser. No. 328,154

Int. Cl.⁶ B26F 1/14; B31B 1/14; 1/20

U.S. Cl. 156—513

8 Claims

1. Dies for use in forming a pack of self-opening plastic bags having handle portions with flapless handle apertures formed there-through with frangibly bonded aperture perimeters areas, and mouth tab portions with mouth tab apertures formed therethrough



with frangibly bonded aperture perimeter areas, said pack of bags being for use in conjunction with a bagging rack, each of said dies comprising:

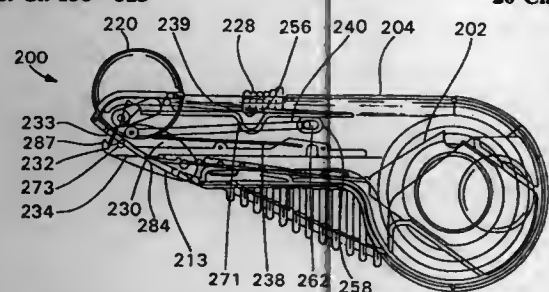
- a first die portion with a sharp cutting edge for forming said handle apertures and said mouth tab apertures; and
- a compression portion with a generally blunt leading edge, positioned in close proximity to said first die portion, whereby when each said die is applied to a pack of bags, the first die portion will cut through the pack of bags, thereby forming the flapless handle apertures and mouth tab apertures, and the compression portion will compress together the layers of plastic material of adjacent plastic bags in the pack of bags, thereby forming said perimeter areas of frangible bonding.

5,670,014 TAPE DISPENSING APPLICATOR AND REPLACEABLE TAPE CARTRIDGE

Isaac Mendelovich, Elkins Park; Peter W. Bressler; John D. Coleman, both of Philadelphia; and Jason L. Williams, Erie, all of Pa., assignors to Tapelicator, Inc., Philadelphia, Pa. Continuation-in-part of Ser. No. 324,552, Oct. 18, 1994, and Ser. No. 616,609, Mar. 15, 1996. This application Jun. 25, 1996, Ser. No. 672,355
Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—523

20 Claims



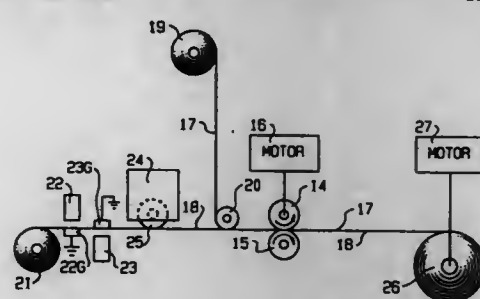
1. An applicator for dispensing tape, the tape having an adhesive on at least one face thereof, the applicator comprising:

- (a) a shell having opposite sides, a first end and a second end, the first end including an open region and a first slot;
- (b) a door pivotally attached to the shell;
- (c) a tape cartridge removably located on the door, the cartridge including means for rotatably supporting a roll of the tape, wherein a leading edge of the tape extends outwardly from the roll;
- (d) a cover member having an open portion and a closed portion, the cover member being connected to the first end of the shell for pivotable movement thereabout along a predetermined path;
- (e) a slider having a first end which is pivotally connected to the cover member and having a button which extends through the first slot in the shell, a cutter actuator being located on the slider inside the shell, the slider being slidably attached to the shell for sliding movement between a first position, in which the cover member covers the open region of the shell, and a second position, in which the cover member is spaced from the open region, and the cutter actuator is movable in response to pressure applied to the button;
- (f) a cutting tool having a support arm with a first end which supports a cutting instrument and a second end which is pivotally connected to the shell, and a resilient member which biases the support arm to a first position in which the cutting

instrument is retracted in the shell, the cutting instrument being movable from the first position to a second position by the application of pressure to the button on the slider such that the cutter actuator moves the support arm and the cutting instrument extends through the open region of the shell.

5,670,015
PAPER-PLASTIC LAMINATE SHEETING
Arnold B. Finestone, 2400 Presidential Way, West Palm Beach, Fla. 33401, and Gilbert Bloch, 3149 S. Maio Ct., Palm Beach Gardens, Fla. 33410
Continuation-in-part of Ser. No. 57,963, May 4, 1993, which is a division of Ser. No. 818,544, Jan. 9, 1992, Pat. No. 5,244,702. This application Oct. 16, 1995, Ser. No. 543,616
Int. Cl.⁶ B32B 31/08; B42D 15/00
U.S. Cl. 156—549

11 Claims

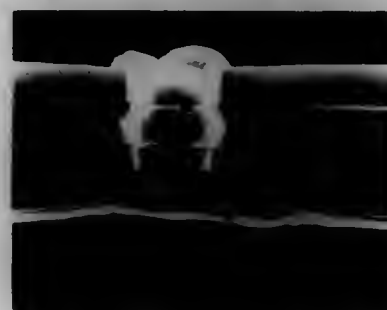


1. A system for producing a heat activatable laminate sheeting capable of exhibiting heat activated indicia, the system comprising: a first web of heat activatable sheet material that changes color when activated by a selected application of heat;
- a second web of a plastic film;
- an applicator supplying a water-based adhesive to a surface of one of the first and second webs; and
- a combining station operative at ambient temperature to effect cold lamination of the first and second webs without activating the heat activatable sheet material and without adversely affecting the plastic film.

5,670,016
METHOD FOR CLEANING SUBSTRATE PRIOR TO TUNGSTEN DEPOSITION
Mao-Chieh Chen, Hsin Chu Shih; Wen-Kuan Yeh, Hsin Chu Hsien; Pei-Jan Wang, and Lu-Min Liu, both of Hsin Chu Shih, all of Taiwan, assignors to National Science Council, Taipei, Taiwan
Filed Nov. 15, 1995, Ser. No. 558,099
Int. Cl.⁶ H01L 21/00

U.S. Cl. 156—637.1

20 Claims

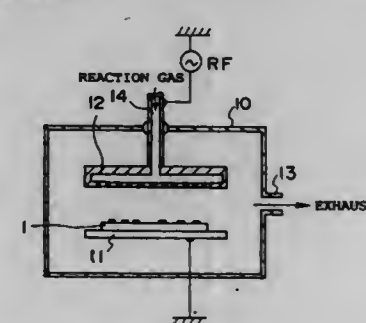


1. A method for cleaning a substrate prior to a tungsten deposition, said substrate having via holes and trenches thereon, said method comprising steps of: providing a solution of hydroxylamine sulfate; and dipping said substrate in said solution and agitating said solution by an agitating means.

5,670,017 METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE

Koichi Hashimoto, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
Filed Dec. 7, 1994, Ser. No. 350,841
Claims priority, application Japan, Dec. 28, 1993, 5-336965
Int. Cl.⁶ H01L 21/306
U.S. Cl. 156—643.1

9 Claims



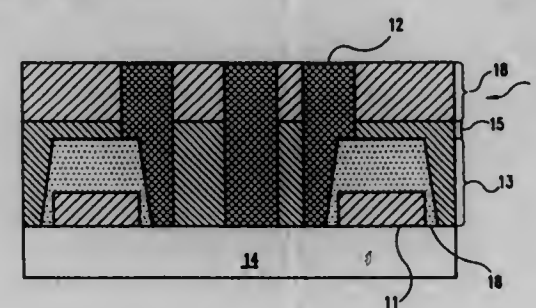
1. A method of manufacturing a semiconductor device comprising the steps of: providing a semiconductor substrate having an insulating film disposed thereupon;
- forming resist patterns on the insulating film;
- placing said insulating film between a pair of electrodes in an etching atmosphere; and
- introducing mixed gas containing CHF₃ and CF₄ in which a gas flow ratio of CHF₃ is 30% or below among CHF₃ and CF₄ into said etching atmosphere, setting the pressure in said etching atmosphere to 1.2 Torr or lower, and applying radio frequency electric power at 4 W/cm² or more to said pair of electrodes, thereby to apply patterning to said insulating film by etching using said resist patterns as a mask.

5,670,018 ISOTROPIC SILICON ETCH PROCESS THAT IS HIGHLY SELECTIVE TO TUNGSTEN

Elke Eckstein, Paris, France; Birgit Hoffman, deceased, late of Pentling, Germany, by Horst Hoffman; Edward William Kiewra, Kilchberg, Switzerland; Waldemar Walter Koon, Wappingers Falls, and Marc Jay Weiss, New York, both of N.Y., assignors to Siemens Aktiengesellschaft, Munich, Germany, and International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 27, 1995, Ser. No. 430,011
Int. Cl.⁶ H01L 21/302

U.S. Cl. 156—643.1

20 Claims

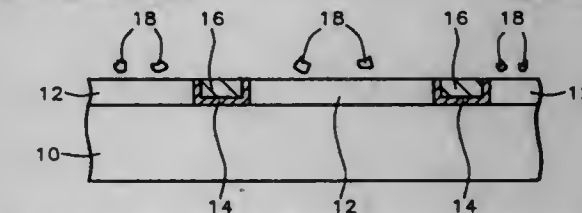


1. An isotropic silicon etch process comprising the steps of: providing a wafer with tungsten studs having a mask oxide and silicon in contact with the tungsten studs;
- providing backside helium cooling to the wafer;
- plasma stripping the mask oxide with an about 3:1 ratio of CF₄/CHF₃ and argon;
- removing the backside helium cooling; and
- plasma stripping the silicon with an etchant.

5,670,019 REMOVAL PROCESS FOR TUNGSTEN ETCHBACK PRECIPITATES

Yuan-Chang Huang, Hsin-Chu, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company Ltd., Hsin-Chu, Taiwan
Filed Feb. 26, 1996, Ser. No. 606,831
Int. Cl.⁶ H01L 21/00; B44C 1/22; C23F 1/00
U.S. Cl. 156—643.1

20 Claims



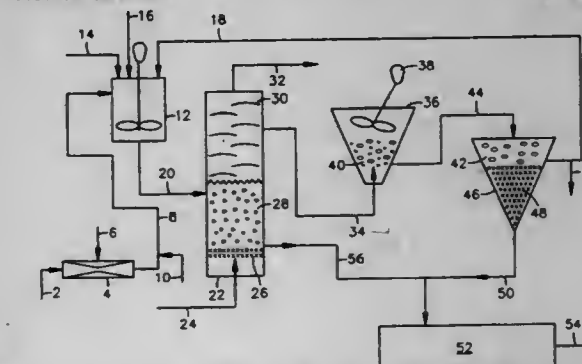
1. A method of cleaning integrated circuit wafers, comprising the steps of: providing an integrated circuit wafer having devices formed therein and an inter-metal dielectric formed thereon;
- providing via holes formed in said inter-metal dielectric wherein each said via hole has sidewalls and a bottom;
- forming a titanium nitride adhesion layer over said inter-metal dielectric layer, said sidewalls of each said via hole, and said bottom of each said via hole;
- forming a conduction metal layer over said titanium nitride adhesion layer thereby filling said via holes with said conduction metal;
- etching away that part of said conduction metal layer not filling said via holes and that part of said titanium nitride adhesion layer not on said sidewalls and bottom of each said via hole using dry etching with a fluorine based etchant;
- immersing said integrated circuit wafer in an oxidizing agent having a first temperature for a first time, after said metal etchback process has been completed;
- immersing said integrated circuit wafer in water having a second temperature for a second time after immersing said integrated circuit wafer in said oxidizing agent has been completed; and
- drying said wafer after said immersing said wafer in said water has been completed.

5,670,020 FOAM SEPARATION METHOD FOR REDUCING AOX, COD, AND COLOR BODIES OF KRAFT PULP BLEACH PLANT EFFLUENTS

Caifang Yin, Monroe, and Christopher P. Hung, Highland Mills, both of N.Y., assignors to International Paper Company, Purchase, N.Y.
Filed Jun. 1, 1995, Ser. No. 456,730
Int. Cl.⁶ D21C 11/00

U.S. Cl. 162—29

20 Claims



1. A method for treating effluent from a kraft pulp bleaching sequence having a chlorine and/or chlorine dioxide stage generating an organic chloride compound-containing filtrate (F_D) and an alkaline extraction stage generating an extraction state filtrate (F_E) wherein the F_D and F_E filtrates contribute to the amount of the

chemical oxygen demand (COD), adsorbable organic halides (AOX), color bodies and toxicity in the bleach plant effluent, the method comprising:

- intensely mixing the F_D filtrate with the F_E filtrate in a volume ratio of F_D to F_E within the range of from about 0.5:1 to about 4:1 for a mixing interval sufficient to reduce the amount of AOX in the F_D thereby providing an $F_D F_E$ mixture;
- contacting the $F_D F_E$ mixture with a coagulating compound and a foam concentrate to form a pre-foam mixture;
- treating the pre-foam mixture with a flocculating compound to form a floc in the pre-foam mixture;
- foaming the floc with an amount of air sufficient to form a foam containing the floc and entrained liquid;
- collecting the foam containing floc and entrained liquid;
- breaking the foam in a foam breaker in order to release the entrained liquid while forming a foam concentrate;
- separating the foam concentrate from the entrained liquid in a foam clarifier; and
- recycling a substantial portion of the foam concentrate to the $F_D F_E$ mixture.

5,670,021

PROCESS FOR PRODUCTION OF PAPER

Michael Owens, Wyee Point, Australia, assignor to Kemira Kemi Aktiebolag, Helsingborg, Sweden
PCT No. PCT/SE93/00063, § 371 Date Oct. 31, 1994, § 102(e)
Date Oct. 31, 1994, PCT Pub. No. WO93/15271, PCT Pub. Date Aug. 5, 1993

PCT Filed Jan. 28, 1993, Ser. No. 256,858

Int. Cl. D21H 21/10; 17/14

U.S. Cl. 162—164.1

10 Claims

1. A process for the production of paper by forming and dewatering of a suspension of cellulose comprising fibers and optional fillers and cationic starch on a wire or fabric, wherein the forming and dewatering takes place in the presence of a non-colloidal alkali metal silicate and a phenolic resin which are contacted together to form a structure which provides improved reactivity with polyethylene oxide compared with both the non-colloidal alkali metal silicate and the phenolic resin alone, wherein the non-colloidal alkali metal silicate and the phenolic resin are added to said suspension before or after contacting them together, and polyethylene oxide is added to said suspension at a subsequent point downstream from where the non-colloidal alkali metal silicate and the phenolic resin are added to the suspension, wherein the polyethylene oxide is added to the suspension upstream of the location of forming and dewatering said suspension.

5,670,022

TOP ROLL LIFTING ARRANGEMENT FOR A PRESS IN A PAPERMAKING OR BOARDMAKING MACHINE

Roland Bengtsson, Karlstad, Sweden, assignor to Valmet-Karlstad AB, Sweden

Filed Sep. 25, 1996, Ser. No. 719,474

Claims priority, application Sweden, Sep. 27, 1995, 9503358

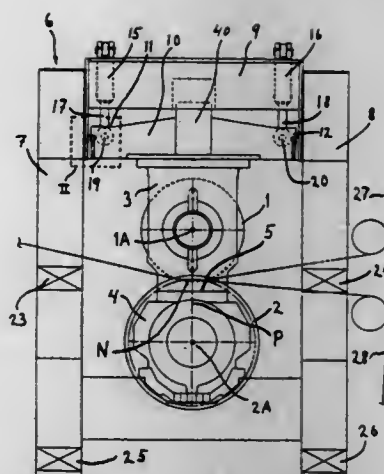
Int. Cl. D21F 3/00

U.S. Cl. 162—272

6 Claims

1. A top roll lifting arrangement in a roll press in a press section of a papermaking or boardmaking machine having a drive side and a tender side, the roll press including a top roll and a bottom roll and the rolls being opposed and parallel and having main axes which define a generally vertical press plane, and which together form a press nip, and where the roll press has a framework for the rolls, the framework including two side frames in parallel relationship to each other, one located on the drive side and the other one on the tender side of the machine, each of the side frames having a first and a second vertical column, the first column being located upstream of the press nip and the second column being located downstream of the press nip, wherein the arrangement comprises:

- a bracket adjacent each of the side frames for suspending the top roll therebelow, each bracket having a first end upstream



of the press nip and adjacent to the first vertical column, and a second end downstream of the press nip and adjacent to the second vertical column;

- a lifting device connected to at least one of the side frames for lifting and lowering the brackets;
- a plate member mounted on each vertical column, each plate member having an inclined guide and support surface facing the opposite plate member of the respective side frame so as to define between the inclined guide and support surfaces of each side frame a gap converging in a downward direction; and
- an inclined portion formed at each end of the brackets, the inclined portions converging in a downward direction towards the press plane and structured to co-operate with the plate members on the columns in such a way that, when the brackets are lowered, the guide and support surfaces and the co-operating inclined portions of the bracket ends will guide the bracket, and during operation of the machine they will stabilize the top roll in the machine direction.

5,670,023

PRESS OF A PAPER MACHINE FOR THIN PAPERS

Karl Steiner, Herbrechtingen; Albrecht Meinecke, Heidenheim, both of Germany; Rui Goncalves, Sao Paulo, Brazil, and Christian Schiel, Heidenheim, Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Germany

PCT No. PCT/EP94/01730, § 371 Date Jan. 30, 1995, § 102(e)

Date Jan. 30, 1995, PCT Pub. No. WO94/28240, PCT Pub. Date Dec. 8, 1994

PCT Filed May 27, 1994, Ser. No. 374,656

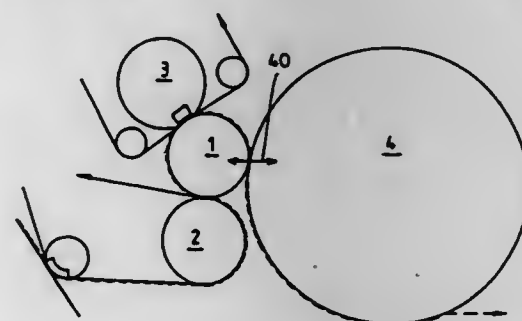
Claims priority, application Germany, May 29, 1993, 43 18

036.1; Jun. 26, 1993, 43 21 402.9

Int. Cl. D21F 3/04

U.S. Cl. 162—359.1

10 Claims



1. A section of a paper machine including a first machine portion comprising at least a portion of a press section of the papermaking machine, a second machine portion comprising at least a portion of a drying section directly following the press section, and a web

transfer arrangement defining a web transfer region located between the first portion and the second portion of the papermaking machine, in which:

the press section comprises:

- a rotatable, smooth surfaced, first tubular roll having a roll shell which is rigid and having a smooth peripheral outer surface which contacts a paper web directly, a felted second press roll, the first roll and the second roll being positioned to define a first press nip between them through which the paper web passes, the first roll constituting the last and final roll of the press section and the first press nip constituting the last and final press nip of the press section;

the press section being such that the paper web continues to traverse, past the first press nip, an unfelted portion of the first roll to the web transfer region;

the second portion comprises:

- a leading, heated unfelted drying cylinder located adjacent the unfelted portion of the first tubular roll of the press section; and

the web transfer arrangement between the first roll of the first portion and the drying cylinder of the second machine portion being such that the paper web is transferred directly from the first roll of the press section to the drying cylinder of the second machine portion without open draw, avoiding a free web path.

5,670,024

THERMAL TREATMENT PROCESS FOR WASTE AND/OR RESIDUAL MATERIALS

Franz Baltzer, and Horst Jöptner, both of Jena, Germany, assignors to WTU Wärmetechnik und Umweltschutz GmbH, Jena, Germany

PCT No. PCT/EP93/02100, § 371 Date Feb. 6, 1995, § 102(e)

Date Feb. 6, 1995, PCT Pub. No. WO94/03406, PCT Pub. Date Feb. 17, 1994

PCT Filed Aug. 6, 1993, Ser. No. 379,671

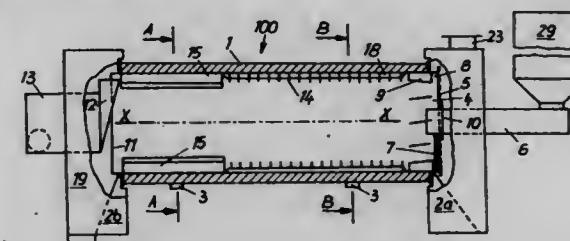
Claims priority, application Germany, Aug. 8, 1992, 42 26

271.2

Int. Cl. C10B 51/00

U.S. Cl. 201—25

9 Claims



1. A method for thermal treatment of waste and residual material having coats of organic materials comprising:

- employing a drum having a rotation axis and having radially disposed projections being rotatable about the rotation axis with 5 to 30 rotations per minute;
- feeding the waste and residual material in said drum from a charging end portion;
- transporting said waste and residual material through the drum within at least 2.5 minutes;
- continuously and progressively disintegrating said waste and residual material during transporting said waste and residual material from the charging end portion to a discharging end portion;
- heating said waste and residual material by only a hot gas stream having a temperature of 200° C. to 850° C. in the drum and flowing from said discharging end portion to said charging end portion with a speed of about 0.2 m/sec, related to a mean free cross-section of said drum and 0° C.;
- carbonizing and evaporating said coats of organic material in the drum; and
- completely combusting said organic material.

5,670,025

COKE OVEN DOOR WITH MULTI-LATCH SEALING SYSTEM

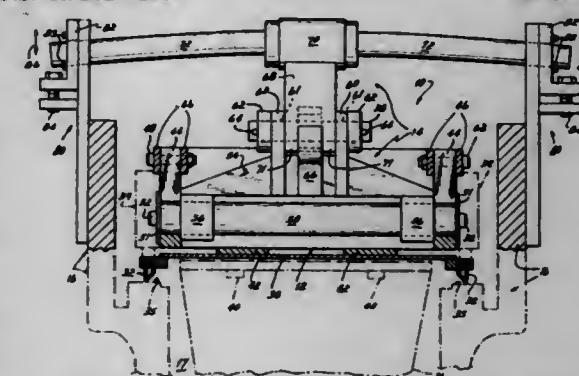
William Baird, Sturgis, Ky., assignor to Saturn Machine & Welding Co., Inc., Sturgis, Ky.

Filed Aug. 24, 1995, Ser. No. 519,408

Int. Cl. C10B 25/04; 25/10

U.S. Cl. 202—248

28 Claims



1. A coke oven door for placement against the door jamb of a coke oven to seal the oven, the door comprising:

- a door body;
- a plurality of toggle mechanisms, each toggle mechanism being pivotable and having an extended length when pivoted in one direction and having a shortened length when pivoted in the other direction, inner ends of the toggle mechanisms being coupled to the door body at spaced positions along the length of the door body;
- a flexible latch tension bar coupled to an outer end of each toggle mechanism proximate a longitudinal center of the tension bar and configured for engaging a latch connected to the door jamb, the latch tension bar flexing against the latch when the toggle mechanism is pivoted to an extended length for independently biasing the toggle mechanism against the door body to latch the body against the door jamb;

whereby the door body is forced against the jamb by a plurality of independent latching forces at positions along its length for more effective sealing of the oven.

5,670,026

IN-SERVICE CLEANING OF COLUMNS

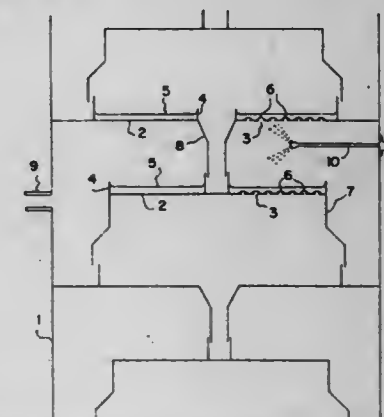
Charles R. Rutan, 6055 E. FM 1462, Rosharon, Tex. 77563
Division of Ser. No. 179,868, Jan. 11, 1994, Pat. No. 5,512,140.

This application Apr. 22, 1996, Ser. No. 636,006

Int. Cl. B01D 3/00; 3/16; B08B 9/00

U.S. Cl. 203—4

16 Claims



1. A method of cleaning a column while it is in service comprising inserting a lance into said column and passing a compatible liquid through said lance into said column at a pressure of at least about 1000 psig.

5,670,027

METHOD OF DRYING A GAS MAKING USE OF A DISTILLATION OF A LIQUID DESICCANT AGENT
Henri Paradowski, Cergy Pontoise, France, assignor to Technip, Courbevoie, France

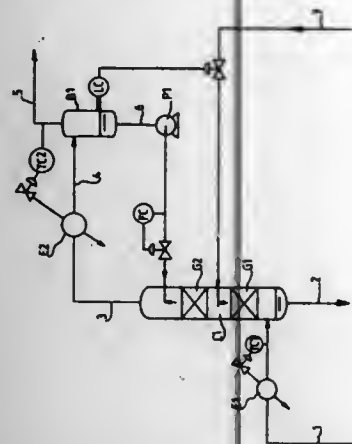
Filed Oct. 16, 1995, Ser. No. 543,456

Claims priority, application France, Oct. 24, 1994, 94 12687

Int. Cl.⁶ B01D 3/00; C07C 29/80

U.S. Cl. 203—18

14 Claims



1. A process for drying a moist gas comprising the steps of:
 - a. feeding a stream of moist gas to be dried at the bottom of an elongated vertical contact and fractional distillation zone, feeding a first stream of liquid containing water and an organic solvent miscible with water to the top of said elongated vertical contact and fractional distillation zone, said organic solvent being more volatile than water under the process conditions but not forming an azeotrope with water, and contacting in counter-current relationship in the said zone an upward flowing stream of said moist gas with a downward flow of said first stream of liquid containing water and an organic solvent miscible with water under fractional distillation conditions of the components of the downward flowing stream of liquid;
 - b. discharging at the bottom of the contact and fractional distillation zone a stream of liquid enriched with water and having become lean in the said organic solvent;
 - c. discharging at the head of the contact and fractional distillation zone a stream of dried gas-enriched with vapor of the said organic solvent;
 - d. cooling the stream of dried gas of the step (c) to condense a liquid phase and separating said condensed liquid phase from the said dried gas;
 - e. returning the condensed liquid phase to the top of the contact zone of the step (a) as said first stream of liquid; and
 - f. feeding a second stream of liquid containing water and organic solvent into an intermediate zone of the elongated vertical contact and fractional distillation zone, of the step (a), the said intermediate zone separating the said contact and fractional distillation zone into a first contact and fractional distillation zone located in the lower portion of the contact zone of the step (a) between the zone of introduction of the stream of moist gas and the intermediate zone a second contact and fractional distillation zone located in the upper portion of the contact zone of the step (a) between the said intermediate zone and the top of the contact zone of step (a), the organic solvent in said second stream being defined as in step (a) and being present in an amount at least equal to that of the organic solvent lost in the discharged streams of the dried gas of the step (d) and of the bottom liquid of the step (b).

5,670,028

PROCESS FOR PREPARING HIGH PURITY HYDROGEN PEROXIDE AQUEOUS SOLUTION
Yukio Inaba; Yohsuke Ueno; Masahiko Watanabe, and Yukihiko Nishida, all of Ube, Japan, assignors to Ube Industries, Ltd., Yamaguchi-ken, Japan

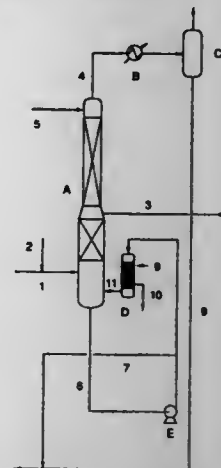
Filed Nov. 16, 1995, Ser. No. 558,724

Claims priority, application Japan, Nov. 22, 1994, 6-288155

Int. Cl.⁶ B01D 3/00; 3/34

U.S. Cl. 203—86

9 Claims



1. A process for preparing a high purity hydrogen peroxide aqueous solution, which comprises the steps of:
 - feeding a crude hydrogen peroxide aqueous solution containing hydrogen peroxide, organic carbon impurities and inorganic impurities into a distillation column from a bottom portion of the distillation column, said distillation column having an inner wall at least the surface of which is made of a fluorine resin and almost all internals and packings at least the surface of which are made of a fluorine resin being provided internally of the distillation column;
 - subjecting the crude hydrogen peroxide aqueous solution to distillation under reduced pressure and under heating of the bottom portion;
 - taking out a distillate from a top portion of the distillation column without using the distillate for reflux in a distillation operation, and feeding ultra pure water in an amount satisfying a feeding ratio represented by the following formula:

$$\text{Feeding ratio} = \frac{\text{Amount of ultra pure water fed into column top}}{\text{Amount of column top distillate} - \text{Amount of ultra pure water fed into column top}}$$

being 0.1 to 20, into the top portion of the distillation column; and taking out a high purity hydrogen peroxide aqueous solution from a middle portion of the distillation column, in a batch or continuous process.

5,670,029

PROCESS FOR THE SEPARATION OF A MIXTURE OF BENZYL CHLORIDE, BENZYL ALCOHOL, DIBENZYL ETHER AND AQUEOUS HYDROCHLORIC ACID
Hans-Josef Buysch; Ursula Jansen; Pieter Ooms, all of Krefeld; Erhard-Günther Hoffmann, Ratigen, and Bernd-Ulrich Schenke, Bottrop, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 3, 1996, Ser. No. 724,651

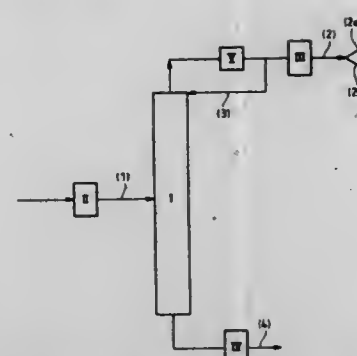
Claims priority, application Germany, Oct. 10, 1995, 195 37 752.4

Int. Cl.⁶ B01D 3/10

U.S. Cl. 203—91

12 Claims

1. Process for the separation of a mixture which contains benzyl chloride, benzyl alcohol, dibenzyl ether and aqueous hydrochloric acid, which comprises feeding said mixture via a side-feed to a continuously operating distillation column having a stripping sec-



tion and enrichment section, operated at a pressure of 1–950 mbar at the top of the column, withdrawing a mixture of benzyl chloride and aqueous hydrochloric acid from the top of the distillation column and withdrawing a mixture of benzyl alcohol and dibenzyl ether from the bottom of the column.

5,670,030

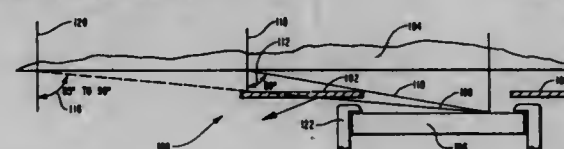
METHODS FOR PREPARING LOW SCATTER OPTICAL COATINGS
Scott Eugene Solberg; Richard Ian Seddon; Bradley James Pond, and William Thomas Beauchamp, all of Santa Rosa, Calif., assignors to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Mar. 19, 1996, Ser. No. 617,678

Int. Cl.⁶ C23C 14/34

U.S. Cl. 204—192.26

18 Claims



1. A sputtering process for forming at least one layer of a thick optical coating having low scattering characteristics, said process comprising the steps of:
 - providing a sputtering system comprising a sputtering gas, a target comprised of material to be sputtered, and a surface upon which a layer of said material is to be formed;
 - said sputtering system utilizing a sputtering gas that has a particle mass less than the particle mass of said target material to be sputtered so as to diminish deflection of target material caused by collisions of sputtered target material with the sputtering gas;
 - sputtering said target material toward said surface; intercepting at least a major portion of any material being sputtered which without interception would arrive at said surface at incidence angles greater than about 85° from normal whereby a layer of the target material having low scattering characteristics is deposited on said surface.

5,670,031

ELECTROCHEMICAL SENSOR
Rainer Hintsche, Berlin; Manfred Paeschke, Basdorf; Uwe Schnakenberg, and Ulla Wollenberger, both of Berlin, all of Germany, assignors to Fraunhofer-Gesellschaft zur angewandten Forschung e.V., Munich, Germany

PCT No. PCT/DE94/00598, § 371 Date Nov. 22, 1995, § 102(e) Date Nov. 22, 1995, PCT Pub. No. WO94/29708, PCT Pub. Date Dec. 22, 1994

PCT Filed May 21, 1994, Ser. No. 553,266

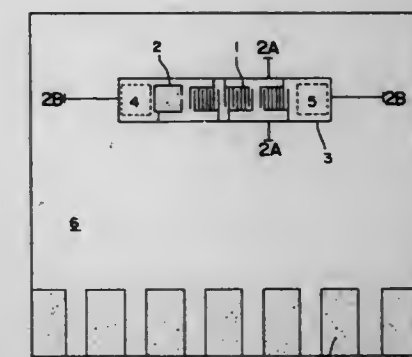
Claims priority, application Germany, Jun. 3, 1993, 43 18 519.3

Int. Cl.⁶ G01N 27/26

U.S. Cl. 204—412

14 Claims

1. An electrochemical sensor, comprising:
 - substantially dielectric first planar substrate means;



a plurality of micro-electrode means provided on said dielectric substrate means and arranged as an array extending along a set axis, each said micro-electrode means comprising first and second sets of substantially parallel finger means of set lengths and of widths of about 1 μm and extending in a direction substantially normal to said axis, said finger means being interdigitated and electrically insulated from each other by spacings of about 700 nm; single reference electrode means provided on said substrate means electrically insulated from said micro-electrode means; and means for selectively connecting each of said micro-electrode means and said reference electrode means to a different electrical potential.

5,670,032

ELECTRO-CHEMICAL MEASURING SENSOR WITH A POTENTIAL-FREE SENSOR ELEMENT AND METHOD FOR PRODUCING IT
Karl-Hermann Friese, Leonberg; Helmut Weyl, Schwieberdingen; Siegfried Nees, Neckarwestheim, and Hans-Martin Wiedenmann, Stuttgart, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

PCT No. PCT/DE94/00791, § 371 Date Jan. 25, 1996, § 102(e) Date Jan. 25, 1996, PCT Pub. No. WO95/04273, PCT Pub. Date Feb. 9, 1995

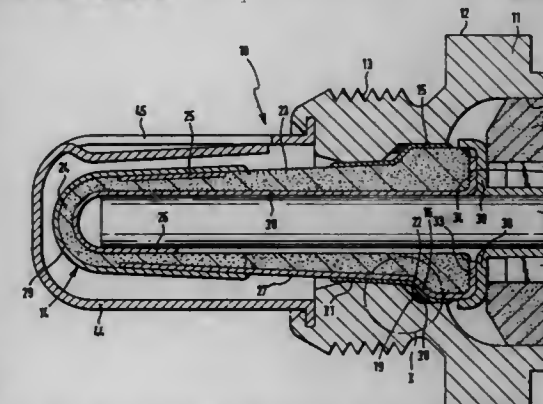
PCT Filed Jul. 9, 1994, Ser. No. 592,381

Claims priority, application Germany, Jul. 27, 1993, 43 25 157.9; Dec. 15, 1993, 43 42 731.6

Int. Cl.⁶ G01N 27/26

U.S. Cl. 204—424

23 Claims



1. An electro-chemical measuring sensor for determining the oxygen content of gases, including a potential-free arranged sensor element having an oxygen-ion-conducting solid electrolyte body and electrodes with electrically conducting connectors, wherein the sensor element is inserted with a sealing ring into a metal housing and at least one electrically conducting connector facing the housing is electrically insulated in respect to the housing by an electrically insulating layer in the area of the sealing ring, wherein the insulating layer is formed of a mixture of a crystalline, non-metallic material and a glass-forming material such that a glaze

filled with crystalline, non-metallic material is formed by heating, and wherein the glass-forming material is an earth alkali silicate glass.

5,670,033

PROCESS FOR MAKING COPPER METAL POWDER, COPPER OXIDES AND COPPER FOIL

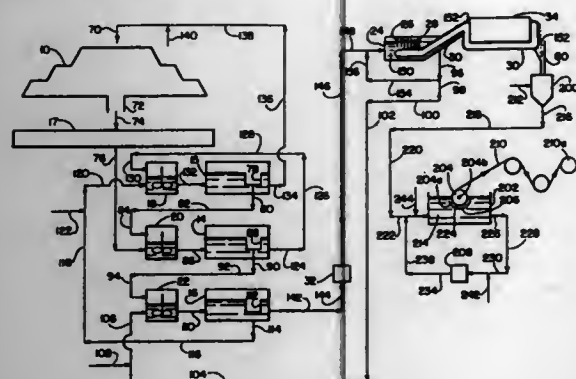
David P. Burgess, Mentor, Ohio; Wendy M. Gort, Winkelman, Ariz.; Ronald K. Haines, Mentor, Ohio; Jackson G. Jenkins, Oracle; Stephen J. Kohnt, Chandler, both of Ariz., and Peter Peckham, Concord, Ohio, assignors to ElectroCopper Products Limited, Mesa, Ariz.

Continuation-in-part of Ser. No. 454,537, Mar. 30, 1995, Pat. No. 5,520,792, which is a continuation of Ser. No. 287,703, Aug. 9, 1994, Pat. No. 5,458,746, which is a continuation of Ser. No. 49,160, Apr. 19, 1993, abandoned. This application Oct. 18, 1995, Ser. No. 544,619

Int. Cl.⁶ C25C 1/12

U.S. Cl. 205—74

31 Claims



19. A process for making copper metal powder from a copper-bearing material, comprising:

- contacting said copper-bearing material with an effective amount of at least one aqueous leaching solution to dissolve copper ions in said leaching solution and form a copper-rich aqueous leaching solution;
- contacting said copper-rich aqueous leaching solution with an effective amount of at least one water-insoluble extractant to transfer copper ions from said copper-rich aqueous leaching solution to said extractant to form a copper-rich extractant and a copper-depleted aqueous leaching solution;
- separating said copper-rich extractant from said copper-depleted aqueous leaching solution;
- contacting said copper-rich extractant with an effective amount of at least one aqueous stripping solution to transfer copper ions from said extractant to said stripping solution to form a copper-rich stripping solution and a copper-depleted extractant;
- separating said copper-rich stripping solution from said copper-depleted extractant to form a first electrolyte solution;
- advancing said first electrolyte solution into an electrolytic cell equipped with at least one first anode and at least one first cathode, said electrolyte solution being characterized by a free chloride concentration of up to about 5 ppm, and applying an effective amount of voltage across said first anode and said first cathode to deposit copper metal powder on said first cathode;
- removing copper metal powder from said first cathode;
- calcining said copper metal powder from step (G) to form cupric oxide, cuprous oxide, or a mixture thereof;
- dissolving said cupric oxide, cuprous oxide or mixture thereof from step (H) in an aqueous sulfuric acid solution to form a second electrolyte solution;
- flowing said second electrolyte solution in an electroforming cell between a second anode and a second cathode, said second cathode being a rotating cathode, and applying an

effective amount of voltage across said second anode and said second cathode to deposit copper foil on said second cathode; and

(J) removing copper foil from said second cathode.

5,670,034

RECIPROCATING ANODE ELECTROLYTIC PLATING APPARATUS AND METHOD

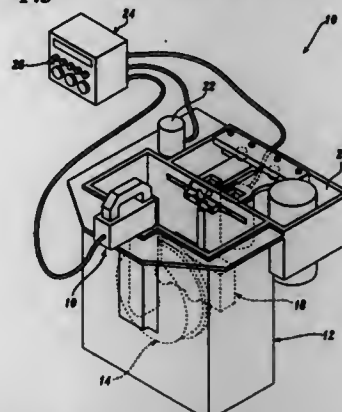
Kenneth J. Lowery, San Dimas, Calif., assignor to American Plating Systems, Ontario, Calif.

Continuation-in-part of Ser. No. 500,424, Jul. 11, 1995. This application Jun. 17, 1996, Ser. No. 664,362

Int. Cl.⁶ C25D 5/04; 17/00

U.S. Cl. 205—143

22 Claims



18. A method for electrolytic plating of a substrate in an electrolytic bath, comprising the steps of:

- mounting the substrate on a substrate fixture suspended within the electrolytic bath, with the substrate being oriented in spaced disposition relative to an anode also suspended within the electrolytic bath;
- rotating one of the substrate fixture and anode about a first axis of rotation; and
- translating the other of the substrate fixture and anode transversely relative to the axis of rotation during plating.

5,670,035

METHOD FOR RECOVERING COPPER

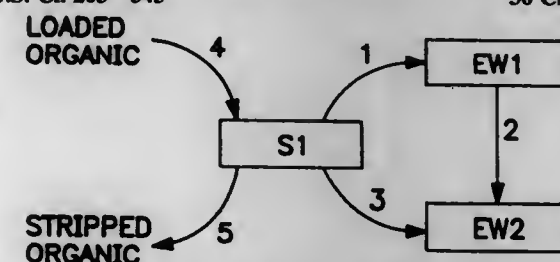
Michael J. Virnig, Tucson, Ariz., and J. Murdoch MacKenzie, Gisborne, Australia, assignors to Henkel Corporation, Plymouth Meeting, Pa.

Filed Jun. 6, 1995, Ser. No. 466,166

Int. Cl.⁶ C25C 1/12; C22B 3/30; 3/28

U.S. Cl. 205—345

36 Claims



15. An improved process for the solvent extraction of copper from an aqueous feed solution, wherein said aqueous feed solution is contacted with a first organic extractant solution to produce a loaded first organic solution enriched in copper and an aqueous solution depleted in copper and enriched in acid, and the loaded first organic solution is contacted with a strong acid strip solution to produce a stripped first organic solution depleted in copper and a pregnant strong acid strip solution enriched in copper, the improvement comprising the additional steps of (1) contacting said aqueous solution depleted in copper and enriched in acid with a

second organic extractant solution capable of extracting a mineral acid, (2) separating the phases, to produce a second loaded organic solution enriched in acid and an aqueous solution depleted in acid, (3) contacting said aqueous solution depleted in acid with a second portion of the first organic extractant solution, and (4) separating the phases to produce a loaded organic solution enriched in copper and an aqueous solution further depleted in copper and enriched again in acid.

34. A process as defined in claim 15 comprising the additional step of removing copper from said pregnant strong acid strip solution enriched in copper by electrowinning.

35. A process as defined in claim 34 wherein said electrowinning comprises a first step conducted with electrolyte flowing perpendicular to the cathode surface and without auxiliary mixing of electrolyte between electrodes, and a second step conducted with electrolyte flowing parallel to the cathode surface, whereby the copper concentration of electrolyte after electrowinning is reduced below about 30 g/l.

36. A process as defined in claim 35 wherein the condition of electrolyte flowing parallel to the cathode surface in said second electrowinning step is provided by one or more cells, each cell comprising an elongate cylindrical housing having an internal conductive surface which functions as a cathode, an anode extending into the housing disposed at the axis of the cylindrical housing, electrical terminations for connecting an electrical circuit to said conductive surface and said anode, housing ends, and inlet and outlet means at opposite ends of the housing disposed perpendicular to the housing axis and tangential to the housing surface such that a spiral motion is imparted to electrolyte passing through the cell.

5,670,036

METHOD FOR CONVERTING AMMONIA IN A GAS STREAM TO NITROGEN

Duncan Alistair Campbell, Whitby, and Daniel Gilroy, Tarvin, both of United Kingdom, assignors to EA Technology Limited, Chester, United Kingdom

PCT No. PCT/GB94/00958, § 371 Date Mar. 21, 1996, § 102(e) Date Mar. 21, 1996, PCT Pub. No. WO94/26395, PCT Pub. Date Nov. 24, 1994

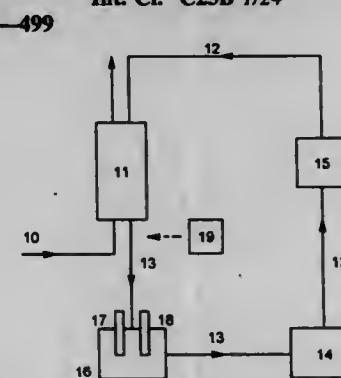
PCT Filed May 5, 1994, Ser. No. 545,649

Claims priority, application United Kingdom, May 7, 1993, 9309408

Int. Cl.⁶ C25B 1/24

U.S. Cl. 205—499

10 Claims



1. A process for converting ammonia in a gas stream to nitrogen, which process comprises contacting the said gas stream with an electrolyte containing bromide and hypobromite ions to dissolve ammonia and to cause oxidation of the dissolved ammonia to produce nitrogen by oxidations with hypobromite ions, and thereafter passing the said electrolyte through an electrochemical cell containing an anode and a cathode so that hypobromite ions are regenerated by the action of the electric current flowing across the cell, wherein said current is switched on or off, according to whether the potential difference between a standard reference electrode and a sensing electrode, which is immersed in the electrolyte at the exit to the cell or an electrolyte holding tank, is greater than or less than a fixed value so that ammonium or

5,670,037

PROCESS FOR PRODUCING LIGHT OLEFINS BY CATALYTIC CONVERSION OF HYDROCARBONS

Li Zaiting; Xie Chaogang; Shi Wenyuan; Jiang Fukang; Lin Shunhua; Pan Renmin, and Li Shichun, all of Beijing, China, assignors to China Petro-Chemical Corporation, and Research Institute of Petroleum Processing, SINOPEC, both of Beijing, China

Filed Apr. 25, 1994, Ser. No. 232,605

Claims priority, application China, Nov. 5, 1993, 93119748.1 Int. Cl.⁶ C10G 11/02

U.S. Cl. 208—114

17 Claims

1. A process for the catalytic conversion of a petroleum hydrocarbon feedstock comprising: catalytically converting said preheated hydrocarbons by contacting said preheated hydrocarbons with phosphorus and rare earth containing high silica zeolite having a structure of pentasil catalysts in a riser or downflow reactor at a temperature of 530° to 680° C. and a pressure of 1.2×10⁵ to 4×10⁵ Pa, with a contact time of 0.1 to 6 seconds, a weight ratio of catalyst to feedstock of 5:1 to 15:1 and a weight ratio of steam to feedstock of 0.01:1 to 0.5:1 to selectively produce light olefins comprising ethylene, propylene, isobutylene and isoamylene

wherein said phosphorus and rare earth containing high silica zeolite having a structure of pentasil catalysts comprises a rare earth containing high silica zeolite having a structure of pentasil which has been pre-exchanged with ammonium ion to decrease its sodium content to a level of not more than 0.1% by weight, calculated as Na₂O, and homogeneously mixed with an aluminum phosphate sol having a composition of Al₂(P₂O₅)₃=1:1-3 according to a weight ratio of P₂O₅:zeolite (anhydrous basis)=1:5-99, followed by calcination at 300°-600° C. for 0.5-6 hours in the presence of 10-100% steam.

5,670,038

LIQUID FILTER SYSTEM

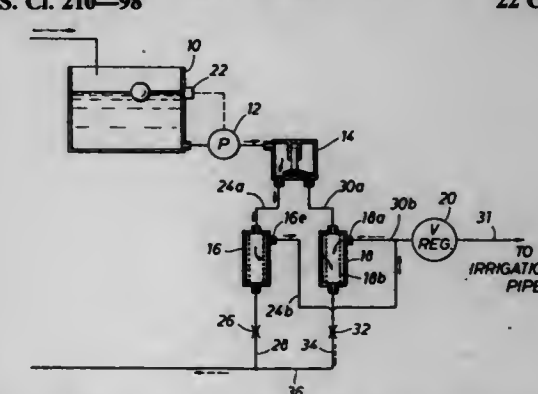
Jerry L. McKinney, P.O. Box 546, Silsbee, Tex. 77656

Filed Sep. 6, 1995, Ser. No. 524,334

Int. Cl.⁶ B01D 21/24

U.S. Cl. 210—98

22 Claims



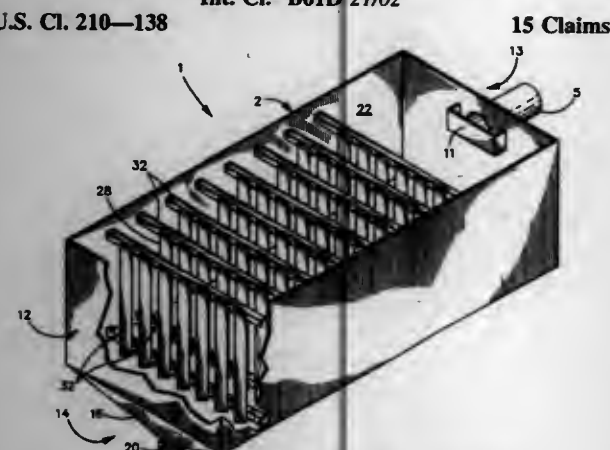
1. A liquid filter system comprising two filter assemblies, each filter assembly having a housing, a cylindrical filter screen mounted in the housing with an annular space between the filter and the housing, a liquid inlet in one end of the housing through which the liquid enters the screen where a portion of the liquid is filtered through the walls of the screen into the annular space, an outlet in the side of the housing through which the filtered liquid flows out of the housing, a second outlet at the other end of the housing through which unfiltered liquid flows out of the housing, a flow line connecting the filtered liquid outlets of both filter assemblies to a common filtered liquid line, a pressure regulator in the

common filtered liquid flow line to limit the pressure of the filtered liquid provided by the system, and a restriction in the second outlet in the housing of each filter screen assembly to restrict the flow of unfiltered liquid from each filter assembly to maintain the pressure of the filtered liquid sufficient for a portion of the filtered liquid to flow into the annular space between the filter screen and the housing of the second filter assembly to backwash the filter screen in the second filter screen assembly, and means for alternating the flow of liquid to the two filter screen assemblies to alternately backwash the filter screen of one filter screen assembly as the other filter screen assembly is filtering the liquid.

5,670,039
LINEAR SOLIDS REMOVAL UNIT
Ronald B. Harris, 28109 Charlie Watts Rd., Livingston, La. 70754

Filed May 26, 1995, Ser. No. 451,740
Int. Cl.⁶ B01D 21/02

U.S. Cl. 210—138



1. A solids removal and concentrating unit comprising:
- a tank having a length;
 - an inlet line, an outlet line, and a sludge removal line communicating with said tank;
 - a plurality of linear baffles positioned in said tank and forming a baffle row, said baffles having a long axis positioned at an angle of less than 20° from a vertical orientation and being positioned substantially perpendicular to a carrier liquid flow through said tank; and
 - said tank further having a plurality of said baffle rows extending along at least half of said length of said tank.

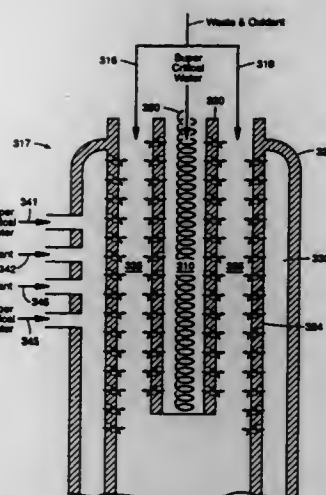
5,670,040
INTERNAL PLATELET HEAT SOURCE AND METHOD OF USE IN A SUPERCRITICAL WATER OXIDATION REACTOR

Kawaljit Singh Ahluwalia, Montville, N.J., assignor to Foster Wheeler Development Corporation, Livingston, N.J.
Division of Ser. No. 394,864, Feb. 27, 1995, Pat. No. 5,571,424. This application Aug. 13, 1996, Ser. No. 696,205
Int. Cl.⁶ C02F 1/72

U.S. Cl. 210—198.1

12 Claims

1. An apparatus for the supercritical water oxidation of organic waste material comprising:
- a compound platelet tube reactor which comprises inner and outer platelet tubes supported concentrically within an outer shell, said compound reactor comprising, at least for part of its length, three elongated chambers: (i) a central chamber within the inner platelet tube, (ii) an outer annular chamber defined by the outer surface of the outer platelet tube and the inner surface of the reactor shell and (iii) an inner annular chamber comprising a reaction zone and defined by the outer surface of the inner platelet tube and the inner surface of the outer platelet tube, said inner and outer platelet tubes being



formed from a plurality of thin plates assembled into tube shapes and provided with a plurality of fluid passages, which permit the flow of fluid into the reaction zone through a plurality of apertures;

means for feeding a pressurized aqueous reaction mixture of the waste material and an oxidant source at ambient temperature to the reaction zone;

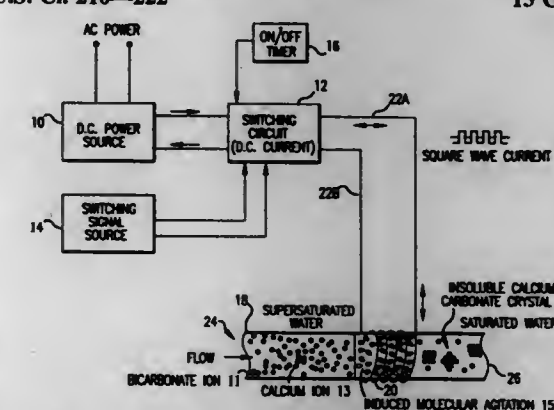
means for feeding supercritical water to at least one point along said outer annular chamber and to said central chamber such that supercritical water is injected into the reaction zone from both said outer annular chamber and from said central chamber, forming thin films of protective supercritical water over substantially the entire surfaces which define the reaction zone and heating the mixture of waste material and oxidant to reaction temperature; and

means for removing a resulting reaction product from said reaction zone.

5,670,041
REDUCED CORROSION ELECTRONIC DESCALING TECHNOLOGY
Young I. Cho, Cherry Hill, N.J., and Karl M. Kyriess, West Chester, Pa., assignors to Electronic De-Scaling 2000, Inc., Boothwyn, and Drexel University, Philadelphia, both of Pa.
Filed Oct. 17, 1995, Ser. No. 544,026
Int. Cl.⁶ C02F 1/48

U.S. Cl. 210—222

13 Claims



1. A process of transporting hard water through a vessel which has a first portion on whose inner surface scale is deposited due to adhesion of the materials which make the water hard, said process including the steps of
- producing through magnetic induction, in a second portion of the vessel located upstream from the first portion, molecular agitation of said materials and formation of bubbles of CO₂ and local areas of low pH in the immediate vicinity of said CO₂ bubbles which then remove said deposited scale from

those locations in said first vessel portion which are contacted by said bubbles and local areas of low pH,

repeatedly turning on and off said producing of molecular agitation of said materials, where said formation of bubbles and local areas of low pH ceases and scale is redeposited during each said turning off, in locations in said first vessel portion from which scale had been removed by having been contacted by said bubbles and local areas of low pH during each said turning on.

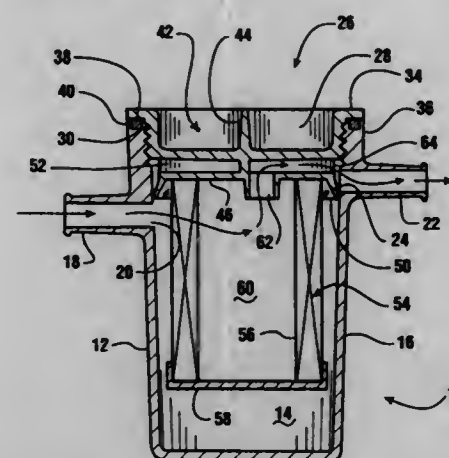
5,670,042
FUEL FILTER ASSEMBLY WITH REPLACEABLE ELEMENT HAVING INTEGRAL COVER
Michael D. Clausen, Turlock, and Walter H. Stone, Modesto, both of Calif., assignors to Parker Hannifin Corporation, Cleveland, Ohio

Filed Jun. 18, 1993, Ser. No. 79,662

Int. Cl.⁶ B01D 35/02

U.S. Cl. 210—238

32 Claims



1. A filter assembly for filtration of liquid comprising:
- a housing including a chamber means, said housing including an opening therethrough to said chamber means, said chamber means having a closed end opposite said opening in said housing and being bounded by a generally longitudinally extending, imperforate annular wall;
 - inlet port means for delivering liquid into said housing;
 - outlet port means for delivering liquid from said housing;
 - said inlet and outlet port means being in fluid communication with said chamber means through respective apertures in said annular wall that are longitudinally spaced apart along the longitudinal extent of said annular wall and longitudinally spaced from the closed end of said chamber means; and
 - a removable element in said chamber means, said element including an interior area and an exterior area divided by media means for removing contaminants from liquid passing therethrough, said exterior area in fluid communication with one of said inlet and outlet port means;
 - said element means further including a dividing means for fluidly dividing a first area in said chamber means from a second area, said dividing means including second fluid passage means therethrough, said second fluid passage means providing fluid communication between said interior area and said second area, said dividing means further including resilient annular radially extending deformable engaging means deformably engaged circumferentially about said annular wall, and wherein said apertures are respectively located in said first and second areas; and
 - closure means for removably closing said opening in said housing, comprising:
 - a closure portion for closing said opening, said closure portion being externally threaded at its outer diameter, whereby the filter element is screwable into the housing;

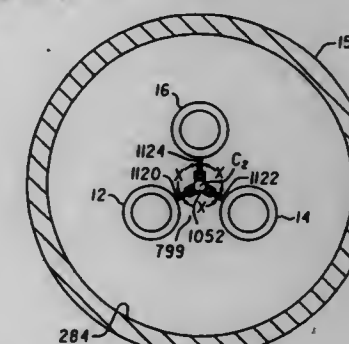
a dividing means for fluidly dividing said chamber means, said dividing means longitudinally disposed from said closure portion and adapted for dividing a first area from a second area, said dividing means including resilient annular radially extending deformable engaging means for deformably engaging said annular wall circumferentially; filter media loop means adhesively attached at an open end thereof to said dividing means for removing contaminants from liquid flowing therethrough, said media loop means fluidly disposed between said first and second areas, said dividing means having a central portion surrounded by said deformable engaging means, said central portion longitudinally spaced from said closure portion and extending radially inwardly beyond a radially innermost annular surface of said media loop means adjacent said open end of said media loop means and including one end of a fluid passage connected to an interior area of said media loop means, and said fluid passage having an end opposite said interior area opening to a radially outer wall of said dividing means.

5,670,043
MULTI-FUNCTION SELF-CLEANING FLUID TREATMENT SYSTEM AND METHOD FOR USING THE SAME

Sun Y. Lee, Arvada, Colo., assignor to Coors Brewing Company, Golden, Colo.
Continuation-in-part of Ser. No. 383,248, Feb. 3, 1995, Pat. No. 5,543,087, which is a continuation-in-part of Ser. No. 168,954, Dec. 17, 1993, Pat. No. 5,387,339. This application May 17, 1996, Ser. No. 649,183
Int. Cl.⁶ B01D 33/073

U.S. Cl. 210—396

2 Claims



1. A high efficiency, self-cleaning fluid filtration system comprising:
- a housing;
 - a plurality of elongate filter cartridge units positioned within said housing, each of said cartridge units comprising a longitudinal axis, an upper end, a lower end, a side wall portion comprised of filter material, and an interior region therein surrounded by said side wall portion for receiving fluid materials which pass through said side wall portion, each of said cartridge units being rotatable around said longitudinal axis thereof;
 - an elongate vertical support member secured to and within said housing adjacent said filter cartridge units, said support member further comprising a plurality of elongate channel members secured thereto, each of said channel members comprising a first end, a second end, a first side panel, and a second side panel spaced apart from said first side panel to form a gap therebetween, said first side panel further comprising an outer longitudinal edge having a ridge portion thereon which extends inwardly into said gap, said second side panel further comprising an outer longitudinal edge having a ridge portion thereon which extends inwardly into said gap, said vertical support member further comprising a plurality of elongate brush assemblies thereon, each of said brush assemblies comprising a longitudinal retaining strip which comprises a row of bristles secured to said strip and extending outwardly there-

from, each of said brush assemblies being positioned within said gap of one of said channel members and retained therein by engagement of said retaining strip against said ridge portion on said first side panel and said ridge portion on said second side panel, said first side panel and said second side panel of each of said channel members being tilted inwardly toward each other at said second end thereof to prevent premature brush assembly displacement through said second end, said support member being oriented within said housing so that said side wall portion of each of said cartridge units is placed against and in direct contact with said bristles of at least one of said brush assemblies, said brush assemblies removing collected debris from said side wall portion of each of said cartridge units during rotation thereof; and drive means operatively connected to all of said filter cartridge units for simultaneously rotating each of said cartridge units around said longitudinal axis thereof, said rotating of said cartridge units by said drive means causing said cartridge units to filter solid materials from said fluid materials with increased efficiency, said brush assemblies removing said debris from said side wall portion of each of said cartridge units during said rotation thereof to further increase said efficiency of said filtration system.

5,670,044 CYLINDRICAL FILTER AND PROCESS FOR PRODUCING THE SAME

Satoshi Ogata, and Yoshimi Tsujiyama, both of Shiga-ken, Japan, assignors to Chisso Corporation, Ohsaka-fu, Japan. Continuation-in-part of Ser. No. 57,116, May 4, 1993, Pat. No. 5,429,745. This application May 24, 1995, Ser. No. 449,082. Int. Cl.⁶ B01D 27/02; 39/06

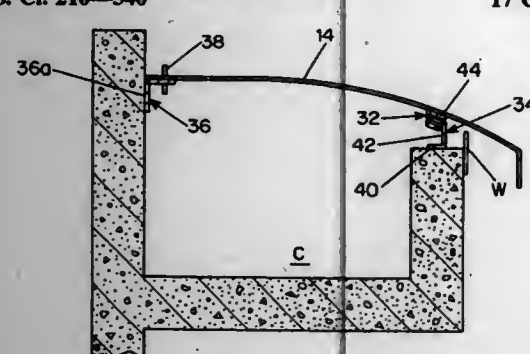
U.S. Cl. 210—497.01

1. A cylindrical filter formed of stacked microfine, conjugate fibers consisting of a higher melting point component and a lower melting point component, each obtained by a melt-blow spinning process, the fiber diameter of the conjugate fibers becoming smaller in the direction of passage of a fluid to be filtered, and the contact point of the conjugate fibers being melt-adhered by the lower melting point component,

wherein the fiber diameter of the conjugate fibers is varied from 2.5–10 micron on the inlet surface of the filter to 0.5–3.0 micron on the outlet surface of the filter, and said filter has a pressure resistance of at least about 5.0 Kg/cm², a filtration life of at least about 20 minutes, and a filtration accuracy of at least about 0.5 micron.

5,670,045
LAUNDER COVER FOR USE IN A CLARIFIER TANK
Earle Schaller, Palm Beach Gardens, Fla., assignor to NEFCO, Inc., Palm Beach Gardens, Fla.
Continuation of Ser. No. 333,411, Nov. 2, 1994, abandoned.
This application Aug. 3, 1996, Ser. No. 696,358
Int. Cl.⁶ B01D 21/24

U.S. Cl. 210—540



1. In a water treatment tank apparatus including an influent, at least one substantially vertical peripheral wall having an upper and an interior surface, a substantially vertical weir connected to said vertical peripheral wall, and a launder channel having a width, the improvement comprising:

cover means, including at least one panel member, said cover means having first and second ends, said first end being secured to the tank and said second end positioned over at least a portion of the launder channel and radially outwards from said vertical weir, for preventing light from reaching interior surfaces thereof, said at least one panel member being dimensioned to span the width of said launder channel and being comprised of a substantially opaque material, whereby the growth of algae on fluid contacting surfaces of the launder channel is inhibited;

support means coupled to said tank wall for supporting said first end of said cover means;

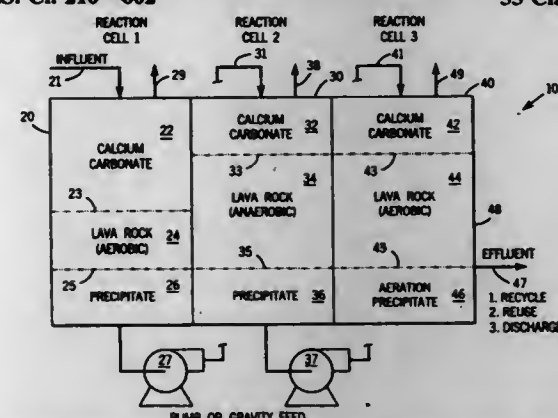
a support flange for supporting said panel member at said substantially vertical wall so that said second end of said cover means is cantilevered over said vertical weir and terminates at a free end, said support flange having a first end and a second end distal to said first end, said first end secured to said launder channel; and

pivot means coupled to said second end of said support flange and to said panel member for pivoting said panel member away from said tank wall about a pivot axis between a first closed position and a second open position so as to allow access for cleaning of said launder channel.

5,670,046
TREATMENT OF NUTRIENT-RICH WATER
Ronald C. Kimmel, Belle Glade, Fla., assignor to RJJB & G, Inc., West Palm Beach, Fla.
Continuation-in-part of Ser. No. 314,605, Sep. 28, 1994, Pat. No. 5,462,666. This application Oct. 30, 1995, Ser. No. 550,490. Int. Cl.⁶ C02F 3/06; 3/30; 3/10; 3/32

U.S. Cl. 210—602

33 Claims



1. A method of treating nutrient-rich water containing nitrogen compounds, phosphorous compounds, and other minerals comprising the following steps:

(a) feeding the nutrient-rich water to at least one first reaction vessel having a first zone containing a substantially insoluble basic salt and a second zone containing aerobic microorganisms retained on an inert substrate;

(b) controlling the rate of flow of the water to carry out in the first reaction vessel the reactions of:

(1) maintaining the pH of the water in the first zone for precipitating at least a portion of the phosphorous compounds and other minerals, and
(2) biologically oxidizing in the second zone under aerobic conditions at least a portion of the nitrogen compounds to nitrites and nitrates;

(c) feeding the water from the first vessel to at least one second reaction vessel having a first zone containing a substantially insoluble basic salt and a second zone containing anaerobic microorganisms retained on an inert substrate;

(d) controlling the rate of flow of the water to carry out in the second reaction vessel the reactions of:

(1) maintaining the pH of the water in the first zone for precipitating at least a portion of the phosphorous compounds and other minerals, and

(2) biologically reducing in the second zone under anaerobic conditions at least a portion of the nitrites and nitrates to nitrogenous gas;

(e) feeding the water from the second vessel to at least one third reaction vessel having a first zone containing a substantially insoluble basic salt and a second zone containing aerobic microorganisms retained on an inert substrate;

(f) aerating the third reaction vessel;

(g) controlling the rate of flow of the water to carry out in the third reaction vessel the reactions of:

(1) maintaining the pH of the water in the first zone for precipitating at least a portion of the phosphorous compounds and other minerals, and

(2) biologically oxidizing in the second zone under aerobic conditions at least a portion of the nitrogen compounds to nitrates;

(h) removing water from the third reaction vessel; and

(i) feeding water from the third reaction vessel to an algae filter comprising a vessel having an inlet and an outlet, a medium disposed in the vessel whereby the medium is capable of supporting algae growth, and an artificial light source whereby the artificial light source is disposed to direct light onto the medium supporting algae growth.

5,670,047
ANAEROBIC TREATMENT PROCESS FOR THE RAPID
HYDROLYSIS AND CONVERSION OF ORGANIC
MATERIALS TO SOLUBLE AND GASEOUS
COMPONENTS

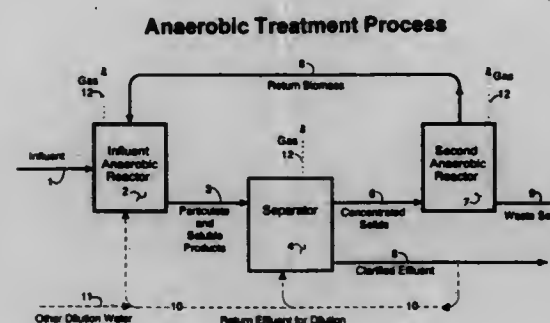
Dennis A. Burke, 6007 Hill Rd. N.E., Olympia, Wash. 98516

Filed Apr. 15, 1996, Ser. No. 632,022

Int. Cl.⁶ C02F 3/28

U.S. Cl. 210—603

13 Claims



1. An anaerobic treatment process for the conversion of organic material to soluble and gaseous components comprising the steps: contacting in a first anaerobic reactor, an influent stream containing the organic material with active anaerobic bacteria recycled from a second reactor;

maintaining the organic material in contact with the anaerobic bacteria for a predetermined period to partially digest the organic material;

mechanically or chemically separating suspended colloidal constituents and particulate constituents from the partially digested influent stream; and

delivering the separated suspended colloidal constituents and particulate constituents to the second anaerobic reactor for further digestion of organic material.

5,670,048
PREPARATORY SUPERCRITICAL FLUID EXTRACTION
USING SEALED CHAMBER

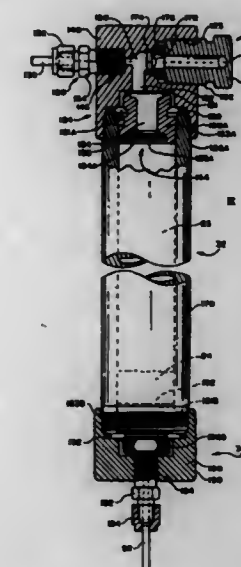
Dale Alan Davison, Greenwood, and Henry LeRoy Walters, Lincoln, both of Nebr., assignors to Isco, Inc., Lincoln, Nebr. Continuation of Ser. No. 182,772, Jan. 18, 1994, abandoned.

This application Feb. 14, 1996, Ser. No. 601,378

Int. Cl.⁶ B01D 11/00; B65D 53/00

U.S. Cl. 210—634

17 Claims



8. A method of preparatory supercritical extraction, comprising the steps of:

inserting sample into a cartridge having a central chamber for containing sample to be extracted, wherein said chamber has a volume in the range of 20 cubic centimeters to 2,000 cubic centimeters;

forcing supercritical fluid to enter said chamber through a first path from an inlet means, wherein the inlet means is within an end cap removably mounted to a cartridge barrel by fastener means;

forcing supercritical fluid against a seal for said chamber through a separate second path from said inlet means

wherein said chamber is sealed from the outside;

permitting extract to be removed from said chamber through an outlet means;

removing the fastener means from said cartridge barrel after extraction by hand by applying a torque for separating the two of less than 35 pound inches.

5,670,049
NUCLEOTIDE-CONTAINING SORBENT FOR AFFINITY
CHROMATOGRAPHY

Egbert Müller, Erzhhausen; Jürgen Hemberger, Aschaffenburg, and Michael Morr, Wolfenbüttel, all of Germany, assignors to Merck Patent Gesellschaft Mit Beschränkter Haftung, Darmstadt, Germany

PCT No. PCT/EP94/03157, § 371 Date Apr. 1, 1996, § 102(e) Date Apr. 1, 1996, PCT Pub. No. WO95/09694, PCT Pub. Date Apr. 13, 1995

PCT Filed Sep. 21, 1994, Ser. No. 619,687

Int. Cl.⁶ B01D 15/08

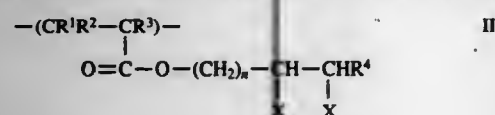
U.S. Cl. 210—635

11 Claims

1. A separation material for affinity chromatography comprising a hydroxyl-containing base support on the surface of which polymers are covalently bonded, wherein

a) the base support contains aliphatic hydroxyl groups, and
b) the covalently bonded polymers are bound to the base support by a terminal monomer unit,

c) the linear polymers contain monomer units of the formula II



in which

R^1 , R^2 and R^3 independently of one another are H or CH_3 ,
 R^4 is H, $\text{C}_1\text{---C}_5$ -alkyl or $\text{C}_6\text{---C}_{12}$ -aryl,
 n is an integer between 1 and 5 and
 one of the radicals X is OH and the other radical X is a nucleoside-containing radical.

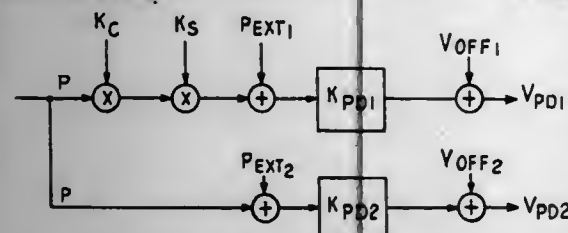
5,670,050

METHOD FOR DETECTION OF LEAKAGE OF BLOOD
 Tom L. Brose; John A. Blasko, both of Gurnee, and Richard
 Faehrich, Niles, all of Ill., assignors to Aksys, Ltd., Lincoln-
 shire, Ill.

Division of Ser. No. 388,275, Feb. 13, 1995, Pat. No.
 5,591,344. This application Nov. 17, 1995, Ser. No. 560,335
 Int. Cl.⁶ B01D 61/32; G01J 3/00

U.S. Cl. 210-646

6 Claims



1. A method of detecting the presence of blood during dialysis treatment of a patient in a dialysate solution, said solution having been passed through a dialyzer during dialysis of a patient's blood, comprising the steps of:

(a) prior to said dialysis treatment

conducting a first measurement of the intensity of light impinging on a photosensitive detector aligned with a light source, said light passing through a chamber containing a control dialysate solution that is free of blood, with said light source in a first condition emitting light of intensity P_0 , where P_0 is greater than or equal to zero;
 changing the state of said light source from a first condition to a second condition different from said first condition;
 conducting a second measurement with said photosensitive detector of the intensity of light from said light source that passes through said chamber containing said control dialysate solution, with said light source in said second condition emitting light at an intensity $P_1 \neq P_0$, and

(b) during dialysis,

conducting a third measurement with said photosensitive detector of the intensity of light of said light source that passes through said chamber, said chamber containing dialysate solution that may contain the patient's blood is said dialyzer in a defective condition allowing said patient's blood to pass through said dialyzer into said dialysate solution, said light source in said first condition;
 changing the state of said light source from said first condition to said second condition;

conducting a third measurement with said photosensitive detector of the intensity of light of said light source that passes through said chamber, said chamber containing dialysate solution that may contain the patient's blood is said dialyzer in a defective condition allowing said patient's blood to pass through said dialyzer into said dialysate solution, said light source in said second condition; and

calculating an attenuation coefficient of said intensity of light passing through said chamber indicative of the presence of blood in said dialysate solution during dialysis from said first, second, third and fourth measurements.

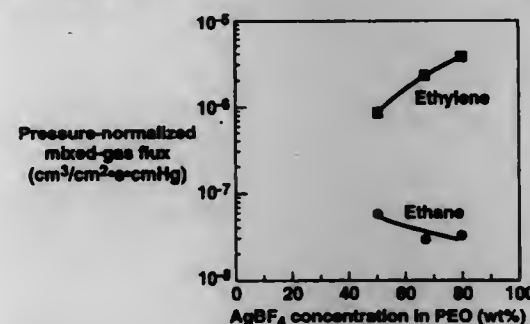
5,670,051

OLEFIN SEPARATION MEMBRANE AND PROCESS
 Ingo Pinnau, Palo Alto; Lora G. Toy, San Francisco, and
 Carlos Casillas, San Jose, all of Calif., assignors to Mem-
 brane Technology and Research, Inc., Menlo Park, Calif.

Filed May 23, 1996, Ser. No. 652,837
 Int. Cl.⁶ B01D 61/00; 53/72

U.S. Cl. 210-651

35 Claims



21. A process for separating an unsaturated hydrocarbon from a feed fluid mixture, comprising the following steps:

- providing a membrane having a feed side and a permeate side, said membrane comprising a solid solution of an ionic metal salt in a polymer and characterized by a selectivity for ethylene over ethane of at least about 20, and a pressure-normalized ethylene flux of at least about $5 \times 10^{-6} \text{ cm}^3/(\text{cm}^2 \cdot \text{s} \cdot \text{cmHg})$, said flux and selectivity being measured with a gas mixture containing ethylene and ethane, and in a substantially dry environment;
- providing a driving force for transmembrane permeation;
- passing said feed fluid mixture across said feed side; and
- withdrawing from said permeate side a permeate fluid mixture enriched in said unsaturated hydrocarbon compared with said feed mixture.

5,670,052

SEPARATING AROMATICS FROM NON-AROMATICS BY POLYIMIDE-POLYESTER MEMBRANE

Win-Sow Winston Ho; Guido Sartori, both of Annandale; Warren A. Thaler, Flemington, and David C. Dalrymple, Bloomsbury, all of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Division of Ser. No. 560,243, Nov. 21, 1995, Pat. No.
 5,550,199, which is a continuation of Ser. No. 348,426, Dec. 2,
 1994, abandoned. This application Jul. 30, 1996, Ser. No.
 688,321

Int. Cl.⁶ B01D 61/36; C08G 59/22; 73/10

U.S. Cl. 210-651

9 Claims

1. A process for the separation of aromatics from non-aromatics by selectively permeating the aromatics through a thin membrane including a copolymer comprising a diepoxide crosslinked/esterified polyimide-aliphatic polyester copolymer comprising hard polyimide segments having a glass-transition temperature (T_g) higher than 130°C . and soft polyester segments having a T_g lower than that of the hard segments wherein, said copolymer is cross-linked through the carboxylic acid group adjacent to the ester.

5,670,053

PURIFICATION OF GASES FROM WATER USING REVERSE OSMOSIS

William V. Collettro, New Hope, Pa., and Andrew W. Collettro, Newton, Mass., assignors to Zenon Environmental, Inc., Burlington, Canada

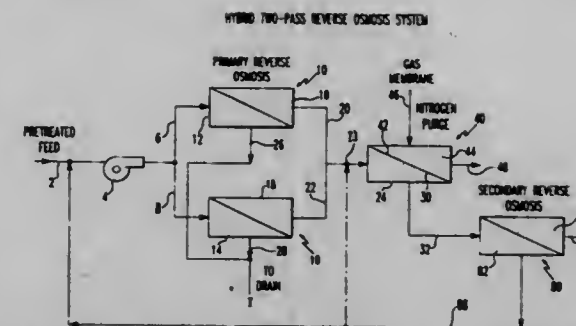
Filed Aug. 7, 1995, Ser. No. 512,108

Int. Cl.⁶ B01D 61/00

U.S. Cl. 210-652

21 Claims

1. A process for purifying water including removing cations, anions, carbon dioxide and/or ammonia from a water feed stream



to produce high purity water having a resistivity of greater than 1 megohm-cm, comprising the steps of:

- providing water feed stream to be purified, said stream containing cations, anions, carbon dioxide and/or ammonia;
- pretreating said feed stream by passing said feed stream through a nonfiltration membrane to remove membrane foulants prior to introducing said feed stream to a first reverse osmosis membrane;
- introducing said water feed stream to a high pressure side of a first reverse osmosis membrane module;
- passing water through said first reverse osmosis membrane to provide a first retentate having cations and anions concentrated therein and a first permeate depleted in cations and anions and containing carbon dioxide and/or ammonia;
- passing said first permeate to a high pressure side, of a first gas permeable hydrophobic membrane module, and permeating carbon dioxide and/or ammonia through said gas-permeable membrane from said first permeate in the high pressure side of said gas-permeable hydrophobic membrane to provide a carbon dioxide and/or ammonia permeate on a low pressure side of said hydrophobic membrane and to provide a carbon dioxide and/or ammonia depleted retentate thereby removing carbon dioxide and/or ammonia from said first permeate;
- maintaining the low pressure side of said hydrophobic membrane liquid free and subjecting said low pressure side of said hydrophobic membrane to a gas purge to remove carbon dioxide or ammonia that has permeated the hydrophobic membrane; and
- transferring said carbon dioxide and/or ammonia depleted retentate to the high pressure side of a second reverse osmosis membrane, and further purifying said carbon dioxide and/or ammonia depleted retentate by passing at least a portion thereof through said second reverse osmosis membrane to provide a second retentate and a second permeate, the second permeate having low levels of carbon dioxide and/or ammonia and having a resistivity of greater than 1 megohm-cm.

5,670,054

METHOD AND SYSTEM FOR IDENTIFICATION, PURIFICATION, AND QUANTIFICATION OF REACTION COMPONENTS

Christopher Edmund Kibbey, and Gregory Alan Robertson, both of Ann Arbor, Mich., assignors to Warner Lambert Company, Ann Arbor, Mich.

Filed Apr. 4, 1996, Ser. No. 626,290

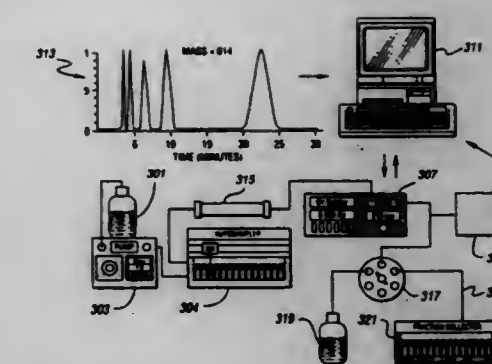
Int. Cl.⁶ B01D 15/08

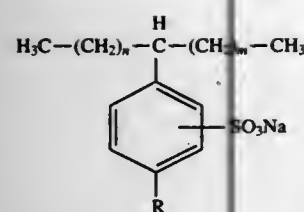
U.S. Cl. 210-656

15 Claims

1. An automated method for the separation and purification of one or more compound(s) of interest from a mixture containing a plurality of components including said compound(s), comprising:

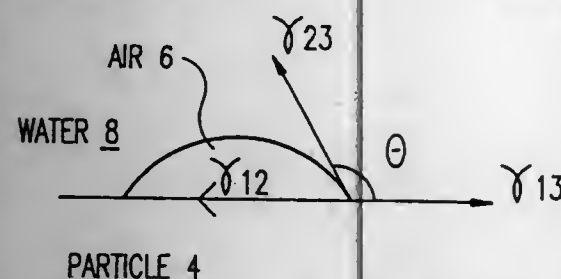
- subjecting a first sample of said mixture to separation by high performance liquid chromatography forming a stream of eluate, differing portions of said stream of eluate containing said compound(s) separated from other portions of eluate not containing said compound(s), a concentration of each of said differing portions of eluate representable by a chromatogram having a plurality of peaks extending above a baseline, each





wherein $n+m=7-10$, and $X=\text{Na}$ or K ; R =hydrogen, alkyl or aryl, or combinations thereof.

5,670,056
CHEMICAL-MECHANICAL DEWATERING PROCESS
 Roe-Hoan Yoon, and Cesar Indiongco Basilio, both of Blacksburg, Va., assignors to Virginia Tech Intellectual Properties, Inc., Blacksburg, Va.
 Continuation-in-part of Ser. No. 423,562, Apr. 17, 1995, abandoned. This application Oct. 6, 1995, Ser. No. 540,178
 Int. Cl.⁶ C02F 1/54
 U.S. Cl. 210-728 25 Claims



1. A method for dewatering moist particulates, comprising the steps of:

- combining a mono-unsaturated fatty ester with a carrier solvent and a moist particulate solution comprised of 1-99% by weight water and 1-99% by weight particulate to form a treated combination, said mono-unsaturated fatty ester comprising less than 10% by weight of said treated combination, said mono-unsaturated fatty ester increasing a contact angle between water and a surface of a particle in said moist particulate solution;
- agitating said treated combination to distribute said mono-unsaturated fatty ester on surfaces of said particulates in said treated combination; and
- mechanically removing water from said surfaces of said moist particulates to produce dry particulates.

5,670,057
APPARATUS AND METHOD FOR AUTOMATICALLY PERFORMING PERITONEAL EQUILIBRATION TESTS
 Chi Chen, Hawthorn Woods, Ill.; Paul Emerson, St. Louis Park, and Prakash Keshaviah, Plymouth, both of Minn., assignors to Baxter International Inc., Deerfield, Ill.
 Filed Apr. 28, 1995, Ser. No. 434,302
 Int. Cl.⁶ A61M 1/28
 U.S. Cl. 210-739 18 Claims

1. A method of automatically conducting peritoneal equilibration tests, comprising:

- removing a sample of overnight dwell fluid through a line from a patient in an amount sufficient to determine the concentration of a metabolite therein, said line being connected to control means for controlling removal of said sample;
- detecting the concentration of at least one metabolite in said sample of overnight dwell fluid with detecting means for detecting said concentration, said detecting means being connected to said line and associated with said control means;

draining all overnight dwell fluid from a patient through said line under control of said control means to result in a drained overnight dwell fluid, and determining the weight of said drained overnight dwell fluid with weight means for weighing, associated with said control means;

instilling a known weight of dialysate fluid into a patient through said line under control of said control means;

periodically drawing samples of said dialysate fluid, under control of said control means, to result in periodically drawn samples of dialysate fluid, and determining the concentration of the metabolite in each one of said periodically drawn samples of dialysate fluid, with said detecting means;

determining the ratio of said metabolite concentration detected for each one of said periodically drawn samples of dialysate fluid to the metabolite concentration detected of said sample of overnight dwell fluid or other estimate of plasma water concentration, said determination being done by said control means;

draining the patient of said instilled dialysate fluid after a pre-determined dwell time under control of said control means, and determining the volume of said drained dialysate fluid; and

determining the mass transfer area coefficient of the patient's peritoneal membrane as a function of said known volume of dialysate fluid infused, known volume of drained dialysate fluid and the determined ratios of said metabolite concentration for each of said periodically drawn samples of dialysate fluid, to the metabolite concentration of said sample of overnight dwell fluid or other estimate of plasma water concentration.

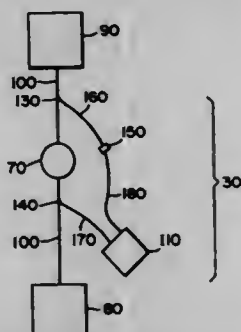
5,670,058

Patent Not Issued For This Number

5,670,059
METHOD AND COMPOSITIONS FOR TREATING RECIRCULATING WATER SYSTEMS
 Ronald L. Jones, Suwanee; Stephen L. Carlyle, Stone Mountain; Susan M. Shelor, Alpharetta; Presley K. Mitchell, Marietta, and Ellwood LeRoy Liles, Jr., Atlanta, all of Ga., assignors to Bio-Lab, Inc., Decatur, Ga.
 Division of Ser. No. 243,236, May 16, 1994, Pat. No. 5,478,482. This application Sep. 20, 1995, Ser. No. 530,639
 Int. Cl.⁶ C02F 1/50; 1/76
 U.S. Cl. 210-753 23 Claims

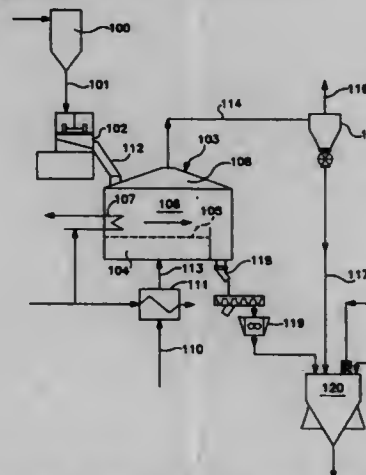
1. A clarifier composition for use in the clarification of recirculating water which comprises a combination of a chlorine source material for providing hypochlorite ions to the water, a non-halogen, oxygen donor material, and a boron source material, the chlorine source material being selected from the group consisting of lithium hypochlorite, sodium or potassium dichloro-s-triazinetriene and trichloro-s-triazinetriene.

5,670,060
METHOD FOR TREATING A BIOLOGICAL FLUID INCLUDING TRANSITION ZONE MATERIAL
 Vlado I. Matkovich; Thomas C. Gsell, both of Glen Cove; Thomas J. Bormann, Melville; Frank R. Pascale, Glen Cove, all of N.Y., and Keith S. Morris, Emsworth, England, assignors to Pall Corporation, East Hills, N.Y.
 PCT No. PCT/US93/05516, § 371 Date Mar. 31, 1995, § 102(e) Date Mar. 31, 1995, PCT Pub. No. WO93/25295, PCT Pub. Date Dec. 23, 1993
 Continuation-in-part of Ser. No. 9,867, Jan. 27, 1993, Pat. No. 5,472,621, which is a continuation-in-part of Ser. No. 896,580, Jun. 10, 1992, abandoned. This PCT application Jun. 9, 1993, Ser. No. 351,250
 Int. Cl.⁶ B01D 37/00; 21/26
 U.S. Cl. 210-767 13 Claims



12. A method for processing a biological fluid comprising: passing a biological fluid from a first container through a leukocyte depletion filter assembly into a second container downstream of the filter assembly, wherein the biological fluid displaces gas into the second container; passing the gas from the second container into a gas collection and displacement loop including a gas collection and displacement bag.

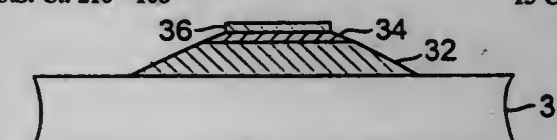
5,670,061
PROCESS FOR TREATING ASH
 Wolfgang Kowallik, Itzehol; Hans Jürgen Maaz, Brunsbüttel, both of Germany, and Werner Soyey, Wezembeck-Oppem, Belgium, assignors to Norsk Hydro a.s., Oslo, Norway
 Filed May 9, 1995, Ser. No. 437,922
 Claims priority, application European Pat. Off., May 11, 1994, 94201329
 Int. Cl.⁶ C02F 11/06; 11/12
 U.S. Cl. 210-771 11 Claims



1. A process for partial oxidation of a hydrocarbon feedstock, comprising the steps of gasification, partial oxidation and removal of carbon by forming a soot water slurry containing unburned carbon and ash, and filtration of the soot water slurry to form a

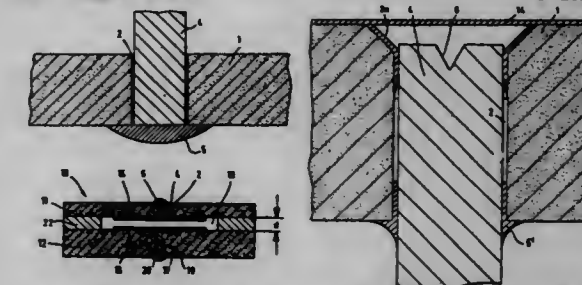
filtercake of carbon and ash, wherein the filtercake is granulated and then dried by means of a fluid bed dryer, and the granulated, dried filtercake is burned at temperatures between 600° C. and 1000° C.

5,670,062
METHOD FOR PRODUCING TAPERED LINES
 Cheng-yih Lin, Parsippany, N.J., and Paul Patrick Mulgrew, Fremont, Calif., assignors to Lucent Technologies Inc., Murray Hill, N.J.
 Filed Jun. 7, 1996, Ser. No. 664,227
 Int. Cl.⁶ H01L 21/90
 U.S. Cl. 216-108 13 Claims



1. A method for wet etching to produce film structures having tapered sidewalls comprising the steps of: forming a first layer of metal on a substrate; forming over said first layer of metal a second layer of material different from the metal of said first layer, said second layer comprising Mo and having a thickness of less than 100 angstroms; forming a third layer of material on said second layer; forming on said third layer a pattern of resist, said third layer providing adhesion to said resist; and etching the resulting structure in an etchant wherein the metal of said first layer and the material of said second layer interact to increase the lateral etch rate of said second layer, thereby producing a metal film structure having tapered sidewalls.

5,670,063
METHOD FOR MAKING AN INTERFACE CONNECTION THROUGH AN INSULATING PART
 Frank Hegner, Lörrach, and Thomas Klähn, Freiburg/Br., both of Germany, assignors to Endress + Hauser GmbH + Co.
 Division of Ser. No. 981,781, Nov. 25, 1992, Pat. No. 5,539,611, which is a continuation of Ser. No. 878,516, May 5, 1992, abandoned. This application Feb. 12, 1996, Ser. No. 599,677
 Claims priority, application European Pat. Off., May 26, 1991, 91108553
 Int. Cl.⁶ B23K 1/002; H05K 3/30
 U.S. Cl. 219-85.22 8 Claims



1. A method producing an interface connection through a hole in a high-temperature-resistant and vacuum-proof insulating part made of one of ceramic, glass and a single crystal, which interface connection comprises a metallic lead inserted into the hole and having a coefficient of thermal expansion less than that of the insulating part, wherein at least one end of the lead, when it is flush with at least one surface of the insulating part, is covered with active brazing material which high-vacuum-seals it to the insulating part, and when it projects beyond at least one surface of the insulating part, is high-vacuum-sealed to the insulating part by

means of ring-shaped active brazing material, with at least one conductive layer provided on at least one of the surfaces of the insulating part and making contact to the lead, said method comprising the following features:

depositing the at least one conductive layer on the insulating part provided with the hole, which has a spot facing on the conductive-layer side, such that the conductive layer extends into the hole;

inserting the lead into the hole;

widening an end of the lead which is located on the conductive-layer side, such that said end and the conductive layer extending into the hole are cold-welded together;

depositing a sufficient amount of active brazing material consisting essentially of a metal and an active metal on an opposite side of the insulating part from the conductive layer, wherein the active metal content is just sufficient for wetting the points of contact with the insulating part, and

heating the active brazing material to a temperature above the melting point of the active brazing material until the latter has completely melted so that the active brazing material enters and moves into the hole around the lead by capillary action and wets the lead and the hole, and subsequently allowing it to cool down.

5,670,064

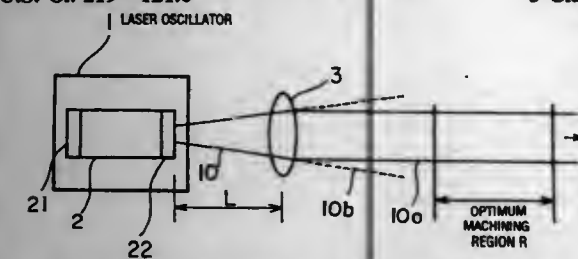
LASER BEAM MACHINE USING OPTICAL COMPONENT TO MODIFY LASER BEAM AS DESIRED
Yoshinori Nakata, Yamanashi, Japan, assignor to Fanuc Ltd., Yamanashi, Japan

Filed Feb. 15, 1995, Ser. No. 389,161

Claims priority, application Japan, Mar. 11, 1994, 6-040673
Int. Cl.⁶ B23K 26/06

U.S. Cl. 219—121.6

3 Claims



1. A laser beam machine for condensing a laser beam and irradiating said laser beam onto a workpiece to effect laser beam machining of said workpiece, comprising:

a laser oscillator including an output mirror to emit a laser beam such that said laser beam diverges at a diverging angle without having a propagating characteristic that the diameter of said laser beam is reduced in the course of transmission; and an optical component part having a selected focal length and arranged at a location positioned at a selected distance from said output mirror of said laser oscillator in the direction of emission of said laser beam, to modify an optical path of said laser beam emitted from said laser oscillator such that a machining point of said workpiece is set within an optimum machining region of said laser beam based on said selected distance and said selected focal length.

5,670,065

APPARATUS FOR PLASMA TREATMENT OF FINE GRAINED MATERIALS

Herrmann Bickmann, Ditzingen; Klaus Nauenburg, Tübingen, and Juergen Weichert, Filderstadt, all of Germany, assignors to Buck Werke GmbH & Co., Germany

Filed Jul. 5, 1995, Ser. No. 498,437

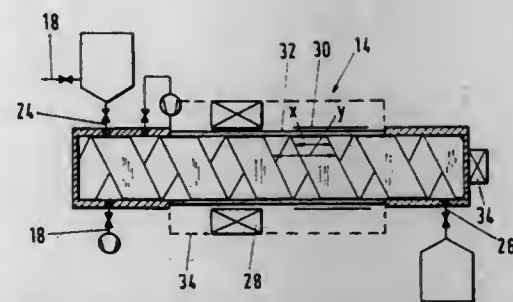
Claims priority, application Germany, Jul. 5, 1994, 44 23 471.6

Int. Cl.⁶ B23K 10/00

U.S. Cl. 219—121.43

18 Claims

1. An apparatus for plasma treating fine-grained materials, comprising:



a receptacle that can be evacuated and that accepts and agitates fine-grained material to be treated under hermetically sealed conditions, the receptacle including a conveyor which conveys the material from one end of the receptacle to another end of the receptacle;

means for continuously admitting the material into the receptacle;

means for continuously discharging treated material from the receptacle;

means for admitting process gas into the receptacle;

means for discharging process gas from the receptacle; and

electromagnetic means for igniting a plasma gas to form a plasma, the electromagnetic means comprising excitation means and electrodes, the excitation means being positioned along the conveyor.

5,670,066

VACUUM PLASMA PROCESSING WHEREIN WORKPIECE POSITION IS DETECTED PRIOR TO CHUCK BEING ACTIVATED

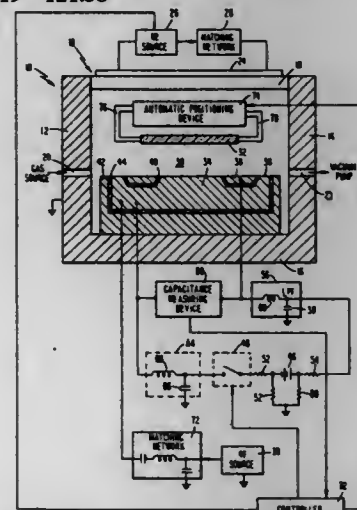
Michael S. Barnes, San Francisco, and Luo Laizhong, Fremont, both of Calif., assignors to LAM Research Corporation, Fremont, Calif.

Filed Mar. 17, 1995, Ser. No. 405,676

Int. Cl.⁶ B23K 10/00

U.S. Cl. 219—121.58

6 Claims



1. A method of treating a workpiece with a plasma in an evacuated chamber including a source of the plasma and a chuck for selectively holding the workpiece, the chuck being an electrostatic chuck having first and second electrically insulated electrodes, comprising the steps of:

placing the workpiece on the chuck in the evacuated chamber, then automatically detecting whether the workpiece is properly positioned on the chuck,

activating the chuck to hold the workpiece in situ in response to the automatic detecting step indicating the workpiece is properly positioned on the chuck, the chuck being activated to hold the workpiece in situ by applying attractive electrostatic force to the workpiece via the electrodes,

the automatic detecting step being performed by measuring the capacitance across the electrodes prior to application of the

electrostatic force to the workpiece via the electrodes and by determining a measure of the capacitance difference across the electrodes prior to and after the workpiece being placed on the chuck, and

then treating the workpiece held in situ on the chuck with the plasma.

5,670,067

APPARATUS FOR LASER CUTTING WIRING IN ACCORDANCE WITH A MEASURED SIZE OF THE WIRING

Masateru Kolde, and Hiroshi Ikeda, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

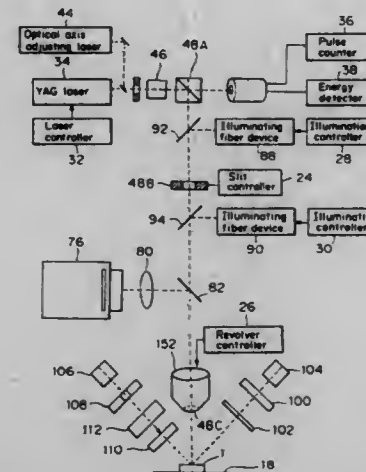
Filed May 5, 1994, Ser. No. 238,735

Claims priority, application Japan, Aug. 4, 1993, 5-193535

Int. Cl.⁶ B23K 26/02; H05K 3/02

U.S. Cl. 219—121.68

36 Claims



34. An apparatus for cutting a wiring on a printed wiring board with a laser beam, comprising:

a laser oscillator emitting said laser beam along a main optical path including a convergent optical system;

multiaxis positioning means for holding said printed wiring board virtually orthogonal to said main optical path and changing three-dimensional coordinates of said printed wiring board;

X-Y axis adjustment means for adjusting the two-dimensional coordinates, of said three-dimensional coordinates, perpendicular to said main optical path in accordance with position information supplied from a host computer such that said laser beam is directed on to a wiring to be cut;

optical means for optically measuring a size of said wiring to be cut;

control means for controlling beam parameters of said laser beam in accordance with said size measured by said optical means such that said wiring to be cut is cut most suitably;

means for identifying a mark in a predetermined form provided in a predetermined position on said printed wiring board,

correction means for correcting said two-dimensional coordinates adjusted by said X-Y axis adjustment means, according to said identified mark, including a first and a second half mirror disposed in said main optical path, a beam source for irradiating said wiring to be cut through said first half mirror,

and image pickup means for obtaining an image of said wiring to be cut through said second half mirror;

wherein the state of remainder of said wiring to be cut after said laser beam is emitted from said laser oscillator is further checked according to said image obtained by said image pickup means.

5,670,068

APPARATUS FOR LASER PROCESSING AND MONITORING

Katsuhiko Kuriyama, Takarazuka; Toshiharu Okada, Ibaraki; Yuji Uesugi, Osaka; Shoro Mochida, Neyagawa, and Kazuyoshi Yamaguchi, Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

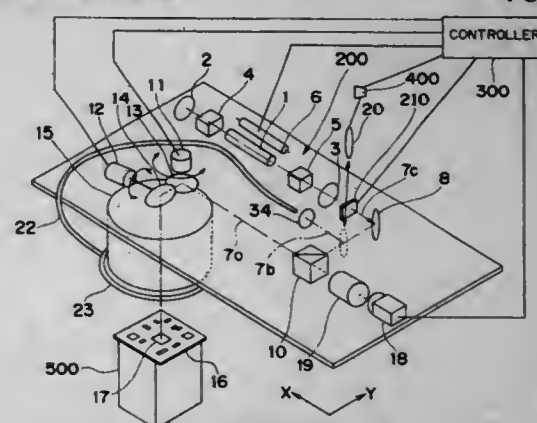
Filed Apr. 26, 1995, Ser. No. 427,907

Claims priority, application Japan, Apr. 26, 1994, 6-088365

Int. Cl.⁶ B23K 26/06

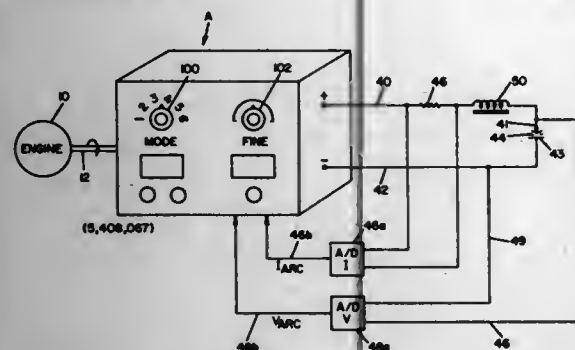
U.S. Cl. 219—121.68

4 Claims



convex lens on an optical axis of the laser beam from an oscillator; two galvano-mirrors; and an fθ lens, the method comprising: emitting a laser beam from the oscillator; focusing the laser beam by the first convex lens; removing non-focusing components in a peripheral portion of a focusing spot performed by the first convex lens by passing the laser beam which has passed through the first convex lens through the pinhole portion, a focal distance of the first convex lens being set so that a focusing diameter of the laser beam at the pinhole portion of the member is equal to or smaller than a focusing diameter of the laser beam which has passed through the fθ lens; restoring the laser beam which has passed through the pinhole portion into a parallel laser beam by the second convex lens; scanning the laser beam which has passed through the second convex lens by means of the two galvano-mirrors; focusing the scanned laser beam by means of the fθ lens on a work to execute processing of the work; and wherein a hole diameter of the pinhole portion of the member is set to 1 to 2 times as great as a diameter of the focusing spot at a focusing point of the first convex lens, while the focusing spot diameter of the laser beam focused by the first convex lens is a diameter of a portion at which laser beam intensity becomes $1/e^2$ of its peak intensity.

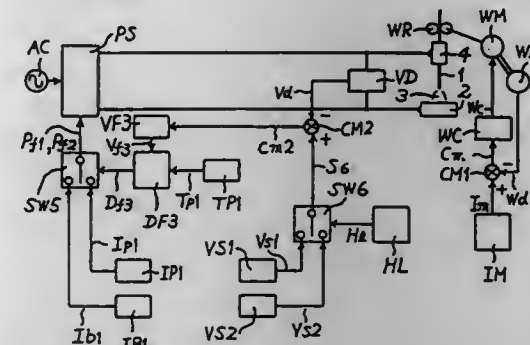
5,670,070
METHOD AND SYSTEM FOR CONTROLLING THE OUTPUT OF AN ENGINE DRIVEN WELDER
 Keith Leon Clark, Concord; Denis Michael Osowski, Parma, and Scott Joseph Schraff, Lakewood, all of Ohio, assignors to The Lincoln Electric Company
 Filed Aug. 31, 1995, Ser. No. 522,454
 Int. Cl.⁶ B23K 9/095
 U.S. Cl. 219—130.33 14 Claims



1. A method of controlling the output current/voltage characteristic curve of an engine driven welder with a maximum open circuit output voltage, including a rotary engine, a three phase alternator, rectifier bridge having a number of electronic switching means for directing current to said output determined by the firing angle of said switching means during an appropriate half cycle, means for sensing output current, means for sensing output voltage, and a microprocessor output control device for controlling said firing angles of said switching means in response to the sensed current and sensed voltage, said method comprises the steps of:
 - (a) manually selecting one of several modes of operation, each of which has a preselected output characteristic curve with a fixed slope;
 - (b) causing said selection of said mode to create a first and second slope parameter with said parameters for a given mode being indicative of a known, fixed slope for said current/voltage characteristic output curve, said fixed slope defined by said first and second parameters corresponding to said selected mode;
 - (c) periodically generating a voltage value indicative of the real time sensed output voltage;
 - (d) combining said voltage value with said first slope parameter to give a voltage slope coordinate;
 - (e) periodically generating a current value indicative of the real time sensed output current;
 - (f) combining said current value with said second slope parameter to give a current slope coordinate;
 - (g) adding said voltage slope coordinate and said current slope coordinate to create a regulation term indicative of the present operating point of the welder;
 - (h) creating a desired set point for said regulation term, said set point being on a desired, target parallel characteristic curve having said fixed slope and manually adjusted to a line having an open circuit voltage less than said maximum open circuit voltage of said welder;
 - (i) creating an error signal by subtracting said set point and said regulation term; and
 - (j) changing the firing angle of said switching means in response to the magnitude of said error signal to force said regulation term toward said set point.

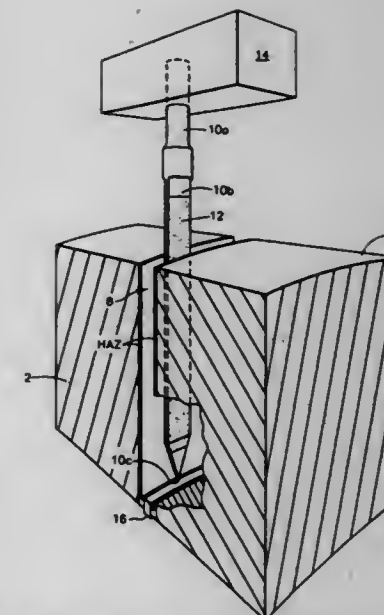
- (a) periodically generating a current value indicative of the real time sensed output current;
- (b) combining said current value with said second slope parameter to give a current slope coordinate;
- (c) adding said voltage slope coordinate and said current slope coordinate to create a regulation term indicative of the present operating point of the welder;
- (d) creating a desired set point for said regulation term, said set point being on a desired, target parallel characteristic curve having said fixed slope and manually adjusted to a line having an open circuit voltage less than said maximum open circuit voltage of said welder;
- (e) creating an error signal by subtracting said set point and said regulation term; and
- (f) changing the firing angle of said switching means in response to the magnitude of said error signal to force said regulation term toward said set point.

5,670,071
MAG ARC WELDING APPARATUS
 Tomoyuki Ueyama, Toyonaka; Shoji Harada; Toshiaki Nakamata, both of Osaka; Masuo Shibata, Takarazuka; Toshimitsu Doi, Nishinomiya; Shunichi Ogawa, Takatsuki; Ichiro Matsumoto, Higashiosaka, and Hiroshi Nakai, Izumi, all of Japan, assignors to Daihen Corporation, Japan
 Division of Ser. No. 778,845, Dec. 13, 1991, Pat. No. 5,508,493. This application Jun. 7, 1995, Ser. No. 488,125
 Claims priority, application Japan, Apr. 17, 1990, 2-102102; Oct. 1, 1990, 2-264493; Oct. 1, 1990, 2-264494; Nov. 16, 1990, 2-311957; Dec. 28, 1990, 2-418489
 Int. Cl.⁶ B23K 9/09
 U.S. Cl. 219—130.51 12 Claims



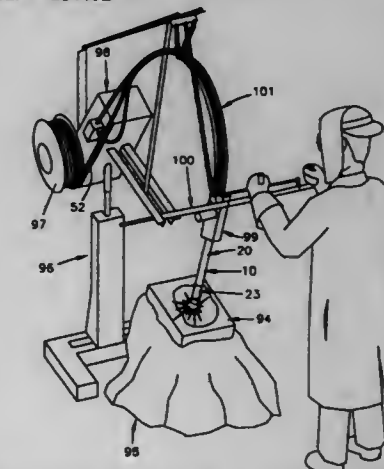
1. A pulse MAG arc welding apparatus for carrying out an arc welding operation by supplying a pulse welding current that switches between a first pulse current group for generating a short arc length and a second pulse current group for generating a long arc length, said apparatus comprising:
 - an arc voltage detecting circuit for detecting an arc voltage value and outputting an arc voltage detecting signal corresponding thereto;
 - a first arc voltage setting circuit for setting a value of arc voltage in accordance with welding conditions and outputting a first arc voltage setting signal corresponding thereto;
 - a second arc voltage setting circuit for setting a value of arc voltage in accordance with welding conditions and outputting a second arc voltage setting signal corresponding thereto;
 - a comparison circuit for comparing said arc voltage detecting signal with said arc voltage setting signal and outputting a difference between said two signals as an arc voltage control signal;
 - a pulse condition control signal generation circuit for generating a pulse condition control signal for controlling one preselected pulse condition from among four pulse control conditions in common with said first and second pulse current groups in accordance with said arc voltage control signal, said four pulse control conditions comprising pulse frequency, pulse width, base current value and peak current value;

- a pulse current setting circuit for setting the remaining three pulse control conditions for said first pulse current group and said second pulse current group which have not been preselected and for outputting pulse current group setting signals including setting signals corresponding to remaining three pulse control conditions other than said pulse condition control signal;
- a switching circuit for generating a switching signal for switching said first and second pulse current setting circuits alternatively at a frequency ranging from 0.5 to 25 Hz;
- a pulse frequency signal generation circuit for generating a pulse frequency signal in response to either the pulse frequency control reference signal if output from said pulse condition control signal generation circuit, or the pulse frequency setting signal output from said pulse current setting circuit if not output from said pulse condition control signal generation circuit;
- a pulse frequency and width signal generation circuit for outputting a pulse frequency and width signal in response to the pulse frequency control signal and pulse width setting signal if the pulse frequency control reference signal is output from said pulse condition control signal generation circuit, or the pulse frequency signal and pulse width control signal if the pulse width control signal is output from said pulse condition control signal generation circuit, or the pulse frequency signal and pulse width setting signal if the peak current control signal or base current control signal is output from said pulse condition control signal generation circuit;
- a pulse current control circuit for outputting a first pulse control signal and a second pulse control signal alternatively in response to the pulse frequency and width signal, the peak current setting signal and base current setting signal if the pulse frequency control reference signal or the pulse width control signal is output from said pulse condition control signal generation circuit, or the pulse frequency and width signal, the peak current control signal and base current setting signal if the peak current control signal is output from said pulse condition control signal generation circuit, or the pulse frequency and width signal, the peak current setting signal and base current control signal if the base current control signal is output from said pulse condition control signal generation circuit; and
- a welding power source control circuit for outputting the first pulse current group when the first pulse control signal is output from said pulse current control circuit and the second pulse current group when the second pulse control signal is output from said pulse current control circuit.



beads said electrode comprising a blade having an end joined and electrically connected to said tip, said blade having a non-circular cross section with a first dimension in a first direction and a second dimension in a second direction, said first and second directions being mutually perpendicular, said first dimension being less than and said second dimension being greater than said predetermined width of said groove, wherein a predetermined number of weld passes collectively produce a final residual stress state which is substantially compressive substantially across said weld joint and heat affected zones thereof, said compressive residual stress state being attained without the use of an external heat sinking medium to extract inputted heat during any of said weld passes.

5,670,073
WATER COOLED GAS METAL ARC WELDING GUN
 Erik J. Killunen, Brighton, Mich., assignor to Weld Mold Company, Brighton, Mich.
 Filed Oct. 1, 1996, Ser. No. 723,100
 Int. Cl.⁶ B23K 9/173
 U.S. Cl. 219—137.62 4 Claims



1. A water cooled gas metal arc welding gun (10) comprising:
 - (a) an elongated electrically conductive inner barrel (11), having an upper end and a lower end, and an axial passage (53) formed therethrough;
 - (b) an elongated electrically conductive outer barrel (15), having an upper end and a lower end, and being telescopically mounted around the inner barrel (11) in a laterally spaced apart position to form a cylindrical longitudinal coolant water passage (75) around the inner barrel (11) which has an upper

5,670,072
METHOD AND APPARATUS FOR JOINING METAL COMPONENTS WITH MITIGATION OF RESIDUAL STRESSES
 Henry Peter Offer, Los Gatos, Calif., and Lawrence Michael Grycko, Lockport, Ill., assignors to General Electric Company, San Jose, Calif.
 Filed Apr. 22, 1994, Ser. No. 231,614
 Int. Cl.⁶ B23K 9/167
 U.S. Cl. 219—137 R 16 Claims

7. A method for joining first and second metal components in a depthwise direction, said first and second metal components in an unjoined state having first and second sidewalls respectively which are separated by a groove having at least a predetermined width, comprising the steps of continuously feeding weld material in the vicinity of a tip of an electrode which travels at a selected travel speed during a particular weld pass, continuously melting said weld material inside said groove by discharging electric current from a tip of said electrode in accordance with selected welding parameters while said electrode travels at said selected travel speed, and solidifying said melted weld material to form fused

- end and which extends from the upper end of the inner barrel (11) to the lower end of the inner barrel (11);
- (c) an electrically conductive header member (14) fixedly secured to the upper ends of the inner (11) and outer (15) barrels, and having an axial bore 48 which communicates with the axial passage (53) through the inner barrel (11);
- (d) an electrically conductive shielding gas diffuser sleeve (16), having an upper end and a lower end with the upper end thereof being fixedly secured to the lower ends of the inner (11) and outer (15) barrels, and having an axial bore (33) formed therethrough which communicates with the axial passage (53) formed through the inner barrel (11);
- (e) an electrically conductive shielding gas diffuser (30), having an upper end and a lower end, with the upper end thereof being releasably connected to the lower end of the shielding gas diffuser sleeve (16), and having an axial bore formed therethrough which communicates with the axial bore (33) in the shielding gas diffuser sleeve (16) and with a plurality of gas diffuser ports (63) formed radially therein;
- (f) an electrically conductive contact tip (37), having an upper end and a lower end, with the upper end thereof being releasably connected to the lower end of the shielding gas diffuser (30), and having an axial bore (54) formed therethrough which communicates with the axial bore formed the shielding gas diffuser (30);
- (g) an elongated barrel insulator (20) is mounted around the outer barrel (15), having an upper end and a lower end, and extended longitudinally between the header member (14) and the gas diffuser sleeve (16);
- (h) means (40-45,49,50) for conveying welding wire from a welding wire supply source to the header member (14), for passage through the header member axial bore (48), and passage through the inner barrel axial passage (53), the gas diffuser sleeve axial bore (33), the axial bore through the gas diffuser (30) and the axial bore (54) through the electrically conductive contact tip (37);
- (i) a tubular water cooled cup assembly (23) mounted around the lower end of the barrel insulator (20), and surrounding the shielding gas diffuser (30) and electrically conductive contact tip (37), and radially spaced apart from the gas diffuser (30) and electrically conductive contact tip (37), and radially spaced apart from the gas diffuser (30) and electrically conductive contact tip (37) to form a discharge passage to permit shielding gas emitted by the shielding gas diffuser (30) to flow downwardly and outwardly over the welding area; and
- (j) means (14,66-77,80-84) for supplying pressurized coolant water to the lower end of the cylindrical longitudinal coolant water passage (75) around the inner barrel (11) and for discharging the coolant water from the upper end of the cylindrical longitudinal coolant water passage (75).

5,670,074

HEATING SYSTEM SHUT-OFF SYSTEM WITH RADIO/ULTRASOUND COMMUNICATION BETWEEN DETECTOR AND EXISTING SAFETY SWITCH OR FUEL VALVE

Carl F. Kass, P.O. Box 346, Cragmoor, N.Y. 12420, and Arthur W. Little, 19 Scan St., Napanoch, N.Y. 12458

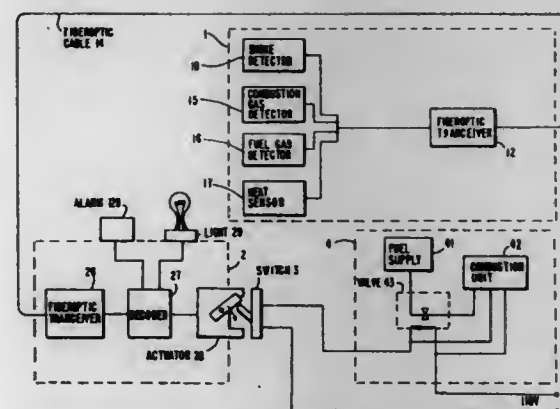
Filed Jan. 18, 1995, Ser. No. 374,021

Int. Cl.⁶ H05B 1/02

U.S. Cl. 219-481

9 Claims

1. A safety apparatus for shutting off a unit having a manually operated shut-off mechanism, comprising:
- a) environmental condition sensing means for placement proximate the unit for sensing a selected condition;
- b) signalling means connected to said sensing means for producing and transmitting an omnidirectional broadcast output signal consisting of a predetermined pattern of pulses when the selected condition exists;
- c) receiving means for receiving said broadcast output signal transmitted from said signalling means and for checking for said predetermined pattern of pulses; and
- d) electrically operated actuating means connected to said receiving means for mechanically operating the shut-off mechanism of the unit when said receiving means finds said



predetermined pattern of pulses in said broadcast output signal, whereby the unit is shut off.

5,670,075

SEALING GAS DELIVERY SYSTEM FOR SLIDING JOINTS

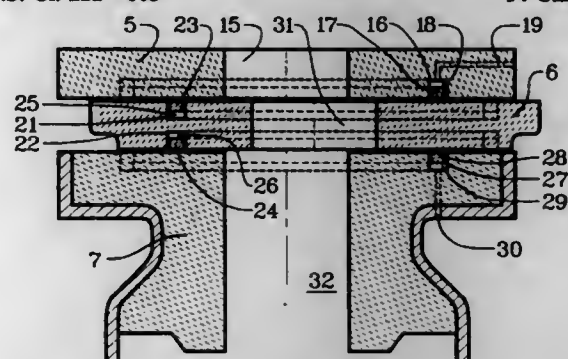
Achilles Vassilicos, Pittsburgh, Pa., assignor to USX Corporation, Pittsburgh, Pa.

Filed Jan. 22, 1996, Ser. No. 589,392

Int. Cl.⁶ B22D 41/24; 41/28; 41/42

U.S. Cl. 222-603

14 Claims



1. A slide plate for a continuous casting slide valve comprising a plate having an orifice therethrough for conducting molten metal an substantially flat upper and lower working surfaces for contacting substantially flat upper stationary and lower stationary surfaces, a channel on at least one of said upper and lower working surfaces for containing and conducting inert gas, each of said channel or channels being partially filled to the level of said working surfaces with porous refractory inserts which retain said gas in gas passages in said channels while permitting said gas to pass through said refractory inserts, and at least one duct for conducting inert gas from outside said slide plate to said gas passage in said channel.

5,670,076

REUSABLE COUPLER FOR FOUNDATION ANCHOR

William F. Leek, Anaheim, Calif., assignor to Simpson Strong-Tie Company, Inc., Pleasanton, Calif.

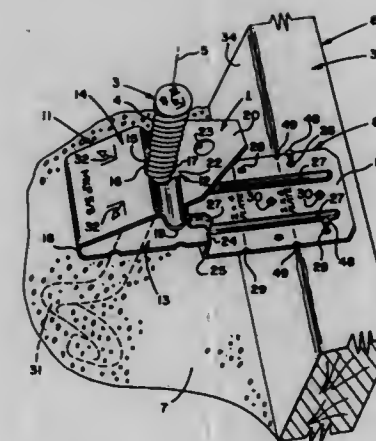
Filed Aug. 4, 1994, Ser. No. 285,958

Int. Cl.⁶ B29C 39/00

U.S. Cl. 249-53 M

8 Claims

1. A reusable coupler for suspending an anchor having a threaded portion and a axis, said coupler comprising:
- a) an attachment member including an end section adapted for removable attachment to a generally vertically form board supporting structure having an upper edge in a concrete structure that is to be poured to said upper edge of said generally vertical form board, such that when said concrete structure is poured and set, said anchor will be positioned in



5,670,078

MAGNETIC AND NONMAGNETIC PARTICLES AND FLUID, METHODS OF MAKING AND METHODS OF USING THE SAME

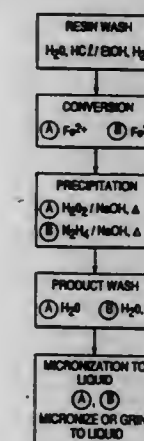
Ronald F. Ziolo, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 178,540, Jan. 7, 1994, Pat. No. 5,567,564, which is a continuation-in-part of Ser. No. 910,808, Jul. 9, 1992, Pat. No. 5,322,756, which is a continuation-in-part of Ser. No. 910,803, Jul. 9, 1992, Pat. No. 5,362,417, which is a continuation-in-part of Ser. No. 910,805, Jul. 9, 1992, Pat. No. 5,358,659. This application Jun. 7, 1995, Ser. No. 475,509

Int. Cl.⁶ H01F 1/06; 12/20; 1/28

U.S. Cl. 252-62.54

2 Claims



- said concrete and all of said reusable coupler will be positioned above said concrete structure;
- b. a tongue member flexibly and integrally connected to said attachment member, formed with means for releasably and mechanically gripping the threads of said threaded portion of said anchor, to hold said anchor along a select range of vertical and lateral positions relative to said supporting structure and any rotational position around said axis of said anchor;
- c. a bracing portion integrally attached to said attachment member formed with a bracing opening which receives said anchor therethrough and which prevents said anchor from moving substantially from its axis once it has been received by both said bracing opening of said bracing portion and said receiving opening of said gripping portion;
- d. a gripping portion having a receiving opening large enough to receive said threaded portion of said anchor therethrough, wherein said receiving opening has opposing edges that cooperatively surround portions of said threaded portion of said anchor;
- e. a main longitudinal bend integrally connecting said bracing portion and said gripping portion; and
- f. said main longitudinal bend of said tongue member permits movement of said gripping portion to receive said anchor at an angle oblique to the axis of said anchor at said threaded portion and which allows for a selected amount of change in the angle between said bracing portion and said gripping portion due to the inherent flexibility of the material of said reusable coupler such that there are a range of oblique angles at which said gripping portion can receive said anchor, and such that when said main longitudinal bend is in an unflexed first position the oblique angle at which said gripping portion receives said anchor causes said opposing edges of said receiving opening to have a projected distance between them which is less than the maximum diameter of the threads on said threaded portion of said anchor thereby causing said gripping portion to hold said anchor firmly, but when in a flexed second position said main longitudinal bend is distorted such that said projected distance between said opening edges is greater than said maximum diameter of the threads on said threaded portion of said anchor thereby causing said gripping portion to be positioned relative to said anchor at a more perpendicular angle to the axis of said anchor and thereby releasing the grip on said anchor to permit free passage of said anchor through said receiving opening.

5,670,079

AZEOTROPIC AND AZEOTROPE-LIKE COMPOSITIONS OF A HYDROFLUOROCARBON AND A HYDROCARBON

Brooks Shawn Linger, Newark, and Glenn Scott Shealy, Hockessin, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 176,622, Jan. 3, 1994, Pat. No. 5,458,798, which is a continuation-in-part of Ser. No. 14,293, Feb. 5, 1993, abandoned. This application May 8, 1995, Ser. No. 439,064

Int. Cl.⁶ C09K 5/04; C11D 7/02; 7/24; 7/30

U.S. Cl. 252-67

4 Claims

1. A non-flammable azeotrope or azeotrope-like composition consisting essentially of at least about 95% to about 99.9% by weight trifluoromethane and at least about 0.1% to less than about 5% by weight propane, wherein the vapor pressure of said composition is at least 363 psia at 0° C.

5,670,080

NONAZEOTROPIC WORKING FLUID MEDIA FOR USE IN THERMODYNAMIC CYCLE APPLICATIONS

Chujun Gu, No. A7 South Road Liuliao, Fengtai District Beijing, China, 100073

Division of Ser. No. 7,398, Jan. 21, 1993, abandoned, which is a continuation-in-part of Ser. No. 854,131, Mar. 19, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 486,998

Claims priority, application China, Jan. 24, 1992, 92100395.1

Int. Cl.⁶ C09K 5/04

U.S. Cl. 252-67

2 Claims

1. A nonazeotropic working fluid medium for use in a thermodynamic cycle system, comprising a mixture of compounds and

5,670,077

AQUEOUS MAGNETORHEOLOGICAL MATERIALS

J. David Carlson, Cary, and Jeannine C. JonesGulon, Durham, both of N.C., assignors to Lord Corporation, Cary, N.C.

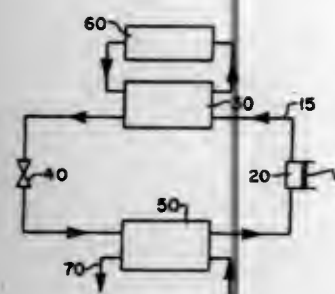
Filed Oct. 18, 1995, Ser. No. 544,689

Int. Cl.⁶ H01F 1/26; 1/144

U.S. Cl. 252-62.52

25 Claims

1. A magnetorheological fluid comprising magnetic particles; at least one biosynthetic gum; and water.



characterized in that, when subject to one or more vaporization loss/replenishment cycles,:

(a) the weight of the medium changes is less than about 15% of the total original weight of the medium per cycle, wherein the compounds and their weight concentrations are as follows:

CHClF ₂ (R22)	0.35-0.55
CH ₂ CHF ₂ (R152a)	0.05-0.30
CF ₃ CH ₂ F (R134a)	0.05-0.30
C ₄ F ₈ (RC318)	0.05-0.30

and wherein the maximum concentration of impurities in the medium is about 10 percent (by weight); and

(b) cumulatively, over all cycles, the weight of the medium changes is no more than about 10% of the total original weight of the medium, resulting in:
i) a total decrease in the coefficient of performance of said medium of no more than about 5%; or
ii) a loss in electric power generating efficiency of not more than about 3 percent.

5,670,081 SALT COMPOSITIONS AND FUNCTIONAL FLUIDS USING SAME

Richard J. Vickerman, Stow, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
Continuation-in-part of Ser. No. 512,958, Aug. 9, 1995, abandoned, which is a continuation of Ser. No. 164,095, Dec. 8, 1993, abandoned. This application Apr. 4, 1996, Ser. No. 627,524

Int. Cl.⁶ C10M 173/00; B01F 17/16
U.S. Cl. 252-77 64 Claims
62. An aqueous oil-in-water emulsion functional fluid comprising:

water, an oil and an emulsifying quantity of a salt composition comprising:
(A) at least one salt moiety derived from (A)(I) at least one high-molecular weight polycarboxylic acylating agent, said acylating agent (A)(I) having at least one hydrocarbyl substituent having an average of from about 20 to about 500 carbon atoms, and (A)(II) one or more members from the group consisting of ammonia, at least one amine, at least one alkali or alkaline earth metal, and at least one alkali or alkaline earth metal compound;
(B) at least one salt moiety derived from (B)(I) at least one low-molecular weight polycarboxylic acylating agent, said acylating agent (B)(I) optionally having at least one hydrocarbyl substituent having an average of up to about 18 carbon atoms, and (B)(II) one or more members from the group consisting of ammonia, at least one amine, at least one alkali or alkaline earth metal, and/or at least one alkali or alkaline earth metal compound;
said components (A) and (B) being coupled together by (C) at least one compound having (i) two or more primary amino groups, (ii) two or more secondary amino groups, (iii) at least one primary amino group and at least one secondary amino group, (iv) at least two hydroxyl groups or (v) at least one primary or secondary amino group and at least one hydroxyl group; provided that the ratio of equivalents of (B)(I) to (A)(I) is 2.5:1 to about 10:1.

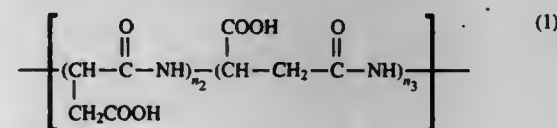
5,670,082

BLEACHING AUXILIARY

Albert Stehlin, Rosenau, France; Klaus Huber, Freiburg, and Thomas Maier, Schliengen, both of Germany, assignors to Ciba-Geigy Corporation, Tarrytown, N.Y.
Continuation-in-part of Ser. No. 255,495, Jun. 8, 1994, abandoned. This application Dec. 9, 1994, Ser. No. 352,998
Claims priority, application Switzerland, Jun. 11, 1993, 1744/93

Int. Cl.⁶ C01B 15/00
U.S. Cl. 252-186.42 4 Claims

1. An aqueous formulation comprising
(a₁) a polypeptide of aspartic acid of the formula



wherein
 $n_1=3-15$,
 $0 \leq n_2 \leq 2$,
 $0 \leq n_3 \leq 2$ and the sum of n_2 and n_3 is 2,
(b) a magnesium salt of an organic carboxylic acid, and
(c) a preservative.

5,670,083

OPTICAL ELEMENT AND PROCESS FOR PRODUCING THE SAME

Ryojiro Akashi; Masanobu Ninomiya; Takashi Uematsu, and Takashi Morikawa, all of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan
Filed Feb. 21, 1995, Ser. No. 391,179
Claims priority, application Japan, Feb. 23, 1994, 6-048003; Mar. 18, 1994, 6-072947; Mar. 18, 1994, 6-072948; Mar. 18, 1994, 6-072949; Oct. 20, 1994, 6-279816

Int. Cl.⁶ C09K 19/52; G02F 1/13
U.S. Cl. 252-299.01 21 Claims



1. An optical element comprising a polymer liquid crystal composition having a multi-domain structure comprising crosslinked domains, each of said domains comprising liquid crystal molecules oriented substantially in one direction to produce optical anisotropy, wherein said multi-domain structure has such a domain size distribution that the domain diameter at the maximum in the frequency distribution of domain diameter is not greater than 3 μm.

5,670,084

ALIGNMENT LAYER MATERIAL FOR LIQUID CRYSTAL DISPLAY DEVICES

Takamasa Harada, Inzai-machi; Haruhiko Itoh, Kakegawa; Masami Ubukata, Tokorozawa, and Fumie Nozawa, Asaka, all of Japan, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Filed Oct. 20, 1995, Ser. No. 546,221
Claims priority, application Japan, Oct. 21, 1994, 6-256859; Oct. 6, 1995, 7-259902
Int. Cl.⁶ C09K 19/56; G02F 1/1337
U.S. Cl. 252-299.01 19 Claims

1. An alignment layer material of a liquid crystal display device having a liquid crystal layer between a pair of substrates wherein a transparent electrode and the alignment layer are formed in this

order on the inside thereof, wherein the alignment layer comprises a mixture of a polymer (A) which is a block copolymer comprising a siloxane compound as a constituting component, and a homopolymer or copolymer (B) comprising the following repeating unit (1):



wherein X represents —H, —F, —CH₃, —CF₃, —CN or —CH₂—CH₃;

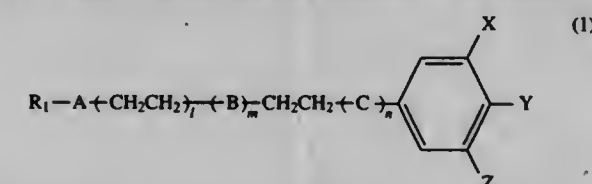
Z represents a single bond, —O—, —(C=O)—, —(C=O)—O—, —O—(C=O)—, or —O—(C=O)—(CH₂)_n—(C=O)—O— (wherein n is an integer of from 0 to 20); and R¹ represents a hydrogen atom, a straight chain or a branched alkyl group, a straight chain or branched unsaturated aliphatic hydrocarbon group, a cycloalkyl group, an aryl group, a saturated or unsaturated hetero ring or an aryl group or hetero ring which is substituted with 1, 2 or 3 groups —X, —R¹ or Z—R¹.

5,670,085

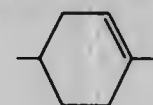
LIQUID CRYSTALLINE COMPOUND AND LIQUID CRYSTAL

Kazutoshi Miyazawa; Shuichi Matsui; Yasuyuki Goto; Etsuo Nakagawa, and Shinichi Sawada, all of Chiba, Japan, assignors to Chisso Corporation, Osaka-fu, Japan
Continuation of Ser. No. 410,297, Mar. 24, 1995, Pat. No. 5,534,187. This application Jan. 18, 1996, Ser. No. 588,434
Claims priority, application Japan, Mar. 29, 1994, 6-058705
Int. Cl.⁶ C09K 19/52; G02F 1/13; C07C 25/13

U.S. Cl. 252-299.01 13 Claims
1. A liquid crystalline compound expressed by the formula (I)



wherein R₁ represents an alkyl group of 1 to 12 carbon atoms and one or two not adjacent CH₂ groups excluding the terminal in the alkyl group may be replaced by oxygen atom, —CO— group, —OCO— group, —COO— group or —CH=CH— group; X and Z each represent H, F or Cl atom; Y represents a perfluoroalkyl group or a perfluoroalkoxy group of 1 to 4 carbon atoms and one or two F atoms in these groups may be replaced by H atom, provided that in no case does Y represent trifluoromethyl or difluoromethoxy; one of A, B and C represents cyclohexene ring and the others thereof can be chosen from among covalent bond, cyclohexane ring and benzene ring and H atoms on these rings may be replaced by F atom or Cl atom; l, m and n each are 0 or 1 independently of each other, but when m=0, then l=0; when Y is trifluoromethoxy group and l=m=n=0, then A is



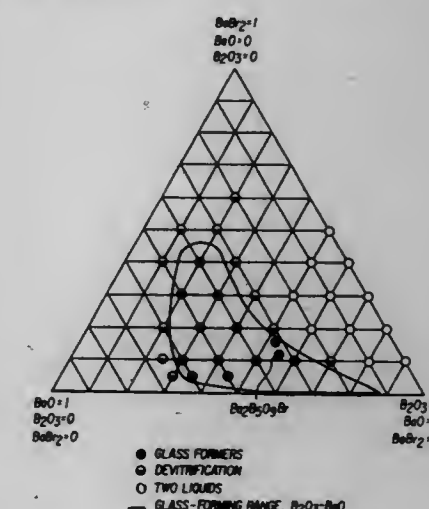
when Y is trifluoromethoxy group, l=0, and m+n≠0, then A is chosen from cyclohexane ring and benzene ring, and H atoms on these rings may be replaced by F atom or Cl atom.

5,670,086

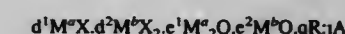
VITRIFIED PHOSPHOR ARTICLES, INTERMEDIATES, AND PREPARATION METHODS

Kimon Papadopoulos, Penfield, and Kurt D. Sleber, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 20, 1996, Ser. No. 603,965
Int. Cl.⁶ C09K 11/61; C03C 10/02
U.S. Cl. 252-301.4 P 16 Claims



1. A method for preparing a vitrified glass-ceramic article comprising the steps of:
admixing a combination of species characterized by the structural formula:



wherein:

each M^a is selected from the group consisting of the alkali metals: Li, Na, K, Rb and Cs, and combinations thereof;
each M^b is selected from the group consisting of the divalent metals: Be, Mg, Ca, Sr, Ba, Zn, Cd, Cu, and Ni, and combinations thereof;
each X is selected from the group consisting of F, Cl, Br, and I, and combinations thereof;
R is at least one member selected from the group consisting of BeF₂, and oxides of: B, Si, Ge, and P;
A is selected from the group consisting of Eu, Tb, Ce, Tm, Dy, Pr, Ho, Nd, Yb, Er, Gd, Lu, Sm, Y, Tl, Na, Ag, Cu, Mg, Pb, Bi, Mn, and In, and combinations thereof;
d¹+d² is from 0.025 to about 0.5;
c¹+c² is from 0 to about 0.65;
d¹+e¹ is from 0 to about 0.9;
d²+e² is from 0 to about 0.9;
d¹+e¹+d²+e²=from about 0.05 to about 0.9;
d¹+e¹+d²+e²+q=1; and
j is from 1×10⁻⁶ to about 0.20;
firing said admixed combination of species at a temperature of from about 500 to about 1550° C., for from about 0.25 to about 100 hours, to form a melt having a single liquid;
molden-shaping the product of said melt to form a vitrified article; and
beating at least a portion of the vitrified article to form phosphor crystals in a residual vitreous matrix.

5,670,087
METHOD OF PREPARING HIPR BITUMINOUS EMULSIONS

Maria Luisa Chirinos, Caracas, Venezuela; Alistair Stewart Taylor, Yateley, and Spencer Edwin Taylor, Camberley, both of United Kingdom, assignors to Intevp, S.A., Caracas, Venezuela

Continuation of Ser. No. 217,221, Mar. 24, 1994, abandoned, which is a continuation of Ser. No. 53,299, Apr. 23, 1993, abandoned, which is a continuation of Ser. No. 561,264, Jul. 2, 1990, abandoned, which is a continuation of Ser. No. 266,259, Nov. 2, 1988, abandoned, which is a continuation of Ser. No. 147,022, Jan. 19, 1988, abandoned, which is a continuation of Ser. No. 726,666, Apr. 24, 1985, abandoned. This application Jun. 7, 1995, Ser. No. 474,253

Int. Cl.⁶ B01J 13/00; C08L 95/00

U.S. Cl. 252—311.5

8 Claims

1. A method for the preparation of a high internal phase ratio emulsion having a high degree of monodispersity of bitumen in water, the method consisting essentially of directly mixing 70 to 98% by weight of bitumen with 30 to 2% by weight of an aqueous solution of an emulsifying surfactant, percentages being expressed as percentages by weight of the total mixture; the bitumen having a viscosity in the range 200 to 500,000 mPas at the mixing temperature and mixing being effected under low shear conditions in the range 10 to 1,000 reciprocal seconds throughout the entire mixing operation in such manner that an emulsion is formed comprising distorted bitumen droplets having a high degree of monodispersity with a mean droplet diameter in the range 2 to 50 microns separated by thin films of water.

5,670,088
PREPARATION OF MIXED ULTRAFINE PARTICLES FROM PFPE MICRO-EMULSION

Alba Chittofrati, and Viviana Boselli, both of Milan, Italy, assignors to Ausimont S.p.A., Milan, Italy

Filed Jun. 7, 1995, Ser. No. 475,105

Claims priority, application Italy, Jun. 9, 1994, 94 A 001211
Int. Cl.⁶ B01J 13/00; H01F 1/20

U.S. Cl. 252—314

12 Claims

1. A process for preparing dispersions containing mixed oxides of 50 nm or smaller and having narrow size distribution, comprising the following steps:

P1) preparing a water-in-oil microemulsion, the oil being a perfluoropolyether, and said microemulsion being obtained by using an anionic, cationic or nonionic perfluoropolyether surfactant, the dispersed aqueous phase of the microemulsion being a solution of an inorganic salt of a first metal, M1;

P2) preparing a metal salt of an anionic fluorinated surfactant of a second metal, M2, said metal salt being soluble in the perfluoropolyether oil used for preparing the P1 microemulsion, the amount by moles of surfactant being sufficient to fully bind to the metal cation but not being in excess;

P3) adding the salt obtained in P2 to the P1 microemulsion to obtain a reaction system containing the two metals M1 and M2; M1 being in the aqueous phase and M2 being in the perfluoropolyether oil phase;

P4) adding an alkali or alkali solution to the reaction system P3 with contemporaneous or subsequent beating, if P3 has not yet been heated, at the temperature necessary to form the desired oxide; then cooling and separating the aqueous supernatant; wherein

M1 and M2 are metal cations selected from the group consisting of the I b, II b, III a-b, IV a-b, V a-b groups and the metals of the VII and VIII groups; wherein M1 is a metal ion having a valence equal to or lower than M2, M1 being different from Fe(II), or in admixture with Fe(II).

5,670,089
CONDUCTIVE PASTE FOR MLC TERMINATION
Takayuki Oba, and Akira Inaba, both of Kanagawa, Japan, assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 7, 1995, Ser. No. 568,920

Int. Cl.⁶ H01B 1/02; 1/16; 1/22

U.S. Cl. 252—514

4 Claims

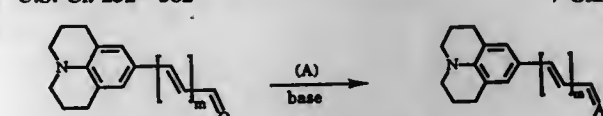
1. A terminal electrode composition for a multiple-layered capacitor, characterized by being made of precious metal particles and 0.5 to 7 wt. % (based on the weight of the precious metal particles) of an inorganic binder having a 400°–500° C. glass transition point and a 400°–550° C. glass softening point, wherein said inorganic binder comprises 15–30 wt. % SiO₂, 1–18 wt. % B₂O₃, 35–70 wt. % PbO and 5–20 wt. % of at least one oxide selected from the group consisting of Al₂O₃, ZrO₂ and TiO₂.

5,670,090
NONLINEAR OPTICAL MATERIALS WITH REDUCED AROMATICITY AND BOND LENGTH ALTERNATION
Seth R. Marder, Pasadena, Calif., and Lap-Tak Cheng, Newark, Del., assignors to California Institute of Technology, Pasadena, Calif.

Division of Ser. No. 372,964, Jan. 17, 1995, which is a continuation-in-part of Ser. No. 103,281, Aug. 5, 1993, abandoned. This application Jun. 1, 1995, Ser. No. 456,547
Int. Cl.⁶ F21V 9/00; G02F 1/35

U.S. Cl. 252—582

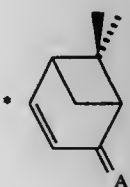
7 Claims



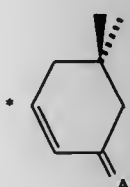
1. A nonlinear optical device comprising:
A) an element comprising a composition matter which exhibits a second-order nonlinear optical response, said composition having the formula:



wherein C is

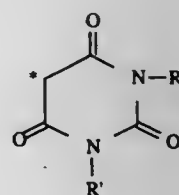


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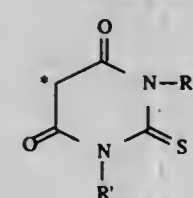
(16)

wherein A is

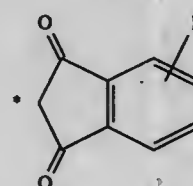


(1)

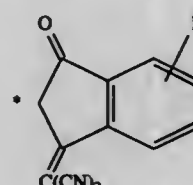
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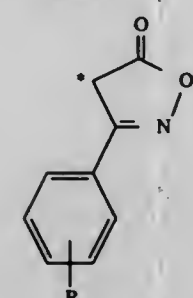
(2)



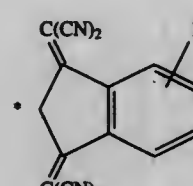
(3)



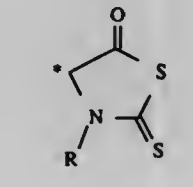
(4)



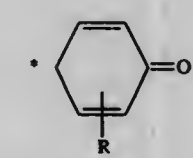
(5)



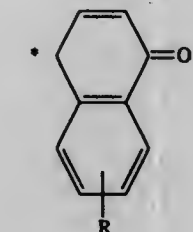
(6)



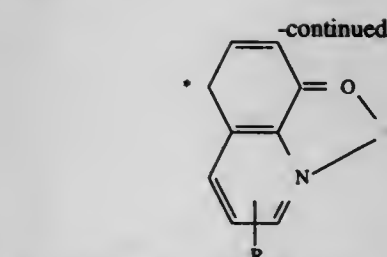
(7)



(8)

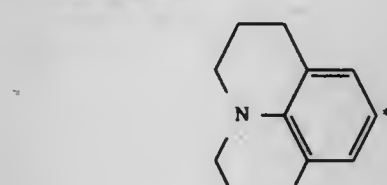


(9)

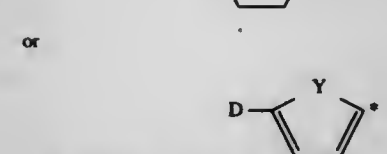


(10)

R is H, alkyl, aryl, (CH₂)_xOH where x=1 to 8, or (CH₂)_xSH where x=1 to 8;
R' is H, alkyl, aryl, (CH₂)_yOH where y=1 to 8, or (CH₂)_ySH where y=1 to 8;
ML_n is a Lewis acid; wherein B is



(13)



(14)

Y is CH=CH, O, NH, S or Se;
D is OR⁺, NR⁺ R' or SR⁺ where
R⁺ is H, alkyl, aryl or (CH₂)_wOH where w=1 to 8;
R' is H, alkyl, aryl or (CH₂)_zOH where z=1 to 8;
or where R⁺ R' is derived from a cyclic amine of the form N(CH₂)_m, where m=3–10; and
wherein m is 0 to 15;
where the asterisk indicates the point of attachment on the acceptor and donor; and
B) means for directing at least one incident beam of electromagnetic radiation having at least one frequency into said element whereby electromagnetic radiation emerging from said element has at least one frequency which is different from said at least one frequency of said incident beam of electromagnetic radiation.

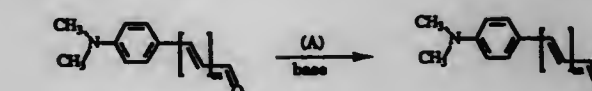
5,670,091
NONLINEAR OPTICAL MATERIALS WITH REDUCED AROMATICITY AND BOND LENGTH ALTERNATION
Seth R. Marder, Pasadena, Calif., and Lap-Tak Cheng, Newark, Del., assignors to California Institute of Technology, Pasadena, Calif.

Division of Ser. No. 372,964, Jan. 17, 1995, which is a continuation-in-part of Ser. No. 103,281, Aug. 5, 1993, abandoned. This application Jun. 1, 1995, Ser. No. 456,808

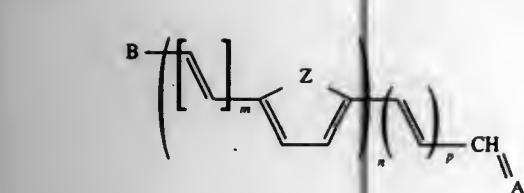
Int. Cl.⁶ F21V 9/00; G02F 1/35

U.S. Cl. 252—582

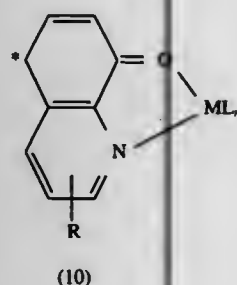
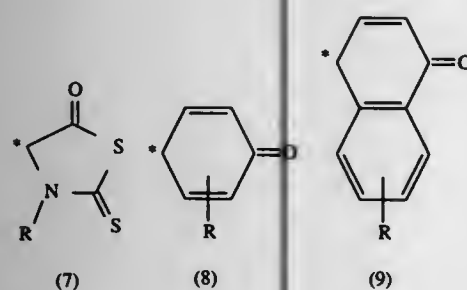
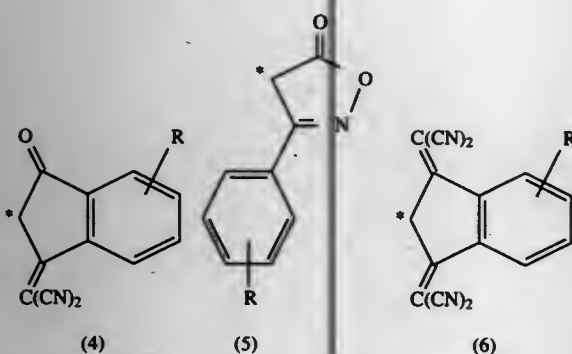
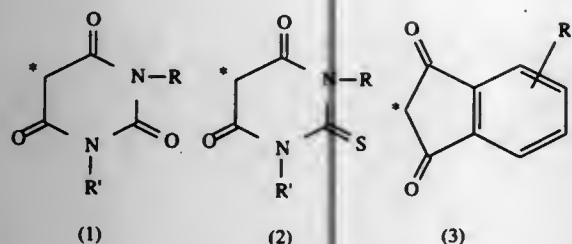
8 Claims



1. A nonlinear optical device comprising a composition of matter which exhibits a second-order nonlinear optical response, said composition having the formula:

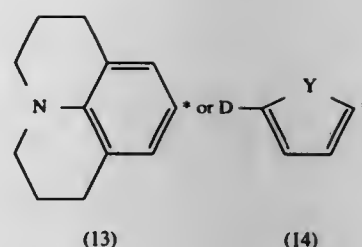


wherein
Z is CH=CH, O, NH, S or Se;
A is



R is H, alkyl, aryl, (CH₂)_xOH where x=1 to 8, or (CH₂)_xSH where x=1 to 8;
R' is H, alkyl, aryl, (CH₂)_yOH where y=1 to 8, or (CH₂)_ySH where y=1 to 8; ML_n is a Lewis acid;

wherein B is



Y is CH=CH, O, NH, S or Se;
D is OR^{*}, NR^{*}R^{*} or SR^{*} where
R^{*} is H, alkyl, aryl or (CH₂)_wOH where w=1 to 8;
R^{*} is H, alkyl, aryl or (CH₂)_zOH where z=1 to 8;
or where NR^{*}R^{*} is derived from a cyclic amine of the form N(CH₂)_l, where l=3-10, and
wherein m is 0 to 15, n=1 to 15 and p=0 to 15; except when A is (2) then Y is S, and B is (13) or (14), m=0 to 10, n=0 to 15 and p=1 to 15,
where the asterisk indicates the point of attachment on the acceptor and donor.

5,670,092
POLARIZING FILM
Karl-Heinz Aleksander Ostojka Starzewski, Bad Vilbel, Germany, assignor to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Sep. 22, 1995, Ser. No. 532,515
Claims priority, application Germany, Sep. 30, 1994, 44 34 964.5

Int. Cl.⁶ F21V 9/14; B29D 7/01
U.S. Cl. 252-585 10 Claims
1. A polarizing film of improved blocking position based on polyvinyl alcohol containing polyacetylene as the light-polarizing substance, obtainable by stretching a polarizable film 4- to 13-fold to obtain a polarizing film and thereafter treating the film for from 10 seconds up to 60 days at a temperature of between 100° C. and 300° C. with the exclusion of oxygen wherein the time and temperature of treatment are sufficient to raise the degree of polarization at 400 nm by at least 4%.

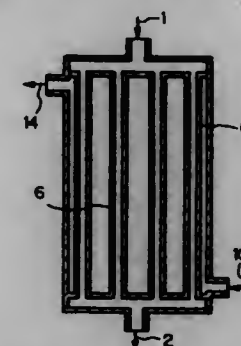
5,670,093
FLUID DISTRIBUTION SYSTEM AND METHOD UTILIZING A RADIAL SPLITTER
Richard L. Payne, McKinney, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.
Filed Feb. 14, 1996, Ser. No. 601,200
Int. Cl.⁶ B01F 3/04

U.S. Cl. 261-20 12 Claims
1. A system for distributing a multiphase fluid to a plurality of locations, said system comprising a first conduit extending in a first direction for receiving a mixture of two fluids at a predetermined ratio of said fluids, a first splitter connected to said first conduit for splitting the mixture of said fluids into a first plurality of streams conducted through branch conduits extending parallel to and radially spaced from the first direction, each of said branch conduits including another splitter for splitting the mixture of fluids into another plurality of streams conducted through additional branch



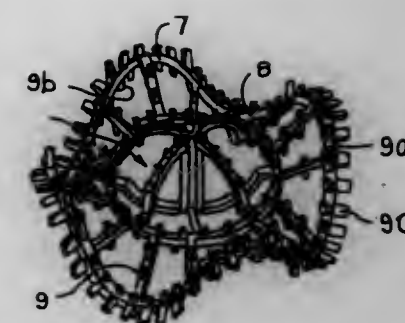
conduits extending parallel to and radially spaced from the first direction.

5,670,094
METHOD OF AND APPARATUS FOR PRODUCING OZONIZED WATER
Kenichi Sasaki, Takayuki Saito, Ken Nakajima, and Mitsuru Imai, all of Kanagawa-ken, Japan, assignors to Ebara Corporation, Tokyo, Japan
Filed Jan. 25, 1996, Ser. No. 590,361
Claims priority, application Japan, Jan. 30, 1995, 7-031866
Int. Cl.⁶ B01F 3/04
U.S. Cl. 261-27 13 Claims



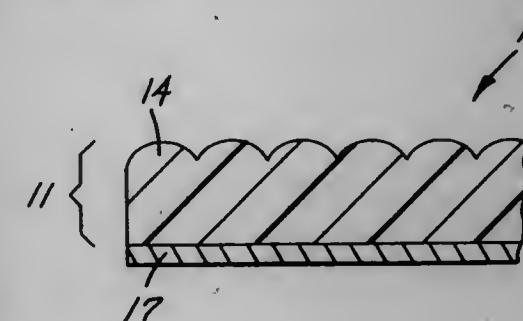
1. An ozonized water producing method in which a pressurized ozone gas generated by an electric discharge type ozonizer is dissolved in water to be treated through a hollow-fiber membrane, characterized in that a water pressure inside the hollow-fiber membrane is maintained higher than the pressure of the ozone gas supplied to the outside of the hollow-fiber membrane to prevent tiny bubbles and impurities from getting mixed in the water being treated, and an ozone concentration in treated water is controlled on the basis of the concentration of the ozone gas.

5,670,095
TOWER PACKING UNIT
Dennis Owen Southam, 8 James Street, Port Bourghton, Australia, 5522, assignor to Jeffrey John Baumont, Singapore; Julian Morris Higgs, Victoria, and Dennis Owen Southam, Port Broughton, both of Australia
PCT No. PCT/AU94/00024, § 371 Date Jul. 17, 1995, § 102(e) Date Jul. 17, 1995, PCT Pub. No. WO94/16810, PCT Pub. Date Aug. 4, 1994
PCT Filed Jan. 18, 1994, Ser. No. 491,990
Claims priority, application Australia, Jan. 19, 1993, PL6864
Int. Cl.⁶ B01J 19/30
U.S. Cl. 261-97 10 Claims
1. A tower packing unit for a liquid, gas and/or mist contact apparatus including a plurality of filaments comprising:



a central body; and
a perimeter ring surrounding and connected to the central body; wherein the perimeter ring is formed in a continuous wave configuration surrounding the central body.

5,670,096
RETROREFLECTIVE ARTICLE COMPRISING A TRANSPARENT BASE SHEET AND NACREOUS PIGMENT COATING, METHOD FOR MAKING SUCH A BASE SHEET, AND METHOD FOR MAKING A FORMING MASTER
Shih-Lai Lu, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Division of Ser. No. 99,184, Jul. 29, 1993, Pat. No. 5,468,540, which is a continuation-in-part of Ser. No. 613,136, Nov. 15, 1990, Pat. No. 5,254,390. This application Nov. 17, 1995, Ser. No. 559,529
Int. Cl.⁶ B29D 11/00
U.S. Cl. 264-1.1 11 Claims



1. A method for making a base sheet, comprising:
a) preparing a curable composition;
b) depositing said composition onto a forming master surface having a nonuniform array of substantially hemi-spheroidal concavities of different depths therein, said concavities being wider than portions of true hemi-spherical concavities of the same depth;
c) spreading a bead of the composition between a transparent substrate film and said forming master, said substrate film being substantially planar, at least one of said forming master and said substrate film being flexible;
d) curing the deposited composition to yield a composite comprising a nonuniform array of substantially hemi-spheroidal microlenses of different heights bonded to said substrate film; and
e) removing said composite from said forming master to yield said base sheet.

5,670,097

METHOD OF MAKING BLOOD GAS SENSORS OVERCOATS USING PERMEABLE POLYMERIC COMPOSITIONS

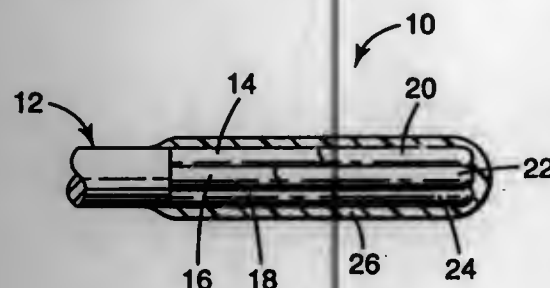
Daniel C. Duan, St. Paul; Mark S. Schaberg, Maplewood, both of Minn.; Terence M. Fogarty, Hudson, Wis.; William L. Howard, Jr., Manhattan Beach, Calif.; and Kenneth B. Wood, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 8, 1994, Ser. No. 351,771

Int. Cl.⁶ B29D 11/00

U.S. Cl. 264—1.24

39 Claims



1. A method for making a shaped permeable polymeric material, the method comprising:

- preparing a crosslinkable composition comprising a hydrophobic portion and a hydrophilic portion, wherein the hydrophobic portion is a polymeric material selected from the group consisting of a polysulfone, a polyethersulfone, a polyarylsulfone, a polyimide, a polyarylate, a cellulose acetate, a polyurethane, a polycarbonate, a polyester carbonate, a phenoxy resin, a polyether imide, a cellulose acetate butyrate, a nylon, a polyvinyl butyral, a polyarylene oxide, a poly(urea urethane), a polyphenyl quinoxaline, and mixtures thereof;
- placing the crosslinkable composition in a mold;
- gelling the crosslinkable composition to form a shaped gelled composition comprising a hydrophobic portion, a hydrophilic portion, and a liquid portion; and
- exchanging the liquid portion with an exchange liquid to form a shaped permeable polymeric material having a tensile strength, when fully hydrated, of at least about 525 psi (3620 kPa).

5,670,098

BLACK POWDER PROCESSING ON TWIN-SCREW EXTRUDER

David R. Dillehay; David W. Turner, both of Marshall, Tex., and Jim Blackwell, Shreveport, La., assignors to Thiokol Corporation, Odgen, Utah

Filed Aug. 20, 1996, Ser. No. 707,199

Int. Cl.⁶ C06B 21/00

U.S. Cl. 261—3.3

14 Claims

- A process for making black powder comprising the steps of:
 - mixing sulfur and a fuel to form a mixture of sulfur and fuel;
 - metering potassium nitrate, the mixture of sulfur and fuel, and processing aid selected from guar gum, karaya gum, and gum tragacanth into a twin-screw extruder, wherein the potassium nitrate has a weight percent in the range from 70% to 78%, the sulfur has a weight percent in the range from 7% to 12%, the fuel has a weight percent in the range from 15%–20%, and the guar gum has a weight percent from 0.05% to 0.5%;
 - adding water to the twin-screw extruder;
 - compounding the potassium nitrate, sulfur, fuel, guar gum and water to form a black powder mixture;
 - extruding the black powder mixture through a die;
 - face cutting the extruded black powder to form black powder granules;
 - drying the black powder granules; and
 - glazing the black powder granules with graphite.

5,670,099

PROCESS FOR PREPARING SUBMICRON PARTICLES IN THE PRESENCE OF LIPID VESICLES, AND CORRESPONDING COMPOSITIONS

Jean-Luc Morancals, Ozoir-la-Ferrière; Alain Lety, Lagny-sur-Marne, and Guy Vanlerbergue, Villevaude, all of France, assignors to L'Oréal, France

Division of Ser. No. 971,971, Feb. 19, 1993, Pat. No. 5,425,993. This application Sep. 30, 1994, Ser. No. 315,869

Claims priority, application France, Jun. 24, 1991, 91 07727 Int. Cl.⁶ B01J 13/20; 13/12; G03C 1/725

U.S. Cl. 264—4.3

13 Claims

1. A process for preparing submicronic particles in the presence of lipid vesicles comprising

- preparing a dispersion of lipid vesicles from (i) at least one lipid capable of forming vesicles, (ii) an aqueous phase to be encapsulated in said vesicles, and (iii) an aqueous phase forming a dispersion medium in which said vesicles are dispersed;
 - dissolving at least one polymerizable monomer as a precursor of said submicronic particles in
 - said aqueous phase to be encapsulated in said vesicles, or
 - in said aqueous phase forming said dispersion medium for said vesicles, or
 - both (i') and (ii'), and
 said polymerizable monomer precursor being dissolved in (i'), (ii') or (iii'), at a time
 - before the preparation of a vesicular phase, or
 - during the preparation of a vesicular phase, or
 - after the preparation of a vesicular phase, or
 - both times (1) and (2) or both times (2) and (3), and
 - adding to said polymerizable monomer as a precursor at a time (1) or (2) or (3) or (4), defined above, a polymerization agent capable of transforming said polymerizable monomer precursor into said submicronic particles so as to react with said polymerizable monomer precursor thereby forming said submicronic particles at the exterior of said vesicles or at both the interior and exterior of said vesicles.
8. The process of claim 1 wherein said submicronic particles are a polymer selected from the group consisting of an acrylamide and a bisacrylamide.

5,670,100

METHOD AND APPARATUS FOR COMPRESSION MOLDING PLASTIC ARTICLES

Keith W. Ingram, Holland, Ohio, assignor to Owens-Illinois Closure Inc., Toledo, Ohio

Continuation-in-part of Ser. No. 135,829, Oct. 14, 1993, Pat. No. 5,554,327. This application Jun. 7, 1995, Ser. No. 473,479

Int. Cl.⁶ B29C 43/08; 43/18; 43/58

U.S. Cl. 264—40.5

35 Claims

1. A method for compression molding a plastic article comprising

- providing a first upper tool assembly having a male mold associated therewith,
- providing a second lower tool assembly having a cavity mold associated therewith, said cavity mold having a peripheral portion and an inner central portion, said peripheral portion of said cavity mold and said inner central portion of said cavity mold having limited relative movement with respect to one another,
- providing a first fixed cam for moving the first tool assembly relative to said second assembly and a second fixed cam associated with the second tool assembly for moving said second tool assembly relative to said first tool assembly,
- interposing a fluid cylinder comprising a fluid filled chamber and a piston between said second fixed cam and said second tool assembly, said inner central portion of said cavity mold being associated with said piston of said fluid cylinder such that there is limited permissible movement between said fluid cylinder and said associated tooling,
- providing said fluid in said cylinder such that said fluid is continuously at a predetermined pressure at all times to pro-

5,670,102

METHOD OF MAKING THERMOPLASTIC FOAMED ARTICLES USING SUPERCRITICAL FLUID

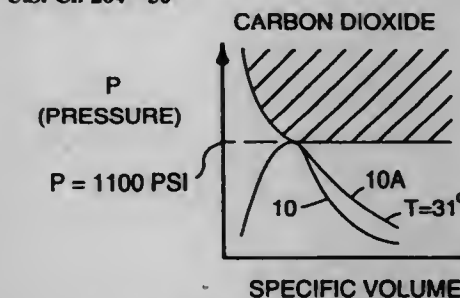
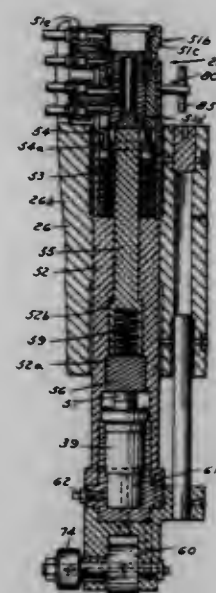
Craig A. Perman, Woodbury, Minn.; William A. Hendrickson, Houlton, Wis., and Manfred E. Riechert, Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 16,602, Feb. 11, 1993, abandoned. This application Jan. 25, 1994, Ser. No. 181,696

Int. Cl.⁶ B29C 44/02

U.S. Cl. 264—50

14 Claims



1. A process for producing low density cellular foamed thermoplastic articles comprising the steps:

- charging a pressure vessel with a solid thermoplastic polymer;
- heating the pressure vessel containing the solid thermoplastic polymer to a predetermined saturation temperature using an external heat source, heated to a temperature at or near the Vicat softening point of the solid thermoplastic polymer;
- simultaneously charging a gas, while heating the pressure vessel;
- equilibrating the pressure vessel, the solid thermoplastic polymer, and the gas at or near the Vicat softening point the external heat source;
- adjusting the pressure in the pressure vessel by adding additional gas to achieve a final pressure wherein the gas is a supercritical fluid and soluble in the solid thermoplastic polymer;
- saturation the solid thermoplastic polymer with the supercritical fluid for a predetermined period of time; and
- venting the pressure vessel to rapidly depressurize the pressure vessel to foam the solid thermoplastic polymer.

5,670,101

PROCESS TO PREPARE FOAMS FROM HIGH INTERNAL PHASE EMULSIONS

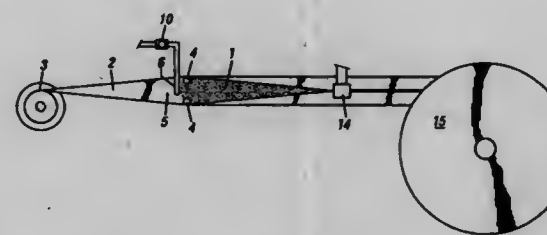
Nazim Safarali Nathoo; Thomas Fairchild Brownscombe, and Ronald Marshall Bass, all of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Jan. 26, 1996, Ser. No. 591,991

Int. Cl.⁶ B29C 44/24

U.S. Cl. 264—45.8

2 Claims



1. A process for curing a high internal phase emulsion to form a porous crosslinked polymeric material, the process comprising the steps of:

- forming a high internal phase emulsion having at least one curable phase;
- providing a continuous strip of polymeric film wherein the polymeric film is incompatible with each of the phases of the emulsion;
- placing at least a portion of the emulsion continuously on the polymeric film;
- closing the polymeric film around the emulsion;
- spiraling the emulsion in the polymeric film onto a spool, wherein the spool rotates about an essentially vertical axis for storage of the emulsion during curing; and
- curing the emulsion within the polymeric film on the spool.

5,670,103

METHOD FOR MAKING CERAMIC FIBERS FROM A WATER SOLUBLE PRE-CERAMIC POLYMER SOLUTION

Sung S. Pak, Evinston, and Archie N. Tolley, Appomattox, both of Va., assignors to The Babcock & Wilcox Company, New Orleans, La.

Continuation of Ser. No. 307,218, Sep. 16, 1994, abandoned, which is a continuation of Ser. No. 61,134, May 13, 1993, Pat. No. 5,437,852. This application Nov. 21, 1995, Ser. No. 561,226

Int. Cl.⁶ C04B 33/32

U.S. Cl. 264—66

5 Claims



1. An improved method for making ceramic fibers from a water soluble pre-ceramic polymer, comprising the steps of:

making a water-soluble pre-ceramic polymer, the water soluble pre-ceramic polymer being produced by a polycondensation reaction due to heating hydrated metal salts above their melting points and holding in a well-ventilated oven to drive off water and ligands;
making a water soluble solution by dissolving the water soluble pre-ceramic polymer in heated water;
forming fibers from the water soluble solution;
drying the formed fibers by heating the fibers in an oven at a rate of about 1° C./minute to a first temperature ranging between 600° C. to 750° C.;
raising the first temperature to a second temperature ranging from 800° C. to 1000° C. at about 5° C./minute;
increasing the second temperature to a third temperature of about 1200° C. at about 10° C./minute and holding at the third temperature of about 1200° C. for about one hour; and
cooling to room temperature at a rate of about 5° C. to 30° C./minute.

5,670,104

METHOD FOR CUTTING UNDRYED CLAY MATERIAL
Yasunao Miura; Mamoru Nishimura, both of Nagoya, and Kojiro Tokuda, Kariya, all of Japan, assignors to Nippon-denso Co., Ltd., Kariya, Japan

Filed Feb. 3, 1995, Ser. No. 383,523

Claims priority, application Japan, Feb. 4, 1994, 6-012337; Nov. 22, 1994, 6-288381

Int. Cl. B28B 11/16

U.S. Cl. 264—145

7 Claims

1. A curing method for cutting an undried clay material, said cutting method comprising the steps of:
forming an undried honeycomb structure of material from ceramic material; and
cutting said undried honeycomb structure by injecting a jet of high pressure water across said undried honeycomb structure in a radial direction of said undried honeycomb structure and in a direction other than a direction included in an extended face of cell grids forming a cell of said undried honeycomb structure.

5,670,105

PROCESS FOR PREPARING MULTIFILAMENT WET-SPUN ELASTANE THREADS

Ulrich Reinehr; Günter Türck, both of Dormagen; Tilo Sehm, Düsseldorf; Wolfgang Anderhegg; Toni Herbertz, both of Dormagen, all of Germany, and Gino Antolini, Sorisole, Italy, assignors to Bayer Faser GmbH, Dormagen, Germany

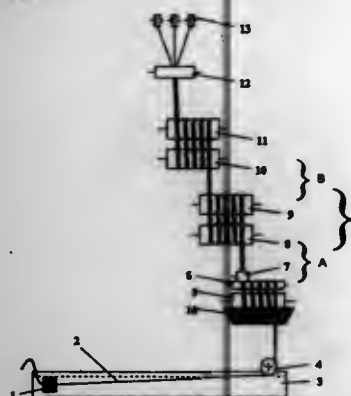
Filed Feb. 6, 1996, Ser. No. 597,593

Claims priority, application Germany, Feb. 10, 1995, 195 04 316.2

Int. Cl. D01D 5/16; D01F 6/70

U.S. Cl. 264—184

12 Claims



1. A process for preparing multifilament, wet-spun elastane threads using the steps: spinning an up to 35 wt. % strength

elastane solution in a spinning bath, washing, optionally stretching, drying, fixing, optionally preparing and winding the threads for a titer of up to 2500 dtex, in which process the steps of stretching, fixing and preparing are interchangeable, at a spinning rate of up to 200 m/min and in which the multifilament threads, on leaving the spinning bath, are passed over a deviation roller which is located just above the spinning bath liquid, wherein

- entrained water is removed from the multifilament threads, before leaving the washing step and travelling towards the drying or fixing procedure, by means of a squeezing roller which fits onto a roller in the washing device,
- then the threads are dried or fixed over at least two rollers,
- the temperature of at least one of said at least two rollers being equal to or greater than 200° C. and
- the contact time between the threads and said roller having a temperature of equal to or greater than 200° C. is at least 3 seconds.

5,670,106

METHOD FOR MAKING ORGANICALLY BASED POLYMER/THERMOPLASTIC PRODUCTS AND APPARATUS

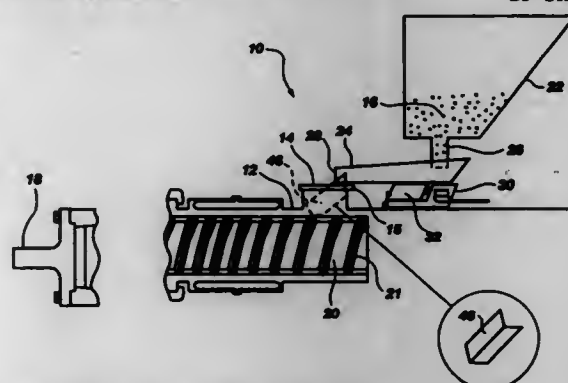
Rodney Swank, Westminster, Calif., assignor to Merizo Enterprises L.L.C., Sandy, Utah

Filed Apr. 4, 1995, Ser. No. 416,226

Int. Cl. B29C 47/10

U.S. Cl. 264—211.21

23 Claims



1. An extruding apparatus comprising:

a cooking extruder including an extrusion chamber having a receiving port for receiving extrudate ingredients, an ejection port formed on the chamber, and a rotatable screw member disposed within the chamber and being configured for compressing extrudate ingredients within the chamber and advancing said ingredients toward and through the ejection port;

feeding means for separately introducing a plurality of individual extrudate ingredients separately and simultaneously along a plurality of segregated, open-top movement paths into the receiving port of the extrusion chamber.

20. A method for manufacturing organically based polymer/thermoplastic products with a rotational screw cooking extruder, said cooking extruder having an extrusion chamber with a receiving port for receiving the ingredients therein and a rotatable screw member disposed within the chamber for advancing the ingredients through an ejection port of the chamber, said process comprising the steps of:

- introducing a plurality of organically based individual polymer/thermoplastic extrudate ingredients separately and simultaneously into the receiving port of the extrusion chamber of the cooking extruder; and
- simultaneously, (i) rotating the screw member of the cooking extruder, (ii) introducing the individual polymer/thermoplastic ingredients separately and simultaneously along a plurality of segregated movement paths into the receiving port as in step (a), and guiding and maintaining said plurality of ingredients in a desired orientation as said ingredients are introduced into

said receiving port, and (iii) otherwise operating the cooking extruder to thereby introduce cooking heat and compression into the ingredients in such a manner that said ingredients become combined and subsequently ejected from the ejection port of the chamber in the form of an organically based polymer/thermoplastic extrudate.

5,670,107

METHOD FOR PRODUCING MAGNETIC RECORDING MEDIUM

Kenji Kuwahara, Ikoma; Kiyosi Takahashi, Ibaraki; Hideyuki Ueda, Takatsuki; Noriyasu Echigo, Ashiya; Mikio Murai, Hirakata, and Masaru Odagiri, Kawanishi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

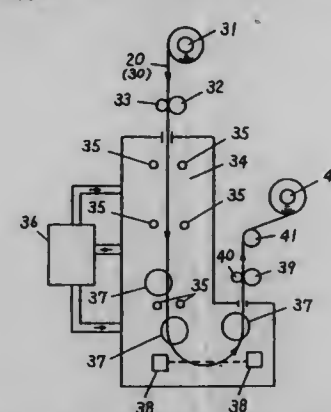
Filed Nov. 8, 1995, Ser. No. 554,243

Claims priority, application Japan, Nov. 8, 1994, 6-273656

Int. Cl. B29C 71/02

U.S. Cl. 264—234

4 Claims



1. A method for producing a magnetic recording medium comprising treating a magnetic recording medium which comprises a non-magnetic substrate and a magnetic layer formed on said substrate in an atmosphere kept at a temperature of at least 50° C., with applying a tension of 1 gf. or less per 10 mm width to said magnetic recording medium in a treating time which is in a range on or above a line having a slope of at least 5000 in terms of $\Delta \ln(L)/\Delta(1/T)$ and passing a point of 0.5 second at 100° C., when a natural logarithm of a residence time L (hours) $\{\ln(L)\}$ is Arrhenius plotted against an inverse of an absolute temperature T (1/T), where $\Delta \ln(L)/\Delta(1/T)$ is derived from $\{\ln(L_1) - \ln(L_2)\} / \{(1/T_1) - (1/T_2)\}$ in which L_1 and L_2 are two different residence times at the absolute temperatures T_1 and T_2 .

5,670,108

METHOD OF MOLDING A PLASTIC VESSEL HAVING A FLASH TRAP

John Alan Kern, and Jerry A. Eurich, both of Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 3, 1995, Ser. No. 552,589

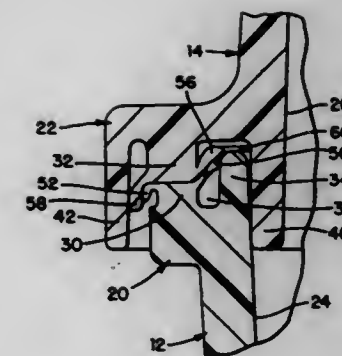
Int. Cl. B29C 65/00

U.S. Cl. 264—248

1 Claim

1. In a method of molding a plastic vessel having an interior by hot plate welding together of weld bosses provided respectively on mating rim portions of first and second component parts which form the plastic vessel, the improvement comprising:

- providing said first component part having a first weld boss and a first shroud located radially inboard of said first weld boss and extending peripherally around a rim portion thereof;
- providing said second component part having a second weld boss, such that said second weld boss is axially aligned with said first weld boss when said first and second components are welded together, and a second shroud which projects in a substantially same direction as said second weld boss and



spaced radially inboard of said first shroud when said first and second components are welded together thereby defining a cavity between said first and second weld bosses and said first and second shrouds;

melting of said first and second weld bosses with a hot plate; and subsequently welding said first and second component parts by pressing together said first and second weld bosses, wherein said first shroud engages and pushes melt flash projecting inboard of said first weld boss into said cavity thereby blocking said melt flash from overflowing into said interior of said plastic vessel.

5,670,109

VEHICLE ASSEMBLY METHOD

Delbert D. DeRees, Romeo, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.

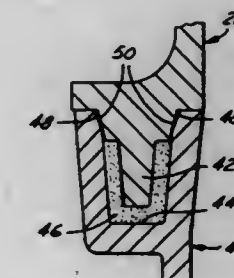
Continuation of Ser. No. 326,908, Oct. 21, 1994, abandoned.

This application Oct. 21, 1996, Ser. No. 731,864

Int. Cl. B29C 33/12; 45/14

U.S. Cl. 264—261

8 Claims



1. A method of assembling vehicle structural components together by using adhesives comprising the steps of:

- providing a first vehicle structural component comprising a tongue and further comprising a shoulder on either side of said tongue,
- providing a second vehicle structural component comprising a groove and further comprising a shoulder on either end of said groove,
- positioning said first and said second vehicle structural components together such that said shoulders of said tongue abut said shoulders of said groove to form a channel cavity between said tongue and said groove, and,
- injecting an adhesive into said channel cavity while said first and said second vehicle structural components are positioned together in said bonded position and forming an adhesive bond between said first and second components.

5,670,110
METHOD FOR MAKING THREE-DIMENSIONAL
MACROSCOPICALLY-EXPANDED WEBS HAVING
IMPROVED FUNCTIONAL SURFACES

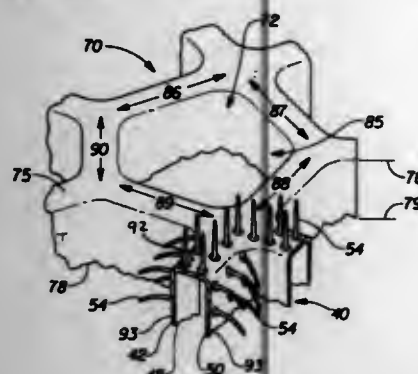
Raymond John Dirk, Clevel, and Nicholas Albert Ahr, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 21, 1995, Ser. No. 576,610.

Int. Cl.⁶ B29C 67/08; 69/02

U.S. Cl. 264—504

20 Claims



1. A process for forming a three-dimensional, macroscopically-expanded, fluid pervious web having an improved functional surface, said web being comprised of a sheet of polymeric material, said sheet having a first surface and a second surface, said process comprising the steps of:

- printing a plurality of discrete deposits of a water resistant resinous material on said first surface of said sheet, said resinous material having pre-determined open time;
- drawing said deposits of said resinous material upwardly from said first surface of said sheet to form corresponding fibrils during said open time;
- curing said resinous material;
- feeding said sheet onto a forming structure having opposed surfaces such that said second surface of said sheet is in contact with said forming structure, said forming structure exhibiting a multiplicity of apertures which place the opposed surfaces of said forming structure in fluid communication with one another; and
- applying a fluid pressure differential across the thickness of said sheet, said fluid pressure differential being sufficiently great to cause said sheet to rupture in those areas coinciding with said apertures in said forming structure and to conform with said forming structure while substantially maintaining the orientation of said fibrils, wherein said fluid pressure differential causes said sheet to be drawn downwardly into said apertures, such that capillaries are formed in said sheet, said capillaries containing a plurality of fibrils extending therein.

5,670,111
METHOD OF SHAPING STRUCTURES WITH AN
OVERCOAT LAYER INCLUDING FEMALE URINARY
CATHETER

Anthony J. Conway, Philip J. Conway, both of Chatfield, and Richard D. Fryar, Jr., Rochester, all of Minn., assignors to Rochester Medical Corporation, Stewartville, Minn.

Continuation-in-part of Ser. No. 827,936, Jan. 29, 1992, Pat. No. 5,360,402, which is a continuation-in-part of Ser. No. 809,281, Dec. 13, 1991, Pat. No. 5,261,896, which is a

continuation-in-part of Ser. No. 489,462, Mar. 6, 1990, abandoned, which is a continuation-in-part of Ser. No. 487,422, Mar. 1, 1990, Pat. No. 5,098,379, which is a continuation-in-part of Ser. No. 462,832, Jan. 10, 1990, Pat. No. 5,137,671.

This application Aug. 2, 1994, Ser. No. 285,026

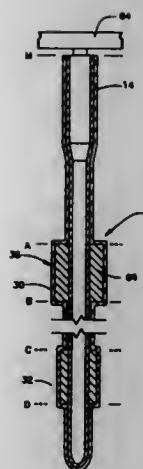
Int. Cl.⁶ B29C 67/18

U.S. Cl. 264—512

19 Claims

1. A method for producing a shaped article, said method comprising:

- providing an inner piece;



- forming a shaped structure on said inner piece by placing a residual coating of a bond-preventing agent on said inner piece;
- shaping said residual coating of said bond-preventing agent into at least a plurality of sections, each of said sections being of a different thickness, using a process comprising coating portions of an outer surface of said inner piece with a bond preventing agent in a plurality of dipping steps, wherein the inner piece is immersed into the bond-preventing agent to a desired depth for a desired length of time, and subsequently removed therefrom, wherein the desired depth and the desired length of time for each of the plurality of dipping steps is prescribed so that a residual coating of bond-preventing agent remains on portions of the inner piece following said plurality of dipping steps, said residual coating having varying thickness as a result of variation between the depth of any two of said plurality of dipping steps and the speed the bond-preventing agent is removed from the inner piece; and
- subsequently coating the shaped structure of said bond-preventing agent with a liquid composition to form a shaped overcoat layer, wherein the shape of the overcoat layer results from the shape of the shaped structure of said bond preventing agent.

5,670,112
MULTIPHASE MATTER INTRODUCTION WITH A
PLASTICATING SCREW ARRANGEMENT

Desider G. Csongor, Manchester; Edward J. Lasch, Wellesley; Vineet Kapila, Lowell, and Nick R. Schott, Westford, all of Mass., assignors to Dynamic Mixer, Inc., Manchester, Mass. Continuation-in-part of Ser. No. 393,200, Feb. 23, 1995, abandoned. This application Aug. 3, 1995, Ser. No. 511,055

Int. Cl.⁶ B29C 45/00

U.S. Cl. 264—572

10 Claims



1. A method for delivering a gas, vapor or liquid into a melted plastic in a mold via an elongated screw shaft rotatably supported in a housing, comprising the steps of:
 - providing said screw shaft with a bore longitudinally there-through from a proximal end to a distal tip end thereof;
 - rotating said screw shaft in said housing to move plastic there-through, and into said mold;
 - introducing a gas, vapor or liquid into said bore, to permit said gas, vapor or liquid to be delivered through said bore, and into said molten plastic in said mold through said distal tip end of said screw shaft.

5,670,113
AUTOMATED ANALYSIS EQUIPMENT AND ASSAY
METHOD FOR DETECTING CELL SURFACE PROTEIN
AND/OR CYTOPLASMIC RECEPTOR FUNCTION USING
SAME

Michael Anthony Akong, San Diego; Michael Miller Harpold, El Cajon; Gonul Velicelebi, and Paul Brust, both of San Diego, all of Calif., assignors to SIBIA Neurosciences, Inc., La Jolla, Calif.

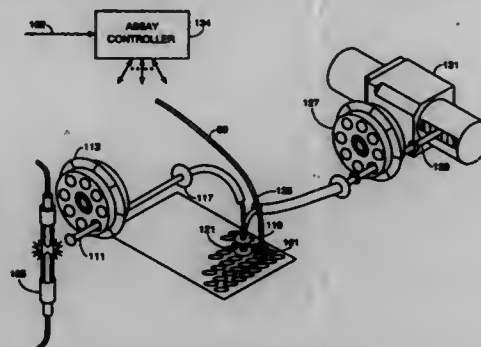
PCT No. PCT/US92/11090, § 371 Date Jun. 20, 1994, § 102(e) Date Jun. 20, 1994, PCT Pub. No. WO93/13423, PCT Pub. Date Jul. 8, 1993

Continuation-in-part of Ser. No. 812,254, Dec. 20, 1991. This PCT application Dec. 13, 1992, Ser. No. 244,985

Int. Cl.⁶ G01N 21/64; G01J 3/42

U.S. Cl. 422—63

27 Claims



1. In a computer-controlled fluorescence-measuring apparatus comprising means for measuring the fluorescence of individual samples contained in a plurality of wells of a multi-well plate, a method for measuring transient reactions comprising:

- identifying a predetermined one of the plurality of wells containing a sample to be measured;
- moving the predetermined well by the apparatus to a reagent addition position of the apparatus;
- adding reagent by the apparatus to the predetermined well at the reagent addition position;
- moving the predetermined well to a measurement position of the apparatus after the addition of the reagent; and
- measuring the post-reagent addition fluorescence value of the solution in the predetermined well at the measurement position after the addition of the reagent to the predetermined well, wherein:
 - the movement of the predetermined well, step (d), and the commencement of measurement, step (e), occurs within a predetermined time period that is less than the time during which a reaction that is detected by the fluorescence reaches its peak, and measurement is effected for a predetermined amount of time;
 - moving the predetermined well by the apparatus to a fluorescence measurement position prior to the adding reagent step;
 - measuring the pre-reagent fluorescence value of the solution in the predetermined well at the measurement position prior to the addition of the reagent; and
 - recording the pre-reagent fluorescence value measured.

5,670,114
APPARATUS OF HANDLING REAGENT FOR
SUPPRESSING DECREASE IN EFFECT OF REAGENT
TAKU SAKAZUME, Hitachinaka; Hiroshi Mitsumaki, Mito; Kat-
suaki Takahashi, and Terumi Tamura, both of Hitachinaka,
all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 28, 1996, Ser. No. 608,564

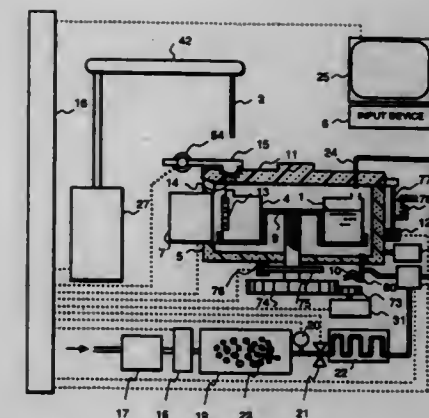
Claims priority, application Japan, Mar. 8, 1995, 7-048090

Int. Cl.⁶ G01N 35/00

U.S. Cl. 422—67

6 Claims

1. An apparatus for handling a reagent having a reagent containing chamber containing a plurality of reagent bottles and a gas supply device for supplying a purge gas for sweeping air containing carbonic acid gas to said reagent containing chamber, comprising:



registering means for registering information on a reagent affected by carbonic acid gas and information on an analysis item using the reagent;
 judging means for judging whether or not there is a corresponding reagent bottle to said registered information by collating information of reagent bottles contained in said reagent containing chamber with said registered information on the reagent affected by carbonic acid gas and the analysis item using the reagent; and
 control means for controlling said gas supply device so as to introduce said purge gas to said reagent containing chamber when said judging means judges that there is the corresponding reagent bottle.

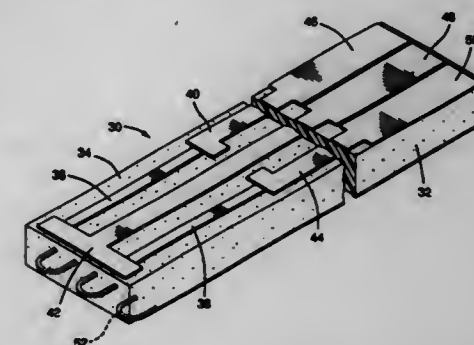
5,670,115
HYDROGEN SENSOR
Yang-Tse Cheng, Rochester Hills; Yang Li, Troy; Daniel John
List, Eastpointe, all of Mich.; Stanley Gutowski, Pittsford,
N.Y., and Andrea A. Poll, St. Clair Shores, Mich., assignors
to General Motors Corporation, Detroit, Mich.

Filed Oct. 16, 1995, Ser. No. 543,541

Int. Cl.⁶ G01N 27/04

U.S. Cl. 422—90

8 Claims



3. A sensor for detecting hydrogen content in a gas sample comprising:

- an electrically nonconductive substrate, inert to hydrogen gas and having a surface adapted to receive thin film metallization,
- an amorphous metal alloy film on said surface and consisting essentially of codeposited nickel and zirconium in accordance with $Ni_{100-x}Zr_x$, where $25 \leq x \leq 75$, and
- a film consisting essentially of palladium overlying the entirety of said nickel and zirconium film, said palladium and nickel-zirconium films being reversibly receptive to hydrogen atoms in proportion to the hydrogen content of said gas and the electrical resistance of said nickel-zirconium film being proportional to the hydrogen content, a cross-sectional area of said nickel-zirconium film for electrical conduction being at least ten times greater than a cross-sectional area of a palladium film.

5,670,116 HYDROPROCESSING REACTOR WITH ENHANCED PRODUCT SELECTIVITY

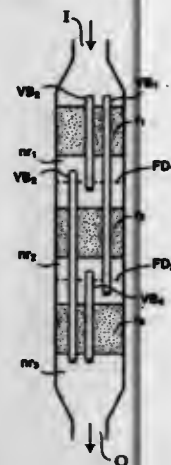
Ramesh Gupta, Berkeley Heights, and Edward S. Ellis, Basking Ridge, both of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Dec. 5, 1995, Ser. No. 567,450

Int. Cl.⁶ B01J 8/04

U.S. Cl. 422—191

10 Claims



1. A reactor for reacting a petroleum or petrochemical feedstock, at elevated temperatures and pressures, in the presence of a vapor phase, which reactor is comprised of two or more serially disposed reaction zones wherein each reaction zone contains a suitable catalyst and wherein each reaction zone is immediately followed by a non-reaction zone and wherein one or more of the reaction zones includes vapor by-pass means in fluid communication between an upstream non-reaction zone and a downstream non-reaction zone for allowing a portion of the vapor product from the upstream non-reaction zone to pass directly to a downstream non-reaction zone without contacting the catalyst of the by-passed reaction zone.

5,670,117 TWIST PROTECTION FOR REAGENT VESSELS

Hermann Erb, Fussgönheim; Stephan Sattler, Peissenberg, and Albert Wohland, Viersheim, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

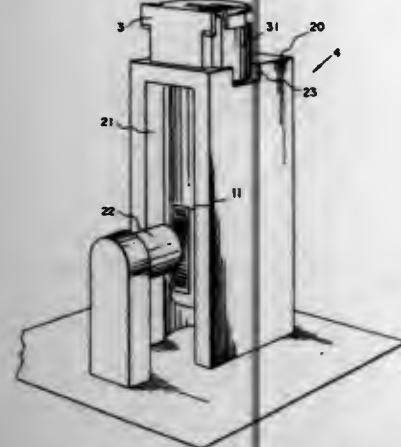
Filed Jul. 17, 1995, Ser. No. 502,945

Claims priority, application Germany, Jul. 15, 1994, 9411517 U

Int. Cl.⁶ B01L 9/06

U.S. Cl. 422—102

16 Claims



1. A system for positioning and reading identification marks on storage vessels, said system comprising:

an analytical instrument having at least one holding position with an upper portion, a lower portion, a slot and a slit, for holding storage vessels therein, said analytical instrument including a reading device for reading identification marks on the storage vessels;

at least one storage vessel disposed in said at least one holding position, said at least one storage vessel including an identification mark thereupon and also including a closure which is snapped onto the storage vessel, wherein an inner wall surface of the closure and an outer wall surface of the storage vessel include corresponding projections which engage each other, thereby preventing a twisting of the closure relative to the storage vessel, said closure having a notch projection thereon the notch projection configured such that said notch projection and said slot cooperate to prevent a twisting of the storage vessel within the holding position, and the identification mark is accessible through said slit.

5,670,118 COLOR CODED TEST WELLS

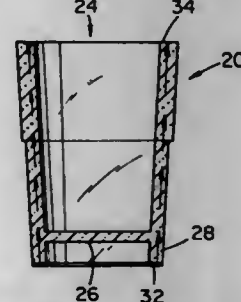
Dennis Keith Sponholtz, Chantilly, Va., assignor to Dynex Technologies, Inc., Sullyfield Circle Chantilly, Va.

Filed Jul. 25, 1996, Ser. No. 687,019

Int. Cl.⁶ C12M 1/20

U.S. Cl. 422—102

10 Claims



1. In a transparent plastic cuvette for use in biological testing, consisting of a cylindrical upwardly opening cup having a flat bottom, said flat bottom being surrounded by a depending flange of said plastic material, the improvement comprising:

a colored surface formed on the depending flange only, said colored surface being visually observable through said upper opening to identify said cuvette from above whereby light passing upwardly from said bottom will appear to color the upper opening thereof.

5,670,119 HOLDER FOR A TEST TUBE

Phillip Michael Formica; Wolfgang Evers, both of Lübeck, and Carsten Wruck, Ratzeburg, all of Germany, assignors to Drägerwerk AG, Lübeck, Germany

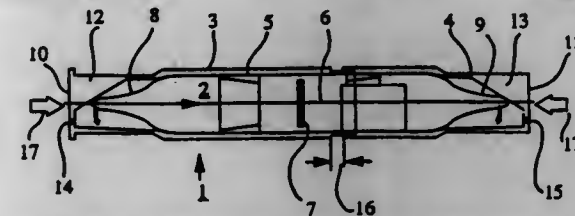
Filed Aug. 8, 1995, Ser. No. 512,386

Claims priority, application Germany, Oct. 14, 1994, 44 36 770.8

Int. Cl.⁶ G01N 1/22; B01L 9/00

U.S. Cl. 422—104

9 Claims



1. A holder for a test tube, the test tube including a test tube tip that can be opened, the holder comprising:

a first tube section with first tube section end;

a second tube section, said second tube section cooperating with said first tube section to form a holder tube which accommodates the test tube at least partially, said first tube section end having a projection pointing toward the test tube tip in an area of said test tube tip, said projection having, beginning from said first tube section end, a cross-sectional area decreasing continuously at least over a section of said projection; and said first tube section having a first tube section engaging portion amid said second tube section having a second tube section engaging portion, said first tube section engaging portion and said second tube section engaging portion cooperating to define displacement zone means with said first tube section and said second tube section engaged, said displacement zone means providing a displacement distance with respect to an axial direction of said test tube tip, said displacement distance being greatest in an initial position, upon initially engaging said first tube section and said second tube section, and approaching zero in a displaced position for displacing said projection into contact with said test tube tip upon applying pressure on said holder tube first tube end and displacing said first tube section and said second tube section to said displaced position.

5,670,120 SYSTEM FOR INCUBATING SAMPLE LIQUIDS

Volker Degenhardt, Bensheim; Manfred Böhm, Mannheim; Alois Rainer, München, and Albert Wohland, Viersheim, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

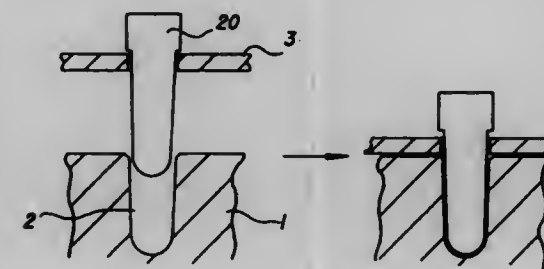
Filed Nov. 9, 1995, Ser. No. 555,428

Claims priority, application Germany, Nov. 11, 1994, 44 40 294.5

Int. Cl.⁶ B01L 7/00; G01N 35/00

U.S. Cl. 422—104

14 Claims



1. A system for incubating sample liquids, said system comprising:

holding means having a plurality of bores therein, said bores configured to receive incubating vessels therein, said incubating vessels including support elements which engage said holding means, and wherein said incubating vessels are supported by said support elements on said holding means;

an incubator block having a plurality of bores therein, said plurality of bores of said incubator block configured to correspond with said plurality of bores in said holding means, said plurality of incubating vessels being received in said plurality of bores in said incubator block, when the holding means is disposed on the incubator block;

thermal means coupled to said incubator block, said thermal means for controlling a temperature of the incubator block, wherein a first space is formed between the support elements and the holding means when the holding means is disposed on the incubator block when the incubating vessels contact a bottom of the bores of said incubator block, and wherein a second space exists between inner walls of the bores in the holding means and outer walls of the vessels when the vessels are lifted from the holding means, thereby preventing a jamming of the vessels and the bores in the incubator block.

5,670,121 PROCESS FOR CONTROLLING THE TEMPERATURE OF A FLUIDIZED BED REACTOR IN THE MANUFACTURE OF TITANIUM TETRACHLORIDE

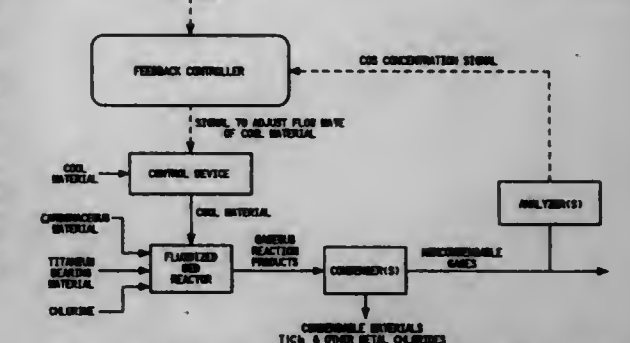
Thomas Shields Elkins, Waverly, Tenn., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed May 5, 1995, Ser. No. 435,686

Int. Cl.⁶ C01G 23/00

U.S. Cl. 423—74

18 Claims



1. In a process for controlling the temperature of a fluidized bed reactor in the manufacture of titanium tetrachloride, wherein the manufacture of titanium tetrachloride comprises the steps of feeding carbonaceous material, titanium bearing material, and chlorine, wherein at least one of these materials contains sulfur, to a fluidized bed reactor to form titanium tetrachloride and an exhaust gas stream comprising carbonyl sulfide, sulfur dioxide, carbon monoxide, carbon dioxide, and chlorine, the improvement comprising the steps of:

- analyzing the exhaust gas stream to determine the analyzed concentration of carbonyl sulfide in the exhaust gas stream,
- determining the desired concentration of carbonyl sulfide in the exhaust gas stream,
- calculating the difference between the analyzed concentration of carbonyl sulfide and the desired concentration of carbonyl sulfide in the exhaust gas stream;
- generating a signal which corresponds to the difference calculated in step (c) and provides a feedback response to the fluidized bed reactor to control the temperature of the fluidized bed reactor.

5,670,122 METHODS FOR REMOVING AIR POLLUTANTS FROM COMBUSTION FLUE GAS

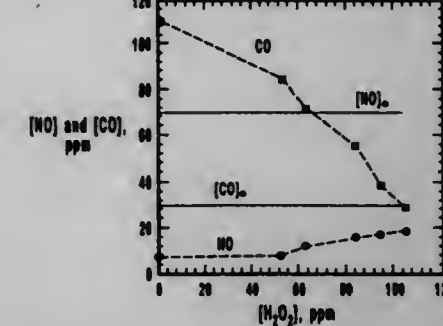
Vladimir M. Zamansky, San Clemente; Loc Ho, Anaheim, and William Randall Seeker, San Clemente, all of Calif., assignors to Energy and Environmental Research Corporation, Irvine, Calif.

Continuation of Ser. No. 311,353, Sep. 23, 1994, abandoned. This application May 23, 1996, Ser. No. 652,104

Int. Cl.⁶ C01B 21/00; 17/20; 31/18; C07C 11/24

U.S. Cl. 423—210

24 Claims



1. A method for removing gas components from a combustion flue gas including one or more of NO, SO₂, CO, light hydrocar-

bons, and mercury vapor, the method comprising the step of contacting the combustion flue gas with an injection liquid including atomized droplets of a mixture of aqueous hydrogen peroxide solution having a concentration from about 1% to about 50% and methanol in an amount such that the mole ratio of the sum of the hydrogen peroxide and methanol to the sum of any such NO, SO₂, CO, light hydrocarbons and mercury vapor contained in the combustion flue gas is in a range from about 0.5 to about 2, and the concentration of the mixture of hydrogen peroxide and methanol in the combustion flue gas is less than about 1000 ppm, at a flue gas temperature in a range from about 650 K (377° C.) to about 1100 K (827° C.), wherein the mixture of hydrogen peroxide and methanol substantially converts any NO, SO₂, CO, light hydrocarbons, and mercury vapor in the combustion flue gas to NO₂, SO₂, CO₂, and HgO by a chain propagating reaction in the combustion flue gas.

5,670,123

PROCESS FOR THE EXTRACTION OF HYDROGEN SULPHIDE FROM A GAS MIXTURE

Jean-Claude Mlleo, Saint Ismler; Christian Busson, Charbonniere; Claude Dezael, Maisons Laftite; Jean-Charles Viltard, Valence, and Christophe Berat, Ecully, all of France, assignors to Institut Français Du Pétrole, Ruell Malmaison, France

Filed Sep. 5, 1995, Ser. No. 523,151

Claims priority, application France, Sep. 2, 1994, 94 10637

Int. Cl.⁶ B01D 53/52

U.S. Cl. 423—220

9 Claims

1. A process for the extraction of hydrogen sulphide from a gas mixture comprising:

- passing said gas mixture into an aqueous acidic solution of copper sulphate containing about 1 to about 8 moles per liter of sulphuric acid under conditions which lead to the formation of copper sulphide, recovering a gas which is depleted in hydrogen sulphide and an aqueous phase containing copper sulphide in suspension,
- oxidizing the copper sulphide contained in suspension in the aqueous phase from (a) with an oxygen-containing gas at a partial pressure of oxygen of 0.1 to 4 MPa under conditions which lead to the formation of at least 70% solid elemental sulphur expressed with respect to the number of moles of sulphur isolated to the number of moles of copper sulphide consumed during this oxidation step and soluble copper sulphate from said aqueous phase, and
- separating the solid sulphur and solid copper sulphide not transformed during (b) and optionally recycling at least a portion of the aqueous phase containing copper sulphate formed during (b) to (a).

5,670,124

NITROGEN-CONTAINING MOLECULAR SIEVING CARBON, A PROCESS FOR PREPARING THE SAME AND USE THEREOF

Kiyoshi Itoga, Hyogo; Yoshio Tsutsumi, Osaka; Masanori Tsuji, Hyogo, and Ayako Tatebayashi, Osaka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Feb. 29, 1996, Ser. No. 609,928

Claims priority, application Japan, Mar. 1, 1995, 7-042042

Int. Cl.⁶ C01B 21/00

U.S. Cl. 423—239.1

4 Claims

1. A nitrogen-containing molecular sieving carbon, which comprises a molecular sieving carbon and 0.1 to 5 weight % nitrogen bonded to constituent carbon atoms of the molecular sieving carbon, and having an average micropore diameter of 3 to 10 Å.

5,670,125

PROCESS FOR THE PURIFICATION OF NITRIC OXIDE

Lien-Lung Sheu, Scotch Plains; Ramakrishnan Ramachandran, Allendale, and Theodore R. Galica, Glen Gardner, all of N.J., assignors to The BOC Group, Inc., New Providence, N.J.

Continuation-in-part of Ser. No. 129,647, Sep. 30, 1993, abandoned. This application Sep. 25, 1995, Ser. No. 533,121

Int. Cl.⁶ B01J 8/00

U.S. Cl. 423—239.2

25 Claims

1. A process for purifying a substantially oxygen-free nitric oxide gas stream containing nitrogen dioxide at a nitric oxide to nitrogen dioxide molar ratio of at least about 5:1 comprising passing said gas stream through a bed of particulate zeolite having a silica to alumina ratio of not greater than about 200:1, thereby adsorbing nitrogen dioxide and producing a nonadsorbed nitric oxide gaseous product containing not more than about 5 ppm nitrogen dioxide.

5,670,126

METHOD FOR EXTRACTING ANTIMONY FROM ELEMENTAL PHOSPHORUS

Louis T. Gunkel, Yardley, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Filed Feb. 5, 1996, Ser. No. 596,815

Int. Cl.⁶ C01B 25/01

U.S. Cl. 423—322

20 Claims

1. A process for purifying elemental phosphorus, comprising dosing a multi-phase elemental phosphorus system, having an aqueous phase and an immiscible, elemental phosphorus phase containing antimony, with a conditioning agent selected from the group consisting of iron (II) salt and elemental iodine, iron (III) salt and elemental iodine; iron (II) iodide; elemental iodine; iron (II) sulfate; and iron (III) sulfate in an amount effective to lower the amount of antimony in the phosphorus; agitating the resultant mixture at a temperature above the melting point of phosphorus, but below the boiling point of water, then separating the aqueous phase from the phosphorus phase to recover a phosphorus lower in antimony content.

5,670,127

PROCESS FOR THE MANUFACTURE OF NITRIC OXIDE

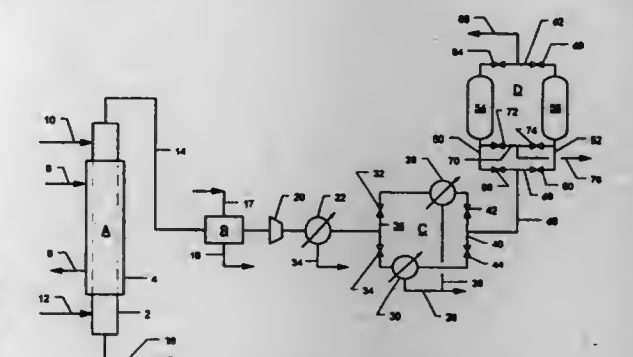
Lien-Lung Sheu, Scotch Plains, N.J., assignor to The BOC Group, Inc., New Providence, N.J.

Filed Sep. 26, 1995, Ser. No. 533,821

Int. Cl.⁶ C01B 21/24

U.S. Cl. 423—405

9 Claims



1. In a process for the production of nitric oxide comprising contacting aqueous nitric acid solution with gaseous sulfur dioxide in a gas-liquid contact zone thereby producing a product gas comprising nitric oxide, the improvement wherein the nitric acid and sulfur dioxide are introduced into the contact zone at a nitric acid to sulfur dioxide molar ratio of at least 0.7:1 and contacted

therein at temperature in the range of about 50° to about 120° C., thereby producing a nitrous oxide- and nitrogen-depleted nitric oxide product gas.

5,670,128

REGENERATION OF SULFURIC ACID FROM SULFATE BY-PRODUCTS OF 2-HYDROXY-4-(METHYLTHIO) BUTYRIC ACID MANUFACTURE

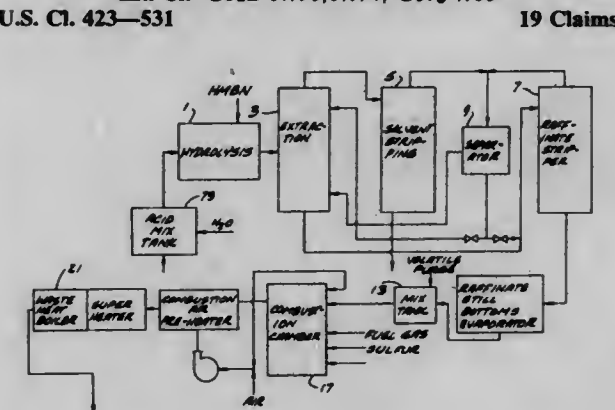
Robert W. Grendel; Jeffrey B. Klopfenstein; Robin K. Prokop, all of St. Louis, Mo.; Stanley L. Reid, Jonesville, Mich., and J. Michael Willock, St. Louis, Mo., assignors to Novus International, Inc., St. Louis, Mo.

Continuation of Ser. No. 73,877, Jun. 9, 1993, Pat. No. 5,498,790. This application Feb. 21, 1996, Ser. No. 604,410

Int. Cl.⁶ C01B 17/90; 17/74; C07J 7/00

U.S. Cl. 423—531

19 Claims



1. A process for the manufacture of feed grade 2-hydroxy-4-(methylthio)butyric acid in a facility for said process using sulfuric acid recycled from a spent acid recovery unit that is associated with said facility, the process comprising:

hydrolyzing 2-hydroxy-4-(methylthio)butyronitrile with sulfuric acid, thereby producing 2-hydroxy-4-(methylthio)butyric acid and by-products selected from the group consisting of ammonium sulfate, ammonium bisulfate, sulfuric acid, and mixtures thereof;

introducing into a combustion zone of said spent acid recovery unit a feed mixture comprising a sulfate feed solution containing a sulfate source comprised of said by-products; burning a fuel and oxidizable components of said feed solution in a combustion zone with a gas comprising oxygen to produce a combustion gas containing sulfur dioxide, carbon dioxide, nitrogen, and water vapor, said feed solution being contacted in a first stage of said combustion zone with a reducing flame in which ammonia, nitriles and any amines released from the solution are oxidized to produce nitrogen gas and any oxides of nitrogen are reduced to nitrogen gas, thereby producing a partial combustion gas substantially free of oxides of nitrogen, said partial combustion gas being contacted with additional gas containing oxygen to oxidize unburned fuel and any carbon monoxide in the partial combustion gas, thereby producing said combustion gas;

introducing oxygen into said combustion gas to produce a feed gas containing sulfur dioxide and at least about 0.9 moles of oxygen per mole of sulfur dioxide;

passing said feed gas over a catalyst for the conversion of sulfur dioxide to sulfur trioxide at a temperature effective for said conversion;

thereafter contacting the gas that has been passed over said catalyst with sulfuric acid for the absorption of sulfur trioxide and the formation of sulfuric acid;

recycling sulfuric acid formed by said absorption to said facility for the manufacture of 2-hydroxy-4-(methylthio)butyric acid: purging sufficient water from the process such that the strength of said recycled sulfuric acid is greater than about 50% by weight on an organic free basis; and

contacting said recycled sulfuric acid with 2-hydroxy-4-(methylthio)butyronitrile for the preparation of feed grade 2-hydroxy-4-(methylthio)butyric acid.

5,670,129

METHOD FOR SYNTHESIZING ALUMINUM HYDRIDE

Astrid Klapdor; Wilfried Knott, and Dagmar Windbiel, all of Essen, Germany, assignors to Th. Goldschmidt AG., Essen, Germany

Filed Nov. 29, 1995, Ser. No. 564,842

Claims priority, application Germany, Dec. 24, 1994, 44 46 516.5

Int. Cl.⁶ C01B 6/00

U.S. Cl. 423—645

1 Claim

1. A method for preparing a solution of aluminum hydride, which is free of any ethers and halides, comprising the steps of precipitating and removing a complex-bound magnesium halide portion from halogen magnesium aluminum hydridehalide present in a tetrahydrofuran (THF) solution, and having a general formula



wherein

X is chlorine, bromine or iodine,

Y is a number from 0 to 6,

by the consecutive addition of hexane and toluene with successive removal by distillation of hexane and optionally of THF at boiling temperatures up to 90° C.

5,670,130

ZEOLITE L PREPARATION

Johannes P. Verdulijn, Spijkenisse, Netherlands, assignor to Exxon Chemical Patents Inc. (ECPI), Houston, Tex.

Continuation of Ser. No. 81,841, Jun. 23, 1993, abandoned,

which is a continuation of Ser. No. 391,765, Aug. 9, 1989,

abandoned. This application Jan. 17, 1995, Ser. No. 374,405

Int. Cl.⁶ C01B 39/32

U.S. Cl. 423—700

7 Claims

1. A process for the preparation of a zeolite L substantially free of pollicite and comprising cylindrical crystallites having basal planes wherein at least 80% of the basal planes are microscopically flat to within about 200 Å and do not exhibit spiral step growths thereon and containing cesium in which said zeolite L is crystallized from a synthesis mixture with a molar composition (expressed as oxides) of:

K ₂ O/SiO ₂	0.22 to 0.30
K ₂ O/Cs ₂ O	5 to 12
H ₂ O/K ₂ O	50 to 90
and	
SiO ₂ /Al ₂ O ₃	6.0 to 6.7

and containing at least 0.5 ppm (by weight) of divalent metal cations.

5,670,131

SYNTHETIC POROUS CRYSTALLINE MCM-61, ITS SYNTHESIS AND USE

Ernest W. Valyocik, Yardley, Pa., assignor to Mobil Oil Corporation, Fairfax, Va.

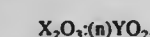
Filed Aug. 29, 1996, Ser. No. 705,455

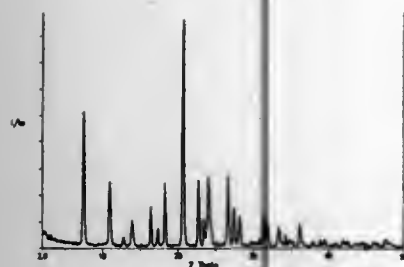
Int. Cl.⁶ C01B 39/04; 39/48

U.S. Cl. 423—702

9 Claims

1. A synthetic porous crystalline material characterized by an X-ray diffraction pattern including values substantially as set forth in Table I and having a composition comprising the molar relationship





wherein n is from about 15 to about 200, X is a trivalent element, and Y is a tetravalent element.

5,670,132 MODIFIED RADIOANTIBODY FRAGMENTS FOR REDUCED RENAL UPTAKE

Gary L. Griffiths, Morristown; Hans J. Hansen, Mystic Island, and Habib Karacay, Matawan, all of N.J., assignors to Immunomedics, Inc., Morris Plains, N.J.

Filed Sep. 20, 1994, Ser. No. 309,319

Int. Cl.⁶ A61K 51/00; A61M 36/14

U.S. Cl. 424—1.11 16 Claims
1. In a method of imaging a tumor or infectious lesion, wherein a Tc-99m-radiolabeled antibody fragment that specifically binds a marker produced by or associated with a tumor or infectious lesion is injected parenterally into a patient having a tumor or infectious lesion, and the site or sites of tumor or infectious lesion are detected by external gamma camera imaging,

the improvement wherein, prior to labeling with Tc-99m, said radiolabeled antibody fragment is conjugated to an amount of polyethylene glycol (PEG) sufficient to significantly reduce renal uptake and retention of the radiolabel compared to non-PEGylated antibody fragment.

5,670,133 PEPTIDES METHOD FOR RADIO LABELING THEM, AND METHOD FOR DETECTING INFLAMMATION

Paul O. Zamora, Albuquerque, N. Mex., assignor to Rhomed Incorporated, Albuquerque, N. Mex.

Continuation of Ser. No. 87,219, Jul. 2, 1993, which is a continuation-in-part of Ser. No. 840,077, Feb. 20, 1992, Pat. No. 5,443,816. This application Jun. 7, 1995, Ser. No. 484,184

Int. Cl.⁶ A61K 49/00; G01N 31/00; 33/48

U.S. Cl. 424—9.1 22 Claims
1. A peptide comprising a biological-function domain which causes the peptide to accumulate at a target locus and a metal ion-binding domain, wherein the metal ion-binding domain comprises an amino acid sequence selected from the group consisting of Gly-Gly-Cys, Gly-Gly-Pen, Gly-Gly-Gly-Cys and Gly-Gly-Gly-Pen, and D-stereoisomers thereof.

5,670,134 METHOD FOR EVALUATING AND MODIFYING BIOLOGICAL ACTIVITY

David W. Martin, Jr., San Francisco, Calif., assignor to Genentech, Inc., South San Francisco, Calif.
Continuation of Ser. No. 192,316, Feb. 4, 1994, Pat. No. 5,470,560, which is a continuation of Ser. No. 947,890, Sep. 18, 1992, abandoned, which is a continuation of Ser. No. 692,806, Apr. 25, 1991, abandoned, which is a continuation of Ser. No. 4,988, Jan. 20, 1987, abandoned. This application Jun. 1, 1995, Ser. No. 456,330

Int. Cl.⁶ A61K 49/00; 39/00; C12N 15/00

U.S. Cl. 424—9.2 7 Claims

1. A method for detecting the immunogenicity of a potentially immunogenic polypeptide which comprises:

- administering to a transgenic non-human mammal immunologically tolerant to a heterologous polypeptide as the result of the expression of a DNA sequence encoding said heterologous polypeptide, said DNA sequence having been introduced into said mammal or an ancestor of said mammal during an embryonic stage and being transcribed and continuously expressed under the control of a promoter, said potentially immunogenic polypeptide, wherein said potentially immunogenic polypeptide is a variant of said heterologous polypeptide; and
- detecting the presence of antibodies specific for said potentially immunogenic polypeptide, the presence of said antibodies being indicative of the immunogenicity of the polypeptide.

5,670,135 ULTRASONIC CONTRAST AGENT COMPRISING CARBOHYDRATE PARTICLES

Ulf Schröder, Lund, Sweden, assignor to Nycomed Imaging AS, Oslo, Norway

Continuation of Ser. No. 361,466, Dec. 22, 1994, Pat. No. 5,618,514, which is a continuation of Ser. No. 186,096, Jan. 25, 1994, abandoned, which is a continuation of Ser. No. 43,982, Apr. 7, 1993, abandoned, which is a continuation of Ser. No. 888,305, May 27, 1992, abandoned, which is a continuation of Ser. No. 693,031, Apr. 30, 1991, abandoned, which is a continuation of Ser. No. 278,326, Nov. 30, 1988, abandoned, which is a continuation of Ser. No. 775,047, Aug. 15, 1985, abandoned. This application May 22, 1995, Ser. No. 445,945

Claims priority, application Sweden, Dec. 21, 1983, 83 07060-7

Int. Cl.⁶ A61B 8/13

U.S. Cl. 424—9.5 17 Claims

1. A method of contrast enhanced ultrasonic diagnostic imaging comprising administering to a subject a contrast enhancing amount of spheres or particles comprising a matrix of a carbohydrate or derivative thereof enclosing a contrast agent which reflects sound waves, and generating an ultrasound image.

5,670,136 2,4,6-TRIMETHOXY-5-SUBSTITUTED-AMINO- ISOPHTHALATE ESTERS USEFUL AS X-RAY CONTRAST AGENTS FOR MEDICAL DIAGNOSTICS IMAGING

Edward R. Bacon, Audubon, Pa.; Sol J. Daum, Albany, N.Y., and Kimberly G. Estep, Pottstown, Pa., assignors to Nalco Systems L.L.C., Collegeville, Pa.

Continuation of Ser. No. 265,590, Jun. 24, 1994, abandoned.

This application Jan. 16, 1996, Ser. No. 586,363

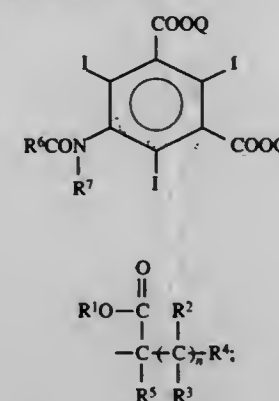
Int. Cl.⁶ A61K 49/04

U.S. Cl. 424—9.455 7 Claims

1. A method of imaging a mammal's blood pool and lymph nodes, the method comprising

- administering to the mammal a contrast enhancing effective amount of the x-ray contrast composition, the composition

comprised of 1-99.9% by weight of nanoparticles of a compound having the structure



wherein Q is
n is an integer from 0 to 4;
R¹ is alkyl;
R², R³, R⁴ and R⁵ are independently H or alkyl;
R⁶ is alkyl; and
R⁷ is H; and
b) imaging the mammal's blood pool and lymph nodes.

5,670,137 ANHYDROUS DENTIFRICE COMPOSITION

Jean Marc Ascione, Paris, France, assignor to L'Oreal, Paris, France

Filed Dec. 12, 1994, Ser. No. 354,908

Int. Cl.⁶ A61K 7/16; 7/18; C08B 11/08

U.S. Cl. 424—49 10 Claims

1. An anhydrous dentifrice composition comprising, based on the total weight of the composition:

- at least 50% of glycerin;
- 0.01 to 2% of at least one hydroxy ethyl cellulose modified by the introduction of hydrophobic groups selected from the group consisting of C₁₀-C₂₄ alkyl groups and alkyl (C₆-C₂₀) phenyl groups, the substitution rate by the hydrophobic groups varying from about 0.2% by weight with respect to the weight of cellulose ether and a value that causes a water solubility of cellulose that is less than 1% by weight;
- 2 to 10% of at least one pyrogenic silica having an average primary particle size of less than 40 nm; and
- 2 to 50% of a polishing agent.

5,670,138 MOUTH-CARE PRODUCTS

Franciscus Ties Venema, Voorthuizen; Christiena Jannie Timmer, Amersfoort; Jolanda Douma, Amersfoort, and Stephanus Aloysius Gerardus Jochems, Amersfoort, all of Netherlands, assignors to Sara Lee/DE N.V., Utrecht, Netherlands

Filed Jul. 6, 1995, Ser. No. 498,639

Claims priority, application European Pat. Off., Jul. 7, 1994, 94201962

Int. Cl.⁶ A61K 7/16; 7/18; 9/68; 31/79

U.S. Cl. 424—52 17 Claims

1. A mouth care product in the form of a tooth paste, a tooth cream, a dental gel, a tooth powder, a mouth-wash, a chewing gum, a concentrate, a dental tablet, a chewing tablet, a lozenge, or an effervescent table, the mouth care product comprising:

- an amount of at least one copolymer of N-vinylpyrrolidone and acrylic acid, in a weight ratio of 60-95 to 40-5; and
- an abrasive agent, a polishing agent, a thickening agent, a colouring agent, a sweetening agent, a flavouring agent, a foaming agents, another active component, or a combination thereof.

5,670,139 STABLE NANOPIGMENTED SUNSCREEN/COSMETIC COMPOSITIONS

Delphine Allard, Colombes, and Jean-Marc Ascione, Paris, both of France, assignors to L'Oreal, Paris, France

Filed Feb. 21, 1995, Ser. No. 391,355

Claims priority, application France, Feb. 18, 1994, 94 01861

Int. Cl.⁶ A61K 7/42

U.S. Cl. 424—59 40 Claims

1. A topically applicable, stable sunscreen/cosmetic composition adopted for the photoprotection of human skin and/or hair, comprising a storage-stable, ultrafine oil-in-water emulsion of a photoprotecting effective amount of homogeneously and finely dispersed particulates of at least one inorganic nanopigment which comprises a metal oxide, and a stabilizing amount of at least one mixed silicate which comprises alkali and/or alkaline earth metals wherein the average particle size of the globules comprising the oily phase of said emulsion ranges from 100 nm to 1000 nm.

5,670,140 PHOTOSTABLE COSMETIC FILTER COMPOSITION CONTAINING A UV-A FILTER AND A SUBSTITUTED DIALKYL BENZALMALONATE, THE USE OF SUBSTITUTED DIALKYL BENZALMALONATES IN COSMETICS AS BROAD-BAND SOLAR FILTERS AND NOVEL SUBSTITUTED DIALKYL MALONATES

Andre Deflandre, Orly la Ville; Serge Forestier, Claye-Souilly; Gerard Lang, Saint-Gratien; Herve Richard, and Madeleine Leduc, both of Paris, all of France, assignors to L'Oreal, Paris, France

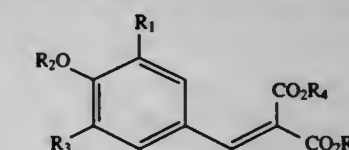
Division of Ser. No. 476,095, Jun. 7, 1995, Pat. No. 5,624,663, which is a continuation of Ser. No. 677,376, Mar. 27, 1991, abandoned, which is a continuation of Ser. No. 236,645, Aug. 25, 1988, abandoned. This application Oct. 24, 1996, Ser. No. 736,528

Claims priority, application France, Aug. 28, 1987, 87 12047

Int. Cl.⁶ A61K 7/40; 7/42

U.S. Cl. 424—59 10 Claims

1. A method of stabilizing dibenzoylmethane derivatives against UV radiation at wavelengths between 280 and 380 nm consisting essentially of adding to a sunscreen cosmetic composition consisting essentially of 1% to 3% by weight of a dibenzoylmethane derivative selected from the group consisting of 4-(1,1-dimethylethyl)-4'-methoxydibenzoylmethane and 4-isopropylidibenzoylmethane and a cosmetically acceptable medium containing at least one oily phase, an effective amount for photostabilizing said dibenzoylmethane derivative of at least 1% by weight of a substituted dialkylbenzmalonate having formula I:



wherein:

- R₁ and R₂ may be identical or different and represent a hydrogen atom or a C₁-C₈ straight- or branched-chain alkoxy radical;
- R₂ represents a C₁-C₈ straight- or branched-chain alkyl radical; and
- R₄ represents a C₁-C₈ straight- or branched-chain alkyl radical, wherein the molar ratio of said substituted dialkylbenzmalonate having formula (I) to said dibenzoylmethane derivative is greater than or equal to 0.6.

5,670,141

AQUEOUS NITROCELLULOSE COMPOSITIONS

Samuel A. Nehra, Grosse Pointe Shores, Mich., assignor to Agri-Film, Inc., Grosse Pointe Shores, Mich.
PCT No. PCT/US93/09262, § 371 Date Mar. 28, 1995, § 102(e)
Date Mar. 28, 1995, PCT Pub. No. WO94/07952, PCT Pub. Date Apr. 14, 1994
Continuation-in-part of Ser. No. 954,723, Sep. 29, 1992, Pat. No. 5,284,885. This PCT application Sep. 28, 1993, Ser. No. 466,960

Int. Cl.⁶ A61K 7/043; 7/00

U.S. Cl. 424—61

9 Claims

1. A method for preparing an aqueous cellulose composition comprising the following steps:

- mixing water and a cellulose compound selected from the group consisting of nitrocellulose, ethylcellulose and cellulose acetate butyrate in a ratio of from about 2 parts by weight water per part by weight cellulose compound to about 20 parts by weight water per part by weight cellulose compound, thereby forming a water-cellulose mixture;
- adding a glycol ether solvent to the water-cellulose mixture in a ratio of from about 2 parts by weight solvent to about 20 parts by weight solvent per part by weight cellulose compound present in the water-cellulose mixture thereby forming a water-cellulose solvent mixture; and
- mixing the water-cellulose solvent mixture thereby forming an aqueous cellulose solution.

5,670,142

TREATMENT FOR ITCH OF CHICKEN POX

Stan Michael Rubin, Troy, N.Y., assignor to Donald Neudecker, Johnsonville, N.Y., a part interest
Filed Jul. 8, 1996, Ser. No. 676,814
Int. Cl.⁶ A61K 7/48

U.S. Cl. 414—78.05

21 Claims

1. A method for reducing the itch associated with chicken pox comprising applying an effective amount of an itch-reducing pharmaceutical composition to the surface of a patient's skin proximate to a pox vesicle, said itch-reducing composition containing an enzyme chosen from the group consisting of papain, pancreatin and subtilisin in a pharmaceutical carrier.

5,670,143

ANTI-HIV PHARMACEUTICAL FORMULATIONS

Alan D. Cardin; Richard L. Jackson, both of Cincinnati, Ohio, and Michael J. Mullins, Midland, Mich., assignors to Merrell Pharmaceuticals Inc., Cincinnati, Ohio, and The Dow Chemical Company, Midland, Mich.
Division of Ser. No. 132,551, Oct. 6, 1993, Pat. No. 5,606,108, which is a division of Ser. No. 710,370, Jun. 10, 1991, Pat. No. 5,276,182, which is a continuation-in-part of Ser. No. 549,782, Jul. 9, 1990, abandoned. This application May 19, 1995, Ser. No. 445,192

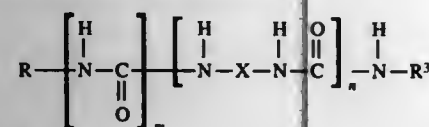
Int. Cl.⁶ A61K 31/74

U.S. Cl. 424—78.08

20 Claims

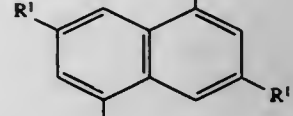
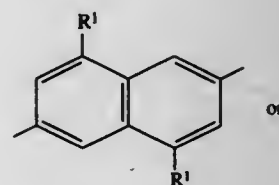
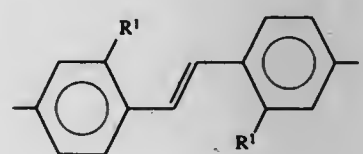
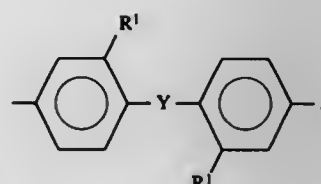
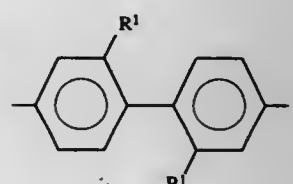
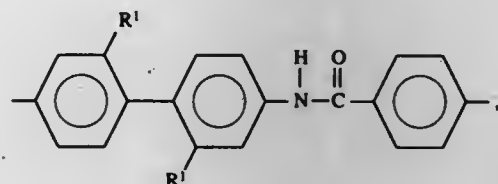
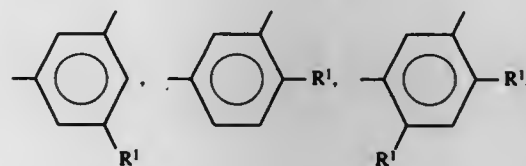
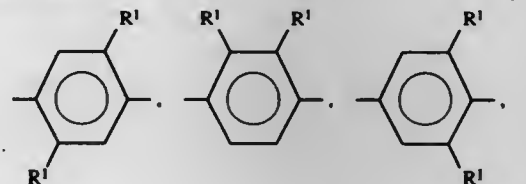
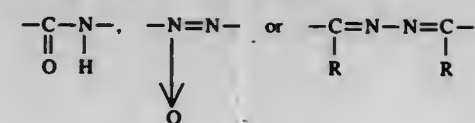
1. A pharmaceutical formulation comprising a pharmaceutically acceptable carrier and a rigid backbone, water soluble oligomer, having a molecular weight less than 10,000, recurring units coupled by carbonyl linking moieties, anionic groups and predominantly linear geometry in an aqueous medium and which is represented by any one of the following formulae:

A) a polyurea of the, formula:



wherein:

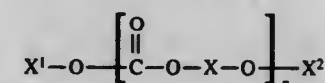
R represents hydrogen, C₁-C₄ alkyl, phenyl, or phenyl substituted with from 1 to 2 R¹ moieties and up to 3 substituents independently selected from a chloro, bromo or C₁-C₄ alkyl; R¹ represents —SO₂R², —CO₂R², —PO₃(R²)₂, or —OPO₃R²; R² represents hydrogen or a pharmaceutically-acceptable cation; m is 0 or 1, with the proviso that when m is 0, R is a hydrogen atom; X represents

Y represents —CO₂—, —C≡C—, —N=N—,

n is an integer from 3 to 50; and

R³ represents —R or —X—NH₂, where R and X are defined as before;

B) a polycarbonate of the formula:



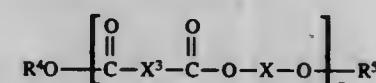
wherein:

X and n are defined as in Formula I, above;

X¹ represents a HO—X—, where X is defined as in Formula I above, C₁-C₄ alkyl, phenyl, or phenyl substituted with from 1 to 2 R¹ moieties and up to 3 substituents independently selected from a chloro, bromo or C₁-C₄ alkyl; and

X² represents a hydrogen atom, or —CO₂X¹, where X¹ is defined as above;

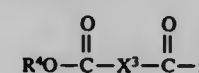
C) a polyester of the formula



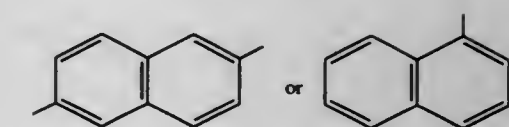
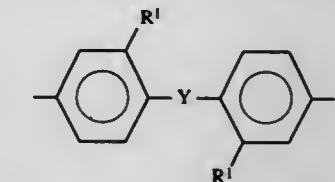
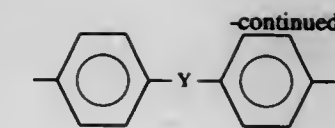
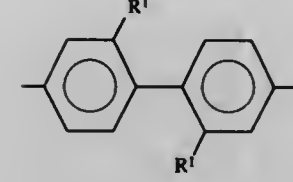
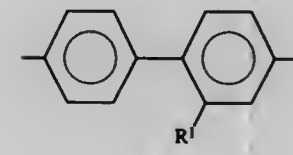
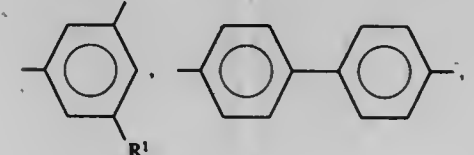
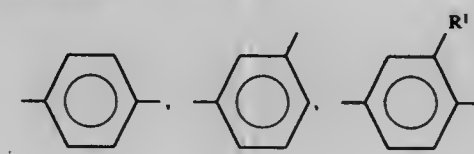
wherein:

X and n are defined as in Formula I, above;

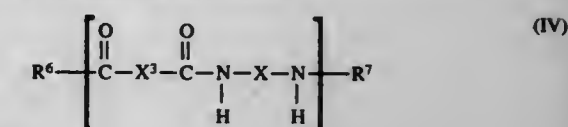
R⁴ represents —R², as defined in Formula I, above, or —X¹, as defined in Formula II, above;

R⁵ represents

where R⁴ is defined as in Formula III, above or —R² where R² is defined as in Formula I, above;

X³ represents

wherein R¹ and Y are defined as in Formula I, above; or D) a polyamide of the formula:

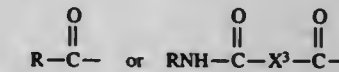
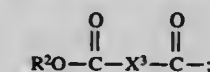


wherein:

X and n are defined as in Formula I, above;

X³ is defined as in Formula III, above;

R⁶ represents H₂N—X—NH—, R⁷O—, RNH— or R—C(O)—NH—X—NH—, where R, R² and X are defined as in Formula I, above;

R⁷ represents hydrogen,

where

R and R² are defined as in Formula I, above; and X³ is defined as in Formula III, above.

5,670,144

ANTI-HERPES VIRUS AND CYTOMEGALOVIRUS POLYESTER OLIGOMERS

Alan D. Cardin; Richard L. Jackson, both of Cincinnati, Ohio, and Michael J. Mullins, Midland, Mich., assignors to Merrell Pharmaceuticals Inc., Cincinnati, Ohio, and The Dow Chemical Company, Midland, Mich.

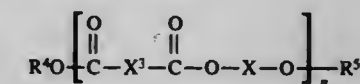
Division of Ser. No. 965,248, Jul. 8, 1991, which is a continuation-in-part of Ser. No. 710,370, Jun. 10, 1991, Pat. No. 5,276,182, which is a continuation-in-part of Ser. No. 549,782, Jul. 9, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 469,390

Int. Cl.⁶ A61K 31/74

U.S. Cl. 424—78.08

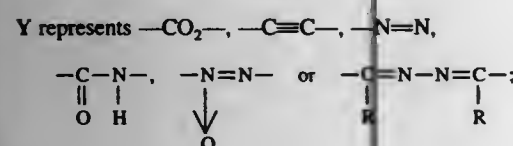
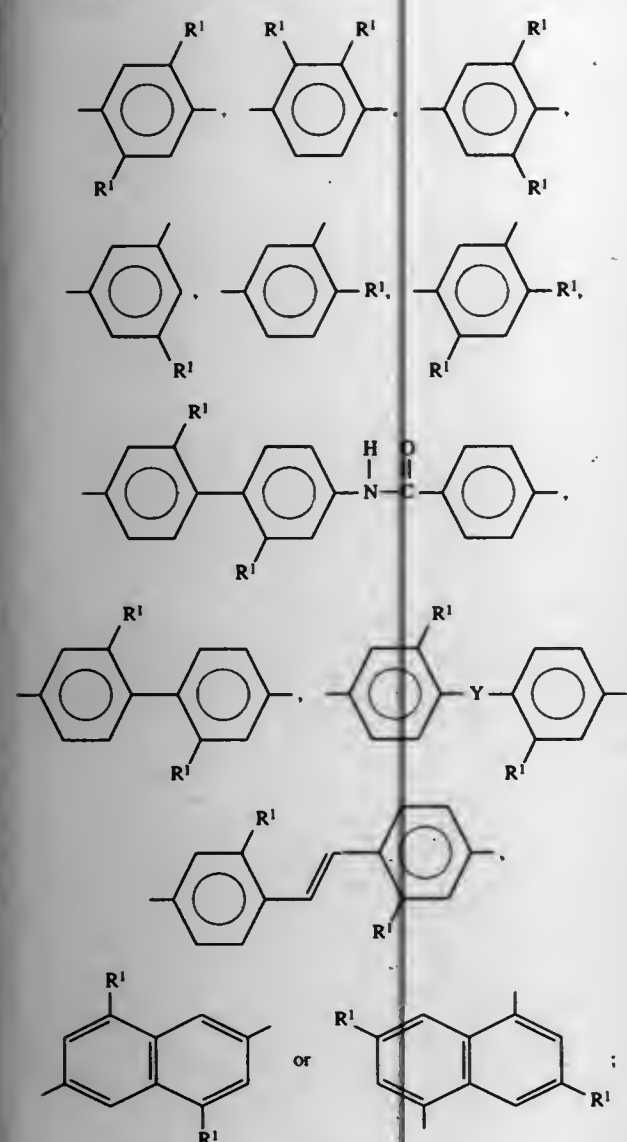
6 Claims

1. A method of treating a Herpes viral infection in a patient in need thereof which comprises administering to the patient an anti-Herpes virally effective amount of an oligomer which is a polyester of the formula:

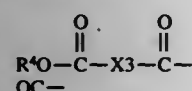


wherein:

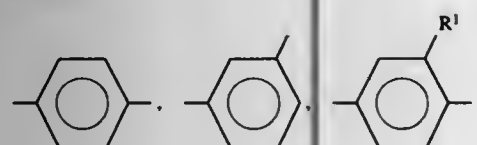
X represents



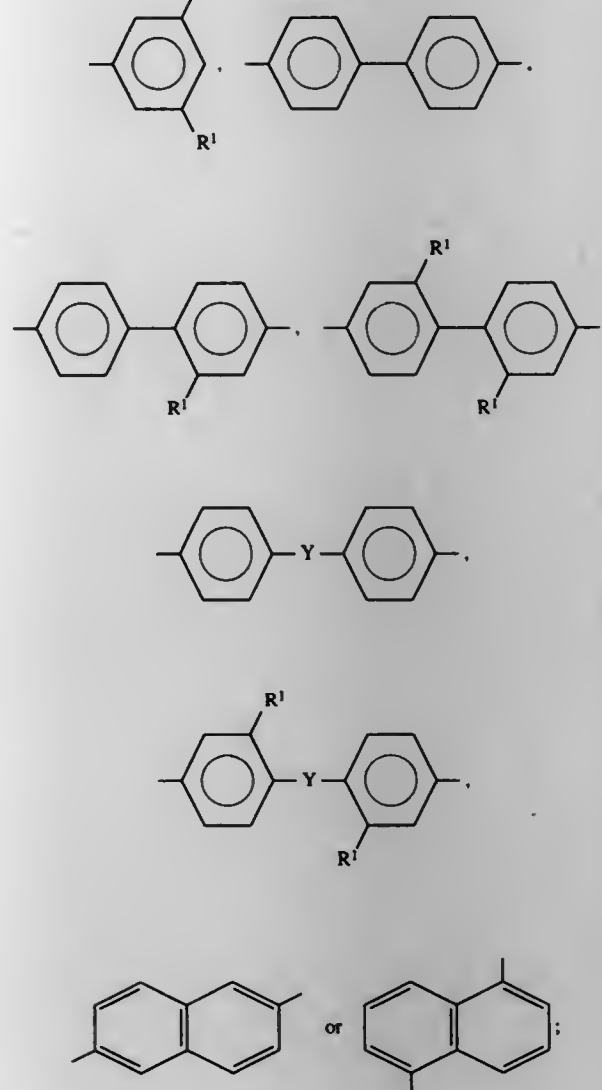
n is 3 to 50;
R⁴ represents —R^2 or X¹;
R⁵ represents



wherein R⁴ is defined as above
X³ represents



-continued

Wherein R¹ and Y are defined as above

R¹ represents $\text{—SO}_3\text{R}^2$, $\text{—CO}_2\text{R}^2$, $\text{—PO}_2(\text{R}^2)^2$ or $\text{—OPO}_3\text{R}^2$;
R² represents hydrogen or a pharmaceutically-acceptable cation;
and

X¹ represents a HO—X— group, where X is defined as above,
or C₁₋₄ alkyl, phenyl, or phenyl substituted with from 1 to 2
R¹ moieties and up to 3 substituents selected from a group
consisting of chloro, bromo, C₁₋₄ alkyl.

5,670,145

BIOLOGICALLY ACTIVE SYSTEM FOR DISPERSION OF PHEROMONES

James E. Wright, Cave Creek, Ariz., assignor to Troy Biosciences, Inc., Phoenix, Ariz.

Filed Jan. 30, 1996, Ser. No. 593,576

Int. Cl.⁶ A01N 25/02; 37/06; 63/04

U.S. Cl. 424—84

15 Claims

1. A liquid formation for spraying onto the leaves of plants comprising an amount of pheromone effective to control insects; a mixture of copolymers of vinyl-ethylene with vinyl acetate and butylphthalate, and a solvent; whereby a film is formed on the surface of the liquid formulation when exposed to oxygen.

5,670,146

PHARMACOLOGICAL PREPARATIONS COMPRISING HUMAN PLURIPOTENT HEMATOPOIETIC COLONY STIMULATING FACTOR

Karl Welte, New York, N.Y.; Erich Platzter, Erlangen, Germany; Janice L. Gabrilove, New York, N.Y.; Roland Mertelsm, Chappaqua, N.Y., and Malcolm A. S. Moore, Larchmont, N.Y., assignors to Sloan-Kettering Institute, New York, N.Y.

Continuation of Ser. No. 280,582, Jul. 26, 1994, Pat. No. 5,532,341, which is a continuation of Ser. No. 132,240, Oct. 6, 1993, abandoned, which is a continuation of Ser. No. 835,270, Mar. 7, 1986, abandoned, which is a continuation-in-part of Ser. No. 716,844, Mar. 28, 1985, abandoned. This application Jun. 7, 1995, Ser. No. 480,356

Int. Cl.⁶ A61K 38/19; C07K 14/53

U.S. Cl. 424—85.1

10 Claims

1. A pharmacological preparation containing isolated and purified human pluripotent colony stimulating factor comprising the following characteristics:

- a molecular weight of about 19,600 daltons under reducing and non-reducing conditions as determined by SDS-PAGE;
- a molecular weight of about 32,000 daltons as determined by gel filtration;
- an isoelectric point of about 5.5;
- the ability to induce differentiation of the leukemia cell line WEHI-3B (D⁺); and
- the ability to stimulate growth of both human and mouse bone marrow cells.

5,670,147

COMPOSITIONS CONTAINING CULTURED MITOTIC HUMAN STEM CELLS

Stephen G. Emerson; Michael F. Clarke, and Bernhard O. Palsson, all of Ann Arbor, Mich., assignors to Regents of the University of Michigan, Ann Arbor, Mich.

Continuation of Ser. No. 143,751, Nov. 1, 1993, abandoned, which is a division of Ser. No. 737,024, Jul. 29, 1991, abandoned, which is a continuation-in-part of Ser. No. 628,343, Dec. 17, 1990, abandoned, which is a continuation-in-part of Ser. No. 366,639, Jun. 15, 1989, abandoned. This application Dec. 1, 1994, Ser. No. 352,198

The portion of the term of this patent subsequent to Nov. 2, 2014, has been disclaimed.

Int. Cl.⁶ C12N 5/00; A01N 63/00

U.S. Cl. 424—93.1

51 Claims

1. An ex vivo cell culture composition comprising human stem cells found in the human hematopoietic system, cultured in a liquid culture medium which is replaced at a rate which is substantially continuous and provides ex vivo human stem cell division, wherein said human stem cells are rendered mitotic ex vivo.

5,670,148

COMBINED CELLULAR AND IMMUNOSUPPRESSIVE THERAPIES

Stephen A. Sherwin, San Francisco, and Robert B. Dubridge, Belmont, both of Calif., assignors to Cell Genesys, Inc., Foster City, Calif.

Continuation of Ser. No. 781,075, Oct. 21, 1991, abandoned.

This application Sep. 28, 1994, Ser. No. 314,452

Int. Cl.⁶ C12N 15/00; A01N 63/00; A61K 35/12

U.S. Cl. 424—93.21

6 Claims

1. A method of prolonging graft acceptance, the method comprising:

administering to a mammalian host a graft comprising genetically modified allogeneic skin cells, said genetic modification being a result of recombination with a DNA construct resulting in inactivation of expression of $\beta 2$ -microglobulin; and a diminished regimen of an immunosuppressive therapy comprising administration of an immunosuppressive drug, said drug being selected from the group consisting of cyclosporin and FK-506,

wherein the regimen necessary to maintain said graft at or below initiation of rejection of said genetically modified allogeneic

cells is diminished as compared to the regimen for cells lacking such genetic modification.

5,670,149

LYMPHOTOXIN- β , LYMPHOTOXIN- β COMPLEXES, PHARMACEUTICAL PREPARATIONS AND THERAPEUTIC USES THEREOF

Jeffrey Browning, Brookline, Mass., and Carl F. Ware, Riverside, Calif., assignors to Biogen, Inc., Cambridge, Mass., and The University of California, Oakland, Calif.

Continuation of Ser. No. 222,614, Apr. 1, 1994, abandoned, which is a continuation-in-part of Ser. No. 544,862, Jun. 27, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 476,489

Int. Cl.⁶ A61K 39/395

U.S. Cl. 424—130.1

3 Claims

1. An antibody that binds to a polypeptide selected from the group consisting of:

- an amino acid sequence defined by SEQ ID NO:2;
- an amino acid sequence defined by SEQ ID NO:4;
- an amino acid sequence defined by SEQ ID NO:6; and
- an amino acid sequence represented by the following formula:

X-SEQ ID NO:6.

wherein X comprises one or more of the amino acid residues starting from the carboxyl terminus reading toward the amino terminus of SEQ ID NO:8.

5,670,150

NON-DEPLETING CD4-SPECIFIC MONOCLONAL ANTIBODIES FOR THE TREATMENT OF INSULIN-DEPENDENT DIABETES MELLITUS (IDDM)

Anne Cooke, and Herman Waldmann, both of Cambridge, United Kingdom, assignors to University College London, London, and Glaxo Wellcome P.L.C., Middlesex, both of United Kingdom

Continuation of Ser. No. 90,203, Dec. 1, 1993, abandoned.

This application May 8, 1995, Ser. No. 436,843

Claims priority, application United Kingdom, Jan. 14, 1991, 9100741

Int. Cl.⁶ A61K 39/395; C07K 16/18; 16/24; 16/26

U.S. Cl. 424—154.1

9 Claims

1. A method of arresting the loss of insulin-producing cells in a host subject to such loss which comprises administering to the host an effective amount administered being sufficient CD4 monoclonal antibody the amount administered being sufficient to arrest the loss of insulin-producing cells.

5,670,151

METHOD FOR CONTROLLING HYPERPROLIFERATIVE DISEASES

James W. Larrick, Woodside; L. L. Houston, Oakland, and Eric S. Groves, Lafayette, all of Calif., assignors to Chiron Corporation, Emeryville, Calif.

Continuation of Ser. No. 436,538, Nov. 14, 1989, abandoned,

which is a continuation-in-part of Ser. No. 856,731, Apr. 28, 1986, abandoned. This application Dec. 10, 1991, Ser. No. 807,951

Int. Cl.⁶ A61K 39/395; 39/40; 39/42; 39/44

U.S. Cl. 424—183.1

10 Claims

1. A method of treating a nonmalignant hyperproliferating ocular epithelial or endothelial cell condition comprising exposing said hyperproliferating cells to a concentration of toxin conjugate sufficient to kill the hyperproliferating cells, wherein said toxin conjugate comprises: (a) an antigen binding portion of an antibody capable of binding to a transferrin growth factor receptor without competing with binding of transferrin to the transferrin growth factor receptor; and (b) a plant toxin molecule.

5,670,152
IMMUNOREACTIVE POLYPEPTIDE COMPOSITIONS
 Amy J. Weiner, Benicia, and Michael Houghton, Danville, both of Calif., assignors to Chiron Corporation, Emeryville, Calif.
 Division of Ser. No. 231,368, Apr. 19, 1994, which is a continuation of Ser. No. 759,575, Sep. 13, 1991. This application May 12, 1995, Ser. No. 440,103
 Int. Cl.⁶ A61K 39/29; C12Q 1/70; C07K 14/18
 U.S. Cl. 424—189.1 **9 Claims**

1. An immunogenic polypeptide composition comprising at least two HCV amino acid sequences, each HCV sequence comprising at least one epitope within a variable domain of an HCV envelope protein, wherein the variable domain regions of the amino acid sequences are heterogeneous with each other, are derived from distinct HCV isolates, and each sequence being not longer than the full length envelope protein.

5,670,153
IMMUNOREACTIVE POLYPEPTIDE COMPOSITIONS
 Amy J. Weiner, Benicia, and Michael Houghton, Danville, both of Calif., assignors to Chiron Corporation, Emeryville, Calif.
 Division of Ser. No. 231,368, Apr. 19, 1994, which is a continuation of Ser. No. 759,575, Sep. 13, 1991. This application May 12, 1995, Ser. No. 440,542
 Int. Cl.⁶ A61K 39/29; C12Q 1/70; C07K 14/18
 U.S. Cl. 424—189.1 **11 Claims**

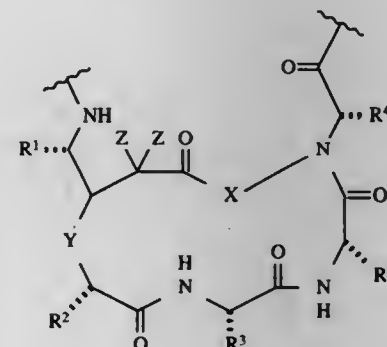
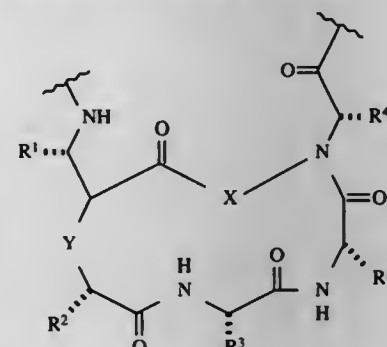
1. A method for preparing an immunogenic composition for treatment of HCV comprising:
 (a) forming an immunogenic polypeptide composition comprising at least two HCV amino acid sequences, each HCV sequence comprising at least one epitope within a variable domain of an HCV envelope protein, wherein the variable domain regions of the amino acid sequences are heterogeneous with each other, are derived from distinct HCV isolates, and each sequence being not longer than the full length envelope protein, wherein the immunogenic polypeptide composition is suitable for treating HCV;
 (b) providing a suitable excipient; and
 (c) mixing the immunogenic composition of (a) with the excipient of (b).

5,670,154
REDUCING TYROSINASE ACTIVITY
 Yukihiko Hara, and Miwa Honda, both of Fujieda, Japan, assignors to Mitsui Norin Co., Ltd., Tokyo, Japan
 Continuation of Ser. No. 179,582, Jan. 10, 1994, abandoned.
 This application Dec. 2, 1994, Ser. No. 349,477
 Int. Cl.⁶ A61K 35/78
 U.S. Cl. 424—195.1 **6 Claims**

1. A method of reducing tyrosinase activity in human skin comprising topically administering to a human an effective tyrosinase activity reducing amount of at least one tea polyphenol selected from the group consisting of epigallocatechin gallate, epicatechin gallate and epigallocatechin.

5,670,155
CONFOMATIONALLY RESTRICTED MIMETICS OF BETA TURNS AND BETA BULGES AND PEPTIDES CONTAINING THE SAME
 Michael Kahn, Chicago, Ill., assignor to Molecumetics, Ltd., Bellevue, Wash.
 Division of Ser. No. 236,674, May 2, 1994, Pat. No. 5,475,085, which is a continuation of Ser. No. 926,350, Aug. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 651,800, Feb. 7, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 473,401
 Int. Cl.⁶ A61K 39/21; 38/12
 U.S. Cl. 424—208.1 **7 Claims**

1. A beta-hairpin mimetic having the structure:



wherein X is a linker moiety; Y is selected from —CH₂—, —NH— and —N(CH₃)—; Z is hydrogen or methyl; and R¹, R², R³ and R⁴ are individually selected from naturally occurring amino acid side chain substituents.

5,670,156
FELINE INFECTIOUS PERITONITIS VACCINE AND METHOD OF PREPARATION
 Richard G. Olsen, London, Ohio, assignor to Parhellen Corporation, Columbus, Ohio
 PCT No. PCT/US93/01285, § 371 Date Aug. 18, 1994, § 102(e) Date Aug. 18, 1994, PCT Pub. No. WO93/15762, PCT Pub. Date Aug. 19, 1993
 PCT Filed Feb. 18, 1993, Ser. No. 284,659
 Int. Cl.⁶ A61K 39/12; 39/215; C12N 5/00; 5/02
 U.S. Cl. 424—221.1 **17 Claims**

1. Feline infectious peritonitis immunogens derived from FIP persistently-infected Crandall feline kidney cells cultured in vitro wherein said FIP immunogens are essentially free of live and dead virus particles.

5,670,157
METHOD FOR REDUCING AND CONTROLLING IMMUNOGLOBULIN CONCENTRATIONS
 Susan Trimbo, Evanston; David Madsen, Libertyville, and W. Bruce Rowe, Evanston, all of Ill., assignors to Nestec Ltd., Vevey, Switzerland
 Filed Dec. 11, 1995, Ser. No. 570,098
 Int. Cl.⁶ A61K 45/00; 45/05; 47/00; A01N 37/18
 U.S. Cl. 424—278.1 **18 Claims**

1. A method for reducing antigen-specific IgE or IgM concentrations in a patient suffering from a gastrointestinal disorder comprising the step of administering to the patient a therapeutically effective amount of a composition comprising:
 a protein source comprising approximately 10% to 30% of the total calories;
 a carbohydrate source comprising approximately 25% to 60% of the total calories; and
 a lipid source comprising approximately 15% to 45% of the total calories wherein the lipid source comprises both a medium chain triglyceride and a long chain triglyceride.

5,670,158
BISACODYL DOSAGE FORM
 Paula Denise Davis; Douglas Joseph Dobroszi; Gary Robert Kelm, all of Cincinnati, and Kenneth Gary Mandel, Fairfield, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
 Continuation of Ser. No. 279,361, Jul. 22, 1994, abandoned, which is a continuation of Ser. No. 23,412, Feb. 26, 1993, abandoned. This application Nov. 15, 1995, Ser. No. 558,338
 Int. Cl.⁶ A61K 9/00; 31/715; 47/00
 U.S. Cl. 424—400 **13 Claims**

1. A pharmaceutical composition in dosage unit form, for peroral administration of bisacodyl to a human or lower animal having a gastrointestinal tract, with a lumen therethrough, with a small intestine and a colon with a junction therebetween, comprising:
 (a) from about 0.1 mg. to about 15 mg. of rapidly-dissolving bisacodyl means; and
 (b) a delivery means which prevents the release of bisacodyl from the dosage form into the lumen of the gastrointestinal tract during transport of the dosage form through the lumen until the dosage form is near the junction between the small intestine and the colon or in the colon, and which then releases the bisacodyl in the lumen near the junction between the small intestine and the colon or within the colon;
 wherein the delivery means is a material or materials which completely surround or encase the rapidly dissolving bisacodyl means in the dosage unit form prior to oral administration.

5,670,159
FRAGRANCE-CONTAINING COSMETIC GELATIN CAPSULE
 Frank S. S. Morton, Seminole; Pilar P. Duque, Tampa; Timothy B. Chiprich, St. Petersburg, and Norman S. Stroud, Safety Harbor, all of Fla., assignors to R.P. Scherer Corporation, Troy, Mich.
 Continuation of Ser. No. 130,589, Oct. 1, 1993, abandoned.
 This application Jan. 4, 1995, Ser. No. 368,749
 Int. Cl.⁶ A61K 9/48
 U.S. Cl. 424—401 **8 Claims**

1. A fragrance-containing gelatin capsule comprising
 (a) a shell, the shell comprising a blend of odor-free gelatin having a Bloom value of from about 220–300, and a partially dehydrated, hydrogenated glucose syrup comprising at least about 25% by weight sorbitol and at least about 20% by weight of sorbitans; and
 (b) at least about 0.02 ml of a fill encapsulated by the shell, the fill comprising from about 5–40% of fragrance based on the weight of the fill, the fragrance being dissolved in a fragrance-

dissolving system comprising (i) a volatile solvent selected from the group consisting of dimethicones, cyclomethicones, substituted siloxanes, aromatic hydrocarbons of about 6 to 30 carbon atoms, and aliphatic hydrocarbons having about 6 to 25 carbon atoms; and (ii) a nonvolatile cosolvent selected from the group consisting of C₆–C₂₂ straight or branched chain alkyl esters of straight or branched chain carboxylic acids having 8 to 18 carbon atoms, benzyl or C₆–C₂₂ straight or branched chain alkyl benzoates, C₆–C₂₂ a straight or branched chain alkyl esters of straight or branched chain carboxylic acids having 8 to 18 carbon atoms, C₆–C₂₂ straight or branched chain alkoxyalkyl esters of straight or branched chain carboxylic acids having 8 to 18 carbon atoms, glyceryl esters containing 8 to 18 carbon atoms derived from the carboxylic acid, sorbitan esters, straight or branched alkyl esters of alkoxylated fatty acid esters, and fatty alcohols having from 10 to 22 carbon atoms, or mixtures thereof.

5,670,160
PRESERVATIVES AND THEIR USE
 Heinz Eggensperger, Hamburg; Karl-Heinz Diehl, Norderstedt, and Peter Oltmanns, Hamburg, all of Germany, assignors to Schülke & Mayr GmbH, Hamburg, Germany
 Continuation of Ser. No. 115,298, Sep. 1, 1993, abandoned, which is a continuation-in-part of Ser. No. 741,008, Aug. 6, 1991, abandoned. This application Jan. 30, 1996, Ser. No. 649,254
 Claims priority, application Germany, Aug. 24, 1990, 40 26 756.3
 Int. Cl.⁶ A01N 25/00; 25/02
 U.S. Cl. 424—405 **8 Claims**

1. A preservative for compositions having an aqueous phase, said preservative consisting essentially of:
 a) from 10 to 30% by weight of an organic acid selected from the group consisting of benzoic acid, dehydroacetic acid, undecylenic acid, esters of such acids, salts of such acids, and mixtures thereof;
 b) from 40 to 80% by weight of an alcohol selected from the group consisting of benzyl alcohol, 2-phenoxyethanol, a phenoxybutanol and a phenoxypropanol; and
 c) from 0.5 to 10% by weight of a poly(hexamethylenebiguanide) salt in which the anion is selected from the group consisting of hydrochloride, acetate, lactate, benzoate, propionate, 4-hydroxybenzoate, sorbate and salicylate.

5,670,161
BIODEGRADABLE STENT
 Kevin E. Healy, 2517 Asbury Ave., Evanston, Ill. 60201, and Gary S. Dorfman, 11 Sea Ridge Dr., Saunderton, R.I. 02874
 Filed May 28, 1996, Ser. No. 654,314
 Int. Cl.⁶ A61F 13/00
 U.S. Cl. 424—426 **51 Claims**

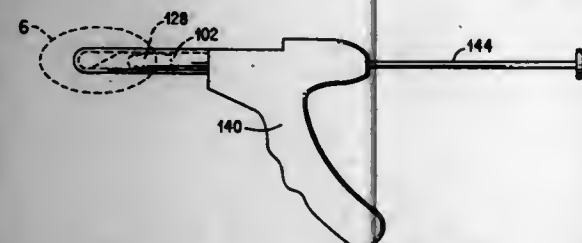


1. An expandable, biodegradable stent for use within a body lumen comprising a hollow tube made from a copolymer of L-lactide and ε-caprolactone that, in unexpanded form, is of a first diameter sufficient to be retained upon a balloon catheter for placement within the body lumen, and that is not plastically expandable at normal body temperatures, and that is expandable using thermo-mechanical means at a temperature between about 38°–55° C. when the balloon catheter is inflated to a second diameter sufficient to be retained within the body lumen.

5,670,162
METHOD AND DEVICE FOR IMPLANTATION OF LARGE DIAMETER OBJECTS IN BOVINES
 Clifton Augustus Balle, Chesterfield; Jeffrey Wilson Day, Manchester; Thomas Riley Hampton, II, St. Charles; Thomas Richard Kasser, Chesterfield; James Brian Pike, St. Peters; Jonathan Paul Smith, Pacific, and Lyle Elmore Ziemann, Chesterfield, all of Mo., assignors to Monsanto Company, St. Louis, Mo.
 Division of Ser. No. 270,196, Jul. 1, 1994. This application Jun. 2, 1995, Ser. No. 459,921
 Int. Cl.⁶ A23K 1/18

U.S. Cl. 424-438

10 Claims



1. A method of implanting large diameter objects in the intraperitoneal cavity of bovines which can be accomplished readily, without significant injury to the bovine, requires minimal care after implantation, and rapidly heals, comprising:
 providing a generally cylindrical large diameter object having an outside diameter in the range of about 8 to about 15 millimeters (mm);
 making an incision of less than about 25 mm in length in the hide of the left paralumbar fossa of a bovine, the incision effective for passing a first portion of a generally cylindrical tube which itself functions as a trocar therethrough which has an external diameter of less than about 25 mm and which has an internal diameter for passing the large diameter object therethrough, the incision having an orientation and length and depth such that gaping of the resulting wound substantially does not occur after inserting the tube and the object therethrough and removing the tube therefrom;
 inserting into the incision said generally cylindrical tube, said generally cylindrical tube further having a non-hide-incising tip effective for penetrating tissues underlying the incision, and for puncturing the peritoneum, and having a length for extending through the incision, underlying tissues, and into the intraperitoneal cavity of the bovine;
 causing the tip of the tube to penetrate the underlying tissues and to puncture the peritoneum and inserting the large diameter object therethrough into the intraperitoneal cavity of the bovine; and
 removing the tube.

5,670,163
LONG ACTING GI AND ESOPHAGEAL PROTECTANT
 Robert C. Cucca, Edwardsville, Ill.; Keith S. Lienhop, St. Charles, Mo.; Thomas Charles Riley, Jr., Ballwin, Mo.; Mitchell I. Kirschner, St. Louis, Mo., and R. Saul Levinson, Chesterfield, Mo., assignors to KV Pharmaceuticals Company, St. Louis, Mo.
 Continuation-in-part of Ser. No. 262,254, Jun. 20, 1994, Pat. No. 5,554,379. This application May 2, 1995, Ser. No. 432,805
 Int. Cl.⁶ A61K 47/00

U.S. Cl. 424-439

23 Claims

1. A bioadherent, orally ingestible system, which comprises: a water-in-oil system having at least two phases, one phase comprises from about 75 to about 99% by volume of an internal hydrophilic phase and the other phase comprises from about 25% to about 1% by volume of an external hydrophobic phase, wherein the external hydrophobic phase is comprised of two components, one component being about 3 to about 97% of a hydrophobic oil the other being about 97% to about 3% of an emulsifier having a

HLB value less than 10 wherein the ingestible system adheres to oral mucosa and esophageal mucosa for 30 minutes to 24 hours.

5,670,164
NITROGLYCERIN-CONTAINING PATCH, A PROCESS FOR THE PRODUCTION AND THE USE THEREOF
 Reinhold Meconl, Neuwied, and Tina Rademacher, Bad Honnef, both of Germany, assignors to LTS Lohmann Therapie-Systeme BmbH & Co., KG, Neuwied, Germany
 PCT No. PCT/EP94/00053, § 371 Date Sep. 29, 1995, § 102(e) Date Sep. 29, 1995, PCT Pub. No. WO94/16691, PCT Pub. Date Aug. 4, 1994
 PCT Filed Jan. 10, 1994, Ser. No. 492,004

Claims priority, application Germany, Jan. 23, 1993, 43 01 781.9

Int. Cl.⁶ A61F 13/02

U.S. Cl. 424-448

15 Claims

1. In an active substance-containing patch for the controlled release of nitroglycerin to the skin, consisting of an impermeable backing layer, a reservoir bonded thereto and comprising pressure-sensitive hot melt adhesive and active substance, and a removable protective layer, the improvement wherein the reservoir consists essentially of a solvent-free homogenized mixture of:
 (a) a member selected from the group consisting of (1) a tackifying resin which is semisolid or liquid at room temperature or melts at a temperature up to about 60° C., (2) a tackifying resin which is solid at room temperature and softens at a temperature from about 60° C., and (3) mixtures thereof,
 (b) a plasticizer, and
 (c) a nitroglycerin preparation,
 said mixture being free of other polymers.

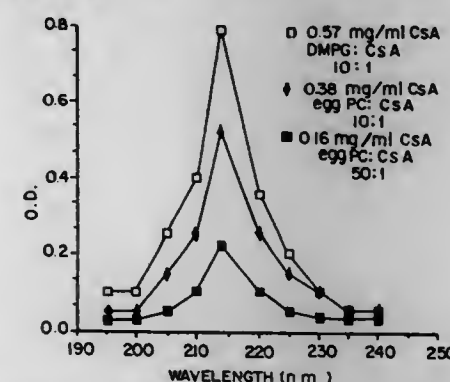
5,670,165

Patent Not Issued For This Number

5,670,166
PHARMACEUTICAL FORMULATION AND PROCESS
 Jill P. Adler-Moore, Altadena, and William A. Ernst, San Dimas, both of Calif., assignors to NeXstar Pharmaceuticals, Boulder, Colo.
 Continuation of Ser. No. 85,673, Jun. 30, 1993, which is a continuation of Ser. No. 687,812, Apr. 19, 1991, abandoned.
 This application Jun. 6, 1995, Ser. No. 468,956
 Int. Cl.⁶ A61K 9/127

U.S. Cl. 424-450

8 Claims



1. Therapeutic liposomes comprising (i) a neutral lipid, (ii) a negatively charged lipid selected from the group consisting of dimyristoyl phosphatidylglycerol, dipalmitoyl phosphatidylglycerol, dilauryl phosphatidylglycerol, and dimyristoyl phosphatidic

acid, and (iii) a cyclosporin, where the liposomes have a mean diameter of less than 200 nm and are stable on storage.

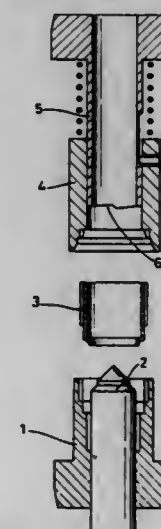
5,670,167
PROCESS FOR THE PRODUCTION OF MEDICAMENT FORMULATIONS
 Clive Roland Sleath, Mountsorrel; Paul Manuel Anson, Chesterton, and Hugh William Dyson, Haddenham, all of United Kingdom, assignors to Fisons plc, Ipswich, United Kingdom
 PCT No. PCT/GB94/02214, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO95/10407, PCT Pub. Date Apr. 20, 1995
 PCT Filed Oct. 10, 1994, Ser. No. 624,590

Claims priority, application United Kingdom, Oct. 8, 1993, 9320795; Jul. 21, 1994, 9414692

Int. Cl.⁶ A61K 9/20

U.S. Cl. 424-464

8 Claims



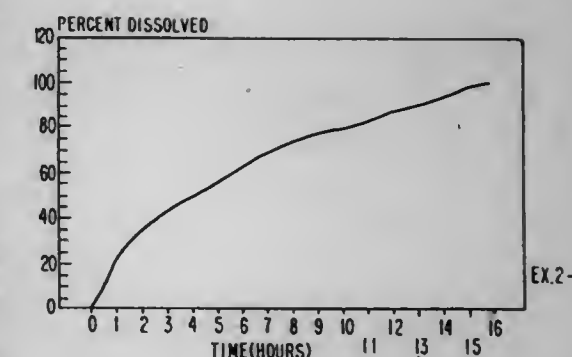
1. A process for the production of a medicament compact, comprising the steps of:
 a) placing loose powdered medicament in a mould (3) having a longitudinal axis,
 b) positioning a mandrel (2) along the longitudinal axis of the mould (3); and
 c) compressing the medicament by applying a force parallel to the longitudinal axis such that during compression the frictional force between the medicament and the mould (3) and the frictional force between the medicament and the mandrel (2) are in opposite directions parallel to the longitudinal axis.

5,670,168
AGGLOMERATED HYDROPHILIC COMPLEXES WITH MULTI-PHASIC RELEASE CHARACTERISTICS
 Anand R. Baichwal, Wappingers Falls, N.Y., and John N. Stanforth, Bath, England, assignors to Edward Mendell Co., Inc., Patterson, N.Y.
 Continuation of Ser. No. 467,583, Jun. 6, 1995, abandoned, which is a division of Ser. No. 922,312, Jul. 30, 1992, Pat. No. 5,472,711. This application Jun. 17, 1996, Ser. No. 664,792
 Int. Cl.⁶ A61K 9/22

U.S. Cl. 424-464

20 Claims

1. A method for preparing an oral solid dose formulation providing a multi-phasic release of a medicament when said dosage form is exposed to aqueous or gastric fluid, comprising
 mixing a heteropolysaccharide gum and a homopolysaccharide gum capable of cross-linking said heteropolysaccharide gum in the presence of aqueous solutions, such that the ratio of said heteropolysaccharide gum to said homopolysaccharide gum is from about 1:3 to about 3:1, to obtain a heterodisperse gum matrix;



adding an inert pharmaceutical diluent selected from the group consisting of monosaccharide, a disaccharide, a polyhydric alcohol, and mixtures thereof, to said heterodisperse gum matrix such that the ratio of said inert diluent to said heterodisperse gum matrix is from about 3:7 to about 7:3;
 adding an effective amount of a medicament to render a therapeutic effect, and
 adding an effective amount of a pharmaceutically acceptable multi-phasic release promoting agent to provide a multi-phasic release of said medicament when said dosage form is exposed to aqueous fluids.

5,670,169
WOUND HYDRATING GEL WITH NOVEL PRESERVATIVE SYSTEM AND LOW CYTOTOXICITY
 Marc D. Cornell, St. Louis, Mo.; Nancy E. Kalser, Granite City, Ill., and Rita A. Brenden, St. Louis, Mo., assignors to E.R. Squibb & Sons, Inc., Princeton, N.J.
 Filed Dec. 20, 1993, Ser. No. 170,941
 Int. Cl.⁶ A61K 9/10;47/36;47/38

U.S. Cl. 424-488

16 Claims

1. A non-cytotoxic wound hydrating gel consisting essentially of:
 a. a hydrocolloid system of sodium/calcium alginate and sodium carboxymethylcellulose, and
 b. a preservative system of dimethylol dimethylhydantoin, an antimicrobial agent and a mold and yeast inhibitor.

5,670,170
PHARMACEUTICAL FORMULATION
 Francis Walter Grimmett, and Nigel Philip Davidson, both of Worthing, England, assignors to Beecham Group p.l.c., Brentford, United Kingdom
 Continuation of Ser. No. 937,867, Oct. 16, 1992, abandoned.
 This application May 18, 1995, Ser. No. 444,114
 Claims priority, application United Kingdom, Apr. 27, 1990, 9009473

Int. Cl.⁶ A61K 9/14

U.S. Cl. 424-489

11 Claims

1. A pharmaceutical formulation, being a unit dose sachet comprising granules of granular product containing amoxicillin trihydrate or ampicillin of 5% to 50% by weight and an effervescent couple which couple comprises a physiologically acceptable alkaline or alkaline earth metal carbonate as a basic ingredient and an acidic ingredient selected from the group consisting of citric acid, sodium hydrogen citrate, tartaric, adipic, fumaric and malic acid, the basic ingredient liberating carbon dioxide when it and the acidic ingredient are contacted with water, wherein the basic ingredient is present in 0.5% to 30% of the weight of the formulation and the acid ingredient is present in 0.5% to 20% of the weight of the formulation; and further wherein each granule contains both components of the effervescent couple and the amoxicillin trihydrate or ampicillin antibiotic.

5,670,171

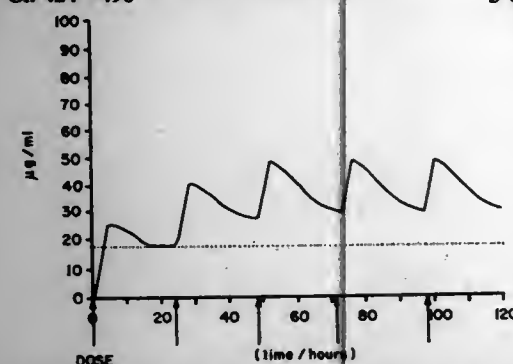
LIQUID-SUSPENSION CONTROLLED-RELEASE PHARMACEUTICAL COMPOSITION

Giancarlo Santus, Milan; Giuseppe Bottoni, Bergamo, and Ettore Bilato, Padua, all of Italy, assignors to Recordati S.A. Chemical and Pharmaceutical Company, Chiasso, Switzerland

Division of Ser. No. 165,307, Dec. 10, 1993, Pat. No. 5,527,545, which is a continuation-in-part of Ser. No. 928,616, Aug. 10, 1992, Pat. No. 5,296,236, which is a continuation of Ser. No. 711,588, Jun. 6, 1991, abandoned, which is a continuation of Ser. No. 408,755, Sep. 18, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 482,092

Claims priority, application Italy, Dec. 11, 1992, MI92A2826 Int. Cl.⁶ A61K 9/16

U.S. Cl. 424-490



1. A method of ensuring naproxen plasma levels higher than 18 µg/ml for at least 24 hours in a patient in need of such treatment, comprising administering to said patient once daily a controlled-release pharmaceutical dosage form, wherein said dosage form comprises:

- a multiplicity of microgranules containing naproxen as an active ingredient and at least one excipient, said microgranules having substantially no controlled-release properties prior to coating;
- a series of successive polymeric coatings that coat said microgranules, comprising:
 - a first coating applied directly to the microgranules, at least said first coating imparting controlled-release properties to said microgranules, said coating comprising polyethylene glycol as one ingredient thereof;
 - a second coating with hydrophilic characteristics;
 - a third applied coating with lipophilic characteristics; and
 - an outermost coating with hydrophilic characteristics, at least said outermost coating imparting resistance of said microgranules to dissolution in gastric fluids;
- said microgranules after coating having sizes ranging from 50 to 500 µm.

5,670,172

PHARMACEUTICAL SPHEROID FORMULATION

Ian Richard Buxton; Helen Critchley; Stewart Thomas Leslie; Derek Allan Prater, all of Cambridge, United Kingdom; Ronald Brown Miller, Basel, Switzerland, and Sandra Therese Antoinette Malkowska, Cambridge, United Kingdom, assignors to Euro-Celtique, S.A., Luxembourg, Luxembourg

Continuation of Ser. No. 926,501, Aug. 5, 1992, abandoned. This application Apr. 21, 1995, Ser. No. 426,065

Claims priority, application United Kingdom, Aug. 12, 1991, 911761; Oct. 29, 1991, 9122967

Int. Cl.⁶ A61K 9/16; 47/38

U.S. Cl. 424-495

1. A once a day controlled release composition comprising spheroid cores consisting essentially of diltiazem or a pharmaceutically acceptable salt thereof in an amount of about 40-98% by weight and being sufficient to provide a therapeutic effect over a one day period, and about 2-60% by weight of microcrystalline cellulose, said cores being with a water insoluble pharmaceutically

acceptable controlled release material consisting of ethyl cellulose in an amount effective to provide a controlled release of diltiazem throughout a one day period when said composition is exposed to aqueous solutions, said controlled release material being present in an amount of from about 1% to about 25% by weight of said composition.

5,670,173

BIODEGRADABLE POLYMER MEMBRANE CONTAINING HEMOGLOBIN FOR BLOOD SUBSTITUTE

Thomas Ming Swi Chang, St-Lambert, and Wei-Ping Yu, Montreal, both of Canada, assignors to McGill University, Montreal, Canada

Continuation-in-part of Ser. No. 120,425, Sep. 14, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 469,782

Claims priority, application United Kingdom, Sep. 14, 1992, 9219426; Dec. 24, 1992, 9226960

Int. Cl.⁶ A61K 35/18

U.S. Cl. 424-533

1. A process for the production of a submicron diameter of less than 0.2 µm biocompatible and biodegradable polymer membrane containing hemoglobin and enzymes comprising the steps of:

- a) mixing a polymer selected from the group consisting of isobutyl 2-cyanoacrylate and alkylcyanoacrylate derivatives with phospholipid and tocopherol;
- b) dissolving the mixed solution of step a) in ethanol;
- c) injecting the mixed solution of step b) in a hemoglobin solution containing surfactant to spontaneously form submicron diameter particles of polymer membrane containing hemoglobin;
- d) removing ethanol by dialysis;
- e) separating said submicron diameter particles of step c) by centrifugation or gel filtration; and
- f) suspending said particles of step e) in a saline ringer solution.

5,670,174

Patent Not Issued For This Number

5,670,175

PROCESS FOR OBTAINING ULTRAPURE EGG OIL AND ITS USE

Werner C. Nawrocki, Landvogtstrasse 4, Frankfurt am Main, D-60320, Germany

PCT No. PCT/EP95/00609, § 371 Date Sep. 27, 1995, § 102(e) Date Sep. 27, 1995, PCT Pub. No. WO95/22590, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 20, 1995, Ser. No. 530,349

Claims priority, application Germany, Feb. 21, 1994, 44 05 486.6

Int. Cl.⁶ A61K 35/54

U.S. Cl. 424-581

1. A process for obtaining ultrapure egg oil from avian or reptilian egg yolk, comprising the steps of:

- a) drying the egg yolk at temperatures up to 90° C. and comminuting the dried egg yolk to give a pulverulent product (A);
- b) extracting the product (A) obtained in step (a) over a period of three to seven days using a fat-dissolving extractant;
- c) distilling off the extractant to obtain a viscous residue (B);
- d) aging the residue (B) obtained in step (c) at ambient temperature over a period of up to 10 hours;
- e) further aging the residue (B) at a temperature of between 7° and 12° C. over a period of up to 24 hours until distinct phase separation takes place;
- f) separating off a less viscous phase (C) formed upon phase separation in step (e);

5,670,177

INJECTABLE NO/CO₂ GASEOUS MIXTURE

Robert Briand, Les Clayes Sous Bois, and Marie-Hélène Renaudin, Paris, both of France, assignors to l'Air Liquide, Société Anonyme Pour l'Etude et l'Exploitation des Procédés Georges Claude, Paris, France

Filed Oct. 18, 1996, Ser. No. 733,919

Claims priority, application France, Oct. 20, 1995, 95 12345

Int. Cl.⁶ A61K 33/00

U.S. Cl. 424-718

12 Claims

1. A gaseous mixture for treatment or prevention of ischemia comprising:

- (i) nitric oxide in an amount effective to prevent ischemia;
- (ii) carbon dioxide; and
- (iii) nitrogen protoxide.

5,670,176

AMINO ACID SOLUTIONS FOR TREATMENT OF PERITONEAL DIALYSIS PATIENTS

Leo Martis, Long Grove, and Michael R. Jones, Hawthorne Woods, both of Ill., assignors to Baxter International Inc., Deerfield, Ill.

Division of Ser. No. 995,855, Dec. 22, 1992. This application Apr. 4, 1995, Ser. No. 416,407

Int. Cl.⁶ A61K 31/195; 31/19; 31/70; 33/14

U.S. Cl. 424-663

5 Claims

1. A method for providing nutrition to a peritoneal dialysis patient comprising the steps of administering at least once a day a peritoneal dialysis solution that includes:

Amino Acid	Conc. (mg)
Leucine	74-112
Valine	100-151
Threonine	47-71
Isoleucine	61-92
Lysine	55-83
Histidine	52-78
Methionine	32-48
Phenylalanine	42-62
Tryptophan	20-30
Alanine	68-103
Proline	43-65
Arginine	60-113
Glycine	36-55
Serine	48-72
Tyrosine	20-35
Aspartate	55-83
Glutamate	55-83

per 100 ml of solution, the ratio of phenylalanine/tyrosine ranging from about 1.3 to about 3.0, the ratio of basic amino acids/acidic amino acids ranging from about 1.0 to about 2.2.

5,670,178

METHOD AND APPARATUS FOR APPLYING FOAM PLASTIC MATERIALS TO A ROOF DECK

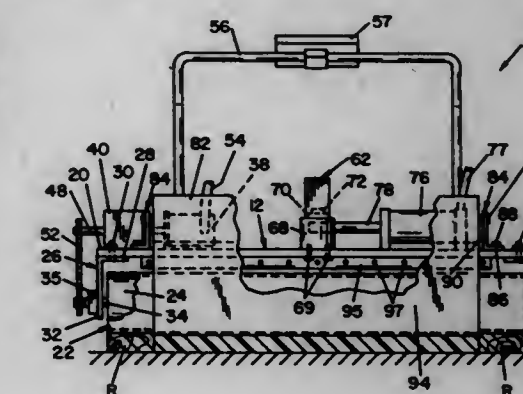
Richard A. West, 31303 Nantucket Row, Bay Village, Ohio 44140

Filed Aug. 16, 1995, Ser. No. 515,953

Int. Cl.⁶ E04D 15/00; E04F 13/02

U.S. Cl. 425-4 C

10 Claims



1. Apparatus for applying foamed plastic material on a roof substrate along a path having a direction and between first and second support means laterally spaced apart with respect to said direction for supporting the apparatus spaced above the substrate for movement along the path on said support means, said apparatus comprising, platform means having opposite ends with respect to said direction and laterally opposite sides, endless belt means on said platform means, said belt means having laterally opposite sides spaced apart a distance greater than the space between said first and second support means, means supporting said belt means on said platform means for displacement relative thereto in the direction between said opposite ends, said belt means having a top flight and a bottom flight, means on said platform means for driving said belt means for said top flight to move in the direction from one of said ends toward the other, means on said platform means adjacent said other end for dispensing expandable plastic foam material onto said substrate, and said bottom flight being spaced below said platform means and engaging said first and second support means for said support means to support said apparatus spaced above said substrate for movement along said path.

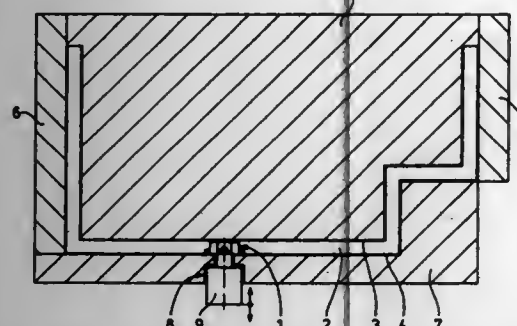
5,670,179
VALVE FOR CLOSING CAVITIES WHICH ARE TO BE FOAM-FILLED

Edmund Alper, Lohmar, Germany, assignor to Maschinenfabrik Hennecke GmbH, Leverkusen, Germany
Filed Feb. 16, 1996, Ser. No. 603,048

Claims priority, application Germany, Feb. 21, 1995, 195 05 937.9

Int. Cl.⁶ B29C 45/18
U.S. Cl. 425-4 R

3 Claims



1. A valve for use in introducing a foamable reactive mixture into a cavity, with the valve capable of being positioned within the cavity and when so-positioned is in contact with at least one of the walls of the cavity, with the valve comprising:

- a) two essentially rotationally symmetrical coaxial cages, comprising an outer cage and an inner cage, said outer cage surrounding said inner cage, with the inner cage
 - i) having an axial opening for the introduction of the reactive mixture and at least two radial openings for the passage of the reactive mixture into the annular space formed between the inner and the outer cage;
 - ii) having a ball, capable of moving freely within said inner cage and capable of closing the inlet opening following completion of the introduction of the reactive mixture by falling downwards through gravity;
 - iii) having a convex surface opposite said inlet opening, with said convex surface being directed inward, so that during the introduction of the reactive mixture the ball is positioned outside the inner cage axis and between said inlet opening and said convex surface; and
- b) with said outer cage having at least one radial opening for the passage of the reactive mixture from said annular space to said cavity, with the sizes of said axial opening and said radial openings being such that
 - 1) the total cross-sectional area defined by all of the radial openings in said inner cage is at least twice the cross-sectional area defined by said axial opening and
 - 2) the total cross-sectional area defined by all of the radial openings in said outer cage is at least twice the total cross-sectional area defined by all of the radial openings in said inner cage.

5,670,180
LAMINATED GLASS AND WINDSHIELD REPAIR DEVICE

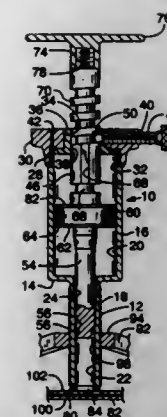
Randy L. Mackey, and Robert A. Beveridge, both of Bend, Oreg., assignors to Glas-Weld Systems, Inc., Eugene, Oreg.
Filed Apr. 5, 1996, Ser. No. 626,139

Int. Cl.⁶ B32B 33/00
U.S. Cl. 425-11

4 Claims

1. A device for repairing cracks in laminated glass having convertibility between repairing sub-surface and surface cracks comprising:

- a cylinder defining a dispensing mouth at an inner end, a cavity and an opening at an outer end defining a central bore;
- a piston mounted for axial movement in the cavity of the cylinder including a seal portion forming a seal in the cavity and enabling the production of a vacuum when drawn outwardly through the cavity, a shaft portion extended through



and fixed to the seal portion and movable toward the mouth, said shaft portion having a handle portion extended through the central bore and out of the cylinder opposite the mouth and exposed for manual manipulation;

a mounting member attachable to the cylinder and piston combination for mounting the cylinder and piston combination to a laminated glass for positioning the mouth of the cylinder proximal to a crack in the laminated glass; and said shaft portion including a helical groove, said shaft portion extended through the central bore of the cylinder, said central bore sized to receive the shaft portion including the helical groove to permit free sliding linear movement of the shaft portion through the central bore, and a plunger member carried by the cylinder and selectively laterally projectable into and out of engagement with the helical groove of the shaft member whereby upon being projected into the groove, turning of the exposed handle portion forces movement of the shaft portion toward and away from the mouth of the cylinder and upon withdrawal of the plunger member said handle can be linearly slidably forced toward and away from the mouth of the cylinder.

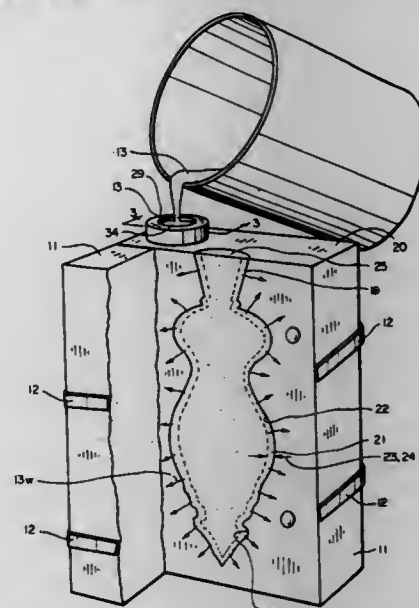
5,670,181
APPARATUS AND METHOD FOR SLIP CASTING FOR CERAMIC OBJECTS

Christine P. Stokes, 5280 S. 5500 West, Hooper, Utah 84315
Filed Oct. 20, 1995, Ser. No. 546,505

Int. Cl.⁶ B29C 41/16

U.S. Cl. 425-84

4 Claims



1. An apparatus for successively slip casting hollow ceramic objects, the walls of successive ones thereof being consistently of a single preselected thickness, said apparatus comprising:

a mold having a body of plaster of paris with a cavity therein defining the exterior surface of the object, the body of the mold having an exterior surface with an upwardly facing horizontal portion;
a quantity of liquid slip at least sufficient for casting a desired number of objects; and
means for successively confining visible liquid pool samples of unvarying thicknesses upon a selected area of the upwardly facing horizontal portion of the body surface.

5,670,182
MASTIC APPLICATOR

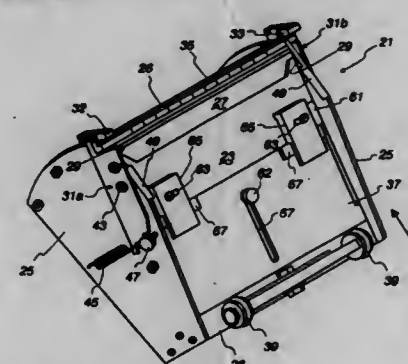
Morris F. Mower, Riverton, Utah, assignor to Axia Incorporated, Oak Brook, Ill.

Filed Feb. 15, 1995, Ser. No. 389,142

Int. Cl.⁶ E04F 21/08; B05C 5/02

U.S. Cl. 425-87

17 Claims



1. A mastic applicator comprising:

- a housing having an applicator surface;
- a mastic outlet located on the applicator surface through which the mastic is applied, the outlet having opposite side edges;
- a pair of corner guides mounted near the side edges, the corner guides being spring biased in a first position extended from the applicator surface to engage a corner of a surface to receive mastic, the corner guides being pivotally mounted to the sides of the housing and retracting to a second position coplanar with the applicator surface in response to placement of the guides against the surface to receive mastic, each of the corner guides having guide surfaces aligned with the side edges and extending generally transversely from the applicator surface, so that when one of the guide surfaces engages the corner, mastic flowing from the corresponding side edge is deposited at the corner without any gap between the corner and the mastic; and
- a pair of stub guides mounted to the applicator surface, the stub guides being laterally spaced from each other.

5,670,183
DEVICE FOR THE PRODUCTION OF A JOINT CONNECTION

Hendrik Weihs, Riederich; Frank Kocian, Neckartailfingen, and Richard Kochendoerfer, Stuttgart, all of Germany, assignors to Deutsche Forschungsanstalt fuer Luft- und Raumfahrt e.V., Bonn, Germany

Filed Jun. 1, 1995, Ser. No. 457,573

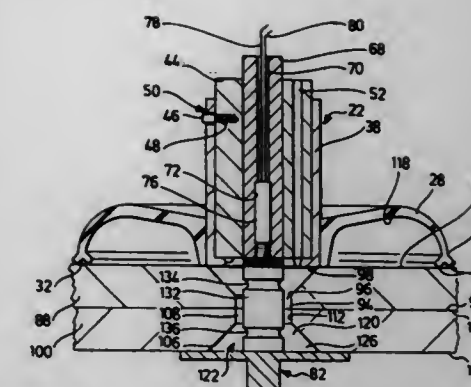
Claims priority, application Germany, Jun. 1, 1994, 44 19 159.6

Int. Cl.⁶ B29C 45/24; F16B 19/08

U.S. Cl. 425-110

12 Claims

1. Device for the production of a joint connection between a first joining piece with a first contact surface and a passage opening onto the first contact surface, and a second joining piece with a second contact surface and a recess opening onto the second contact surface, said first joining piece and second joining piece being brought into a joining position in relation to one another, in



which the first contact surface and the second contact surface abut one another and the passage of the first joining piece and the recess of the second joining piece together form a cavity, said device comprising:

- a cover for closing off a first end of the cavity;
- said cover having a feed aperture and a ventilation aperture;
- a gate for feeding a moldable and curable material into the cavity via said feed aperture;
- a ventilation duct for discharging air from the cavity via said ventilation aperture which has been displaced by the moldable and curable material;
- at least one sluice which is adapted to carry a flushing rinsing medium; and
- at least one connection groove which is adapted to fluidly connect said at least one sluice to at least one of said gate and said ventilation duct to allow flushing thereof.

5,670,184
MOLDING APPARATUS HAVING A MOLDING CAVITY DIVIDED BY AN ELASTIC MEMBER

Kousaku Nakamichi; Kazunori Miura, and Shoichi Inaba, all of Shizuoka, Japan, assignors to Kabushiki Kaisha Bandai, Japan

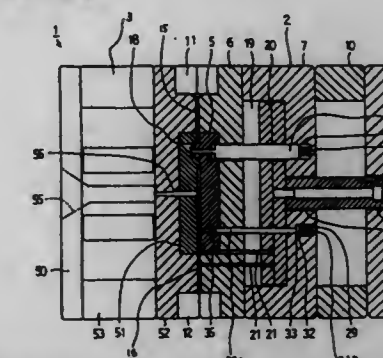
Filed Jan. 22, 1996, Ser. No. 589,375

Claims priority, application Japan, Jan. 25, 1995, 7-028756; Dec. 1, 1995, 7-338145

Int. Cl.⁶ B29C 45/16

U.S. Cl. 425-130

6 Claims



1. A molding apparatus for use in an injection machine having a movable side and stationary side, the molding apparatus comprising:

- a movable mold-defining member mounted on the movable side of the injection machine and a stationary mold-defining member mounted on the stationary side of the injection machine, said mold-defining members being joinable to define therebetween a mold cavity and a plurality of runner channels through which molding resin materials flow into said cavity;
- at least one dividing member provided in one of said mold-defining members, the dividing member being movable into a first one of said channels for dividing said one of said channels into a plurality of portions;
- said at least one dividing member including:

an elastic member urging each of said dividing member into said first channel;
 a first side which is substantially perpendicular to the direction of flow of first molding resin material to stop its flow through said a first channel when the dividing member is in said first channel; and
 a second side opposite the first side which is partially cut away to form a recess at one end thereof, so that a second molding resin material reaching said opposite side may flow into said recess and thereby move said dividing member out of said first channel by overcoming the force of said elastic member.

5,670,185

DIE ASSEMBLY FOR EXTRUDING EDIBLE SUBSTANCES

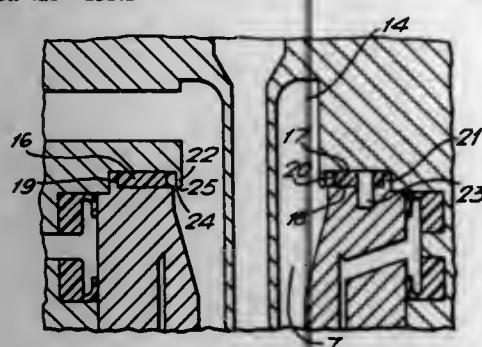
Ernst Heck, Vufflens La Ville; Marcel Mueller, Yverdon, and Adrian Weber, Baulmes, all of Switzerland, assignors to Nestec S.A., Vevey, Switzerland

Filed Oct. 11, 1995, Ser. No. 540,939

Int. Cl.⁶ B29C 47/06; 47/18

U.S. Cl. 425—133.1

21 Claims U.S. Cl. 425—151



1. An assembly for extruding substances comprising:

a first hollowed assembly member comprising an outer wall surface and an inner wall surface, a first end surface which extends between the inner and outer wall surfaces and a second end which comprises wall surfaces which define at least one channel opening wherein the first end surface and inner wall surface circumscribe and define an opening and wherein the inner wall surface extends between the first end surface to the second end and defines a hollowed tubular passage for passing a substance from the member first end to the member second end for passage through the at least one channel opening;

rotary sealing means which is positioned on the first end surface about and coaxial with the opening and which comprises a concave inner surface which extends transversely from the first end surface;

a second hollowed assembly member comprising (i) an outer wall surface and an inner wall surface and (ii) a wall portion which defines a channel wherein the second member inner wall surface comprises (a) a first surface portion which extends coaxially with the first member outer wall surface and is configured and positioned to circumscribe the first member outer wall surface and (b) a second portion which comprises a surface and a rim which protrudes transversely from the second portion surface wherein the second portion surface extends transversely from the first surface portion towards the tubular passage so that the rotary sealing means is positioned between the second portion surface and the first member first end surface and wherein the second portion surface extends and the rim protrudes so that a slot is formed between the rim and the first member inner wall surface and (c) a third surface portion configured to confine an area about the first member first end opening and wherein the first and second portions are configured so that the first member is rotatable within the second member and wherein the wall portion which defines the channel extends from the second member outer surface to

the second member inner surface third portion so that the channel communicates with the first member tubular passage for feeding a substance to the tubular passage for passage of the substance from the first member first end to the first member second end; and
 bearing means positioned between the first member outer surface and the second member inner surface for facilitating rotation of the first member.

5,670,186

INJECTION MOLDING MACHINE PROVIDED MOLDING WITH A DISPLAY UNIT

Kolchi Nishimura, Yamanashi; Hideki Koyama, Fujlyoshida; Hiroko Yoshida, and Susumu Ito, both of Yamanashi, all of Japan, assignors to Fanuc Ltd., Yamanashi, Japan

PCT No. PCT/JP95/00101, § 371 Date Oct. 3, 1995, § 102(e) Date Oct. 3, 1995, PCT Pub. No. WO95/23059, PCT Pub. Date Aug. 31, 1995

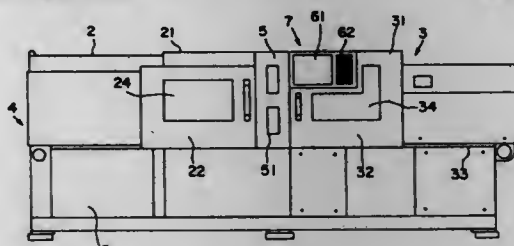
PCT Filed Jan. 27, 1995, Ser. No. 530,306

Claims priority, application Japan, Feb. 24, 1994, 6-049977

Int. Cl.⁶ B29C 45/84

U.S. Cl. 425—151

8 Claims



1. An injection molding machine, comprising:

a mold clamping unit;
 an injection unit arranged laterally with said mold clamping unit; and
 a display unit installed on an injection-side gate, said injection-side gate enclosing said injection unit, the display unit being movable as the injection-side gate is opened or closed, so as to allow an operator to simultaneously observe both said injection-side gate and said display unit.

5,670,187

APPARATUS FOR IN SITU GREEN SHEET SLITTING

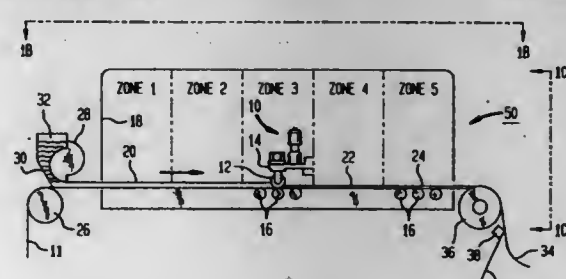
Lorenzo Scalia, Hopewell Junction, and Barry Donald Sewing, Beacon, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 462,349, Jun. 5, 1995, Pat. No. 5,533,889, which is a division of Ser. No. 298,480, Aug. 29, 1994, abandoned. This application Apr. 23, 1996, Ser. No. 636,253

Int. Cl.⁶ B28B 11/14

U.S. Cl. 425—224

18 Claims



1. An apparatus for slitting ceramic green sheets comprising:
 (a) a slitting mechanism having at least one slitting wheel,

(b) moving means for bringing at least one layer of ceramic green sheet underneath said at least one slitting wheel, wherein at least a portion of said at least one layer of ceramic green sheet is slit by said at least one slitting wheel.
 (c) wherein said apparatus has at least one back-up roller which provides a counter-pressure to said at least one layer of said ceramic green sheet when said at least one layer of said ceramic green sheet is slit by said at least one slitting wheel, and
 (d) wherein said slitting mechanism is inside an oven and secured thereto.

5,670,190

VALVE PIN ACTUATION SYSTEM FOR AN INJECTION NOZZLE

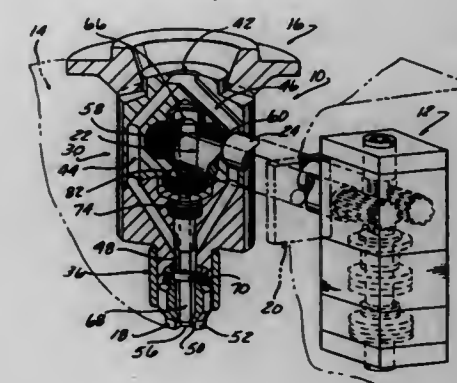
Jesus' M. Osuna-Diaz, 908 Ravine Terrace Ct., Rochester Hills, Mich. 48307

Filed Aug. 10, 1995, Ser. No. 513,353

Int. Cl.⁶ B29C 45/23

U.S. Cl. 425—564

7 Claims



5,670,188 APPARATUS FOR SINGLE-SIDED, COLD MECHANICAL KNURLING

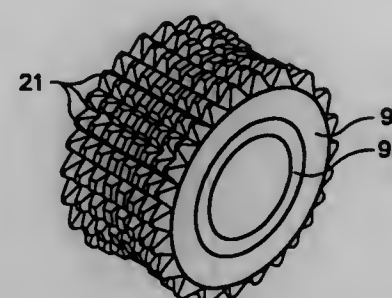
Daniel R. May, W. Henrietta; Kevin A. Cole, Ontario; Sharon A. Guzman, Kent, and John J. Zeller, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 19, 1994, Ser. No. 359,129

Int. Cl.⁶ B28B 11/08; B29C 59/04

U.S. Cl. 425—363

5 Claims



1. An apparatus for hurling the edges of a film support web, said apparatus comprising:

(a) a first knurl wheel, said first knurl wheel having a plurality of teeth extending therefrom, each of said plurality of teeth terminating at an apex;
 (b) a second knurl wheel forming a nip with said first knurl wheel, said second knurl wheel having a pair of side edges and a center between said side edges, said second knurl wheel having a plurality of truncated teeth extending therefrom, each of said truncated teeth terminating at a plateau, said truncated teeth proximate said center having a reduced height relative to said truncated teeth proximate said side edges, said plateaus forming a circumferential depression on said second knurl wheel.

1. An injection molding apparatus including an injection nozzle having a nozzle body defining a gate through which melt is injected into a mold cavity, a shut off valve pin axially movable within said nozzle body, said valve pin having a tip at one end adapted to be moved to be disposed within the gate of said injection nozzle to close said gate, and moved to be withdrawn from said gate to open said gate;

gearing means drivingly engaged with the opposite end of said valve pin to enable driving of said valve pin axially between said open and closed positions;

said gearing means enclosed within a gearing cavity in said nozzle body;

actuator means for operating said gearing means to cause said valve pin to be moved axially to open or close said mold gate;

said gearing means comprising a set of gear teeth formed on opposite sides of said opposite end of said valve pin and a first pair of pinion gears each engaged with a seat of gear teeth on a respective side of said valve pin, said actuator means enabling oscillation of said pinion gears in opposite directions to axially drive said valve pin in opposite directions.

5,670,191

ALIPHATIC AMIDE FEED SUPPLEMENT FOR RUMINANTS

Kenneth R. Cummings, Skillman, and Ronald L. Forrest, Cranbury, both of N.J., assignors to Church & Dwight Co., Inc., Princeton, N.J.

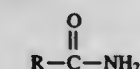
Filed Sep. 26, 1995, Ser. No. 534,066

Int. Cl.⁶ C07C 231/00; A61K 31/95; A23K 1/00; A23D 7/005

U.S. Cl. 426—2

12 Claims

1. A method for increasing the amount of unsaturated fatty acids in the tissues and milk of ruminants which comprises feeding a ruminant with a feedstock containing an unsaturated aliphatic amide supplement ingredient which is resistant to biohydrogenation in the rumen, wherein the aliphatic amide corresponds to the formula:



where R is an unsaturated C₁₁-C₂₁ aliphatic substituent.

5,670,189

COMPRESSION MOLDING TWO OR MORE POLYTETRAFLUOROETHYLENE RESIN LAYERS TO FORM A PRESSURE PAD

Robert E. Dalton, 435 Cherry Brook Rd., Canton Center, Conn. 06020, and Myron A. Rudner, 58 Rock Hill Rd., Woodbridge, Conn. 06525

Division of Ser. No. 79,163, Jun. 18, 1993, Pat. No. 5,399,307. This application Dec. 5, 1994, Ser. No. 349,392

Int. Cl.⁶ B29C 39/16

U.S. Cl. 425—371

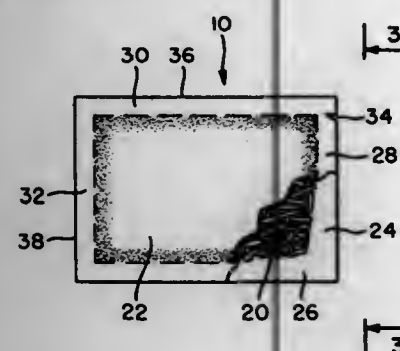
14 Claims

1. A pressure pad for use in a particleboard manufacturing apparatus comprising sheet of compression molded PTFE having a sliding surface comprised of a layer of virgin PTFE and a second layer comprised of layer of filled PTFE bonded together by partially compressing the first layer at a partial compression pressure less than 14.7 psi, and then compression and sintering both layers within a mold.

5,670,192
METHOD FOR PRODUCTION OF A NON ACIDIFIED EDIBLE GEL ON MILK BASIS
 Gitte Budolfson, Frederiksberg, and Per Munk Nielsen, Hillerød, both of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark
 PCT No. PCT/DK94/00110, § 371 Date May 23, 1995, § 102(e) Date May 23, 1995, PCT Pub. No. WO94/21130, PCT Pub. Date Sep. 29, 1994
 PCT Filed Mar. 18, 1994, Ser. No. 436,442
 Claims priority, application Denmark, Mar. 19, 1993, 0311/93

Int. Cl.⁶ A23C 9/12
 U.S. Cl. 426—34
 8 Claims
 1. A method for production of a non-acidified edible gel on milk basis, comprising:
 (a) adding a transglutaminase to milk or a milk-like product;
 (b) incubating the transglutaminase-containing milk product of step (a);
 (c) adding a rennet to the transglutaminase-containing milk or milk-like product of step (b); and
 (d) exposing the transglutaminase and the rennet-containing milk or milk-like product of step (c) to a heat treatment, and wherein an edible milk or milk-like gel is produced.

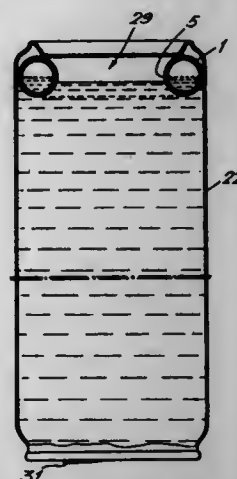
5,670,193
SAUERKRAUT IN SINGLE-SERVING PACKAGE AND PROCESSING METHOD
 Charles Vreugde, East Farmingdale, N.Y., assignor to Chasu Foods Inc., East Farmingdale, N.Y.
 Filed Dec. 1, 1995, Ser. No. 565,979
 Int. Cl.⁶ A23L 1/218; B65D 29/00; 25/04
 U.S. Cl. 426—106
 12 Claims



1. A single-serving package of sauerkraut comprising:
 a pair of flexible panel members each having marginal portions;
 fastening means joining said marginal portions of said pair of panel members thereby forming a sealed hollow package;
 a preselected quantity of brine-free sauerkraut disposed in said sealed package; and
 a preselected quantity of vegetable oil mixed with said sauerkraut and disposed in said sealed package, said vegetable oil being present in the package in an amount sufficient to both eliminate the clogging of the machinery used to fill the package and to allow the sauerkraut to be squeezed easily and quickly out of the package after the package is opened.

5,670,194
BEVERAGE CONTAINER HAVING INTERIOR SECONDARY CHAMBER FOR FOAM GENERATION AND METHOD FOR PRODUCING SAME
 Graham Fuller, Bedford; Anthony John Banks, Birmingham, and Raymond Gale Anderson, Staffordshire, all of England, assignors to Carlsberg-Tetley Brewing Limited, Burton-on-Trent, England
 PCT No. PCT/GB93/01253, § 371 Date Mar. 9, 1995, § 102(e) Date Mar. 9, 1995, PCT Pub. No. WO93/25452, PCT Pub. Date Dec. 23, 1993
 PCT Filed Jun. 14, 1993, Ser. No. 351,339
 Claims priority, application United Kingdom, Jun. 12, 1992, 9212464

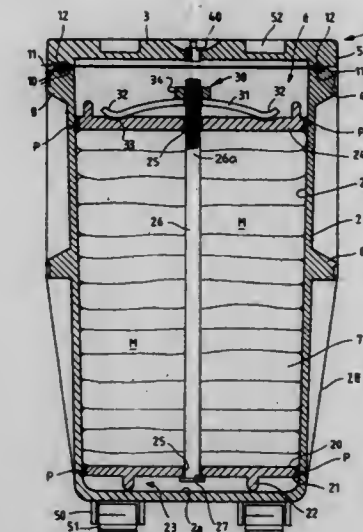
Int. Cl.⁶ B65B 31/00; 17/00; 25/00; B28B 5/00
 U.S. Cl. 426—112
 19 Claims



1. A cylindrical container of beverage sealed under pressure, the container having means defining a secondary chamber in the form of a hollow insert adapted to store a gas therewithin and forming an orifice therein, the insert having means for providing a flow of the gas through the orifice into the beverage when the container is opened, wherein the insert is in the form of an elongated tubular member whose axis extends around a central axis of the container.

5,670,195
METHOD AND APPARATUS FOR STORING AND AGING MEAT
 Roger Keith Palmer, Papakura, New Zealand, assignor to Tenderland Limited, Papakura, New Zealand
 PCT No. PCT/NZ93/00048, § 371 Date Dec. 9, 1994, § 102(e) Date Dec. 9, 1994, PCT Pub. No. WO93/25082, PCT Pub. Date Dec. 23, 1993
 PCT Filed Jun. 11, 1993, Ser. No. 351,297
 Int. Cl.⁶ B65D 85/00
 U.S. Cl. 426—129
 8 Claims

1. A method of storing and aging meat which comprises the following sequence of steps:
 placing said meat on a lower support portion positioned inside a container, engaging an upper support portion on said meat placed on said lower support portion; said upper support portion being linked to said lower support portion, compressing said meat placed in between said lower and upper support portions by tightening a compression means attached to said upper support portion; said compressing step serving to expel excess weepage or drip and air containing free oxygen from within said meat to a region spaced from said meat,
 placing a lid on said container
 reducing the amount of free oxygen gas that is present contiguous to the meat within said container by applying a vacuum through a valve thereto and then flushing with a gas through said valve, wherein the surface of the meat is protected from direct contact with the vacuum and the flushing gas, and



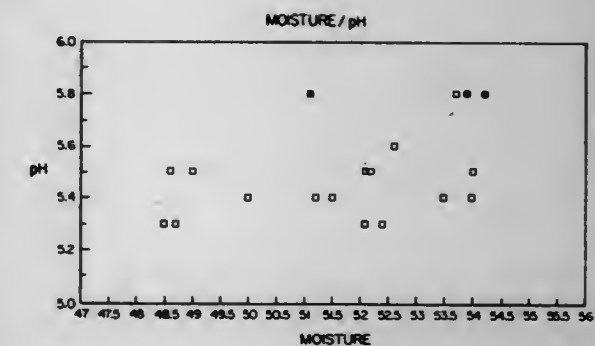
holding said meat under compression between said upper and lower portions for a period of time within a predetermined temperature range and maintaining said compression on the meat during storage and aging.

5,670,196
METHOD FOR MICROFILTRATION OF MILK OR COLOSTRAL WHEY
 Antoné G. Gregory, Vadnais Heights, Minn., assignor to GalaGen Inc., Arden Hills, Minn.
 Continuation of Ser. No. 422,493, Apr. 12, 1995, abandoned.
 This application Jul. 26, 1996, Ser. No. 687,772
 Int. Cl.⁶ A23C 7/04
 U.S. Cl. 426—580
 11 Claims

1. A method of preparing a whey product fortified with immunoglobulins comprising the steps of:
 (a) Collecting milk or milk serum from a mammal;
 (b) Centrifuging the milk or milk serum to remove fat;
 (c) Acidifying the remaining skim milk or milk serum to precipitate casein from the milk or milk serum, followed by removal of the casein by centrifugation; and
 (d) Microfiltering the supernatant milk or milk serum using a charged depth filter to reduce bioburden with immunoglobulin recovery of about 90% or greater.

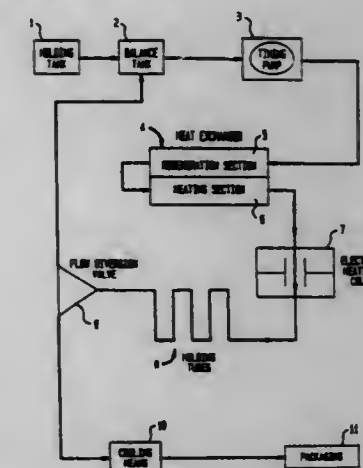
5,670,197
LOW-ACID, HIGH-MOISTURE PROCESSED CHEESE SPREAD AND METHOD OF MAKING
 Tim M. Adrianson, Oak Ridge; Alpheus I. Brown, Jr., Randolph; G. Curtis Busk, Jr., Rockaway, all of N.J.; Stephen A. Gunther, Bethlehem, Pa.; Karen D. Huether, Succasunna, N.J.; Joseph W. Mann, Escondido, Calif., and James K. Yoss, Denville, N.J., assignors to Nabisco, Inc., Parsippany, N.J.
 Filed Sep. 29, 1995, Ser. No. 536,406
 Int. Cl.⁶ A23C 19/10
 U.S. Cl. 426—582
 20 Claims

1. A method for preserving a high-moisture, high-pH, shelf-stable spread composition containing cheese comprising adding to the formulation a preservation system comprising sodium chloride, at least about 0.6% of a phosphate salt, sodium citrate, and sodium lactate in sufficient amounts relative to one another to maintain the composition free from the growth of *Clostridium botulinum* and the production of toxin by those organisms during room temperature storage for a period of at least 180 days, and



adjusting the water content so that the total moisture in the final composition ranges from about 51% to about 58% and adjusting the pH from about 5.3 to about 6.0.

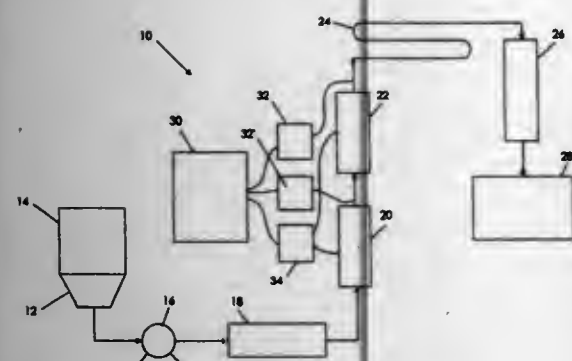
5,670,198
METHOD FOR RAPIDLY COOLING LIQUID EGG
 David Reznik, 2151 Barbara Dr., Palo Alto, Calif. 94303, and Aloysius Knipper, 227 Cypaw Dr., Ringwood, N.J. 07456
 Division of Ser. No. 401,029, Mar. 8, 1995, Pat. No. 5,533,441, which is a division of Ser. No. 192,457, Feb. 7, 1994, abandoned, which is a division of Ser. No. 862,198, Apr. 2, 1992, Pat. No. 5,290,583. This application Aug. 10, 1995, Ser. No. 513,551
 Int. Cl.⁶ A23L 1/32
 U.S. Cl. 426—614
 3 Claims



1. A method of rapidly cooling hot pasteurized liquid egg comprising the steps of intermixing hot pasteurized liquid egg with cold pasteurized liquid egg in a ratio sufficient to lower the temperature of said hot pasteurized liquid egg, said hot and cold pasteurized liquid egg having substantially the same liquid egg components in substantially the same proportions.

5,670,199
METHOD FOR PASTEURIZING LIQUID WHOLE EGG PRODUCTS
 Kenneth R. Swartzel, and Sevugan Palaniappan, both of Raleigh, N.C., assignors to North Carolina State University, Raleigh, N.C.
 Continuation of Ser. No. 370,228, Jan. 9, 1995, abandoned, which is a continuation of Ser. No. 862,862, Apr. 3, 1992, abandoned. This application Jul. 26, 1996, Ser. No. 686,509
 Int. Cl.⁶ A23L 1/32
 U.S. Cl. 426—614
 13 Claims

1. A process of ultrapasteurizing a liquid whole egg product, comprising:



passing the liquid whole egg product as a continuous product stream through a pasteurizing apparatus, and heating said product stream to a first temperature of at least 40° C. by contacting said product stream to a heated surface, and then

heating said product stream to a second temperature higher than said first temperature in an electroconductive heater containing an alternating current electrical heating means for providing an electrical voltage and current to said product stream therein, wherein said second temperature is not more than 15° C. higher than said first temperature; and then

holding the product stream for a holding time at least sufficient to provide a total thermal treatment to the liquid whole egg product sufficient to pasteurize the product; and then aseptically packaging said liquid whole egg product to provide a packaged liquid whole egg product having a shelf life of four to thirty-six weeks under refrigerated conditions;

wherein said electroconductive heater is controlled to compensate for conductivity changes in said liquid whole egg product caused by heating to thereby control the rate of temperature change of said liquid whole egg product;

and wherein said electroconductive heater is capable of compensating for changes in the conductivity of said liquid whole egg product therein of up to about 4 siemens/meter.

5,670,200

CHERRY-CONTAINING MEAT PRODUCT AND METHOD OF MAKING THE SAME

Raymond M. Pleva, 9101 S. Lake Shore Dr., Cedar, Mich. 49621

Continuation-in-part of Ser. No. 402,144, Mar. 10, 1995, Pat. No. 5,503,867, which is a continuation-in-part of Ser. No. 225,435, Apr. 8, 1994, abandoned, which is a continuation of Ser. No. 983,897, Dec. 1, 1992, abandoned. This application Mar. 29, 1996, Ser. No. 624,293

Int. Cl.⁶ A23L 1/317

U.S. Cl. 426—646

13 Claims

1. A comminuted meat mixture including by weight 100 parts of ground lean meat, 8 to 17 parts of at least one cherry product selected from the group consisting of cherries, ground cherries, and a blend of cherry tissue and cherry juice, 2 to 3 parts of oat bran, common salt, and seasoning, wherein the amount of said at least one cherry product is sufficient to extend the shelf life of the mixture by resisting lipid oxidation thereof and to enhance the tenderness and juiciness of the mixture upon cooking thereof, without overpowering the flavor of the meat.

5,670,201

LOW ALLERGENIC NUTRIENT COMPOSITION AND METHOD OF USING SAME

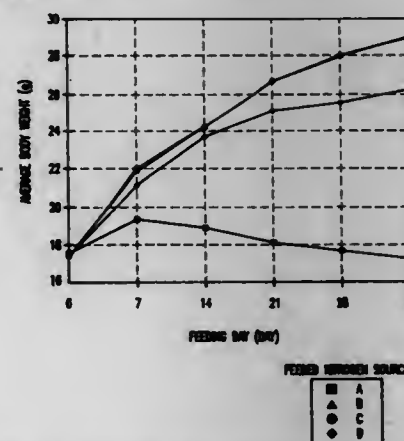
Nobuaki Takahashi, Kawagoe; Sadao Asakawa, Tokyo; Shun-ichi Dousako, Urawa, and Tadashi Idota, Kawagoe, all of Japan, assignors to Snow Brand Milk Co., Ltd., Sapporo, Japan

Continuation-in-part of Ser. No. 234,621, Apr. 28, 1994, abandoned. This application Jul. 21, 1995, Ser. No. 505,451 Claims priority, application Japan, Jun. 21, 1995, 7-177235/1991

Int. Cl.⁶ A23L 1/305

U.S. Cl. 426—648

2 Claims



1. A method of providing a low allergenic nutrient composition, comprising the steps of:

preparing a composition which includes 70–85% by weight of Kappa-casein glycomacropeptide as a primary source of nitrogen;

said composition including 30–15% by weight of at least one member selected from the group consisting of L-leucine, L-lysine, methionine, L-cysteine, phenylalanine, L-tyrosine, L-tryptophan, L-arginine, L-histidine, L-valine, L-isoleucine, and glycine; and

providing said composition to a person susceptible to allergenic reactions.

5,670,202

METHOD AND SYSTEM FOR SPRAYING MATERIAL IN A SPRAY PATTERN HAVING A VARIABLE FORM AND COLLECTING EXCESS MATERIAL

Raymond J. Guzowski, Fenton, and David W. Lazar, Troy, both of Mich., assignors to FANUC Robotics North America, Inc., Auburn Hills, Mich.

Division of Ser. No. 270,007, Jul. 1, 1994, Pat. No. 5,536,315. This application Jan. 16, 1996, Ser. No. 585,883

Int. Cl.⁶ B05D 1/02; 1/32

U.S. Cl. 427—8

18 Claims

1. A method for spraying a material in a spray pattern having a variable form, the method comprising the steps of:

a. providing a material supply means for supplying a material which is a fluid;

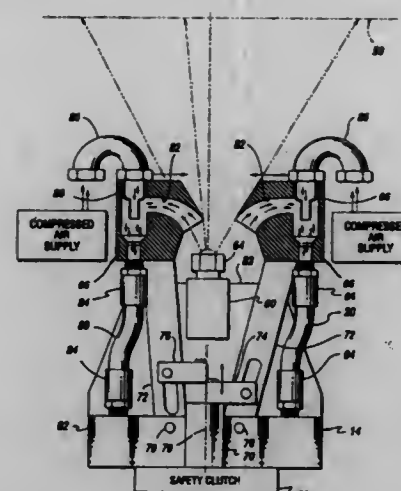
b. providing a material spray means for spraying the material from the material supply means along a spray path in a spray pattern having an initial width at a workpiece position spaced from the material spray means along the spray path;

c. providing a masking means for obstructing a selected portion of the spray path;

d. operating the material spray means to spray the material along the spray path in the spray pattern;

e. generating a first set of control signals for moving the masking means to obtain a desired width of the spray pattern at the workpiece position; and

f. moving the masking means relative to the spray path in response to the first set of control signals to obstruct a



selected portion of the spray path of the material to reduce the initial width of the spray pattern to the desired width at the workpiece position.

5,670,203

PROCESS FOR POTTING COMPONENTS IN AN IMPREGNATING COMPOUND

Josef Terhardt, Rhode-Vardingholt; Peter Ringer, Bocholt, both of Germany, and Dieter Baumann, Mohlin, Switzerland, assignors to Ver-Fahrenstechnik Hubers GmbH, Bocholt, and Ciba-Geigy Aktiengesellschaft, Basel, Switzerland

PCT No. PCT/EP93/00663, § 371 Date Dec. 9, 1994, § 102(e) Date Dec. 9, 1994, PCT Pub. No. WO93/19919, PCT Pub. Date Oct. 14, 1993

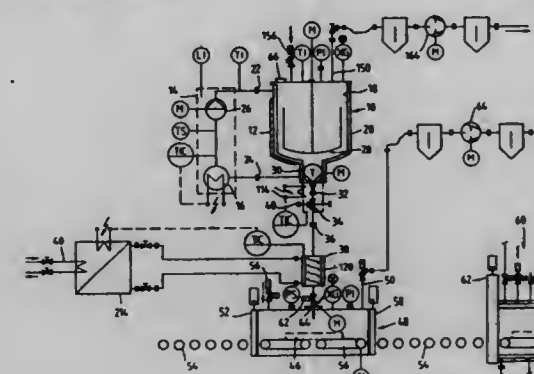
PCT Filed Mar. 19, 1993, Ser. No. 307,819

Claims priority, application Germany, Mar. 28, 1992, 42 10 241.3

Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—58

16 Claims



1. Method of pottling and subsequent curing of one or a plurality of components with an impregnating composition which does not cure at room temperature, but cures within less than 30 minutes at a temperature above 60° C., comprising the steps of:

a) Introducing a component or a pallet of a plurality of components into a potting chamber,

b) Evacuating the potting chamber,

c) Potting said component or plurality of components in the composition under vacuum,

d) Venting the potting chamber,

e) Removing said component or plurality of components and placing them in an airlock forechamber of a curing oven having an airlock forechamber, a main chamber and an airlock exit chamber,

f) Closing the curing oven airlock forechamber and evacuating it,

g) Opening said airlock forechamber to the oven main chamber, introducing the component or plurality of components into said main chamber, and then closing said main chamber,

h) Passing the component or plurality of components through the oven main chamber,

i) Opening the oven main chamber to the oven airlock exit chamber and passing the component or plurality of components out of the oven main chamber into the oven airlock exit chamber and closing the oven airlock exit chamber,

j) Venting the oven airlock exit chamber and removing the component or plurality of components from the oven airlock exit chamber.

5,670,204

NB—SN PRECURSORS HAVING CONTROLLED IMPURITIES AND METHOD OF MAKING

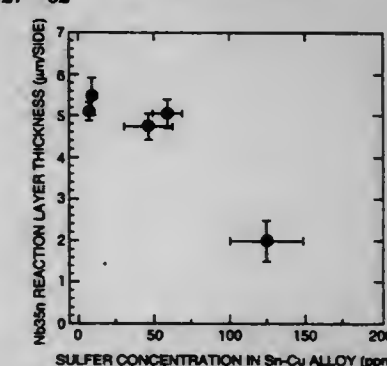
Melissa Lea Murray, Schaghticoke; Bruce Alan Knudsen, Amsterdam, both of N.Y.; Christopher Gus King, Florence, S.C.; Mark Gilbert Benz, Burnt Hills; Robert John Zabala, Schenectady, both of N.Y., and Anthony Mantone, Florence, S.C., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 26, 1995, Ser. No. 494,743

Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—62

14 Claims



1. A method for making a Nb—Sn precursor article, the method comprising the steps of:

selecting a Nb alloy article having an outer surface; and coating at least a portion of the outer surface of the Nb alloy article with a layer of a Sn alloy having an impurity element selected from the group consisting of S and As, wherein the maximum concentration of each impurity is less than or equal to about 50 ppm by weight.

5,670,205

COLOR FILTER MANUFACTURING METHOD AND APPARATUS, COLOR FILTER, LIQUID CRYSTAL DISPLAY DEVICE, AND APPARATUS HAVING LIQUID CRYSTAL DISPLAY APPARATUS

Takeshi Miyazaki, Ebina; Hiroshi Sato, Yokohama; Katsuhiko Shirota, Inagi; Hideto Yokoi; Akio Kashiwazaki, both of Yokohama, and Shoji Shiba, Sagami, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 29, 1995, Ser. No. 412,577

Claims priority, application Japan, Mar. 31, 1994, 6-063412; Mar. 16, 1995, 7-057224

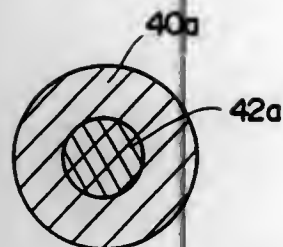
Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—64

14 Claims

1. A manufacturing method for a color filter manufactured by forming and arranging colored filter elements on a transparent substrate, comprising:

a first discharge step of discharging a colored droplet of a first volume onto each of a plurality of filter element formation regions on the substrate so as to form each of the filter elements; and



a second discharge step of discharging a colored droplet of a second volume smaller than the first volume onto a position on the substrate where the colored droplet of the first volume has been discharged, wherein the diameter of an ink dot formed at said first discharge step and the diameter of an ink dot formed at said second discharge step are substantially equal.

5,670,206 DEODORIZING LAMP AND METHOD FOR PRODUCTION THEREOF

Hiroshi Taoda, Nagoya, and Elji Watanabe, Aichi-ken, both of Japan, assignors to Agency of Industrial Science & Technology, Ministry of International Trade & Industry, Tokyo, Japan

Division of Ser. No. 215,627, Mar. 22, 1994, abandoned. This application Aug. 17, 1995, Ser. No. 516,023

Claims priority, application Japan, Apr. 19, 1993, 5-115439 Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—106

15 Claims

1. A method for the production of a deodorizing lamp comprising, applying a titania-containing liquid to a glass surface of a lamp unit, then drying the applied titania-containing liquid to form a dried layer, subsequently firing the dried layer, and depositing on the surface of the fired dried layer a metal film comprising at least one metal selected from the group consisting of iron, platinum, rhodium, ruthenium, palladium, silver, copper, zinc and manganese,

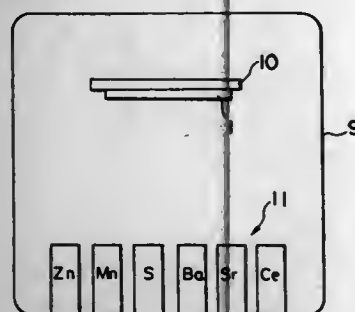
wherein said fired dried layer is a transparent film.

5,670,207
FORMING A THIN-FILM EL ELEMENT
Takashi Nire, Hiratsuka, and Atsushi Miyakoshi, Himeji, both of Japan, assignors to Komatsu Ltd., Tokyo, Japan
Division of Ser. No. 325,195, Oct. 28, 1994. This application Jan. 30, 1996, Ser. No. 594,262

Claims priority, application Japan, Apr. 16, 1992, 4-121137 Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—126.2

13 Claims



1. A process for forming a thin-film EL element which comprises:
forming a first electrode layer on a substrate,
forming a first insulator layer on said first electrode layer, thereby forming an initial laminate,

utilizing one of a Multi-Source Deposition Method and a Chemical Vapor Deposition Method to expose a surface of said first insulator layer of said initial laminate in a vacuum chamber to vapors of chemical elements to be chemically bonded to said surface of said first insulator layer to form a first polycrystalline light emitting layer, and

utilizing one of a Multi-Source Deposition Method and a Chemical Vapor Deposition Method to supply onto a surface of said first light emitting layer, while said surface of said first light emitting layer is exposed in a vacuum chamber, vapors of chemical elements to be chemically bonded to said surface of said first light emitting layer to form a second polycrystalline light emitting layer by epitaxial growth on said surface of said first light emitting layer,

wherein each of said first and second polycrystalline light emitting layers comprises a base material and is capable of emitting light, with the base material of said first polycrystalline light emitting layer being different from the base material of said second polycrystalline light emitting layer and with the color of light emitted by said first polycrystalline light emitting layer being different from the color of light emitted by said second polycrystalline light emitting layer;

wherein the step of supplying vapors of chemical elements onto a surface of said first insulator layer comprises supplying vapors of Zn and S, and wherein the step of supplying vapors of chemical elements onto a surface of said first polycrystalline light emitting layer comprises supplying vapors of Ba, Sr, and S.

5,670,208 PC STAND COATED WITH RUST INHIBITOR AND METHOD THEREOF

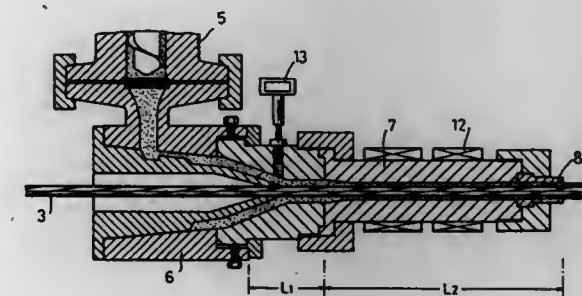
Kazuyoshi Chikiri, Fukuchiyama, and Yukihiro Higashi, Sakai, both of Japan, assignors to Hien Electric Industries, Osaka, and Times Eng., Ltd., Tokyo, both of Japan

Continuation of Ser. No. 44,028, Apr. 8, 1993, abandoned. This application Dec. 12, 1994, Ser. No. 354,263

Claims priority, application Japan, Feb. 3, 1993, 5-037331 Int. Cl.⁶ B05D 3/12; D01D 5/00

U.S. Cl. 427—177

5 Claims



1. A method of producing a precast strand entirely coated with rust inhibitive material, which comprises twisting a plurality of peripheral wires about a core to form a strand, introducing said strand into an extruding machine while heating said strand, and extruding a rust inhibitive material of thermoplastic resin from a molding die disposed on a leading end of an auxiliary pressure head connected to a cross head of said extruding machine while melting said rust inhibitive material with heat to subject said rust inhibitive material to a internal resin pressure of at least 100 kgf/cm², so as to form a rust inhibitive layer being in contact with the core and peripheral wires, wherein the cross head of the extruding machine has a length L1 and the auxiliary pressure head has a length L2, the length L2 being at least three times greater than the length L1.

5,670,209 HIGH BRIGHTNESS DURABLE RETRO-REFLECTING MICROSPHERES AND METHOD OF MAKING THE SAME

Charles W. Wyckoff, Needham, Mass., assignor to Brite-Line Technologies, Inc., Canton, Mass.

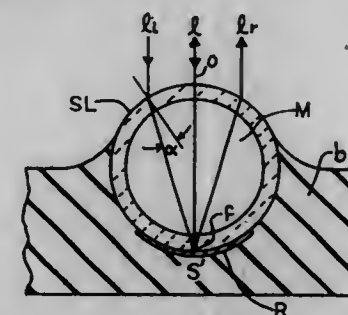
Division of Ser. No. 428,801, Apr. 24, 1995, Pat. No. 5,576,097.

This application Jan. 23, 1996, Ser. No. 589,929

Int. Cl.⁶ B05D 7/00; E01F 9/00; G02B 5/128

U.S. Cl. 427—215

8 Claims



1. A method of imbuing retro-reflective vitreous glass microspheres with increased surface protection and hardness and without substantially impairing the retro-reflective brightness thereof, that comprises, encapsulating the vitreous glass microsphere by layering thereabout with a non-vitreous clear metal-oxide-derived ceramic sol-gel; controlling the encapsulating thickness and hardening the same into a clear ceramic shell surrounding and adhered to the microsphere, with the thickness controlled to such degree as to permit the focusing of incident light entering the front surface of the microsphere, through the adjacent portion of the shell, thereby to enable retro-reflection brightness substantially the same as before the encapsulation.

5,670,210 METHOD OF UNIFORMLY COATING A SUBSTRATE

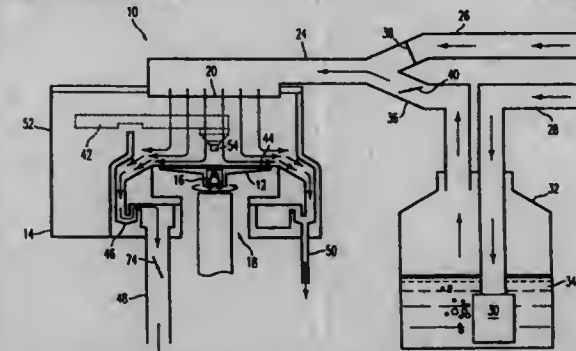
Robert P. Mandal, Saratoga; James C. Grambow, San Jose; Ted C. Bettes, Newark; Donald R. Sauer, San Jose; Emr Gurur, Sunnyvale, and Edmond R. Ward, Monte Sereno, all of Calif., assignors to Silicon Valley Group, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 330,045, Oct. 27, 1994. This application Dec. 1, 1995, Ser. No. 566,227

Int. Cl.⁶ B05D 3/12

U.S. Cl. 427—240

4 Claims



1. A method of coating a surface of a substrate with a polymer solution using an apparatus including an enclosed housing; a rotatable chuck mounted in the housing for supporting the substrate; a depositing means for depositing the polymer solution onto the surface of the substrate in the housing; a control gas supply means connected in flow communication with the housing for supplying a control gas to the housing, the control gas supply means comprising a control gas supply conduit communicating with the housing by means of an inlet, a solvent-bearing gas supply conduit and solvent-free gas supply conduit communicating with the control gas supply conduit, and gas control valve means

associated with the solvent-bearing gas supply conduit and the solvent-free gas supply conduit for controlling the rate of gas flowing from the solvent-bearing gas supply conduit and from the solvent-free gas supply conduit into the control gas conduit to control the composition of solvent vapor in the control gas; and an exhaust means connected to the housing for exhausting the control gas and any solvent vapor and particulate contaminants from the housing, wherein the method comprises the steps of:

- (a) mounting the substrate inside the enclosed housing;
- (b) passing a control gas into the housing through the inlet;
- (c) depositing the polymer solution onto the surface of the substrate in the housing; and
- (d) providing a desired concentration of solvent vapor in the control gas to control the evaporation rate of solvent from the polymer solution, the desired concentration of solvent vapor being provided by adjusting the gas control valve means to provide a ratio of solvent-bearing gas and solvent-free gas which gives said desired concentration.

5,670,211 METHOD FOR APPLYING LIQUID TO SHEET MATERIAL

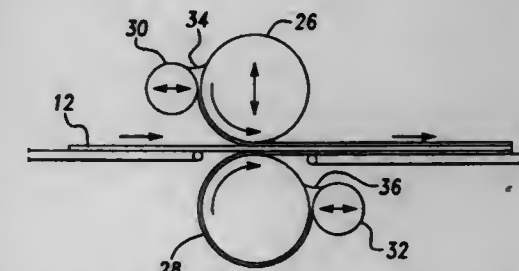
Kenneth G. Huber, Grand Blanc; Richard P. Doerer, Gross Pointe, and Normand R. Marceau, Fenton, all of Mich., assignors to Hoover Universal, Inc., Plymouth, Mich.

Filed Sep. 14, 1995, Ser. No. 528,099

Int. Cl.⁶ B05D 5/00

U.S. Cl. 427—244

6 Claims



1. A method of applying a two-component liquid composition to sheet material comprising the steps of:

- a) applying the first component of the liquid composition to the sheet material by roll coating the first liquid component onto the sheet material, wherein the first component is a polyurethane adhesive comprising from about 75% to about 95% by weight of the liquid composition; and
- b) applying the second component of the liquid composition to the sheet material by spraying the second liquid component onto the sheet material, wherein the second component is a polyurethane catalyst comprising from about 5% to about 25% by weight of the liquid composition.

5,670,212 CVD METHOD OF PROVIDING A FILM OF CONJUGATED, SUBSTITUTED OR UNSUBSTITUTED POLY(P-PHENYLENE VINYLENE) ON A SUBSTRATE

Aemilianus G. J. Staring; Dirk J. Broer, and Robert J. C. E. Demandt, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 17, 1995, Ser. No. 442,849

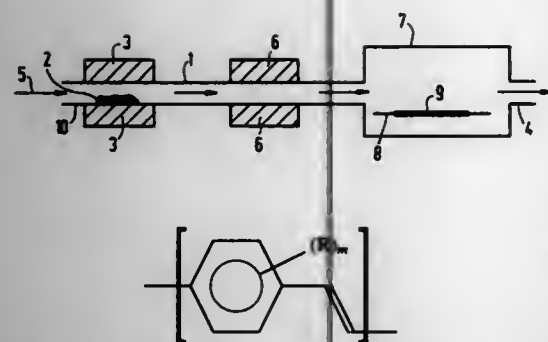
Claims priority, application European Pat. Off., May 18, 1994, 94201406

Int. Cl.⁶ C23C 16/00

U.S. Cl. 427—255.6

20 Claims

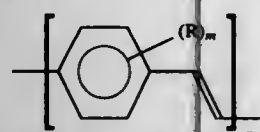
1. A method of depositing a film of conjugated, substituted or unsubstituted poly(p-phenylene vinylene) on a substrate by chemical vapour deposition (CVD), characterized in that the polymer has the following formula



wherein R is selected from the group formed by H, a C₁-C₅ alkyl group or alkoxy group and CN, wherein m=1 to 4 and n=10 to 100,000,

said method comprising the following successive steps:

a. evaporating at least one monomeric compound of the formula



wherein R¹ and R² represent a halogen atom and R and m have the above-mentioned meaning, in a first thermal zone at a temperature of from approximately 50° C. to approximately 250° C.,

b. transporting the evaporated monomeric compound through a second thermal zone at a temperature of from approximately 500° C. to approximately 900° C., thereby forming a conjugated precursor,

c. transporting the precursor of step b. to a third thermal zone in which the substrate is placed at a temperature below 500° C., thereby forming the film of the polymer of formula (I) on the substrate.

5,670,213

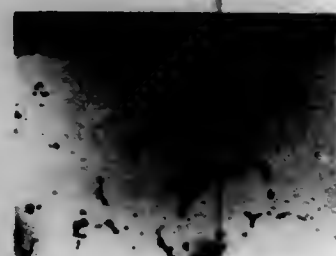
PROCESS FOR INCREASING TORQUE GENERATED BY A CLUTCH

Richard L. Blair, Carrollton, Tex., assignor to Hilite Industries, Inc., Carrollton, Tex.

Filed Mar. 14, 1995, Ser. No. 404,308
Int. Cl.⁶ B05D 3/02

U.S. Cl. 427—318

19 Claims



500X

Treated lock-up collar-clutch disc depicting powder metallurgy part pores (dark) and absence of any measurable coating at this magnification.

1. A process for increasing the torque of metallic surfaces that engage, comprising:
applying a film lubricant composition onto the engagement surfaces of the clutch, said film lubricant composition comprises a sulfate, an alkali metal silicate and a phosphate; and engaging the surfaces thereby increasing the torque of the metallic surfaces,
wherein the film lubricant is an anti-galling composition comprised of the following components:

alkali-hydroxide	5-20% by weight
alkali sulfate	0.5-5%
alkali phosphate	5-20%
alkali silicate	5-20%
a polymeric water soluble material	5-15%
water	40-60%
	100%

5,670,214

METHOD FOR COATING A THIN LAYER ON A SUBSTRATE HAVING A ROUGH SURFACE

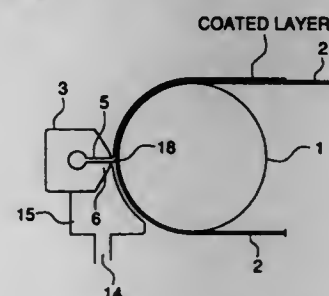
Atsushi Saito, and Ichiro Miyagawa, both of Hino, Japan, assignors to Konica Corporation, Japan

Filed Dec. 8, 1995, Ser. No. 569,657

Claims priority, application Japan, Dec. 16, 1994, 6-313317
Int. Cl.⁶ B05D 1/26

U.S. Cl. 427—356

11 Claims



1. A method of extrusion coating or slide coating a substrate comprising
(a) conveying a substrate having a surface with a center-line average roughness Ra of not less than 0.3 μm, and
(b) coating said surface during said conveying with a coating solution under conditions satisfying Formula 1 and Formula 2;

Formula 1	Formula 2
$Ca = \mu \cdot U / \sigma$	$Ca \leq 0.3$

wherein Ca is a capillary number, U represents a substrate conveyance speed in cm/sec, μ represents a viscosity of said coating solution in dyn-sec/cm², and σ is a surface tension of said coating solution in dyn/cm.

5,670,215

COMPOSITION AND METHOD FOR PROTECTIVE COATING

Thomas W. Oakes, 10303 Centinella Dr., LaMesa, Calif. 91941
Continuation of Ser. No. 650,006, May 16, 1996, abandoned, which is a continuation of Ser. No. 562,755, Nov. 27, 1995, abandoned, which is a continuation of Ser. No. 27,696, Mar. 8, 1993, abandoned. This application Oct. 15, 1996, Ser. No. 731,522

Int. Cl.⁶ C09D 5/16; A01N 31/00

U.S. Cl. 427—385.5

11 Claims

1. A method of preventing fouling and corrosion by oxidation or electrolysis of a surface to be used in water, said method comprising the steps of:

(a) coating said surface with a non-pesticidal and non-biocidal coating composition comprised of (i) a polyol present in an amount of at least 45% by weight percent of the coating composition, and (ii) an isocyanate present in an amount of at least 20% by weight percent of the coating composition; and

(b) allowing said composition to cure; wherein said coating composition, after curing, is non-ablating and has a Shore A hardness of from about 80 to about 90.

5,670,216

COOKING UTENSIL, INTERMEDIATE LAYER FOR NON-STICK COATING OF A COOKING UTENSIL, AND METHOD

Albert Charley Oak, West Bend; Leonard C. Brumbaugh, Neenah, and Daryl E. Crawmer, Appleton, all of Wis., assignors to Regal Ware, Inc., Kewaskum, Wis.

Continuation-in-part of Ser. No. 121,113, Sep. 13, 1993, abandoned. This application Jul. 25, 1994, Ser. No. 280,024

Int. Cl.⁶ C23C 4/08

U.S. Cl. 427—455

14 Claims

1. A method for preparing a surface for application of a non-stick coating, the method in which the surface to be prepared for non-stick coating is thermally sprayed with a substantially Nickel free stainless steel alloy containing at most 23.5% Chromium and at most 6.0% Aluminum.

5,670,217

METHOD FOR CAPTURING AND REMOVING CONTAMINANT PARTICLES FROM AN INTERIOR REGION OF AN ION IMPLANTER

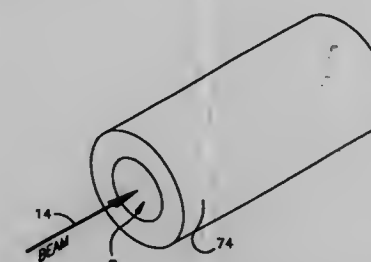
Julian G. Blake, Beverly Farms; Robert Becker, Danvers; David Chipman, Lynn; Mary Jones, Beverly; Lyudmila Menn, Marblehead; Frank Sinclair, Quincy, and Dale K. Stone, Haverhill, all of Mass., assignors to Eaton Corporation, Cleveland, Ohio

Division of Ser. No. 574,242, Dec. 18, 1995. This application Dec. 9, 1996, Ser. No. 762,320

Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—476

10 Claims



1. A method of capturing and removing contaminant particles moving within an evacuated interior region of an ion implanter wherein charged ions traverse an ion travel path in the evacuated interior region to treat a workpiece, the steps of the method comprising:

a) providing a particle collector having a particle adhering surface to which contaminant particles adhere;
b) securing the particle collector to the implanter such that the particle adhering surface of the collector is positioned within the evacuated interior region at a location near the ion travel path; and
c) removing the particle collector from the ion beam implanter at periodic time intervals to remove particles adhering to the collector from the evacuated interior region of the implanter.

5,670,218

METHOD FOR FORMING FERROELECTRIC THIN FILM AND APPARATUS THEREFOR

Yong Ku Baek, Kyongki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyongki-do, Rep. of Korea

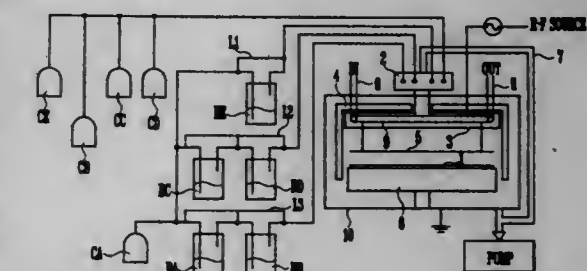
Filed Oct. 3, 1996, Ser. No. 729,676

Claims priority, application Rep. of Korea, Oct. 4, 1995, 95-33876; Oct. 4, 1995, 95-33877

Int. Cl.⁶ H05H 1/25

U.S. Cl. 427—576

19 Claims



1. A method for forming a ferroelectric thin film on a wafer, comprising the steps of:

inducing ferroelectric reactant materials consisting of plural elements into dissociation by exciting plasma with RF power; setting an optimal process condition in which the ions dissociated from said reactant materials by the excited plasma are subjected to deposition at high temperatures under low pressures;
supplying said reactant materials through conduits, a manifold and a shower head to a reactor without deterioration, said manifold collecting said reactant materials, said shower head serving to spray the mixed reactant materials; and depositing a ferroelectric thin film, on the wafer in said reactor while purging residual gas from the conduits.

5,670,219

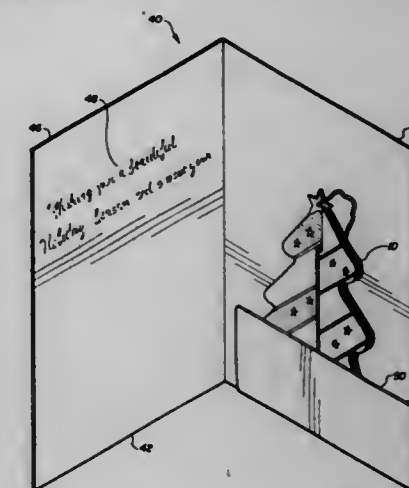
GREETING CARD AND ORNAMENT

Hong C. Na, 1313 Dolly Madison Blvd., McLean, Va. 22101
Continuation-in-part of Ser. No. 299,619, Sep. 2, 1994, abandoned. This application Jul. 31, 1995, Ser. No. 509,135

Int. Cl.⁶ B44C 3/00; B60R 13/00

U.S. Cl. 428—8

10 Claims



1. A combination of a greeting card and an ornament comprising:

a planar sheet of material folded to form a greeting card having a pocket, said pocket containing an ornament, said ornament including:
a first panel having an interior slot formed along a vertical centerline of said first panel and an eye located above the slot proximate a top of said first panel,

a second panel having a first notch extending from a top edge downwards along a vertical centerline of said second panel and a second notch extending from a bottom edge upwards along the vertical centerline of said second panel, said second panel inserted into the interior slot of said first panel to form a body.

5,670,220

INSULATION MATTS

Ralph Warwick Skoten, 53 Grove Road, Rosanna, Victoria 3084, Australia

Filed Mar. 9, 1994, Ser. No. 221,631

Claims priority, application Australia, Sep. 10, 1991, PK8277

Int. Cl.⁶ E04B 1/80

U.S. Cl. 428—12

21 Claims



1. An insulating batt comprising two sheets of heat reflective insulating material, and

connecting means provided between said sheets and connecting said sheets together in an overlapping, substantially parallel relationship; said connecting means enabling said batt to be adjusted between a collapsed position in which said sheets are closely adjacent, and an operative position in which said sheets are spaced from each other by said connecting means; wherein, said connecting means comprises:

(a) a plurality of substantially parallel, mutually spaced bracing strips extending between and connected to each of said sheets, each bracing strip having two substantially parallel longitudinal fold lines such that a bracing web is defined between said lines and a respective side margin extends from the bracing web beyond each fold line, each bracing strips having a respective side margin secured to each of said sheets such that the bracing web is substantially normal to and defines the spacing between the sheets when said batt is in its operative position and such that, on movement of the batt to its collapsed position, the bracing webs are substantially parallel to the sheets; and

(b) a plurality of partition strips of heat reflective insulating material, each of which extends longitudinally between the webs of successive bracing strips, each partition strip being folded along two substantially parallel fold lines such that a central partition web is defined between said fold lines and a respective side flange extends from the partition web beyond each of its fold lines, each partition strips having a respective side flange secured to each of the webs of said successive bracing strips, the width of the partition web substantially corresponding to the spacing between said successive bracing strips when said batt is in its operative position such that, on movement of the batt from its collapsed position to its operative position, each partition web is spaced from each of the sheets.

5,670,221

UNIVERSAL SOCKET FOR A FINIAL AND FINIAL INCORPORATING SUCH A SOCKET

David K. Bried, Loves Park, and James Daniels, Freeport, both of Ill., assignors to Newell Operating Company, Freeport, Ill.

Filed Mar. 31, 1995, Ser. No. 414,305

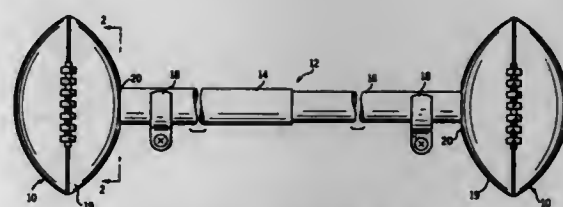
Int. Cl.⁶ B44F 11/00

U.S. Cl. 428—28

13 Claims

1. A socket for mounting a finial to first or second tubular structures, the first tubular structure having peripheral dimensions smaller than the peripheral dimensions of the second tubular structure, the socket comprising:

a first engagement surface configured to enter into the first tubular structure and to contact at least a portion of the first



tubular structure to retain the socket on the first tubular structure, the first engagement surface being tapered in a first direction to wedge into the first tubular structure; and a second engagement surface configured to at least partially surround the second tubular structure and to contact the second tubular structure to retain the socket on the second tubular structure, the second engagement surface being tapered in a second direction opposite to the first direction to wedge over the second tubular structure.

5,670,222

ATTACHMENT CONSTRUCTION FOR SHEET GLASS

Keisuke Tanaka, and Kiminari Sugiura, both of Osaka, Japan, assignors to Nippon Sheet Glass Co., Ltd., Osaka, Japan

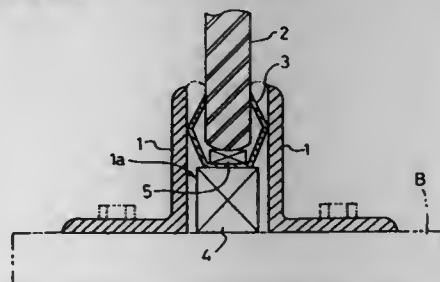
Filed Nov. 22, 1995, Ser. No. 561,981

Claims priority, application Japan, Dec. 1, 1994, 6-297734

Int. Cl.⁶ B32B 4/00

U.S. Cl. 428—34

9 Claims



1. An attachment construction for a sheet glass, which comprises:

a metal frame to be secured to a construction structure, a sheet glass being attached to the frame by fitting a peripheral edge of the sheet glass into the frame; a metal holder member disposed in direct contact with the peripheral edge of the sheet glass for holding the sheet glass; and the sheet glass being attached to the frame via the holder member placed in direct contact with the frame, whereby heat may be readily conducted from the glass to frame.

5,670,223

SUPPORT CORE RIBBON FOR COLD-SHRINK TUBE

James L. Sadlo, Round Rock, and Eugene J. Melancon, Austin, both of Tex., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 6, 1995, Ser. No. 384,516

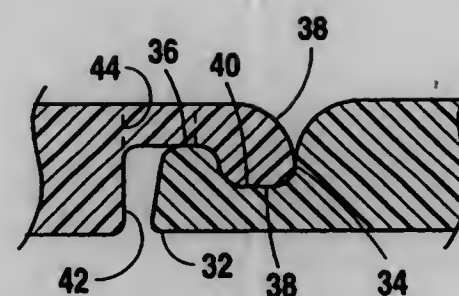
Int. Cl.⁶ F16L 11/00

U.S. Cl. 428—34.9

4 Claims

1. A ribbon having first and second major surfaces and first and second edges and adapted to be edge joined to itself to form a helically-wound tube, the ribbon comprising:

a first coupling projection extending from said first major surface toward said second major surface and terminating short of said second major surface; a second coupling projection extending from said second major surface toward said first major surface and terminating short of said first major surface; recesses in said ribbon adjacent said first and said second coupling projections for accepting said projections and thus permit said first coupling projection of one ribbon section to



engage said second coupling projection of another ribbon section with the major surfaces of said ribbon sections aligned to form a smooth surface on said tube; said coupling projections being formed such that said first and said second coupling projections engage each other along a continuous surface free of any surfaces which are perpendicular to said major surfaces, at least one of said recesses being larger than the coupling projection to be inserted therein so that an open area is provided adjacent said coupling projection when said coupling projection is inserted within said one recess.

5,670,224

MODIFIED SILICON OXIDE BARRIER COATINGS PRODUCED BY MICROWAVE CVD DEPOSITION ON POLYMERIC SUBSTRATES

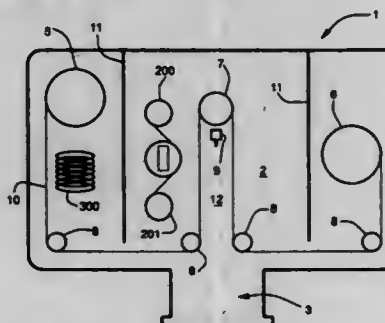
Masatsugu Izu, Bloomfield Hills, and Buddle R. Dotter, II, Utica, both of Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich.

Continuation-in-part of Ser. No. 240,202, May 9, 1994, abandoned, which is a continuation of Ser. No. 976,149, Nov. 13, 1992, abandoned. This application Apr. 17, 1995, Ser. No. 423,666

Int. Cl.⁶ B32B 1/08

U.S. Cl. 428—35.8

25 Claims



1. A composite material having an oxygen transmission rate of less than about 2.0 cm³/m²/day at room temperature and 0% relative humidity and a water vapor transmission rate of less than about 3 g/m²/day at 38° C. and 100% relative humidity including:

a microwave-plasma-enhanced-chemical-vapor-deposited silicon oxide barrier coating; said barrier coating is 100 to 500 Angstroms thick and being substantially free of Si—H bonds; and

a temperature sensitive substrate, said coating deposited atop said temperature sensitive substrate; said composite having been produced by the method including the steps of:

providing an evacuable deposition chamber having a deposition region defined therein; providing a source of microwave energy; providing said temperature sensitive substrate within said deposition region in said deposition chamber; evacuating said deposition chamber to a sub-atmospheric pressure; performing a plasma pretreatment of said temperature sensitive substrate;

introducing a precursor gaseous mixture into said deposition region within said deposition chamber, said precursor gaseous mixture including at least a silicon-hydrogen containing gas and an oxygen containing gas; directing microwave energy from said source of microwave energy to said deposition region, thereby creating a plasma in said deposition region by interaction of said microwave energy and said precursor gaseous mixture; depositing from said plasma, onto said temperature sensitive substrate, said silicon oxide barrier coating, said coating providing the coated substrate with oxygen and water vapor barrier properties greater than the non-coated substrate; and introducing a sufficient flow rate of oxygen-containing gas into said precursor gaseous mixture to substantially eliminate the inclusion of silicon-hydrogen bonds into the deposited coating.

5,670,225

UNIAXIALLY STRETCHED MULTILAYERED FILM AND AIR BAGGAGE TAG CONTAINING THE SAME

Masaaki Yamanaka, and Masaki Shiina, both of Ibaraki, Japan, assignors to Oji-Yuka Synthetic Paper Co., Ltd., Tokyo, Japan

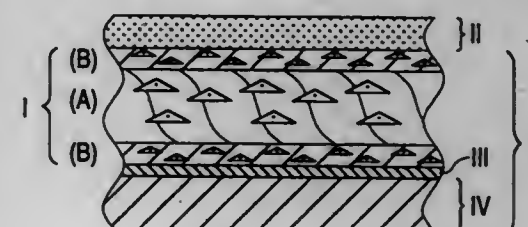
Filed Nov. 21, 1995, Ser. No. 561,464

Claims priority, application Japan, Dec. 8, 1994, 6-330435

Int. Cl.⁶ B42D 15/00

U.S. Cl. 428—40.1

7 Claims



1. A uniaxially stretched multilayered film obtained by uniaxially stretching a laminated film at a stretch ratio of from 3 to 10, said laminated film consisting essentially of a base layer (A) made of a resin composition comprising resinous ingredients comprising from 50 to 90% by weight crystalline polyolefin (a) and from 50 to 10% by weight thermoplastic resin (b) having a lower melting point than the crystalline polyolefin (a) and an inorganic fine powder (c) in an amount of from 0 to 35% by weight based on the sum of the weight of the resinous ingredients and, formed on at least one side of said base layer (A), a surface layer (B) made of a resin composition comprising from 20 to 80% by weight inorganic fine powder (d) and from 80 to 20% by weight crystalline polyolefin (e), said uniaxially stretching being conducted at a temperature lower than the melting point of said crystalline polyolefin (a) and lower than the melting point of said crystalline polyolefin (e) but at a temperature higher than the melting point of said thermoplastic resin (b).

5,670,226

REMOVABLE ADHESIVE SHEET

Katsuaki Yoshizawa, and Akira Kunihiro, both of Amagasaki, Japan, assignors to New Oji Paper Co., Ltd., Tokyo, Japan

Filed Dec. 15, 1995, Ser. No. 572,781

Claims priority, application Japan, Dec. 15, 1994, 6-311927

Int. Cl.⁶ B32B 7/06; 7/12

U.S. Cl. 428—40.1

15 Claims

1. A removable adhesive sheet comprising a laminate of a release liner, an adhesive layer and a surface stock, wherein the adhesive layer is formed between the release liner and surface stock by applying an adhesive to the release liner or to the surface stock, followed by drying.

said adhesive comprising (i) an aqueous emulsion of a copolymer obtained by emulsion polymerization and (ii) a polyglycidyl compound having two or more epoxy groups within the molecule thereof,

said copolymer comprising, on the whole copolymer weight basis,

- (a) 80–99% by weight of a (meth)acrylic acid C_6-C_{12} alkyl ester,
- (b) 0.3–10% by weight of (meth)acrylonitrile,
- (c) 0.1–5% by weight of an α,β -unsaturated carboxylic acid and
- (d) 0–5% by weight of another monomer copolymerizable with the above-mentioned monomers (a), (b) and (c),

said copolymer having a polystyrene-equivalent number average molecular weight of not less than 0.1×10^4 but less than 5.0×10^4 , a polystyrene-equivalent weight average molecular weight (Mw)/ polystyrene-equivalent number average molecular weight (Mn) ratio (Mw/Mn) of 40–800, an average particle size of 100–500 nm and a glass transition temperature of not higher than $-50^\circ C.$, and

said polyglycidyl compound being used in an amount such that the epoxy groups amount to 0.5 to 2 equivalents relative to the carboxyl groups in said copolymer.

5,670,227

PATTERNED PAVEMENT MARKINGS WITH UPRIGHT RETROREFLECTORS

Thomas P. Hedblom, Eagan, and T. Ian Bradshaw, Afton, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

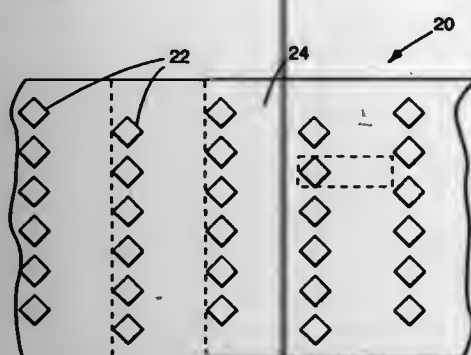
Continuation of Ser. No. 247,050, May 20, 1994, abandoned.

This application Apr. 18, 1996, Ser. No. 634,663

Int. Cl.⁶ C09J 7/02

U.S. Cl. 428—48

43 Claims



1. A pavement marking sheet material comprising a continuous polymeric base sheet having a plurality of upright retroreflectors on its upper surface, said upright retroreflectors comprising retroreflective elements,

said upper surface being made up of a plurality of segments arranged in a selected manner,

each said segment having a front edge, a rear edge, and two side edges, and having an array of a plurality of said upright retroreflectors positioned along said front edge and a spacing zone that is free of said upright retroreflectors along said rear edge, the longitudinal length L of said spacing zone being determined by the formula $L > H/\tan(90^\circ - \theta)$, where H is the height of the upright retroreflectors and θ is a design entrance angle that falls within the range of 86.9° to 89.9° ;

said marking material comprising a plurality of segments arranged with the front edge of a segment abutting the rear edge of an adjacent segment.

5,670,228

TILE HAVING A PATTERN AND ITS MANUFACTURING METHOD

Yoshinori Kakamu; Shinichi Kakamu, and Shukichi Kakamu, all of Toki, Japan, assignors to Mino Ganryo Kagaku Corporation, Japan

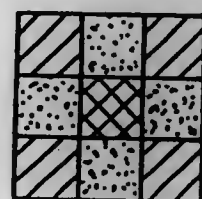
Division of Ser. No. 119,733, Sep. 10, 1993, abandoned. This application Nov. 3, 1995, Ser. No. 552,608

Claims priority, application Japan, Sep. 16, 1992, 4-246331; Sep. 24, 1992, 4-254403; Nov. 11, 1992, 4-301364; Jan. 7, 1993, 5-001147; Jun. 11, 1993, 5-140869; Jun. 25, 1993, 5-155118

Int. Cl.⁶ B32B 9/00

U.S. Cl. 428—49

26 Claims



81d

1. A method of manufacturing an accessory tile having a plurality of plate portions and a three dimensional shape, said method comprising the steps of:

forming a plurality of tile blanks having plate shapes corresponding to different ones of said plate portions;

providing at least one of said tile blanks with a design having a plurality of colored portions corresponding to the design of said accessory tile;

disposing said tile blanks on a pressure-forming die having a shape corresponding to the shape of said accessory tile;

placing end surfaces of at least two of said tile blanks adjacent to each other to form a gap between said end surfaces;

disposing a moldable joining tile material in said gap;

pressing said tile blanks and said moldable joining tile material with said pressure-forming die to join said tile blanks via said moldable joining tile material so that said tile blanks and said moldable joining tile material form an integral body having a shape corresponding to said three-dimensional shape of said accessory tile; and

burning said integral body of said tile blanks and said moldable joining tile material to form said accessory tile such that at least one of said plate portions of said accessory tile includes a design having a plurality of colored portions corresponding to the design of the colored portions of at least one of said tile blanks.

5,670,229

PAD FOR PROTECTING TREES DURING HARVESTING OPERATIONS

Michael Lynch, 2708 Cherry, and David J. Dupont, 612 L St., both of Hoquiam, Wash. 98550

Filed Aug. 7, 1995, Ser. No. 512,347

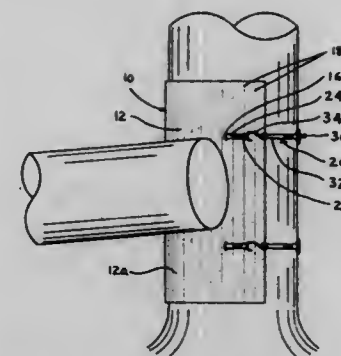
Int. Cl.⁶ B32B 3/06

U.S. Cl. 428—52

5 Claims

1. A removable pad for protecting the surface of a tree from abrasion during a tree thinning operation, comprising:

a sheet of protective material having sufficient flexibility to allow the sheet to generally conform to at least one side of any one of a plurality of tree trunks having variable circumferences and irregular surfaces, the sheet of protective material being sized such that, when in use, the sheet only partially covers the tree trunk; and



at least one strap assembly connected to the sheet, for releasably cinching the sheet to any one of the tree trunks.

5,670,230

ENDLESS SEAMED BELT WITH HIGH STRENGTH

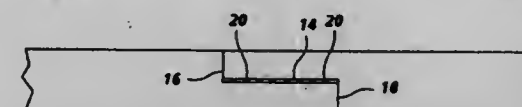
Edward L. Schluter Jr., and Thomas C. Parker, both of Rochester, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Oct. 11, 1994, Ser. No. 320,805

Int. Cl.⁶ B32B 3/00

U.S. Cl. 428—57

14 Claims



1. An endless flexible seamed belt formed by joining a top end and a bottom end of a material from which the belt is fabricated, said belt having at least one overlapping butting joint to form the belt seam of the endless flexible seamed belt, said top and bottom ends of the belt material shaped into overlapping mating portions of the same length and wherein both the top and bottom overlapping portions are about one-half the thickness of the belt material, said mating portions being joined to provide a lapping joint and two butting joints and wherein rigid, high strength fibers are present between mating portions of at least one joint, said seamed belt having been formed by the application of heat to said mating portions when said fibers are present in at least one joint.

5,670,231

CLUTCH FACING

Kazuyuki Ohya, and Norio Sayama, both of Tokyo, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Oct. 19, 1993, Ser. No. 137,919

Claims priority, application Japan, Oct. 23, 1992, 4-286213

Int. Cl.⁶ C08J 5/14

U.S. Cl. 428—66.2

17 Claims

1. A disk-shaped clutch facing produced by molding a composition for a friction material with heating and under pressure, the composition comprising:

15–50 parts by weight of (I) a binder composition comprising 95–30% by weight of (a) an aromatic hydrocarbon-formaldehyde resin-modified novolak based epoxy resin, and 5–70% by weight of a cyanate ester resin consisting essentially of (b) a polyfunctional cyanate ester, or a prepolymer of the cyanate ester, or (b) and (c) a monofunctional or polyfunctional maleimide;

20–70 parts by weight of (II) a fibrous reinforcing substrate with a fiber diameter of 0.2 to 100 μm ;

2–20 parts by weight of (III) a metallic fiber substrate with a fiber diameter of 10 to 250 μm ; and

5–40 parts by weight of (IV) a friction wear regulator.

5,670,232

METHOD FOR MANUFACTURING INTEGRAL ELASTIC SUPPORTS, AND SUPPORTS OBTAINED WITH THIS METHOD

Riccardo Bigolin, San Zenone Degli Ezzelini, Italy, assignor to Selle Royal S.p.A., Pozzoleone, Italy

Division of Ser. No. 168,211, Dec. 17, 1993, Pat. No. 5,441,676.

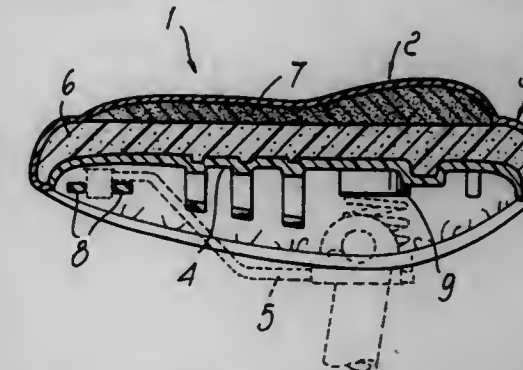
This application Aug. 3, 1995, Ser. No. 510,842

Claims priority, application Italy, Oct. 19, 1993, VI93A0163

Int. Cl.⁶ B32B 3/00

U.S. Cl. 428—71

13 Claims



1. An integral elastic support, comprising an upper covering made of flexible laminar material superimposed on a filler that comprises a layer of foamed resin anchored to a shell made of substantially rigid plastic material, wherein said filler is chemically bonded both to said covering and to said shell to form an integral support, at least one insert or layer of a gel compound being interposed between said covering and said foamed resin filler to form with said latter a surface of separation, said gel compound being chemically bonded by an addition-polymerization reaction both to said foamed resin layer and to said covering, said insert being located in regions of maximum pressure for the body of the user wherein said gel insert is self-supporting and said surface of separation is substantially flat.

5,670,233

ACOUSTIC WINDOW AND METHOD FOR MAKING THE SAME

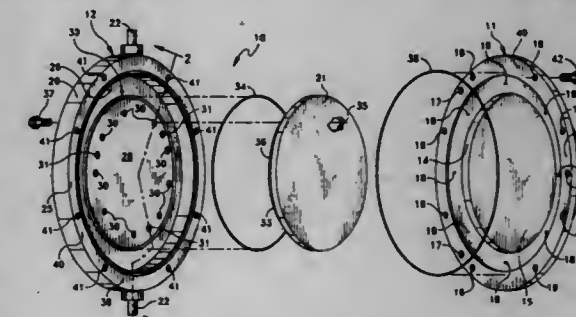
Robert A. Roush, Norwich, and Robert J. DeAngelis, Niantic, both of Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 29, 1995, Ser. No. 496,490

Int. Cl.⁶ B29C 45/00; B32B 3/06

U.S. Cl. 428—99

28 Claims



15. A cured polyurethane molded product formed of a polyurethane molding material in a mold wherein the mold defines a molding cavity and has first and second spaced ports to the molding cavity, said product being formed by the process comprising the steps of:

preparing the mold cavity for the receipt of the molding material;

positioning the mold cavity with the first port located above the second port;

simultaneously applying a vacuum to the first port and supplying the molding material from a first reservoir to the second port such that the pressure differential created by the vacuum displaces molding material into the cavity;
removing the vacuum from the first port and applying a second reservoir thereto after molding material begins to exit the first port;
adding additional molding material to the molding cavity through said first reservoir to displace molding material through the first port into the second reservoir;
simultaneously applying heat to the mold and external pressure to the first and second reservoirs so as to heat and compress the molding material and curing the molding material into a solid cured polyurethane article by placing it in an oven operating at about 100° C. and at a pressure of about 75 psig; and
thereafter removing the solid cured polyurethane article from the mold.

5,670,234

TRICOT NONWOVEN FABRIC

Susan Lynn Suehr, Belle Mead; William F. Kelly, Middlesex; Charles Shimalla, Plainsboro; Frank J. Flesch, Toms River; and James E. Knox, Jamesburg, all of N.J., assignors to McNell-PPC, Inc., Skillman, N.J.

Continuation of Ser. No. 131,191, Sep. 13, 1993, abandoned.
This application Dec. 22, 1994, Ser. No. 362,322

Int. Cl. B32B 3/24

U.S. Cl. 428—131

5 Claims



1. A nonwoven fabric formed on a topographically configured support member having a plurality of raised, three-dimensional areas and a plurality of holes between said three-dimensional areas and extending through said support member, said fabric having an upper surface facing away from said support member when said fabric is formed and a lower surface supported on the top of said three dimensional areas when said fabric is formed, said fabric comprising a plurality of fibers disposed between said surfaces, said fibers being rearranged by the application of fluid under pressure to the fabric upper surface and said fibers being intertwined and interentangled with adjacent fibers to define a pattern of openings extending through said fabric, a portion of said openings having a fiber segment loop disposed therein, said loop comprising a plurality of substantially parallel fiber segments in the shape of U with the open inside surface of the base of the U directed towards said lower surface of said fabric and the outside surface of the base of the U directed towards said upper surface of said fabric, said parallel fiber segments being arranged generally transversely of the thickness of said fabric, said fabric having a drape index in all directions of the fabric of at least about 80 degrees.

5,670,235

SHAPED LAMINATE, PARTICULARLY INTERNAL LINING PART FOR MOTOR VEHICLES, AS WELL AS PROCESS AND APPARATUS FOR THE PRODUCTION THEREOF

Klaus Stricker, Bietigheim-Bissingen; Rolf Maysenhoelder, Besigheim, and Dieter W. Hess, Bietigheim-Bissingen, all of Germany, assignors to Georg Naher GmbH, Markgroeningen, Germany

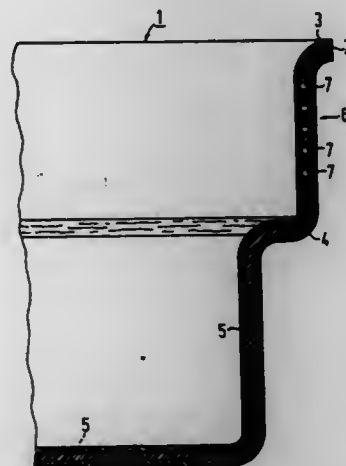
Continuation of Ser. No. 234,918, Apr. 28, 1994, abandoned.
This application May 20, 1996, Ser. No. 650,440

Claims priority, application Germany, Apr. 28, 1993, 43 13 911.6

Int. Cl. B32B 3/10

U.S. Cl. 428—138

24 Claims



1. A shaped laminate suitable for lining a compartment of a motor vehicle, the laminate including a support layer, comprising a substantially stiff extruded sheet of a thermoplastic material and first and second surface layers, respectively, being formed of a textile fabric, wherein fibers of at least one of said surface layers comprises the same thermoplastic material as the sheet, said sheet being joined on at least one side to an open pore layer from a very thin web material, said very thin web material having thickness from about 1 to about 5 times fiber thickness and having a low layer weight between 10 to 50 g/m² which is shaped in conformance with said sheet, said layer being placed between said surface layer and said sheet, whereby whichever of either surface layer formed of said textile fabric are joined to said sheet by thermal bonding of said fibers to the sheet and whereby the pores of the web material are so wide and the web material layer thickness so thin that the adhesive bond between the sheet and the adjacent surface layer penetrates the pores.

5,670,236

BIAXIALLY ORIENTED POLYESTER FILM FOR MAGNETIC RECORDING MEDIUM

Tomoyuki Kotani, Chigasaki; Kazuo Endo, Yokohama; Seiji Sakamoto, Machida; Takashi Harada; Narihiro Masuda, both of Yokohama; Masashi Inagaki, Tsukui-gun, and Chikakazu Kawaguchi, Nagahama, all of Japan, assignors to Diafoil Hoechst Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 127,566, Sep. 28, 1993, abandoned.
This application Jun. 7, 1995, Ser. No. 482,791

Claims priority, application Japan, Sep. 29, 1992, 4-260316; Oct. 13, 1992, 4-274573; Dec. 3, 1992, 4-324184

Int. Cl. B32B 27/36; 27/06; 5/16; 7/00

U.S. Cl. 428—141

14 Claims

1. A biaxially oriented polyester film for a magnetic recording medium, the polyester film comprising:

(a) synthetic calcium carbonate particles having properties represented by the following formulas (1) to (4) and (13):

$$0.25 \leq d_a \leq 0.75 \quad (1)$$

$$0.35 \leq W_a \leq 1.00 \quad (2)$$

$$0.5 \leq d_a + 0.5W_a \leq 0.95 \quad (3)$$

$$8d_a - W_a \geq 1.50 \quad (4)$$

$$d_{25}/d_{75} \leq 1.8 \quad (13)$$

wherein d_a represents an average particle diameter (in μm) of the synthetic calcium carbonate particles in the polyester film, W_a represents the content (in wt %) of the synthetic calcium carbonate particles in the polyester film, d_{25} represents the particle diameter at the point of 25% of the total accumulated weight and d_{75} represents the particle diameter at the point of 75% of the total accumulated weight, when the particles are arranged in order of weight, wherein:

said synthetic calcium carbonate particles are a mixture of at least two kinds of synthetic calcium carbonate particles each of which have different average particle diameters, wherein the average particle diameter of the kind of synthetic calcium carbonate particles having an average particle diameter larger than d_a is from $1.5 \times d_a$ to $3.0 \times d_a$, and wherein the content of the kind of synthetic calcium carbonate particles having an average particle diameter larger than d_a is from $0.005 \times W_a$ to $0.2 \times W_a$, and

said synthetic calcium carbonate particles are produced by surface-treating synthetic calcium carbonate particles with a polycarboxylic acid and treating the surface-treated synthetic calcium carbonate particles with a phosphorus compound represented by the following general formula (12):



wherein R represents a hydrocarbon group having from 1 to 10 carbon atoms, l is 1 or 2, m is 1 or 2, n is 1 or 2, and the sum of l and m is 3,

wherein the content of said phosphorus compound is from 0.05 to 10.0 mol %, based on said synthetic calcium carbonate particles; and

(b) aluminum oxide particles having properties represented by the following formulas (5) and (6):

$$0.005 \leq d_b \leq 0.50 \quad (5)$$

$$0.15 \leq W_b \leq 1.00 \quad (6)$$

wherein d_b represents an average particle diameter (in μm) of the aluminum oxide particles in the polyester film, and W_b represents the content (in wt %) of the aluminum oxide particles in the polyester film,

the polyester film having simultaneously properties represented by the following formulas (7) to (9):

$$0.009 \leq R_a \leq 0.020 \quad (7)$$

$$7.0 \leq R_z^A / R_a^A \leq 15 \quad (8)$$

$$0.80 \leq \mu_d^{50^\circ} / \mu_d^{1^\circ} \leq 1.6 \quad (9)$$

wherein R_a^A and R_z^A represent an average center line roughness (μm) of the exposed surface of the polyester film and a surface roughness (μm) at 10 points on the exposed surface of the polyester film, respectively, and $\mu_d^{50^\circ} / \mu_d^{1^\circ}$ represents the ratio of a dynamic friction coefficient of the exposed surface of the polyester film at the fiftieth running to a dynamic friction coefficient of the exposed surface of the polyester film at the first running, when the polyester film is run repeatedly.

5,670,237

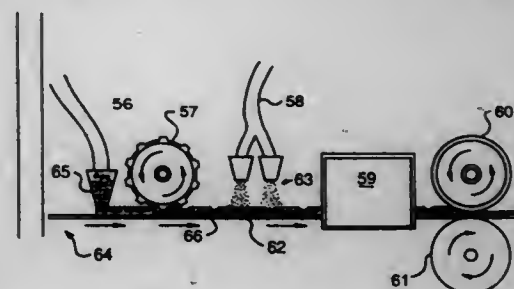
METHOD FOR MAKING A SURFACE COVERING PRODUCT AND PRODUCTS RESULTING FROM SAID METHOD

Jeffrey R. Shultz, Wilmington, Del., and Barry C. Crispin, Bridgeton, N.J., assignors to Mannington Mills, Inc., Salem, N.J.

Filed Jun. 7, 1995, Ser. No. 479,969
Int. Cl. B05D 1/38; 3/12; 5/06; B32B 5/16

U.S. Cl. 428—173

38 Claims



1. A method for making a surface covering product comprising the steps of:

- depositing color particles on a carrier to form a base layer having a top surface wherein said color particles comprise thermoplastic resin and pigment;
- forming a depressed or displaced pattern image on said top surface of said base layer;
- depositing accent particles on the top surface of said base layer having the depressed or displaced pattern image wherein at least a portion of said accent particles are deposited within the depressed or displaced pattern image;
- subjecting said base layer to heat and/or pressure to consolidate said accent and color particles and form a preformed mass; and
- pressing said preformed mass to form a fused, surface covering product.

5,670,238

LAMINATE SHEET MATERIAL

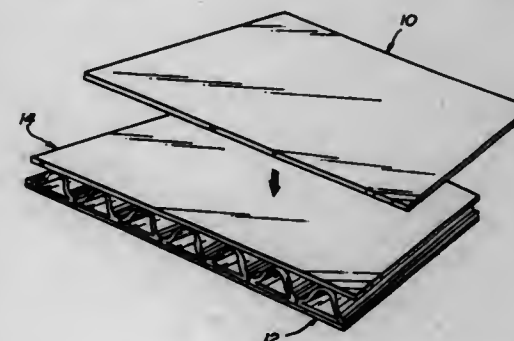
Gary L. Earl, Hoquiam, and William A. Goodwin, Longview, both of Wash., assignors to Anderson & Middleton Company, Hoquiam, Wash.

Continuation-in-part of Ser. No. 421,328, Apr. 13, 1995. This application Jun. 14, 1995, Ser. No. 490,455

Int. Cl. B32B 3/28; B01D 39/08

U.S. Cl. 428—182

6 Claims



1. A composite laminate member comprising outer planar layers of delignified polymer cellulose material impregnated with a polyisocyanate compound and a fire retardant sandwiched about a core of corrugated cardboard, said core of corrugated cardboard including at least one layer of linerboard and layer of corrugated medium, said corrugated medium having flutes running in a plane parallel to said outer layers.

5,670,239

COMPOSITION FOR THE DELOCALIZED MARKING OF ARTICLES, ITS PREPARATION AND USE

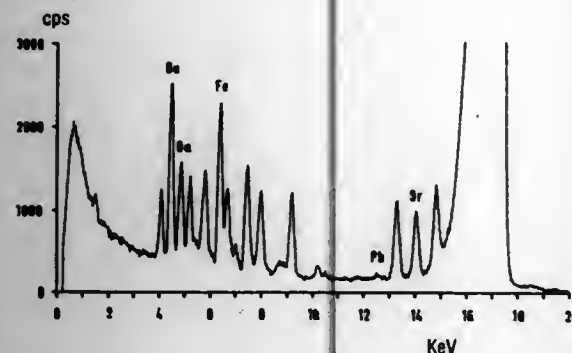
Norbert Hampp, München, Germany, assignor to Consortium für Elektrochemische Industrie GmbH, München, Germany
Filed Oct. 27, 1995, Ser. No. 549,103

Claims priority, application Germany, Dec. 16, 1994, 44 45 004.4

Int. Cl.⁶ B32B 3/00

U.S. Cl. 428—195

19 Claims



1. A composition which enables marking of articles which makes the forging or improper use or exploitation of these articles difficult, said composition comprising a mixture of chemical elements having a K_{α} line of from 3.69 keV to 76.315 keV wherein the amounts of the different elements represent an encrypted numerical code, the physical properties of said chemical elements serving as delocalized information which cannot be discerned with a naked eye of an observer of the article.

5,670,240

EMBOSSED SUBSTRATE AND PHOTORECEPTOR DEVICE INCORPORATING THE SAME AND METHOD

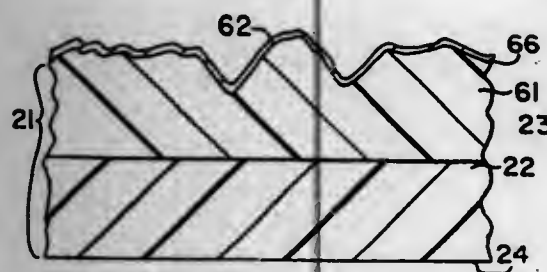
Gregory F. Davis, Guerneville, Calif., assignor to Flex Products, Inc., Santa Rosa, Calif.

Filed Nov. 9, 1995, Ser. No. 555,530

Int. Cl.⁶ B32B 3/00

U.S. Cl. 428—195

9 Claims



1. An embossed substrate comprising a substrate of a plastic material and having an embossed surface carried by the substrate, the embossed surface being characterized by having a pattern with an average roughness of between 100 nanometers and 300 nanometers with the roughness being distributed substantially uniformly over the surface, said pattern having ridges and valleys with the distance between adjacent ridges and/or valleys being greater than the depth between the peaks and the valleys, the peaks and the valleys being randomly disposed without periodicity to cause diffusion of light impinging thereon to minimize or eliminate interference effects when the embossed surface is exposed to light.

5,670,241

METAL BASE BOARD AND ELECTRONIC EQUIPMENT USING THE SAME

Satoru Hayashi, Nagoya, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

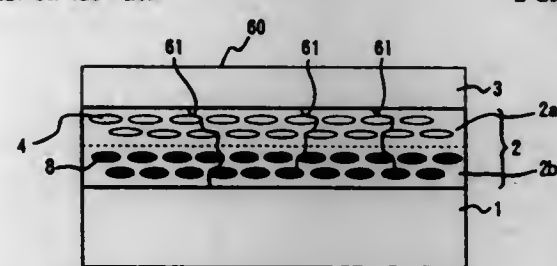
Continuation of Ser. No. 482,854, Jun. 7, 1995, Pat. No. 5,578,366, which is a continuation of Ser. No. 285,699, Aug. 4, 1994, abandoned. This application May 15, 1996, Ser. No. 647,768

Claims priority, application Japan, Aug. 6, 1993, 5-196398

Int. Cl.⁶ B32B 9/00

U.S. Cl. 428—209

2 Claims



1. A metal baseboard comprising:
a metallic base section;
a circuit conductor section; and
an insulating section provided between said circuit conductor section and said base section;
said insulating section comprising a plurality of insulating layers, at least two of said insulating layers being adjacent to each other and comprising an organic insulating material with respective flaky inorganic filler material made of a different raw material respectively added therein, said flaky inorganic fillers being disposed in said insulating section in a substantially parallel relation to each other.

5,670,242

CAST COATED PAPER FOR INK JET RECORDING

Shinichi Asano, Kobe; Hiroyuki Ohashi, Neyakawa; Hiromasa Kondo, Urawa; Kazuhiro Nojima, Kobe; Katsuyoshi Imabeppu, Amagasaki; Mamoru Sakaki, Yamato, and Eiichi Suzuki, Asaka, all of Japan, assignors to Canon Kabushiki Kaisha, and OJI Paper Co., Ltd., both of Tokyo, Japan

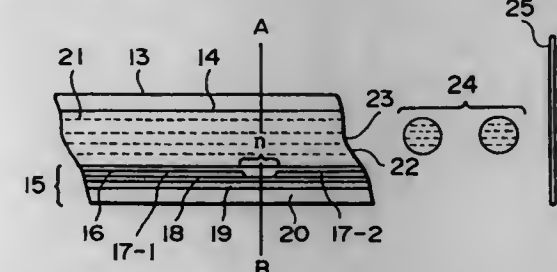
Filed Jun. 15, 1994, Ser. No. 260,964

Claims priority, application Japan, Jun. 15, 1993, 5-143587; Jul. 30, 1993, 5-189517; Sep. 13, 1993, 226938

Int. Cl.⁶ B41J 2/01

U.S. Cl. 428—212

12 Claims



1. A cast coated paper for ink jet recording, comprising, in lamination:
a base paper,
a porous undercoating layer comprising a pigment and an adhesive, and
a porous and glossy cast-coating layer comprising a polymer having a glass transition point of at least 40° C. formed by polymerization of an ethylenically unsaturated monomer, said cast-coating layer containing a pigment in an amount of 0-200 wt. parts per 100 wt. parts of the polymer, said cast coated paper having an air permeability of at most 300 sec/100 cc.

5,670,243

Patent Not Issued For This Number

5,670,244

MULTIPLE LAYER VINYL/ALUMINUM BUILDING COMPOSITE

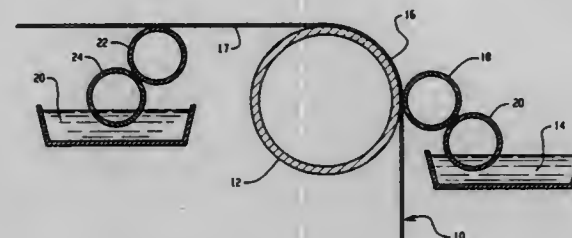
Daniel Taylor, Lincraft; Joseph P. Ippolito, Cranbury, and I. M. Rempter, Scotts Plain, all of N.J., assignors to Gentek Building Products, Inc., Cleveland, Ohio

Filed Jul. 10, 1995, Ser. No. 500,396

Int. Cl.⁶ B32B 7/02

U.S. Cl. 428—213

7 Claims



1. A composite capable of being formed into a shaped article by cold forming, said composite being about 0.02 to 0.06 inch thick and comprising
a layer of aluminum alloy about 0.01 to 0.024 inch thick having a front surface and a backside,
a polymer surface coating about 0.001 to 0.004 inch thick on said front surface, said polymer surface coating being capable of being embossed to thereby form a textured surface simulating wood, and
a backing layer comprising a flexible polymer foam about 0.003 to 0.012 inch thick on said backside.

5,670,245

MAGNETIC RECORDING MEDIUM COMPRISING A MAGNETIC LAYER CONTAINING FERROMAGNETIC METALLIC POWDER, BINDER, AND ALIPHATIC ACID

Ryosuke Isobe; Hideaki Wakamatsu, both of Hino; Akira Saitoh, and Akihiko Seki, both of Saku, all of Japan, assignors to Konica Corporation, and TDK Corporation, both of Japan

Filed Jul. 11, 1994, Ser. No. 273,188

Claims priority, application Japan, Jul. 13, 1993, 5-173347; Nov. 9, 1993, 5-303441

Int. Cl.⁶ G11B 5/712

U.S. Cl. 428—216

12 Claims

1. A magnetic recording medium comprising a non-magnetic support and a magnetic layer thereon, said magnetic layer containing a binder, a ferromagnetic metallic powder, and an aliphatic acid having 12 to 24 carbons,
atomic ratios of elements forming a surface of said ferromagnetic powder subjected to orientation are, per 100 of iron, less than 1 of sodium, not more than 40 of alkaline earth, and 1 to 50 of rare earth.

5,670,246

TREATMENT OF POLYAMIDE MATERIALS WITH PARTIAL FLUOROESTERS OR FLUOROTHIOESTERS OF MALEIC ACID POLYMERS AND SULFONATED AROMATIC CONDENSATES

Engelbert Pechhold, Chadds Ford, Pa., and Peter Michael Murphy, Ooltewah, Tenn., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

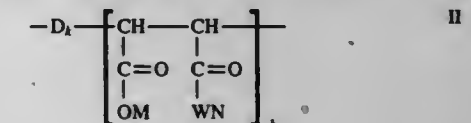
Filed Sep. 22, 1995, Ser. No. 532,294

Int. Cl.⁶ B32B 7/00

U.S. Cl. 428—267

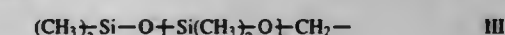
11 Claims

1. A process for providing soil resistance and resistance to staining by acid dyes to fibers and textiles comprising application to dyed or pigmented fibers and textiles, or application to fibers and textiles just prior to or during dyeing thereof, of an effective amount of a composition comprising a mixture of 1) a sulfonated phenol-formaldehyde condensation product which is useful as a dye-resist agent, a dye-fixing agent, a dye-reserving agent, or an agent which improves the wet-fastness of dyeings on polyamide fibers, and 2) a copolymer having units of formula II



wherein

D is a vinyl monomer selected from the group consisting of styrene, vinyl ether, and alpha olefin;
M is H, alkali metal or ammonium cation;
W is O, S, or a mixture thereof;
N is a mixture of R' and R'' in a molar ratio of M:R':R'' of [1-(e+g)]:e:g;
R' is Rf-Ad-B-;
Rf is a fully fluorinated straight or branched aliphatic radical which can be interrupted by at least one oxygen atom; A is a divalent radical selected from the group consisting of —SO₂N(R)—, —CON(R)—, —S—, and —SO₂— wherein R is H or a C₁ to C₆ alkyl radical;
d is 0 or 1;
B is a divalent linear hydrocarbon radical —CnH2n— optionally endcapped by —(O—CH₂—CH₂)_z—, —(O—CH₂—CH(CH₃))_z—, or —(O—CH₂—CH(CH₂Cl))_z— wherein n is 2 to 12 and z is 0 to 50;
R' is either a C₁ to C₃₀ alkyl group or a polysiloxane group of formula III



wherein

j is 5 to 20;
e is 0.1 to 1.0;
g is 0 to 0.5;
h is 3 to 1000; and
k is 3 to 1000.

5,670,247

PHOTOREACTIVE NOXIOUS SUBSTANCE PURGING AGENT AND PHOTOREACTIVE NOXIOUS SUBSTANCE PURGING MATERIAL USING THE AGENT

Kazuchiyo Takaoka; Kenji Hyodo; Isao Ebihara; Yasuyuki Oku, and Katsushi Ohgami, all of Tokyo, Japan, assignors to Mitsubishi Paper Mills Limited, Tokyo, Japan

Filed Sep. 28, 1995, Ser. No. 535,917

Claims priority, application Japan, Oct. 3, 1994, 6-238866; Oct. 13, 1994, 6-247990; Dec. 5, 1994, 6-300961; Jan. 23, 1995, 7-008425

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—297

19 Claims

17. A photoreactive noxious substance purging material made by coating an aqueous liquid of a composite flocculate containing at least a photoreactive semiconductor, a carrier, and a microfibril-

lated micro-fiber on a support comprising at least a thermoplastic resin, wherein the weight ratio of the photoreactive semiconductor to the carrier in the material is about 1:30 to 10:1.

5,670,244

MATERIAL CONSISTING OF CHEMICAL COMPOUNDS, COMPRISING A METAL FROM GROUP IV A OF THE PERIODIC SYSTEM, NITROGEN AND OXYGEN, AND PROCESS FOR ITS PREPARATION

Miladin P. Lazarov, 1075 Calle Ciruelo, Thousand Oaks, Calif. 91360, and Isabella V. Mayer, Schellingstr. 75, D-80799 Munich, Germany

Filed Jul. 15, 1994, Ser. No. 276,026

Int. Cl.⁶ B32B 9/00

U.S. Cl. 428—304.4

11 Claims

SiO ₂	(3)
ABSORBER	(2)
SUBSTRATE	(1)

1. A composition comprising: a metal, M, from group IV of the periodic chart, nitrogen and oxygen, having a formula of MN_xO_y, wherein x and y each range from about 0.1 to about 1.7 and wherein about 2 to 45% of the volume of the composition is formed by voids having a total magnitude ranging from about (0.5 nm)³ to about (100 nm)³, said composition having a specific resistance ranging from about 30 μΩcm to about 30,000 μΩcm.

5,670,249

RECORDING SHEET AND RECORD

Toshihiro Tanuma, Yokohama, Japan, assignor to Asahi Glass Company Ltd., Tokyo, Japan

Continuation of Ser. No. 448,896, May 24, 1995, abandoned.

This application Oct. 10, 1996, Ser. No. 728,190

Claims priority, application Japan, May 25, 1994, 6-111278; Jul. 21, 1994, 6-169677

Int. Cl.⁶ B41J 2/01; B41M 5/00

U.S. Cl. 428—304.4

20 Claims

1. A recording sheet which comprises a substrate and a porous ink-receiving layer containing uniformly distributed therein at least one compound selected from the group consisting of sodium thiocyanate, potassium thiocyanate and calcium thiocyanate, formed on the substrate.

5,670,250

CIRCUIT BOARD PREPREG WITH REDUCED DIELECTRIC CONSTANT

Robert J. Sanville, Jr., Northfield, and Carl P. Kernander, Lee, both of N.H., assignors to Polyclad Laminates, Inc., West Franklin, N.H.

Continuation of Ser. No. 406,039, Mar. 16, 1995, abandoned, which is a continuation of Ser. No. 395,496, Feb. 24, 1995, abandoned. This application May 16, 1995, Ser. No. 442,119

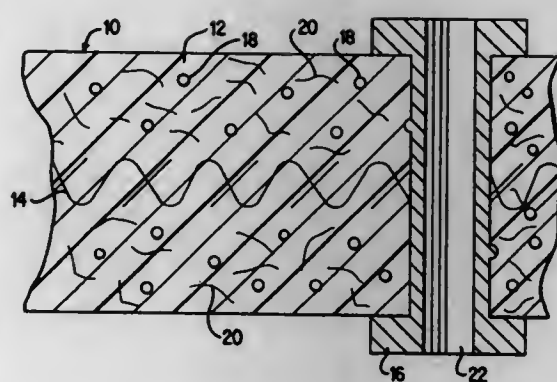
Int. Cl.⁶ B32B 5/16; D02G 3/00; H05K 1/09

U.S. Cl. 428—323

20 Claims

1. A filled prepreg composite having a uniform reduced dielectric constant comprising:

(a) resin;



(b) 5–30% by volume of resin solids of hollow inorganic microsphere filler;

(c) support material; and

(d) sufficient hydrophobic, finely divided silica flow modifier to produce and maintain uniform distribution of the hollow inorganic microspheres in the resin.

5,670,251

PATTERNABLE PARTICLE FILLED ADHESIVE MATRIX FOR FORMING PATTERNED STRUCTURES BETWEEN JOINED SURFACES

Louis DiFrancesco, Hayward, Calif., assignor to Particle Interconnect Corporation, Colorado Springs, Colo.

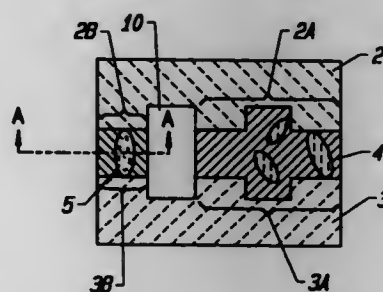
Continuation-in-part of Ser. No. 148,907, Nov. 8, 1993, Pat. No. 5,430,614, which is a division of Ser. No. 951,860, Sep. 28, 1992, Pat. No. 5,471,151, which is a continuation-in-part of Ser. No. 720,182, Jul. 22, 1991, abandoned, which is a division of Ser. No. 479,696, Feb. 14, 1990, Pat. No. 5,083,697.

This application Oct. 7, 1994, Ser. No. 320,443

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—325

10 Claims



1. A joint between the surfaces of at least two substrates, having selected electrical properties, comprising:

an adhesive binder that is curable by a one or two-step process, said adhesive binder comprising one of a thermally conductive, thermally insulative, or electrically conductive material, or a material for spreading or concentrating mechanical stress, wherein said adhesive forms a temporary bond prior to curing and a permanent bond subsequent thereto;

a plurality of hard particles dispersed within said binder to form an adhesive matrix adapted to join said surfaces by selectively forming either of a temporary or permanent bond between the surfaces, the adhesive matrix being patterned by direct application upon at least one of said surfaces such that the particles within the adhesive matrix are brought into non-penetrating, non-bonding contact with said surfaces such that said matrix provides localized regions of communication between said surfaces across said bond, wherein said communication is primarily capacitive or resistive in nature, the value of which is determined by the size of the localized region and the constituent components of the material.

5,670,252

BORON CONTAINING MULTILAYER COATINGS AND METHOD OF FABRICATION

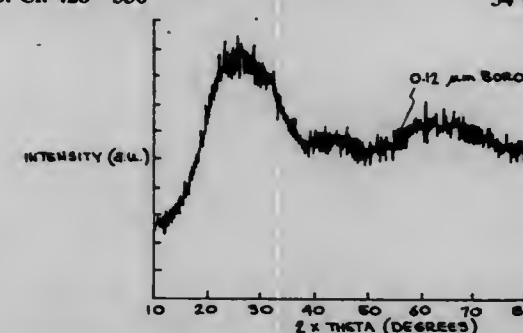
Daniel M. Makowiecki, and Alan F. Jankowski, both of Livermore, Calif., assignors to Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 334,090, Nov. 4, 1994, which is a continuation-in-part of Ser. No. 48,373, Apr. 15, 1993, Pat. No. 5,389,445, which is a division of Ser. No. 666,971, Mar. 11, 1991, Pat. No. 5,203,977. This application Nov. 4, 1994, Ser. No. 334,091

Int. Cl.⁶ B32B 18/00; C23C 14/35

U.S. Cl. 428—336

34 Claims



1. A multilayer structure consisting of a material selected from the group consisting of alternating layers of boron and boron carbide, and alternating layers of boron nitride and boron carbide.

5,670,253

CERAMIC WAFERS AND THIN FILM MAGNETIC HEADS

Raymond C. Chiu, Woodbury; Robert G. Smith, Vadnais Heights, and Billy Lee Weaver, Eagan, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 20, 1995, Ser. No. 575,627

Int. Cl.⁶ G11B 5/03

U.S. Cl. 428—336

20 Claims

1. A composite ceramic wafer comprising:

(a) a metal oxide-based substrate having a first major surface and an average thickness in the range from about 0.5 to about 5 millimeters; and

(b) a polycrystalline, beta silicon carbide layer on said first major surface, said beta silicon carbide layer having an average thickness in the range from about 3 to about 20 micrometers and an average surface roughness in the range from about 3 to about 25 Angstroms.

5,670,254

COVER TAPE FOR SURFACE MOUNT DEVICE PACKAGING

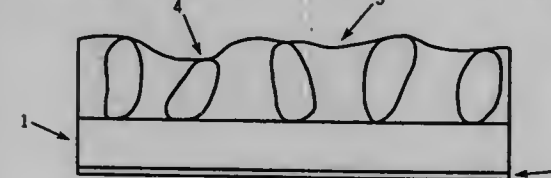
Sohail Akhter, Brown Deer, Wis., assignor to Brady Precision Tape Co., Milwaukee, Wis.

Continuation-in-part of Ser. No. 537,420, Sep. 29, 1995, Pat. No. 5,599,621. This application Sep. 16, 1996, Ser. No. 707,802

Int. Cl.⁶ B65D 73/02; B58/38; B32B 7/12

U.S. Cl. 428—349

18 Claims



1. A low haze, high light transmission, static dissipative, heat-sealable, tear resistant cover tape comprising an unmetallized

backing film one side of which is coated with an adhesive composition and the other side of which is coated with a first organic antistatic agent, the adhesive composition comprising at least one:

- Thermoplastic elastomer comprising a styrenic block copolymer;
- Modifying agent comprising a polyester copolymer;
- Antiblock agent comprising microspheres; and
- Second organic antistatic agent.

5,670,255

ANTIOXIDANT COMPOSITIONS FOR COATING SUBSTRATES, SUBSTRATES COATED WITH THE SAME AND METHODS FOR INHIBITING THE OXIDATION OF SUCH COMPOSITIONS APPLIED TO A SUBSTRATE

Chester S. Temple, McKees Rocks, and Luciano M. Parrinello, Allison Park, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jan. 23, 1995, Ser. No. 376,581

Int. Cl.⁶ B32B 9/00; 27/00

U.S. Cl. 428—392

24 Claims

1. A glass fiber strand comprising a plurality of glass fibers having thereon a curable composition adapted to coat the glass fibers, the composition comprising (1) an antioxidant selected from the group consisting of (a) terpene materials; (b) vitamin materials different from the terpene materials; and (c) combinations thereof in an amount of about 0.001 to about 1 weight percent based upon the weight of the total solids of the curable composition; and (2) a film-forming material capable of forming a substantially uniform continuous coating on the glass fibers, the film-forming material being selected from the group consisting of polyolefins, polyamides, polyurethanes, polyesters, acrylic polymers, vinyl polymers, acetals, polyaryl sulfones, polyether sulfones, polyimides, polyetherketones, polyphenylene oxides, polyphenylene sulfides, polycarbonates, vinyl esters, epoxides, phenolics, aminoplasts, and mixtures thereof.

5,670,256

POLYIMIDE FIBERS

Terry L. St. Clair, Poquoson; Catharine C. Fay, Yorktown, and Dennis C. Working, Norfolk, all of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 13, 1996, Ser. No. 689,760

Int. Cl.⁶ D02G 3/00

U.S. Cl. 428—395

9 Claims

1. A polyimide fiber produced from a polyimide powder prepared from the reaction product of 3,4'-oxydianiline and 4,4'-oxydiphthalic anhydride monomers and endcapped with phthalic anhydride to control the polymer molecular weight.

5,670,257

ORGANIC-INORGANIC COMPOSITE PARTICLES AND PRODUCTION PROCESS THEREFOR

Yasuhiro Sakai, Takatsuki; Tadahiyo Yoneda, Ibaraki, and Shigeaki Kuramoto, Takatsuki, all of Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan

Division of Ser. No. 340,860, Nov. 15, 1994, Pat. No. 5,503,932. This application Dec. 7, 1995, Ser. No. 568,466

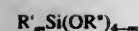
Int. Cl.⁶ B32B 5/15

U.S. Cl. 428—402

32 Claims

1. A process for producing organic-inorganic composite particles, which comprises:

a condensation step of hydrolyzing and condensing at least one silicon compound selected from the group consisting of compounds represented by General Formula (1) below and derivatives thereof:



wherein said derivatives of said compound of Formula (1) comprise
(A) substituted compounds of said silicon compound of Formula (1) wherein at least some of the hydrolyzable groups are substituted by a carboxyl group and/or β -dicarbonyl group, or
(B) a lower condensation product obtained by partial hydrolysis and condensation of said silicon compounds of Formula (1), substituted compounds (A) and mixtures thereof,

where:

R' indicates a monovalent group selected from the group consisting of alkyl groups of 1-10 carbon atoms, aryl groups of 6-10 carbon atoms and unsaturated aliphatic residual groups of 2-4 carbon atoms, which may have a substituent group;
R'' indicates a hydrogen atom or a monovalent group selected from the group consisting of alkyl groups of 1-5 carbon atoms and acyl groups of 2-5 carbon atoms;
m indicates an integer of 0-3;
when m is 2, the two R's may be either different from or identical with one another;
when m is 3, the three R's may differ from one another, or two or more of the R's may be identical;
when 4-m is 2, the two OR''s may be either different from or identical with one another;
when 4-m is 3, the three OR''s may be either different from each other, or two or more of the OR''s may be identical; and
when 4-m is 4, the four OR''s may be different from each other, or two or more of the OR''s may be identical;
with the proviso that when a single compound of Formula 1 is used, said compound is selected from the group consisting of compounds where m=1, and that when 2 or more silicon compounds used together, at least one of said compounds of Formula 1 is selected from the group consisting of compounds of m=1 in said Formula (1) and derivatives thereof; and a compound selected from the group consisting of compounds of m=0 in said Formula (1) and derivatives thereof;
to give condensed particles; and
a heat-treatment step of treating said condensed particles by heating at a temperature of 100° C. to 1000° C. to obtain particle bodies of organic-inorganic composite particles.

5,670,258

TREATED FLUOROALUMINOSILICATE GLASS

Sumita B. Mitra, West St. Paul; Scott R. Culler, Burnsville, and Bing Wang, Maplewood, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Division of Ser. No. 237,035, May 3, 1994, Pat. No. 5,453,456, which is a division of Ser. No. 887,619, May 22, 1992, Pat. No. 5,332,429, which is a continuation-in-part of Ser. No. 708,467, May 31, 1991, abandoned. This application Jun. 2, 1995, Ser. No. 460,577
Int. Cl. B32B 5/16

U.S. Cl. 428-405

19 Claims

1. A treated fluoroaluminosilicate glass comprising an acid-reactive organofluoroaluminosilicate particulate glass having an ion-containing, siloxy-containing coating, made by the process comprising the steps of
a) mixing finely-divided fluoroaluminosilicate glass with a non-neutral aqueous silanol solution, and
b) drying the glass.

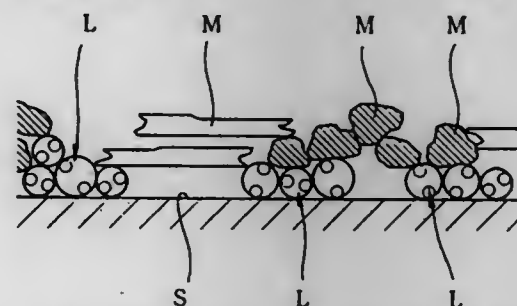
5,670,259

WATER SOLUBLE PYROLYTIC PAINT

Yoshitaka Hamada, Kawasaki, and Yo Kameyama, Tokyo, both of Japan, assignors to Heat System Research & Industry, Inc., Tokyo, Japan
Filed Dec. 29, 1995, Ser. No. 581,202
Int. Cl. C09D 1/02; 5/00; 5/26

U.S. Cl. 428-450

8 Claims



1. A water soluble pyrolytic paint, comprising the following components (a) and (b) in admixture:

- (a) a mixture that contains:
(1) at least one metal carbide with the metal carbide(s) being present in the mixture in a total amount of 15 to 45 weight %;
(2) at least one metal nitride with the metal nitride(s) being present in the mixture in a total amount of 0.5 to 5 weight %;
(3) at least one metal oxide with the metal oxide(s) being present in the mixture in a total amount of 3 to 10 weight %;
(4) at least one metal boride with the metal boride(s) being present in the mixture in a total amount of 10 to 30 weight %;
(5) at least one metal silicide with the metal silicide(s) being present in the mixture in a total amount of 0.5 to 25 weight %;
(6) at least one additive metal selected from the group consisting of tungsten and nickel, with the additive metal(s) being present in the mixture in a total amount of 10 to 25 weight %; and
(b) a solvent that contains:
(1) sodium citrate in amount of 2 to 3 weight %;
(2) ethylene glycol in an amount of 2 to 2.5 weight %;
(3) silicic acid anhydride, sodium silicate or a mixture thereof, in a total amount of 5 to 10 weight %; and
(4) water.

5,670,260

RADIATION-CURED ADHESIVE FILM HAVING DIFFERENTIAL SURFACE ADHESION

Michael J. Zajackowski, Yoe; David A. Krupa, Mt. Wolf, and Barbara A. Stutzman, Dover, all of Pa., assignors to Adhesives Research, Inc., Glen Rock, Pa.
Filed Apr. 21, 1995, Ser. No. 426,662
Int. Cl. B32B 7/12; 15/04

U.S. Cl. 428-345

20 Claims

1. A radiation-cured adhesive film comprising a backing layer having coated thereon an adhesive copolymer layer, said copolymer comprised of the copolymerization reaction product of one or more urethane oligomers A, at least one macromer C having a molecular weight of from 300 to 50,000 and defined by the formula $X-(Y)_p-Z-R$ where X is a moiety copolymerizable with said urethane oligomer or capable of attachment to said copolymerized components A, B and C, Y is a divalent linking group, Z is a hydrophilic homo- or copolymeric moiety, R is a terminal group, and p is 0 or 1, and optionally one or more non-macromeric B monomers, said adhesive layer having a first surface portion in contact with said backing layer and having a second opposing surface portion not in contact with the backing

layer, and the ratio of the average peel adhesion values of said first and second surface portions being at least 2:1, respectively.

5,670,261

COMPOSITE METAL SHEET AND METHOD FOR PRODUCING IT

Toru Kameya, Chiba, and Katsuaki Takano, Ichikawa, both of Japan, assignors to Taiyo Steel Co., Ltd., Tokyo, Japan
Filed Mar. 28, 1995, Ser. No. 411,882

Claims priority, application Japan, Aug. 25, 1994, 6-222727
Int. Cl. B32B 15/08

U.S. Cl. 428-457

7 Claims

1. A composite metal sheet having, on the surface of a metal substrate in the following order:

- (a) a chemically treated layer formed by chemically treating said metal substrate to improve adhesion by the following layer,
(b) an undercoat layer of an organic resin-containing paint thereon,
(c) a two-layered resin interlayer with a thickness of from 50 to 300 μ m composed of (i) an adhesive layer of a modified polyolefin resin applied on said undercoat layer, and (ii) a polyolefin resin layer, having a surface modified to have functional groups thereon, wherein the amount of oxygen (O) and carbon (C) present in the functional groups have an O/C ratio from 0.05 to 0.30,
(d) a top coat layer applied on the surface modified to have functional groups, with a thickness of from 8 to 35 μ m made of a urethane-curing polyester resin or a urethane-curing fluorine resin.

5,670,262

PRINTING WIRING BOARD(S) HAVING POLYIMIDEBENZOXAZOLE DIELECTRIC LAYER(S) AND THE MANUFACTURE THEREOF

David A. Dalman, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed May 9, 1995, Ser. No. 437,710
Int. Cl. B32B 15/08; H05K 1/02

U.S. Cl. 428-458

33 Claims

1. A polyimidebenzoxazole (PIBO) film having an electrically conductive layer adhered to at least one face thereto wherein the PIBO film has a tensile strength greater than about 200 MPa at 25° C. and an elastic modulus greater than about 0.5 GPa at about 25° C.

5,670,263

TREATMENT OF RUBBER ARTICLES

Keith Frederick Gazeley, Hertford, United Kingdom, assignor to Tun Abdul Razak Research Centre, Hertford, United Kingdom
Continuation of Ser. No. 140,301, Oct. 22, 1993, abandoned.

This application Mar. 21, 1995, Ser. No. 408,136

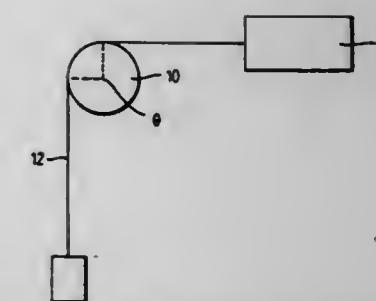
Claims priority, application United Kingdom, Oct. 23, 1992, 92 22 292.6

Int. Cl. B32B 25/04; 25/12

U.S. Cl. 428-492

7 Claims

1. An article of rubber having a surface provided with an adherent anti-tack coating which coating comprises a mixture of: a carboxylated synthetic rubber latex polymer having a film forming temperature (MFFT) of 10° C. or above; with a partly or wholly water-soluble organic polymeric hydroxy material; the weight ratio of the said carboxylated synthetic rubber latex polymer to the said



partly or wholly water-soluble organic polymeric hydroxy material in the anti-tack coating being from 0.25:1 to 20:1.

5,670,264

THERMAL BARRIER

Steven William Sheridan, Manchester, Mo., assignor to Shertech, Inc., St. Louis, Mo.

Continuation-in-part of Ser. No. 240,821, May 10, 1994, abandoned. This application Sep. 5, 1995, Ser. No. 523,225
Int. Cl. B32B 3/28; 15/00

U.S. Cl. 428-594

10 Claims



1. A heat shield comprising a plurality of sheets arranged in a stack, each of the sheets having a centrally located field surrounded by an uninterrupted peripheral edge, the plurality of sheets being joined along the edges, a portion of the plurality of sheets having standoffs adapted to contact at least one adjacent sheet of the plurality of sheets to generally separate each of the plurality of sheets from the adjacent sheet thereby creating a space between each of the plurality of sheets and the adjacent sheet, each of the plurality of sheets contacting the adjacent sheets at a plurality of separate standoff locations within the field and being biased toward the adjacent sheets to inhibit the plurality of sheets from contacting each other except at the standoff locations and edges and to encourage the plurality of sheets to continuously contact each other at the plurality of separate standoff locations.

5,670,265

STEEL COMPONENT WITH AN ELECTROPLATED ANTI-CORROSIVE COATING AND PROCESS FOR PRODUCING SAME

Karl Ludwig Grell, Aurachtal, and Reiner Woltmann, Herzogenaurach, both of Germany, assignors to Ina Walzinger Schaeffler KG, Germany

Continuation of Ser. No. 949,636, Dec. 1, 1992, abandoned.

This application Feb. 9, 1995, Ser. No. 385,797

Claims priority, application Germany, Oct. 20, 1990, 40 33 459.7; Aug. 2, 1991, 41 25 585.2

Int. Cl. C25D 7/10; B32B 15/18; F16C 19/00

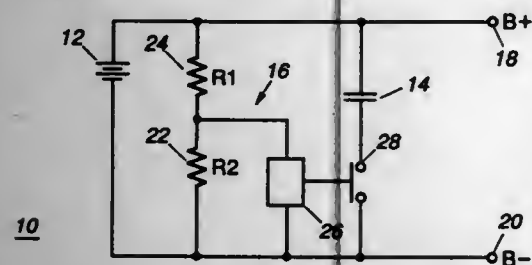
U.S. Cl. 428-612

10 Claims

1. A process for the production of a rolling bearing component with an electrolytically applied anti-corrosive metallic coating on its surface comprising electroplating a hardened rolling bearing component of steel with a Vickers hardness of at least 650 HV and a surface roughness R_z between 0.3 and 9.0 μ m to provide the anti-corrosive metallic coating as a ZnCo coating which is thinner than the surface roughness R_z and has a thickness of 0.1 to 3.0 μ m.
5. A hardened rolling bearing component with an anti-corrosive coating produced by the process of claim 1.

5,670,266
HYBRID ENERGY STORAGE SYSTEM
 George Thomas, Lawrenceville, Ga., José María Fernandez, Sunrise, Fla., and Georgina More, Duluth, Ga., assignors to Motorola, Inc., Schaumburg, Ill.
 Filed Oct. 28, 1996, Ser. No. 739,475
 Int. Cl.⁶ H01M 16/00

U.S. Cl. 429—3

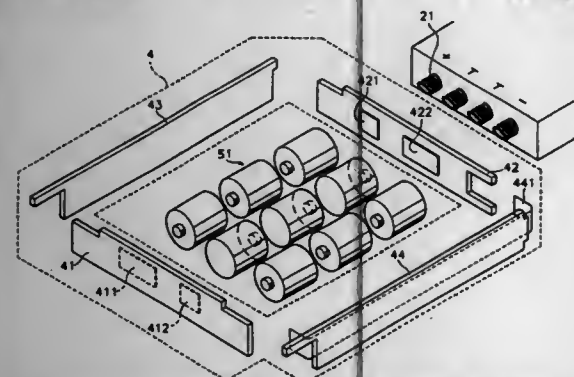


20 Claims

1. An energy storage system comprising:
 - a first energy storage device consisting of a battery having an impedance for providing a substantially constant power output;
 - a second energy storage device consisting of a high power electrochemical capacitor device for providing intermittent bursts of high voltage output; and
 - a controller responsive to changes in battery impedance, and controlling a switch for electrically coupling said capacitor to a load.

5,670,267
BATTERY STORAGE PACK ADAPTER FOR A PORTABLE COMPUTER
 Cheon-Yeol Lee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
 Filed Jun. 28, 1995, Ser. No. 496,066
 Claims priority, application Rep. of Korea, Jun. 30, 1994, 94-15559

U.S. Cl. 429—9



20 Claims

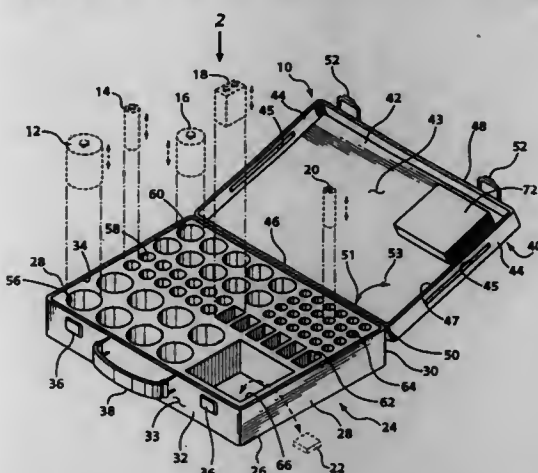
1. A battery storage pack for a battery-operated portable computer having a battery compartment including resilient contacts, said battery storage pack comprising:
 - a main battery storage pack disposed in said battery compartment which removably stores a first battery in an interior thereof, said main battery storage pack having a plurality of grooves through which each of said resilient contacts connect with respective terminals of said first battery and a battery door by which a user accesses said interior of said main battery storage pack;
 - an auxiliary battery unit capable of being removably stored in said interior of said main battery storage pack in place of said first battery, said auxiliary battery unit including:
 - at least one second battery having a smaller size than said first battery; and
 - an adapter which compensates for said smaller size of said second batteries in said interior of said main battery storage

pack, and by which each of said resilient contacts operably connect with corresponding terminals of said second batteries; and
 at least one catch disposed on an exterior portion of said main battery storage pack which prevents said main battery storage pack from being completely removed from said compartment of said portable computer.

5,670,268
DRY CELL BATTERY STORAGE CASE
 Diane S. Mancusi, 226 Corona Ave., Staten Island, N.Y. 10306
 Filed Mar. 4, 1996, Ser. No. 610,461
 Int. Cl.⁶ H01M 2/10

U.S. Cl. 429—9

12 Claims



1. A dry cell battery storage case maintaining miscellaneous parts therein and allowing a plurality of different sized and shaped batteries to be easily secured therein for organized storage while properly evacuating any gases developed from the plurality of different sized and shaped batteries stored therein and maintaining proper ventilation for longevity of the plurality of different sized and shaped batteries stored therein and allowing the plurality of different sized and shaped batteries stored therein to be easily removed therefrom by providing an exposed portion of the plurality of different sized and shaped batteries stored therein for gripping, comprising:
 - a hollow, open top, parallelepiped-shaped lower portion; said hollow, open top, parallelepiped-shaped lower portion having an open top, a generally rectangular-shaped flat bottom with a long front side, a long back side, and a pair of short sides, a pair of generally rectangular-shaped flat short side walls extending vertically upwardly from said pair of short sides of said generally rectangular-shaped flat bottom of said hollow, open top, parallelepiped-shaped lower portion, a generally rectangular-shaped flat long back wall extending vertically upwardly from said long back side of said generally rectangular-shaped flat bottom of said hollow, open top, parallelepiped-shaped lower portion, and a generally rectangular-shaped flat long front wall extending vertically upwardly from said long front side of said lower portion generally rectangular-shaped flat bottom of said hollow, open top, parallelepiped-shaped lower portion and having an outer surface and a pair of short sides; said pair of generally rectangular-shaped flat short side walls of said hollow, open top, parallelepiped-shaped lower portion, said generally rectangular-shaped flat long back wall of said hollow, open top, parallelepiped-shaped lower portion, and said generally rectangular-shaped flat long front wall of said hollow, open top, parallelepiped-shaped lower portion forming a continuous perimeter that together with said generally rectangular-shaped flat bottom of said hollow, open top, parallelepiped-shaped lower portion defining internal space;
 - a hollow, open bottom, parallelepiped-shaped upper lid portion being pivotally mounted to said hollow, open top,

- a hollow, open top, parallelepiped-shaped lower portion; said hollow, open top, parallelepiped-shaped lower portion having an open top, a generally rectangular-shaped flat bottom with a long front side, a long back side, and a pair of short sides, a pair of generally rectangular-shaped flat short side walls extending vertically upwardly from said pair of short sides of said generally rectangular-shaped flat bottom of said hollow, open top, parallelepiped-shaped lower portion, a generally rectangular-shaped flat long back wall extending vertically upwardly from said long back side of said generally rectangular-shaped flat bottom of said hollow, open top, parallelepiped-shaped lower portion, and a generally rectangular-shaped flat long front wall extending vertically upwardly from said long front side of said lower portion generally rectangular-shaped flat bottom of said hollow, open top, parallelepiped-shaped lower portion and having an outer surface and a pair of short sides; said pair of generally rectangular-shaped flat short side walls of said hollow, open top, parallelepiped-shaped lower portion, said generally rectangular-shaped flat long back wall of said hollow, open top, parallelepiped-shaped lower portion, and said generally rectangular-shaped flat long front wall of said hollow, open top, parallelepiped-shaped lower portion forming a continuous perimeter that together with said generally rectangular-shaped flat bottom of said hollow, open top, parallelepiped-shaped lower portion defining internal space;
- a hollow, open bottom, parallelepiped-shaped upper lid portion being pivotally mounted to said hollow, open top,

parallelepiped-shaped lower portion and movable through a closed position and an open position relative to said hollow, open top, parallelepiped-shaped lower portion; said hollow, open bottom, parallelepiped-shaped upper lid portion having a generally rectangular-shaped flat top with an inner surface, a long front side, a long back side, and a pair of short sides, a pair of generally rectangular-shaped flat short side walls extending vertically downwardly from said pair of short sides of said generally rectangular-shaped flat top of said hollow, open bottom, parallelepiped-shaped upper lid portion, generally rectangular-shaped flat long back wall extending vertically downwardly from said long back side of said generally rectangular-shaped flat top of said hollow, open bottom, parallelepiped-shaped upper lid portion, a generally rectangular-shaped flat long front wall extending vertically downwardly from said long front side of said generally rectangular-shaped flat top of said hollow, open bottom, parallelepiped-shaped upper lid portion and having an outer surface and a pair of short sides; said pair of generally rectangular-shaped flat short side walls of said hollow, open bottom, parallelepiped-shaped upper lid portion, said generally rectangular-shaped flat long back wall of said hollow, open bottom, parallelepiped-shaped upper lid portion, and said generally rectangular-shaped flat long front wall of said hollow, open bottom, parallelepiped-shaped upper lid portion forming a continuous perimeter that together with said generally rectangular-shaped flat top of said hollow, open bottom, parallelepiped-shaped upper lid portion defining a parallelepiped-shaped internal space; each of said pair of generally rectangular-shaped flat short side walls of said hollow, open bottom, parallelepiped-shaped upper lid portion has an elongated and slender vent through slot extending there-through and longitudinally therealong, so that when said hollow, open bottom, parallelepiped-shaped upper lid portion assumes said closed position the any gases developed from the plurality of different sized and shaped batteries stored therein is properly evacuated therefrom while maintaining proper ventilation for longevity of the plurality of different sized and shaped batteries stored therein;

- c) pivoting means for pivotally mounting said hollow, open bottom, parallelepiped-shaped upper lid portion to said hollow, open top, parallelepiped-shaped lower portion; said pivoting means including one of a piano hinge and spaced-apart hinges, so that said hollow, open bottom, parallelepiped-shaped upper lid portion can assume said closed position and said open position relative to said hollow, open top, parallelepiped-shaped lower portion; said pivoting means being disposed on said generally rectangular-shaped flat long back wall of said hollow, open top, parallelepiped-shaped lower portion and on said generally rectangular-shaped flat long back wall of said hollow, open bottom, parallelepiped-shaped upper lid portion, so that a moment arm created by said hollow, open bottom, parallelepiped-shaped upper lid portion when said hollow, open bottom, parallelepiped-shaped upper lid portion assumes said open position is reduced;
- d) a pair of snap lock catch parts; each of said pair of snap lock catch parts being disposed on said outer surface of said generally rectangular-shaped flat long front wall of said hollow, open top, parallelepiped-shaped lower portion in proximity to each of said pair of short sides of said generally rectangular-shaped flat long front wall of said hollow, open top, parallelepiped-shaped lower portion;
- e) a pair of snap lock latch parts; each of said pair of snap lock latch parts being disposed on said outer surface of said generally rectangular-shaped flat long front wall of said hollow, open bottom, parallelepiped-shaped upper lid portion in proximity to each of said pair of short sides of said generally rectangular-shaped flat long front wall of said hollow, open bottom, parallelepiped-shaped upper lid portion; said pair of snap lock latch parts locking engaging said pair of snap lock catch parts, so that said hollow, open bottom, parallelepiped-shaped upper lid portion is maintained in said closed position;
- f) a foam and parallelepiped-shaped holder insert being disposed in said hollow, open top, parallelepiped-shaped lower portion and having a plurality of throughbores for removably receiving the plurality of different sized and shaped batteries; said plurality of throughbores in said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion expanding when the plurality of different sized and shaped batteries are received therein as a result of the inherent resiliency of foam and causing said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion to compress against the plurality of different sized and shaped batteries which abut against said inner surface of said generally rectangular-shaped flat top of said hollow, open bottom, parallelepiped-shaped upper lid portion when said hollow, open bottom, parallelepiped-shaped upper lid portion assumes said closed position, so that the plurality of different sized and shaped batteries are easily secured therein for organized storage in said dry cell battery storage case; said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion being sized to fill said internal space of said hollow, open top, parallelepiped-shaped lower portion to a height slightly below said open top of said hollow, open top, parallelepiped-shaped lower portion, so that when the plurality of different sized and shaped batteries are easily secured therein a portion of each of the plurality of different sized and shaped batteries extends above said foam, parallelepiped-shaped flat holder insert in said hollow, open top, parallelepiped-shaped lower portion providing the exposed portion of the plurality of different sized and shaped batteries for gripping and easy removal thereof; said plurality of throughbores in said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion having at least one first sized and shaped throughbore, at least one second sized and shaped throughbore, at least one third sized and shaped throughbore, at least one fourth sized and shaped throughbore, at least one fifth sized and shaped throughbores, and a compartment sized and shaped throughbore having a width and a length; and
- g) a foam and parallelepiped-shaped insert disposed on said inner surface of said generally rectangular-shaped flat top of said hollow, open bottom, parallelepiped-shaped upper lid portion and being confined to directly above said compartment sized and shaped throughbore in said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion and having a width and length equivalent to said width and length of said compartment sized and shaped throughbore in said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion when said hollow, open bottom, parallelepiped-shaped upper lid portion assumes said closed position, so that the miscellaneous parts are maintained in said dry cell battery storage case.

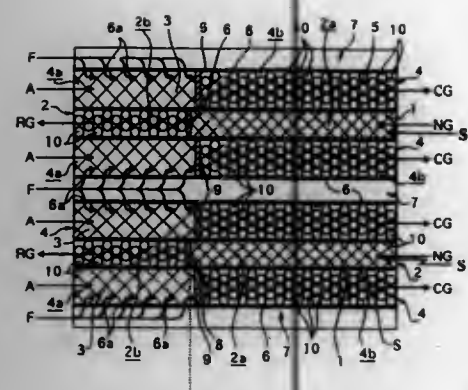
ing the plurality of different sized and shaped batteries; said plurality of throughbores in said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion expanding when the plurality of different sized and shaped batteries are received therein as a result of the inherent resiliency of foam and causing said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion to compress against the plurality of different sized and shaped batteries which abut against said inner surface of said generally rectangular-shaped flat top of said hollow, open bottom, parallelepiped-shaped upper lid portion when said hollow, open bottom, parallelepiped-shaped upper lid portion assumes said closed position, so that the plurality of different sized and shaped batteries are easily secured therein for organized storage in said dry cell battery storage case; said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion being sized to fill said internal space of said hollow, open top, parallelepiped-shaped lower portion to a height slightly below said open top of said hollow, open top, parallelepiped-shaped lower portion, so that when the plurality of different sized and shaped batteries are easily secured therein a portion of each of the plurality of different sized and shaped batteries extends above said foam, parallelepiped-shaped flat holder insert in said hollow, open top, parallelepiped-shaped lower portion providing the exposed portion of the plurality of different sized and shaped batteries for gripping and easy removal thereof; said plurality of throughbores in said foam and parallelepiped-shaped holder insert in said hollow, open top, parallelepiped-shaped lower portion having at least one first sized and shaped throughbore, at least one second sized and shaped throughbore, at least one third sized and shaped throughbore, at least one fourth sized and shaped throughbore, at least one fifth sized and shaped throughbores, and a compartment sized and shaped throughbore having a width and a length; and

5,670,269
MOLTEN CARBONATE POWER GENERATION SYSTEM WITH PLATE REFORMER
 Kouki Hamada, Yokohama; Minoru Mizusawa, Matsudo, and Minoru Koga, Kawasaki, all of Japan, assignors to Ishikawajima-Harima Heavy Industries, Co., Ltd., Tokyo, Japan
 Division of Ser. No. 497,207, Jun. 30, 1995, Pat. No. 5,609,834. This application Nov. 27, 1996, Ser. No. 757,809
 Claims priority, application Japan, Jul. 5, 1994, 6-174877
 Int. Cl.⁶ H01M 8/18

U.S. Cl. 429—20

4 Claims

1. A molten carbonate power generation system having:
 - a molten carbonate fuel cell wherein a plurality of cell units are stacked up with separators between each unit and the separator defines anode and cathode chambers; and



a plate reformer having plural units piled together with fuel introducing chambers sandwiched between the units, each unit including a pair of combustion chambers, a reforming chamber in between the combustion chambers, and heat transfer plates sandwiched between the reforming chamber and the combustion chambers, the fuel introducing chamber having a number of dispersion holes and being sandwiched between one combustion chamber of one unit and another combustion chamber of another unit;

and the molten carbonate power generation system comprising: a plate reformer having:

an inlet end and an outlet end of each reforming chamber, the inlet end for introduction of reforming material gas and the outlet end for emission of reformed gas;

an inlet end and an outlet end of each combustion chamber, the inlet end for introduction of air and fuel and the outlet end for emission of combusted gas;

a gas permeable partition wall provided in each reforming chamber for partitioning each said reforming chamber into a reforming reaction section having the inlet end of the reforming chamber and a heat exchange section having the outlet end of the reforming chamber, the reforming reaction section filled with reforming catalyst and the heat exchange section filled with a heat transfer component; and

a gas permeable partition wall provided in each combustion chamber for partitioning each said combustion chamber into a combustion reaction section having the inlet end of the combustion chamber and a heat exchange section having the outlet end of the combustion chamber, the combustion reaction section filled with combustion catalyst and the heat exchange section filled with a heat transfer component,

wherein the inlet end of each combustion chamber is aligned to the outlet end of each reforming chamber and the inlet end of each reforming chamber is aligned to the outlet end of each combustion chamber, and the partition walls of each reforming chamber and each combustion chamber are provided such that they are approximately lined up such that the reforming reaction section of each reforming chamber generally overlaps the heat exchange section of each combustion chamber, while the combustion reaction section of each combustion chamber generally overlaps the heat exchange section of each reforming chamber;

material gas supplying means for supplying material gas to be reformed to the reforming reaction section of the reforming chamber;

anode exhaust gas line for connecting the anode chamber of the fuel cell and the fuel introducing chamber and supplying anode exhaust gas to the fuel introducing chamber;

cathode exhaust gas line for connecting the cathode chamber of the fuel cell and the combustion reaction section of the combustion chamber and supplying cathode exhaust gas to the combustion reaction section of the combustion chamber; and

anode gas feed line for connecting the heat exchange section of the reforming chamber and the anode chamber of the fuel cell as well as supplying reformed gas to the anode chamber.

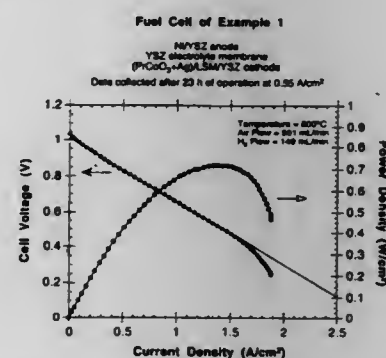
5,670,270 ELECTRODE STRUCTURE FOR SOLID STATE ELECTROCHEMICAL DEVICES

Sten A. Wallin, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 16, 1995, Ser. No. 559,582
Int. Cl.⁶ H01M 8/10

U.S. Cl. 429—33

9 Claims



1. A composite oxygen electrode/electrolyte structure for a solid state electrochemical device having a porous composite electrode in contact with a dense electrolyte membrane, said electrode comprising:

- a porous structure having interpenetrating networks of an ionically-conductive material and an electronically-conductive material; and
- an electrocatalyst different from the electronically-conductive material, dispersed within the pores of the porous structure.

5,670,271 MANGANESE (III)-DOPED NICKEL (II) HYDROXIDE POWDERS

Peter Axmann, Göttingen, Germany, assignor to H. C. Starck GmbH & Co., KG, Goslar, Germany

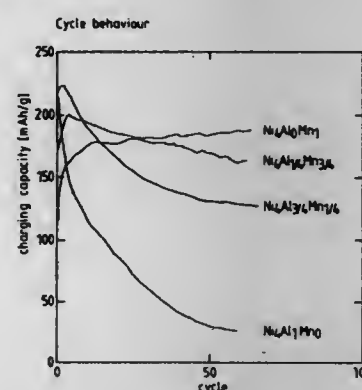
Filed Nov. 1, 1995, Ser. No. 551,451

Claims priority, application Germany, Nov. 9, 1994, 44 39 989.8

U.S. Cl. 429—59

Int. Cl.⁶ H01M 4/32

20 Claims



1. Cation doped nickel(II) hydroxide powders, wherein at least 50 mole % of the cation dopants are present in the trivalent oxidation state, characterized in that 5 to 60 mole % of the dopants present in the trivalent oxidation state are trivalent elements selected from the group consisting of aluminum, gallium, indium, iron, cobalt, chromium and rare earth elements, balance manganese(III).

11. A battery comprising a first positive electrode made of a nickel (II) hydroxide powder according to either of claims 1 or 2, a counter-electrode and an electrolyte.

5,670,272 BATTERY PACKAGING FOR FLAT CELL BATTERIES HAVING A COMPRESSING MATERIAL FOR THE CELL STACK

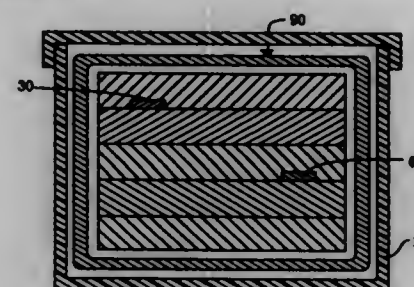
S. Scot Cheu, and Russell D. Moulton, both of San Jose, Calif., assignors to Valence Technology, Inc., Henderson, Nev.

Filed Mar. 31, 1994, Ser. No. 221,437

Int. Cl.⁶ H01M 6/12

U.S. Cl. 429—162

2 Claims



1. A battery assembly comprising: a housing having a chamber therein containing a laminar battery surrounded by a heat-shrinkable compressive material, and an inert gas;
- a laminar battery having at least one anode layer, one cathode layer and one electrolyte layer between said anode and cathode layers;
- a layer of heat-shrink material surrounding and in contact with the laminar battery, said material having been heated to apply compressive pressure to the laminar battery and insure contact between the electrolyte and anode and cathode layers; and an inert gas within said chamber.

5,670,273 METHOD OF PREPARING ELECTROCHEMICAL CELLS

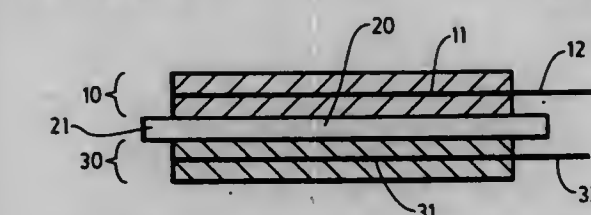
David A. Velasquez, Fairfield, Calif.; Douglas B. Holmes, Lexington, and E. Lawrence Goglin, Sudbury, both of Mass., assignors to Valence Technology, Inc., Henderson, Nev.

Filed Feb. 22, 1996, Ser. No. 603,894

Int. Cl.⁶ H01M 6/12

U.S. Cl. 429—162

20 Claims



1. A method of preparing an electrochemical cell comprising the steps of:
 - (a) forming an anode film onto at least one surface of an anode current collector to form an anode;
 - (b) forming a cathode film onto at least one surface of a cathode current collector to form a cathode; and
 - (c) interposing a polymeric layer containing an electrolyte solution between the anode and cathode wherein the polymeric electrolyte layer has a surface area that is larger than that of the anode film and cathode film wherein the perimeter of the polymeric electrolyte layer forms an exposed strip that serves as a barrier to direct contact between the anode current collector and cathode current collector provided that either (i) in forming the anode an anode film is formed on both surfaces of the anode current collector, or (ii) in forming the cathode a cathode film is formed on both surfaces of the cathode current collector, or (iii) in forming the anode, an anode film is formed on both surfaces of the anode current collector and in forming the cathode a cathode film is formed on both surfaces of the cathode current collector.

5,670,274 BATTERY STRAP HANDLE

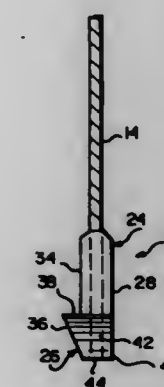
Larry L. Forrer, Reading, Pa., assignor to Exide Corporation, Reading, Pa.

Filed Dec. 18, 1995, Ser. No. 574,186

Int. Cl.⁶ H01M 2/02; 2/04

U.S. Cl. 429—187

13 Claims



8. A storage battery and handle assembly comprising: a battery housing having a pair of side walls, a pair of end walls, a bottom wall and a cover, each end wall having a socket formed by a pair of flanges parallel to and spaced from said one end wall, said flanges having mutually opposed end faces and defining an entry opening into a slot between said flanges and said end wall, said end wall also provided with a horizontally elongated rib located below but in general vertical alignment with said slot; and a strap with connectors at each end thereof, each connector including a plate portion having flat front and back sides, a pair of side edges and a bottom, with a horizontally projecting strip extending across the bottom of the plate portion, said strip extending beyond said side edges and the front side of the plate portion, and lying flush with the flat back side of the plate portion, said horizontal projecting strip thereby providing horizontal shoulder extending outwardly from and across the front side of the plate portion, said plate portion lying in said slot, with said horizontal shoulder in flush engagement with lower edge surfaces of said pair of flanges, and with a lower edge of said horizontally projecting strip engaged with a top side of said horizontally elongated rib, thereby releasably locking the connector within the slot.

5,670,275 ION CONDUCTIVE MATERIAL FOR SECONDARY BATTERY

Masahisa Fujimoto, Koji Nishio, and Toshihiko Saitoh, all of Osaka, Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

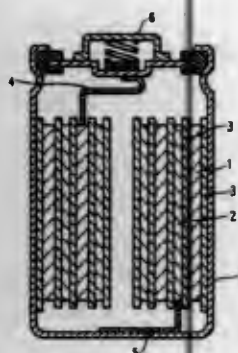
Division of Ser. No. 466,197, Jun. 6, 1995, Pat. No. 5,601,949, which is a continuation-in-part of Ser. No. 134,079, Oct. 8, 1993, abandoned. This application Oct. 18, 1996, Ser. No. 733,529

Claims priority, application Japan, Nov. 19, 1992, 4-335660
Int. Cl.⁶ H01M 4/48

U.S. Cl. 429—218

4 Claims

1. A secondary battery comprising:
 - a positive electrode having a material containing reversibly intercalated lanthanoid metal ions, said material being selected from the group consisting of BaSmNiO₅, SmMnO₃, Sm₂Fe₂O₁₂, BaEu₂NiO₅, EuFeO₃, EuFe₂O₁₂, EuMnO₃, EuYbFe₂O₄, LaNiO₃, La₂CoO₄, LaNi_{0.6}Co_{0.4}O₃, LaMnO_{4.15}, La₂Mn₂O₁₁, LaMnO₃, LaMn₂O₁₂ and LaMnO_{3.15};
 - a negative electrode having a carbon composition intercalating lanthanoid ions reversibly; and



an electrolyte having an organic solvent and a solute, said solute including a lanthanoid metal salt.

5,670,276

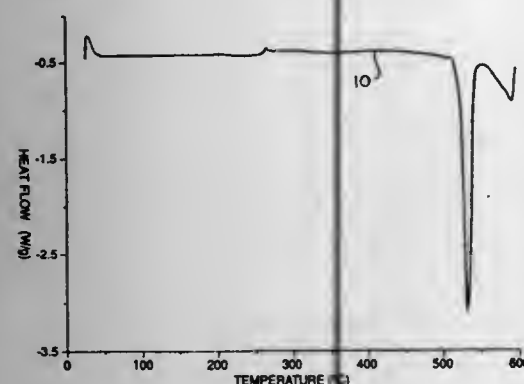
ALTERNATE SYNTHETIC METHOD FOR MIXED METAL OXIDE CATHODE MATERIALS

Esther S. Takeuchi, East Amherst, and Randolph A. Leising, Williamsville, both of N.Y., assignors to Wilson Greatbatch Ltd., Clarence, N.Y.

Filed Dec. 4, 1995, Ser. No. 567,362
Int. Cl.⁶ H01M 4/02

U.S. Cl. 429—219

34 Claims



1. An electrochemical cell having an anode of a Group IA metal which is electrochemically oxidized to form metal ions in the cell upon discharge to generate an electron flow in an external electrical circuit connected to the cell, a cathode of electronically conductive material, and an ionically conductive electrolyte solution activating the anode and the cathode, the cathode comprising a metal oxide matrix material characterized as a reaction product of vanadium oxide and a mixture of either a copper nitrate and a silver oxide or a copper oxide and a silver nitrate, the metal oxide matrix material having the general formula $\text{Cu}_x\text{Ag}_y\text{V}_z\text{O}_2$ wherein $0.01 \leq x \leq 1.0$, $0.1 \leq y \leq 1.0$ and $5.01 \leq z \leq 6.5$.

5,670,277

LITHIUM COPPER OXIDE CATHODE FOR LITHIUM CELLS AND BATTERIES

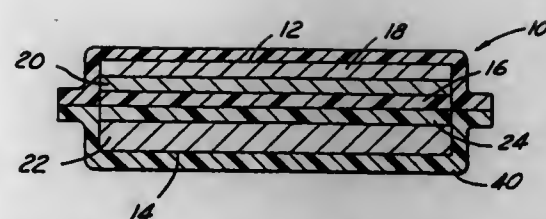
Jeremy Barker, and M. Yazid Saidi, both of Henderson, Nev., assignors to Valence Technology, Inc., Henderson, Nev.

Filed Jun. 13, 1996, Ser. No. 664,092
Int. Cl.⁶ H01M 4/02

U.S. Cl. 429—220

20 Claims

1. A lithium ion battery which comprises a positive electrode and negative electrode, said negative electrode comprising an



intercalation active material, and said positive electrode comprising an active material consisting of lithium copper oxide.

5,670,278

SUPPORTS AND ELECTRODES FOR PRIMARY AND SECONDARY ELECTRIC CELLS

Dieter Disselbeck, Bad Soden, and Herbert Wellenhofer, Boblingen, both of Germany, assignors to Hoechst Trevira GmbH & Co KG, Germany

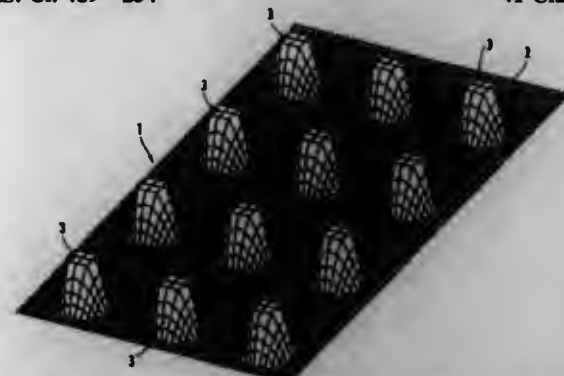
Filed Feb. 1, 1996, Ser. No. 595,198

Claims priority, application Germany, Feb. 3, 1995, 19503447.3

Int. Cl.⁶ H01M 4/74

U.S. Cl. 429—234

41 Claims



1. A support for positive electrodes of primary or secondary electric cells, said support comprising an open-mesh, three-dimensional network structure composed of plastics threads coated unbrokenly with one or more conducting, metal coats and, to form the three-dimensional structure, being provided with humplike depressions and/or elevations which are distributed over its surface and in whose region the distance between the plastics threads is increased, wherein at least the outer metal coat of the plastics threads consists of a valve metal.

5,670,279

LITHOGRAPHY EXPOSURE MASK DERIVED FROM NANOCRYSTAL PRECURSORS AND A METHOD OF MANUFACTURING THE SAME

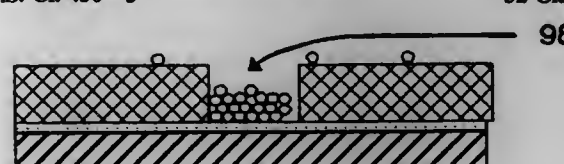
Avery N. Goldstein, Oak Park, Mich., assignor to Starfire Electronic Development & Marketing, Ltd., Bloomfield Hills, Mich.

Continuation-in-part of Ser. No. 217,160, Mar. 24, 1994, Pat. No. 5,576,248. This application Aug. 7, 1995, Ser. No. 512,167

Int. Cl.⁶ G03F 9/00

U.S. Cl. 430—5

32 Claims



1. An exposure mask, comprising:
a substrate; and
a polycrystalline layer resulting from the build-up and fusion of nanocrystalline precursors having domains of less than 60

nanometers, said layer being supported and patterned directly on said substrate, said layer having substantially zero internal stress.

5,670,280

OPTICALLY CONTROLLED IMAGING PHASE MASK ELEMENT

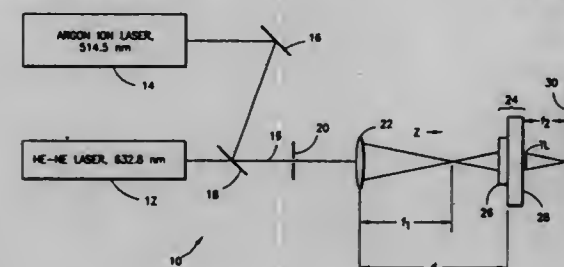
Nabil M. Lawandy, Providence, R.I., assignor to Brown University Research Foundation, Providence, R.I.

Filed May 30, 1996, Ser. No. 656,886

Int. Cl.⁶ G03F 9/00

U.S. Cl. 430—5

20 Claims



1. An optical element, comprising:
a diffractive phase shift mask for propagating therethrough an optical beam having an intensity; and
a substrate optically coupled to said diffractive phase shift mask, said substrate having an intensity dependent nonlinearity that is manifested at least by a change in an index of refraction of said substrate.

5,670,281

MASKS AND METHODS OF FORMING MASKS WHICH AVOID PHASE CONFLICT PROBLEMS IN PHASE SHIFTING MASKS

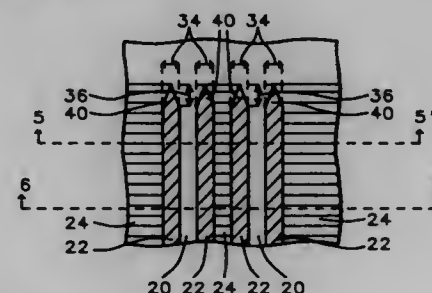
Chang-Ming Dai, Hsinchu, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jun. 17, 1996, Ser. No. 665,327

Int. Cl.⁶ G03F 9/00

U.S. Cl. 430—5

27 Claims



1. A phase shifting mask, comprising:
a transparent substrate;
a number of parallel opaque patterns formed on said transparent substrate wherein each said opaque pattern comprises two parallel sides, a width equal to the distance between said two parallel sides, an end perpendicular to said two parallel sides, and a triangular region extending from said end wherein said triangular region has a base and a height and said base of said triangular region is formed by said end;
a number of phase shifting patterns formed on said transparent substrate wherein each of said phase shifting patterns is adjacent to one of said opaque patterns; and
a number of transparent patterns formed on said transparent substrate wherein each said transparent pattern is adjacent to one of said opaque patterns.

5,670,282

METHOD FOR FORMING SILVER HALIDE GRAINS WITH MEASUREMENT OF ION CONCENTRATIONS

H. Glenn Judd, and Yun Chea Chang, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 27, 1995, Ser. No. 579,653

Int. Cl.⁶ G03C 1/015; 1/035

U.S. Cl. 430—30

6 Claims

1. A method for emulsion formation comprising providing a source of silver nitrate and a source of halide ion bringing said sources together in a vessel, in the vessel measuring silver ion and each halide ion concentration, utilizing said measurements to determine what is the composition of the silver halide particles in said vessel, and controlling the sources of halide ion and silver nitrate to control said particles composition, wherein the utilizing of said measurements to determine the composition of the particles comprises using Formulas 10, 11, and 12 to determine solid phase activity coefficients of AgCl, AgBr, and AgI.

$$RT \ln(\phi_1) = \frac{(g \cdot W_{12}) \cdot x_1^2 + (g \cdot W_{13} + p \cdot W_{12} - W_{23}) \cdot x_1 \cdot x_2 + (p \cdot W_{13}) \cdot x_1^2}{(x_1 + g \cdot x_2 + p \cdot x_3)^2} \quad (10)$$

$$RT \ln(\phi_2) = \frac{(W_{12}) \cdot x_1^2 + (W_{23} + p \cdot W_{12} - g \cdot W_{13}) \cdot x_1 \cdot x_2 + (p \cdot W_{13}) \cdot x_2^2}{(x_1 + g \cdot x_2 + p \cdot x_3)^2} \quad (11)$$

$$RT \ln(\phi_3) = \frac{(W_{13}) \cdot x_1^2 + (W_{23} + g \cdot W_{13} - p \cdot W_{12}) \cdot x_1 \cdot x_2 + (g \cdot W_{13}) \cdot x_2^2}{(x_1 + g \cdot x_2 + p \cdot x_3)^2} \quad (12)$$

W_{12} = 400 cal/mol
 W_{23} = 1787 cal/mol
 W_{13} = 1850 cal/mol
 q = 1.596
 p = 0.75

x_1, x_2, x_3 are mole fractions
 W_{12} Energy parameter associated with mixing of AgCl and AgBr to form a solid solution
 W_{23} Energy parameter associated with mixing of AgBr and AgI to form a solid solution
 W_{13} Energy parameter associated with mixing of AgCl and AgI to form a solid solution
 g Dimensionless term describing the asymmetry in the AgCl-AgBr solid solution
 p Dimensionless term describing the asymmetry in the AgCl-AgI solid solution
 ϕ_1, ϕ_2, ϕ_3 are activity coefficients and then utilizing said coefficient to determine the composition of the silver halide particles using Equations 6-8

$$a_{\text{I}^-}/a_{\text{Br}^-} = K_{\text{spAgI}} \phi_{\text{AgI}} x_{\text{AgI}} / K_{\text{spAgBr}} \phi_{\text{AgBr}} x_{\text{AgBr}} \quad (6)$$

$$a_{\text{I}^-}/a_{\text{Cl}^-} = K_{\text{spAgI}} \phi_{\text{AgI}} x_{\text{AgI}} / K_{\text{spAgCl}} \phi_{\text{AgCl}} x_{\text{AgCl}} \quad (7)$$

$$a_{\text{Cl}^-}/a_{\text{Br}^-} = K_{\text{spAgCl}} \phi_{\text{AgCl}} x_{\text{AgCl}} / K_{\text{spAgBr}} \phi_{\text{AgBr}} x_{\text{AgBr}} \quad (8)$$

where

a_{I^-} is the activity of free iodide ions in solution,
 a_{Br^-} is the activity of free bromide ions in solution,
 a_{Cl^-} is activity of free chloride ions in solution
 $\phi_{\text{AgI}}, \phi_{\text{AgCl}}, \phi_{\text{AgBr}}$ are solid phase activity coefficients,
 $x_{\text{AgBr}}, x_{\text{AgI}}, x_{\text{AgCl}}$ are mole fractions.

5,670,283
ELECTROPHOTOGRAPHIC MATERIAL FOR COLOR PROOFING

Eiichi Kato, and Sadao Osawa, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Continuation of Ser. No. 952,941, Sep. 28, 1992, abandoned.

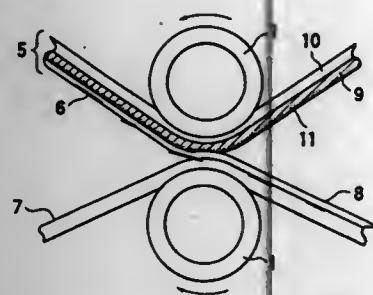
This application Jul. 22, 1994, Ser. No. 279,068

Claims priority, application Japan, Sep. 27, 1991, 3-249819; Oct. 7, 1991, 3-259430; Nov. 6, 1991, 3-289648; Nov. 6, 1991, 3-289649

Int. Cl.⁶ G03G 1/05

U.S. Cl. 430—46

5 Claims



1. An electrophotographic material for color proofing which comprises a substrate, a photoconductive layer comprising a binder resin, and a transfer layer in this order, said material being useful for preparing a color proof in a process wherein at least one color toner image is electrophotographically formed on the transfer layer and then transferred together with said transfer layer to a sheet material to prepare the color proof,

(a) wherein said binder resin comprises a polymer (P) and/or a polymer particle (L) which contain units having fluorine atom(s) and/or silicon atom(s) at least in the region near the surface facing said transfer layer,

(b) wherein said polymer (P) is a block-copolymer comprising a polymer segment (X) which contains not less than 50% by weight of said units having fluorine atom(s) and/or silicon atom(s) and a polymer segment (Y) which contains not more than 20% by weight of said units,

(c) wherein said polymer particle (L) comprises a polymer segment (X) which contains not less than 50% by weight of said units having fluorine atom(s) and/or silicon atom(s) and a polymer segment (Y) which contains not more than 20% by weight of said units,

(d) wherein said polymer segment (X) in said polymer particle (L) contains units having at least one photo and/or thermosetting group, and said polymer segment (Y) in said polymer (P) contains units having at least one photo and/or thermosetting group,

(e) wherein said polymer segment (X) in said polymer particle (L) is insoluble in a nonaqueous solvent and the polymer segment (Y) in said polymer particle (L) is soluble in a nonaqueous solvent, and

(f) wherein the polymer (P) and/or the polymer particle (L) are contained in an amount of 0.01 to 40 parts by weight based on 100 parts by weight of all binders which are present in the photoconductive layer.

5,670,284
ELECTROPHOTOGRAPHIC PHOTOCONDUCTOR

Hiroyuki Kishi; Toshio Fukagai; Kiyoshi Taniguchi, all of Numazu, and Tomohiro Inoue, Sagami, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 28, 1994, Ser. No. 365,194

Claims priority, application Japan, Dec. 28, 1993, 5-336282; Dec. 20, 1994, 6-316448

Int. Cl.⁶ G03G 5/047; 5/14

U.S. Cl. 430—58

9 Claims

1. A layered electrophotographic photoconductor comprising: an electroconductive support; and

a photoconductive layer formed thereon, which photoconductive layer comprises a charge generation layer and a charge transport layer, which are overlaid, with said charge generation layer comprising a polyalkylene glycol and/or an ester or ether thereof, and/or a crown ether, and said charge transport layer comprising an anti-oxidant.

5. A layered electrophotographic photoconductor comprising: an electroconductive support; and a photoconductive layer formed thereon, which photoconductive layer comprises a charge generation layer and a charge transport layer, which are overlaid; and an undercoat layer which is interposed between said electroconductive support and said photoconductive layer, with said undercoat layer comprising a polyalkylene glycol and/or an ester or ether thereof, and/or a crown ether, and said charge transport layer comprising an anti-oxidant.

5,670,285
COLOR XEROGRAPHIC MASTER

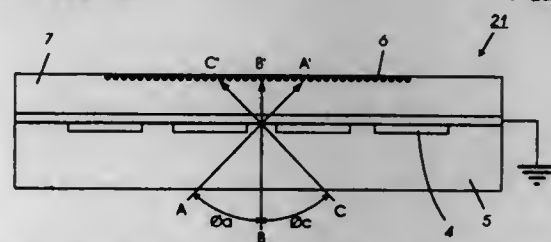
Christopher Snelling, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 11, 1996, Ser. No. 585,034

Int. Cl.⁶ G03G 5/14

U.S. Cl. 430—58

7 Claims



1. An electrophotographic master adapted to have a representative of at least two color components of a color image formed therein comprising:

a photosensitive layer;
a charge transport layer;
a conducting layer;
a supporting base layer; and
an opaque line screen layer; and

wherein said photosensitive layer comprises a plurality of photosensitive particles embedded in said charge transport layer, said opaque line screen layer is positioned on a top surface of the supporting base layer, said charge transport layer is positioned on a top surface of the conducting layer, and said conducting layer is positioned on a top surface of the opaque line screen layer.

5,670,286
ELECTROPHOTOGRAPHIC LIGHT RECEIVING MEMBER HAVING AN OUTERMOST SURFACE WITH A SPECIFIC METAL ELEMENT-BEARING REGION AND A REGION SUBSTANTIALLY FREE OF SAID METAL ELEMENT WHICH ARE TWO-DimensionALLY DISTRIBUTED

Tetsuya Takei, Nagahama, and Junichiro Hashizume, Nara, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 18, 1996, Ser. No. 618,302

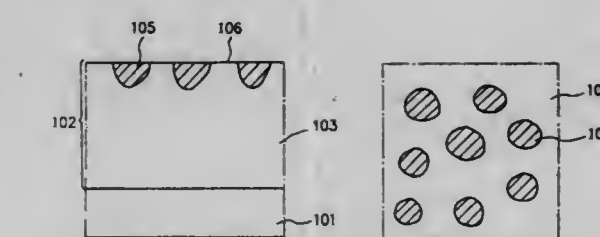
Claims priority, application Japan, Mar. 17, 1995, 7-084558; Mar. 17, 1995, 7-084558; Mar. 15, 1996, 8-085967

Int. Cl.⁶ G03G 15/04

U.S. Cl. 430—66

98 Claims

1. An electrophotographic light receiving member having an outermost surface portion comprised of a non-single crystal material, characterized in that a region (a) containing at least a metal element selected from the group consisting of metal elements belonging to groups 13, 14, 15 and 16 of the periodic table and a



region (b) substantially not containing said metal element are two-dimensionally distributed at said outermost surface of said light receiving layer.

5,670,287
MAGNETIC CARRIER FOR ELECTROPHOTOGRAPHIC DEVELOPING AGENT AND METHOD OF PRODUCING THE SAME

Hideaki Kawata; Tomohide Iida; Yoshiteru Hatase; Hidekazu Tamura, and Nobuaki Kawano, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

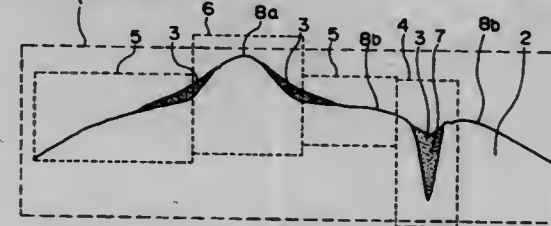
Filed Jul. 24, 1995, Ser. No. 505,852

Claims priority, application Japan, Jul. 28, 1994, 6-195960

Int. Cl.⁶ G03G 9/113; 9/107

U.S. Cl. 430—106.6

20 Claims



1. A magnetic carrier for an electrophotographic developing agent comprising magnetic core particles and a resin-coated layer provided on the surfaces of the core particles, wherein the resin-coated layer comprises a thermosetting resin and a thermoplastic resin or wax, said thermoplastic resin or wax having a melting point or softening point lower than the thermosetting temperature of the thermosetting resin, and said resin-coated layer comprises the thermosetting resin and the thermoplastic resin or wax at a weight ratio of from 99.5:0.5 to 51:49, the resin-coated layer filling the recessed portions of the core particles and forming a partial coating layer having a coating area ratio of from 0.1 to 60%, wherein the resin-coated layer is in an amount of from 0.01 to 2.0% by weight based on the weight of the magnetic core particles.

5,670,288
CARRIER FOR ELECTROPHOTOGRAPHY, TWO-COMPONENT TYPE DEVELOPER, AND IMAGE FORMING METHOD

Kenji Okado, Yokohama; Toshiyuki Ugai, Tokyo; Ryoichi Fujita, Kawasaki; Makoto Kanbayashi, Kawasaki; Tsuyoshi Takiguchi, Kawasaki; Yasuhiro Ichikawa, Tokyo, and Wakashi Iida, Higashi Kurume, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 246,146, May 19, 1994, Pat. No. 5,512,402. This application Feb. 12, 1996, Ser. No. 599,845

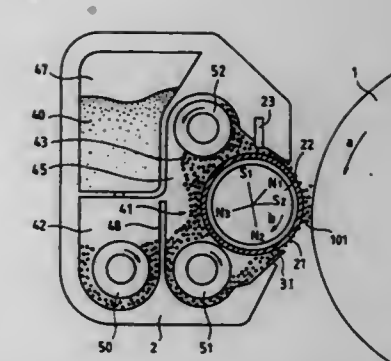
Claims priority, application Japan, May 20, 1993, 5-139925; Jun. 22, 1993, 5-173583; Jul. 13, 1993, 5-195309

Int. Cl.⁶ G03G 13/09

U.S. Cl. 430—122

75 Claims

1. An image forming method comprising: developing in a developing zone defined by a latent image bearing member and a developer carrying member provided oppositely thereto, a latent image bearing member on the latent image bearing member, using a toner of a two-component type developer carried on the developer carrying member and



comprising a toner and a carrier, by applying to the developer carrying member developing voltage having a discontinuous alternating current component to form a developing electric field between the latent image bearing member and the developer carrying member; said toner comprising toner particles and an external additive, and said carrier comprising carrier particles, wherein:

said carrier has a 50% average particle diameter (D_{50}) from 15 μ m to 45 μ m; said carrier contains from 1% to 20% of carrier particles with a size smaller than 22 μ m, not more than 3% of carrier particles with a size smaller than 16 μ m, from 2% to 15% of carrier particles with a size of 62 μ m or larger, and not more than 2% of carrier particles with a size of 88 μ m or larger; and said carrier has a specific surface area S_1 as measured by an air-permeability method and a specific surface area S_2 as calculated by the following expression:

$$S_2 = (6/p \cdot D_{50}) \times 10^4$$

wherein p is a specific gravity of carrier; satisfying the following condition:

$$1.2 \leq S_1/S_2 \leq 2.0.$$

6. An image forming method according to claim 1, wherein said carrier has a saturation magnetization of from 35 emu/g to 90 emu/g, a residual magnetization of 10 emu/g or less and a coercive force of 40 oersteds or less, in an applied magnetic field of 3,000 oersteds.

5,670,289
METHOD OF USING SCAVENGELESS DEVELOPER COMPOSITIONS

Cheryl A. Hanzlik, Fairport; Richard J. Hodgson, Rochester, and Alexander J. Floravanti, Penfield, all of N.Y., assignors to Xerox Corporation, Stamford

Filed May 26, 1995, Ser. No. 452,241

Int. Cl.⁶ G03G 13/20; 13/16

U.S. Cl. 430—124

24 Claims

1. A method for avoiding toner impaction onto development wires present in a xerographic imaging method consisting essentially of providing a xerographic imaging apparatus containing an imaging member, formulating an electrostatic latent image on said imaging member, affecting development thereof with a developer consisting essentially of carrier particles and a toner composition consisting essentially of resin particles, and pigment particles, and which composition includes thereon a surface additive mixture of silica or titanium dioxide, metal salts of fatty acids, and an aluminum complex, and thereafter transferring the developed image to a suitable substrate with said development wires, and wherein each of said silica or titanium dioxide, said metal salts of fatty acids, and said aluminum complex are present in an amount of from about 0.01 to about 2 weight percent, and wherein said aluminum complex is tris (3,5-di-tertiary-butyl salicylate) aluminum.

5,670,290

RECLAIMING DRUMS

Richard J. Manzolati, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Feb. 29, 1996, Ser. No. 610,095

Int. Cl.⁶ G03G 5/10; C23F 1/00

U.S. Cl. 430—125

22 Claims

1. A reclaiming process comprising providing a drum comprising a hollow cylindrical substrate coated with at least one electro-photographic imaging layer, said substrate having an outer surface describing a curvilinear plane, removing said imaging layer, and removing material by precision lathing or by superfinishing grinding from said substrate to a radial distance between about 10 micrometers and about 400 micrometers from said curvilinear plane to form a reclaimed substrate having a total indicated run out variation mean of less than about 160 micrometers and which is free of distortions visible to the naked eye.

5,670,291

PROCESS FOR FABRICATING AN ELECTROPHOTOGRAPHIC IMAGING MEMBER

Anthony T. Ward, Webster; Richard L. Schank, Pittsford, and John S. Chambers, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 27, 1996, Ser. No. 722,759

Int. Cl.⁶ G03G 5/047

U.S. Cl. 430—132

16 Claims

1. A process for fabricating an electrophotographic imaging member comprising providing a substrate coated with at least one photoconductive layer, applying a coating composition to said photoconductive layer by dip coating to form a wet layer, said coating composition comprising finely divided amorphous silica particles, a dihydroxy amine charge transport material, an aryl charge transport material that is different from said dihydroxy amine charge transport material, a crosslinkable polyamide containing methoxy groups attached to amide nitrogen atoms and a crosslinking catalyst, at least one solvent for said hydroxy amine charge transport material, aryl charge transport material that is different from said dihydroxy amine charge transport material and said crosslinkable polyamide, and heating said wet layer to crosslink said polyamide and remove said solvent to form a dry layer in which said dihydroxy amine charge transport material and said aryl charge transport material are molecularly dispersed in a crosslinked polyamide matrix.

5,670,292

DRY TYPE IMAGE FORMATION PROCESS

Kazuhiko Matsumoto; Masaki Nore; Hisashi Okamura, and Shun-ichi Ishikawa, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 31, 1995, Ser. No. 522,091

Claims priority, application Japan, Aug. 31, 1994, 6-206331; Sep. 12, 1994, 6-217237

Int. Cl.⁶ G03C 1/498; 8/40

U.S. Cl. 430—138

8 Claims

1. A dry image formation process which comprises imagewise exposing a heat-developable photosensitive material to light, and then heat-developing the heat-developable photosensitive material to obtain an image, the heat-developable photosensitive material comprising a support having provided thereon a photosensitive layer comprising at least a silver halide, a binder and a reducing agent,

wherein the heat-developable photosensitive material further comprises a component isolated as an internal phase in microcapsules, said component being a silver halide fixing agent, a development stopping agent, or a silver halide print-out inhibitor,

and wherein the heat-developable photosensitive material is pressed before or after heat development so that the microcapsules are ruptured to release the internal phase and cause the component to be diffused into the photosensitive layer, allowing the function of the component to be fulfilled.

5,670,293

LEAD-FRAME FORMING MATERIAL

Yasuhito Naruse; Kiyoshi Kamitani; Akio Uesugi; Tsutomu Kakel, all of Shizuoka, and Goulchi Morohoshi, Tokyo, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 10, 1995, Ser. No. 402,000

Claims priority, application Japan, Mar. 10, 1994, 6-065444

Int. Cl.⁶ G03F 7/09; 7/095

U.S. Cl. 430—165

4 Claims

1. A lead-frame forming material which is prepared by coating a light-sensitive material on both surfaces of a metal web of copper, a copper alloy or a nickel alloy, drying the resulting coated light-sensitive layer to form a coated metal web, and winding the coated metal web into a roll or cutting the coated web into strips of a fixed length and stacking said strips, wherein the light-sensitive material comprises an o-quinonediazide compound and a novolak resin, and wherein the light-sensitive material further contains a water-insoluble but alkaline water-soluble high molecular weight compound containing a —SO₂—NH— bond on its side or main chain.

3. A lead-frame forming material which is prepared by coating a light-sensitive material on both surfaces of a material web made of copper, a copper alloy or a nickel alloy, drying the resulting coated light-sensitive layer to form a coated metal web, and winding the coated metal web into a roll or cutting the coated web into strips of a fixed length and stacking said strips, wherein the light-sensitive material is a positive resist composition which comprises:

- (1) a water-insoluble but alkaline water-soluble resin,
- (2) a compound capable of generating an acid by irradiation with active rays or radiant rays, and
- (3) a compound containing a group decomposable by acid which can increase its solubility in an alkaline developer through the action of the acid; and

wherein the light-sensitive material contains a water-insoluble but alkaline water-soluble high molecular weight compound containing a —SO₂—NH— bond on its side or main chain.

5,670,294

AQUEOUS ALKALINE SOLUTION FOR DEVELOPING OFFSET PRINTING PLATES

Mario Piro, S. Donato, Italy; assignor to Imation Corp, Oakdale, Minn.

Continuation of Ser. No. 577,056, Dec. 22, 1995, abandoned.

This application Aug. 29, 1996, Ser. No. 705,009

Claims priority, application European Pat. Off., Mar. 7, 1995, 95103228

Int. Cl.⁶ B03F 7/32

U.S. Cl. 430—169

27 Claims

1. A method for developing a printing plate comprising quino-nediazide Or diazo compounds in a photosensitive layer, said method comprising imagewise exposing said printing plate, and then washing off more soluble areas of said photosensitive layer in an aqueous alkaline developing solution, wherein said aqueous alkaline developing solution comprising an alkaline composition of at least one compound selected from the group consisting of alkali metal silicate and alkali metal metasilicate, wherein the M₂O/SiO₂ molar ratio of said alkaline composition is in the range of from 0.5 to 1.2, the total content of said alkaline composition being in the range of from 6 to 15% by weight of total developing solution, and wherein said developing solution comprises a non-ionic surfactant and at least another surfactant selected from the group consisting of anionic surfactants and amphoteric surfactants.

5,670,295

OPTICAL RECORDING MEDIUM

Kenryo Namba, 4-6-2, Shimomaruko, Oota-ku, Tokyo; Akihiko Kuroiwa, 6-18-1-1218, Minamifool, Shinagawa-ku, Tokyo, and Shiro Nakagawa, 1-15-3, Chirishirodai-Minami, Chiba-shi, Chiba-ken, all of Japan

Continuation of Ser. No. 918,924, Jul. 22, 1992, abandoned, which is a continuation of Ser. No. 143,312, Jan. 6, 1988, abandoned, which is a continuation of Ser. No. 895,860, Aug. 12, 1986, abandoned, which is a continuation-in-part of Ser. No. 518,359, Jul. 29, 1983, abandoned. This application Dec. 9, 1992, Ser. No. 990,977

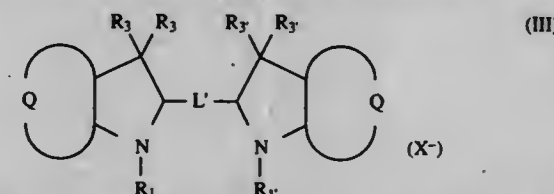
Claims priority, application Japan, Jul. 30, 1982, 57-134397; Jul. 31, 1982, 57-134170; Sep. 25, 1982, 57-166832; Sep. 27, 1982, 57-168048; Oct. 11, 1982, 57-177776; Oct. 18, 1982, 57-182589; Nov. 1, 1982, 57-192879; Nov. 2, 1982, 57-193685; Dec. 21, 1982, 57-232199; Dec. 28, 1982, 57-234345; Dec. 29, 1982, 57-233157; Dec. 30, 1982, 57-232241; Dec. 31, 1982, 57-232198

Int. Cl.⁶ G03C 1/72; G11B 7/24

U.S. Cl. 430—270.21

4 Claims

1. An optical recording medium of the heat mode type free of quenchers and resins comprising a substrate having deposited thereon a recording layer comprising at least one laser light absorbing dye and having a thickness in the range of from 0.03 to 2 μm, said dye being represented by the general formula III:



wherein Q and Q' each denote a condensed aromatic ring, R₁ and R₁' each denote a substituted or unsubstituted alkyl group at least one of R₁ and R₁' contains up to four carbon atoms R₂, R₂', R₃ and R₃', each denote an alkyl group or an aryl group, L' denotes a methine chain for the formation of a mono-, di-, tri- or tetra-cyanine, X-denotes an anion, and m denotes 0 or 1.

5,670,296

METHOD OF MANUFACTURING A HIGH EFFICIENCY FIELD EMISSION DISPLAY

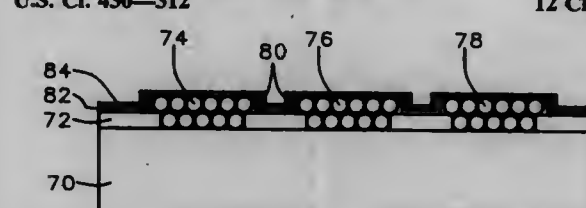
Chun-hui Tsai, Hsinchu, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jul. 3, 1995, Ser. No. 497,766

Int. Cl.⁶ H01J 9/227

U.S. Cl. 430—312

12 Claims



1. A method of manufacturing a faceplate with a glass base for a field emission display, comprising the steps of: forming a photoresist layer over said glass base; forming openings in said photoresist layer; forming black matrix elements in said openings; removing said photoresist layer, whereby there is formed a first, second and third set of openings in said black matrix elements; forming first phosphorescent strips in said first set of openings; forming second phosphorescent strips in said second set of openings; forming third phosphorescent strips in said third set of openings; depositing a planarizing layer over said first, second and third phosphorescent strips and over said black matrix elements;

depositing a metal layer over said planarizing layer; patterning said metal layer to form metal strips over a portion of each of said first, second and third phosphorescent strips; and removing said planarizing layer.

5,670,297

PROCESS FOR THE FORMATION OF A METAL PATTERN

Tohru Ogawa, and Hiroyuki Nakano, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 175,299, Dec. 29, 1993, Pat. No. 5,472,827, which is a continuation-in-part of Ser. No. 998,743, Dec. 30, 1992. This application Nov. 9, 1995, Ser. No. 556,426

Claims priority, application Japan, Dec. 30, 1991, 3-360521; Dec. 30, 1991, 3-360523; Mar. 11, 1992, 4-087911; Mar. 11, 1992, 4-087912; Aug. 20, 1992, 4-244314; Oct. 31, 1992, 4-316073; Dec. 29, 1992, 4-359750; Aug. 8, 1994, 6-186184

Int. Cl.⁶ G03F 7/38

33 Claims

1. A process for formation of a fine metal pattern having a width with little variation comprising the steps of: forming a silicide metal film on an underlying substrate, said silicide metal film being selected from a group consisting of titanium silicide, cobalt silicide, platinum silicide and nickel silicide, forming an anti-reflection film on said underlying substrate on which said silicide metal film is formed, forming a resist film on said underlying substrate, patterning the resist film by photolithography to form a predetermined pattern, and using the thus patterned resist film as a mask and etching the silicide metal film on the underlying substrate to form the fine metal pattern, wherein the optical constants and the thickness of the anti-reflection film are determined to give the smallest standing wave effect at the time of the photolithography in accordance with the type of the silicide metal film and to enable the formation of the fine metal pattern.

5,670,298

METHOD OF FORMING A METAL PATTERN IN MANUFACTURING A SEMICONDUCTOR DEVICE

Hoon Hur, Seoul, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

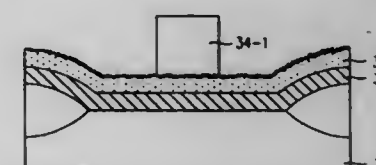
Continuation of Ser. No. 76,547, Jun. 14, 1993, abandoned. This application Jan. 11, 1996, Ser. No. 583,766

Claims priority, application Rep. of Korea, Jun. 17, 1992, 10484/1992

Int. Cl.⁶ G03F 7/20

U.S. Cl. 430—318

6 Claims



1. A method of forming a metal pattern on a substrate, comprising the steps of: forming a metal film on the substrate; forming a porous film on the metal film;

forming a photoresist pattern on the porous film; and etching the metal film and the porous film using the photoresist pattern as a mask to thereby form the metal pattern, wherein during the step of forming the photoresist pattern on the porous film, the porous film causes the scattering of light incident on the porous film to thereby cause a mutual interference of the light.

5,670,299

PATTERN FORMATION PROCESS

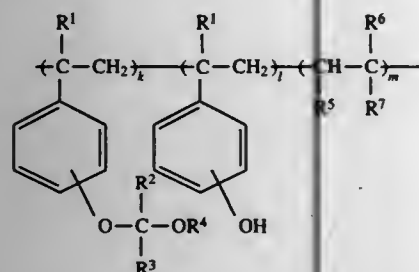
Fumiyoshi Urano; Hirotsu Fujie; Keiji Oono, and Takaaki Negishi, all of Kawagoe, Japan, assignors to Wako Pure Chemical Industries, Ltd., Osaka, Japan
Division of Ser. No. 898,265, Jun. 15, 1992, Pat. No. 5,468,589. This application Jun. 7, 1995, Ser. No. 477,612
Claims priority, application Japan, Jun. 18, 1991, 3-173197; Sep. 26, 1991, 3-274829

Int. Cl. G03F 7/30; 7/004

U.S. Cl. 430—326

18 Claims

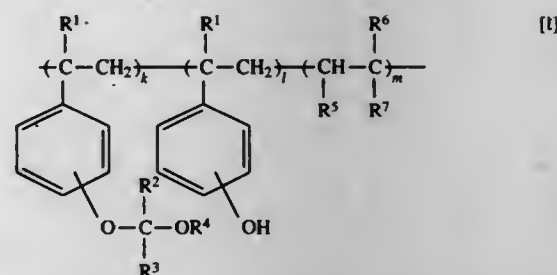
1. A process for forming a pattern which comprises
(i) a step of coating a photoresist composition on a substrate, the photoresist composition comprising
(a) a polymer having repeating units of the formula:



wherein R¹ is a hydrogen atom or a methyl group; R² and R³ are independently a hydrogen atom, or a linear, branched or cyclic alkyl group having 1 to 6 carbon atoms provided that R² and R³ cannot be hydrogen atoms at the same time, and a combination of R² and R³ being able to form a methylene chain having 2 to 5 carbon atoms; R⁴ is a linear, branched or cyclic haloalkyl group having 1 to 10 carbon atoms, a linear, branched or cyclic haloalkyl group having 1 to 6 carbon atoms, or an aralkyl group; R⁵ is a hydrogen atom or a cyano group; R⁶ is a hydrogen atom, a cyano group or —COOY; Y is a linear, branched or cyclic alkyl group having 1 to 6 carbon atoms; R⁵ and R⁷ may bind to each other to form —CO—O—CO; k and l are independently a natural number (0.1 ≤ k/(k+l) ≤ 0.5; and m is zero or a natural number (when m is a natural number, 0.05 ≤ m/(k+l+m) ≤ 0.50).

- (b) a photosensitive compound which generates an acid upon exposure to light and,
(c) a solvent capable of dissolving the components (a) and (b);
(ii) a step of exposing the coating to light having a wavelength of 300 nm or less through a mask after heat treatment, and
(iii) a step of developing the coating by use of a developing solution after carrying out heat treatment if necessary.
6. A process for forming a pattern which comprises
(i) a step of coating a photoresist composition on a substrate, the photoresist composition comprising

(a) a polymer having repeating units of the formula:



wherein R¹ is a hydrogen atom or a methyl group; R² and R³ are independently a hydrogen atom, or a linear, branched or cyclic alkyl group having 1 to 6 carbon atoms provided that R² and R³ cannot be hydrogen atoms at the same time, and a combination of R² and R³ being able to form a methylene chain having 2 to 5 carbon atoms; R⁴ is a linear, branched or cyclic haloalkyl group having 1 to 10 carbon atoms, a linear, branched or cyclic haloalkyl group having 1 to 6 carbon atoms, or an aralkyl group; R⁵ is a hydrogen atom or a cyano group; R⁶ is a hydrogen atom, a cyano group or —COOY; Y is a linear, branched or cyclic alkyl group having 1 to 6 carbon atoms; R⁵ and R⁷ may bind to each other to form —CO—O—CO; k and l are independently a natural number (0.1 ≤ k/(k+l) ≤ 0.5; and m is zero or a natural number (when m is a natural number, 0.05 ≤ m/(k+l+m) ≤ 0.50).

- (b) a photosensitive compound which generates an acid upon exposure to light and,
(c) a solvent capable of dissolving the components (a) and (b);
(ii) a step of irradiating the coating with electron beams through a mask after heat treatment, and
(iii) a step of developing the coating by use of a development solution after carrying out heat treatment or without heat treatment.

5,670,300

METHOD OF PROCESSING PHOTOGRAPHIC SILVER HALIDE MATERIALS

John Richard Fyson, Hackney, and Gareth Bryn Evans, Potten End, both of United Kingdom, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 9, 1996, Ser. No. 694,610

Claims priority, application United Kingdom, Aug. 12, 1995, 9516578

Int. Cl. G03C 7/407

U.S. Cl. 430—373

12 Claims

1. A method of processing an imagewise exposed photosensitive photographic silver halide color material comprising a silver halide emulsion having at least 85% silver chloride and having a total silver coating weight of 10 to 500 mg/m², comprising treating said material with the following processing baths in order:

- (a) a developer-amplifier solution containing a color developing agent and hydrogen peroxide or a compound that yields hydrogen peroxide,
(b) a fixer comprising an alkali metal sulfite or a material that yields sulfite as fixing agent,
(c) a bleach comprising hydrogen peroxide or a compound that yields hydrogen peroxide and an alkali metal halide wherein the pH is in the range 8–11.

5,670,301

PHOTOGRAPHIC ELEMENT CONTAINING A COUPLER CAPABLE OF RELEASING A PHOTOGRAPHICALLY USEFUL GROUP

William James Begley, Webster; Teh Hsuan Chen; Frank Dino Coms, both of Fairport, and Donald Singleton, Jr., Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

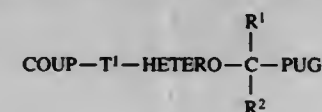
Filed Jan. 24, 1996, Ser. No. 590,644

Int. Cl. G03C 7/305

U.S. Cl. 430—382

19 Claims

1. A photographic element comprising a support having situated thereon at least one silver halide emulsion layer, the layer containing a photographic coupler represented by the formula



wherein

COUP is a coupler moiety having a coupling site to which T¹ is attached;

T¹ is a timing or linking group which releases from COUP during processing and which functions by electron transfer down a conjugated chain, or by nucleophilic displacement reaction, to release from HETERO;

HETERO is selected from a pyrazole, imidazole, 1,2,3-triazole, 1,2,4-triazole, tetrazole, indazole, benzimidazole, benzotriazole, pyrazolotriazole, pyrazolimidazole or triazolimidazole group, wherein one of the heteroatoms is directly attached to T¹;

R¹ and R² are independently selected from hydrogen, or an aliphatic, carbocyclic, or heterocyclic group, or may be bonded together to form a 5, 6, or 7 membered ring; and PUG is a photographically useful group.

19. A process of forming an image in an exposed photographic silver halide element containing a coupler as described in claim 1 comprising developing the element with a color photographic silver halide developing agent.

5,670,302

PHOTOGRAPHIC ELEMENTS CONTAINING NEW MAGENTA DYE-FORMING COUPLERS

Philip T. S. Lau; Louis Joseph Rossi, and Stanley Wray Cowan, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

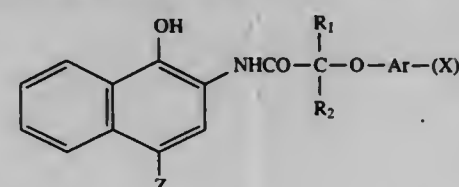
Filed Jun. 16, 1996, Ser. No. 665,026

Int. Cl. G03C 7/34

U.S. Cl. 430—386

18 Claims

1. A negative working multicolor photographic element comprising a support bearing a silver halide emulsion layer sensitive to green light having associated therewith a magenta dye-forming coupler; a silver halide emulsion layer sensitive to blue light having associated therewith a yellow dye-forming coupler; and a silver halide emulsion layer sensitive to red light having associated therewith a cyan dye-forming coupler; wherein the magenta dye forming coupler has formula (I):



wherein:

- R₁ represents a hydrogen atom or an alkyl group;
R₂ represents an alkyl group;
Ar represents a phenyl or naphthyl group;

X represents a substituent and "n" represents an integer of from 1 to 5; and

Z represents a hydrogen atom or a group which can be split off by the reaction of the coupler with an oxidized color developing agent.

5,670,303

METHOD AND APPARATUS FOR ALTERING THE PH OF A PHOTOGRAPHIC DEVELOPING SOLUTION

Michael Ridgway, Aldbury, and Anthony Earle, Harrow Weald, both of England, assignors to Eastman Kodak Company, Rochester, N.Y.

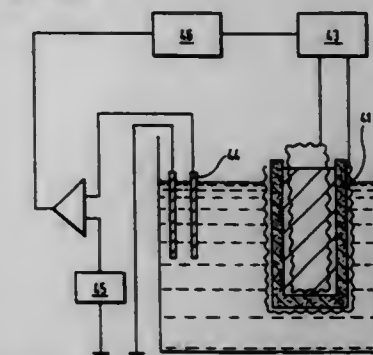
Filed Aug. 28, 1995, Ser. No. 520,344

Claims priority, application United Kingdom, Oct. 21, 1994, 9421243

Int. Cl. G03C 5/395

U.S. Cl. 430—399

10 Claims



1. A method for processing comprising:
developing an imagewise exposed radiation-sensitive silver halide material in a photographic developing solution, said developing solution being contained in a processing apparatus that comprises

- a means for electrolytically altering the hydrogen ion concentration of said developing solution, and
a means for controlling the operation of said electrolytically altering of the hydrogen ion concentration based on the change in hydrogen ion concentration in said developing solution during processing,

wherein said hydrogen ion concentration altering means comprises an electrolytic cell comprising an electrode in contact with said developing solution and an electrode in contact with a slurry of a sparingly soluble salt capable of acting as a pH buffer that is separated from said developing solution by an ion-permeable barrier.

5,670,304

RECYCLING SPENT HYDROQUINONE DEVELOPER AND A RECYCLED HYDROQUINONE DEVELOPER

Daniel Frederick Juers, Fairport, N.Y., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 489,419, Jun. 12, 1995. This application Aug. 28, 1996, Ser. No. 704,045

Int. Cl. G03C 5/395

U.S. Cl. 430—399

10 Claims

1. A process for recycling a spent developer for use in black-and-white silver halide photographic processing comprising the steps of:

- a) determining a volume, V_{sp}, of the spent developer resulting from use of a fresh developer wherein the fresh developer comprises
(1) a developing agent selected from the group consisting of hydroxybenzene compounds, derivatives of hydroxybenzene compounds, and mixtures thereof, and
(2) a compound which provides a sulfite concentration of 0.65 to 1.5 molar;

- b) analyzing the spent developer to determine the pH and the concentration of critical components which are primary developing agents, secondary developing agents, bromides, antifoggants, sulfites, and alkanol amines;
- c) reconstituting the spent developer for re-use, based on results of a) and b), comprising:
- (1) determining a final volume, V_f , of reconstituted developer based on the relationship:

$$V_{min} = (V \times B_i) / B_a$$

where V_{min} = minimum volume of reconstituted developer and V_f is greater than or equal to V_{min}

B_i = aim concentration of bromide in the reconstituted developer

B_a = analyzed concentration of bromide in the spent developer,

- (2) determining a volume of water, V_w , greater than or equal to zero, and a volume of special fresh developer, V_s , greater than or equal to zero, such that $V_w + V_s = V_f - V_i$
- (3) diluting the spent developer with the volume of water, V_w , and/or the volume of special fresh developer, V_s ,
- (4) adding amounts of the critical components to the spent developer in sufficient quantity to achieve aim concentrations as determined from the equation,

$$\text{Amount of critical component to add} = (V_f \times CC_a) - (V_i \times CC_s) - (V_s \times CC_s)$$

where

CC_a = aim concentration of critical component

CC_s = analyzed concentration of critical component in spent developer

CC_s = concentration of critical component in special fresh developer with the proviso that the total amount of critical component added is greater than or equal to zero,

- (5) adding amounts of non-critical components to the spent developer as determined from the equation,

$$\text{Amount of non-critical component to add} = (V_f - V_i) \times NC_a - (V_s \times NC_s)$$

where

NC_s = aim concentration of non-critical component

NC_s = concentration of non-critical component in special fresh developer with the proviso that the total amount of non-critical component added is greater than or equal to zero,

and wherein steps c)(3), c)(4), and c)(5) can be performed in any order.

5,670,305

PHOTOGRAPHIC PROCESSING SOLUTION CONTAINING TERNARY FERRIC-COMPLEX SALTS

Stuart Terrance Gordon, Pittsford; Keith Henry Stephen, Rochester; Eric Richard Brown, Webster; Celia Ann DeAndrea, Webster; Mary Morris Pochorecki, Rochester; and William George Henry, Caledonia, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 128,626, Sep. 28, 1993, abandoned.

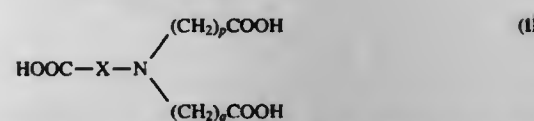
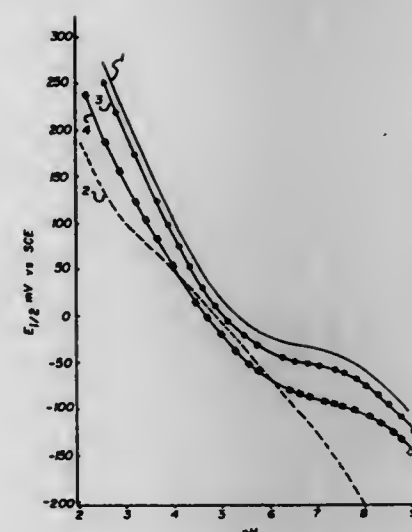
This application Mar. 22, 1994, Ser. No. 622,236

Int. Cl.⁶ G03C 7/42

U.S. Cl. 430—460

21 Claims

1. A composition for bleach-fixing an imagewise exposed and developed silver halide photographic element comprising a fixing agent present in an amount of from 0.1 to 3 mol/l, and a ternary ferric-complex salt formed by a tetradentate ligand and a tridentate ligand, wherein the ratio of tetradentate ligand to ferric ion is in the range of from 0.9 to 1.5 and the ratio of tridentate ligand to ferric ion is in the range of from 0.5 to 10, and the amount of ferric ion is from 0.01 to 1 mol/l, wherein said tridentate ligand is represented by Formula I and said tetradentate ligand is represented by Formula II



wherein R is H or an alkyl group, X is a linking group, m and n are 1, 2 or 3, and p and q are 1.

5,670,306

PHOTOGRAPHIC ELEMENT CONTAINING PYRAZOLONE PUG RELEASING COUPLER AND IMAGING PROCESS EMPLOYING SAME

Jerrold Neal Poslusny, Rochester, N.Y.; Lawrence G. Anderson, Pittsburgh, Pa.; Jared Ben Mooberry, Rochester, N.Y.; Wojciech Kazimierz Slusarek, Rochester, N.Y., and Zheng Zi Wu, Penfield, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 366,659, Dec. 30, 1994, abandoned.

This application Oct. 15, 1996, Ser. No. 730,558

Int. Cl.⁶ G03C 7/384; 7/305

U.S. Cl. 430—544

33 Claims

1. A photographic element comprising a light-sensitive silver halide emulsion layer having associated therewith a 1-aryl-2-pyrazolin-5-one coupler bearing a 4-aryloxy coupling-off group containing a group capable of releasing a photographically useful group (PUG) wherein:

- (1) the 1-aryl-2-pyrazolin-5-one coupler contains, bonded to the 3-position of the pyrazolone nucleus, a cyano substituent or a substituent linked to the 3-position by an acyl group, this group, sulfoxide group, sulfone group, or a tetrahedral carbon atom which tetrahedral carbon atom has bonded thereto three other atoms or substituent groups for which the sum of the σ^+ values is at least 1.5; and
- (2) the aryl portion of the 4-aryloxy coupling-off group is a six-membered ring and:
 - (a) contains ring substituents selected so that the sum of the Hammett's sigma constants for all substituents on the aryloxy ring is at least 0.3 but does not contain a nitro substituent in the position ortho to the oxygen atom bonding the aryloxy ring to the pyrazolone; and
 - (b) contains in at least one position ortho or para to the oxygen atom bonding the aryloxy group to the pyrazolone ring comprising a tetrahedral carbon atom bonded to a PUG or to another timing group which timing group is in turn bonded to a PUG directly or through a further timing group; and

provided that one or more of the aryloxy ring members or ring substituents may join to form one or more additional flags.

5,670,307

SILVER HALIDE EMULSIONS WITH IMPROVED HEAT STABILITY

Roger Lok, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

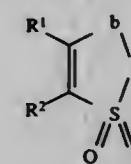
Filed Sep. 27, 1996, Ser. No. 721,918

Int. Cl.⁶ G03C 1/34

U.S. Cl. 430—611

20 Claims

1. A silver halide photographic element comprising a silver halide emulsion which is greater than 50 mole % silver chloride, said emulsion being in reactive association with a dioxide compound represented by the following formula:



wherein b is C(O), C(S), C(Se), CH₂ or (CH₂)₂; and R¹ and R² are independently H, or aliphatic, aromatic or heterocyclic groups, or R¹ and R² together represent the atoms necessary to form a five or six-membered ring or a multiple ring system; and a sulfinate compound.

5,670,308

CRYOPROTECTIVE AQUEOUS SOLUTIONS USEFUL FOR THE PRESERVATION OF IN VITRO CULTURED EPITHELIAL SHEETS

Giuseppe Geraci, S. Giorgio a Cremano; Mario De Rosa; Mosté Rossi, both of Naples; Ranieri Cancedda, Genoa; Michele De Luca, Genoa, and Graziella Pellegrini, Genoa, all of Italy, assignors to Development Biotechnological Processes SNC di Pelliccia Maria Teresa, Avellino, and Consorzio per la Gestione del Centro di Biotecnologia Avanzata, Genoa, both of Italy

PCT No. PCT/EP93/03364, § 371 Date Jun. 1, 1995, § 102(e) Date Jun. 1, 1995, PCT Pub. No. WO94/13135, PCT Pub. Date Jun. 23, 1994

PCT Filed Dec. 1, 1993, Ser. No. 446,821

Claims priority, application Italy, Dec. 4, 1992, MI92A2776

Int. Cl.⁶ A01N 1/00; C12N 5/00; A61K 35/12

U.S. Cl. 435—1

6 Claims

1. Cryoprotective aqueous solutions for preservation of in vitro cultured epithelial sheets comprising:

- a) from 10 to 20% w/w of polyethyleneglycols having molecular weight from 3 to 5 KD;
 - b) from 5 to 25% w/v of at least one cross-linking agent selected from the group consisting of polyols, polyamines, mono- and oligosaccharides, and polyethyleneglycols having a molecular weight lower than 1 KD; and
- wherein a) and b) are in proportions sufficient to provide a cryoprotective aqueous solution for epithelial sheets.

5,670,309

METHODS AND DIAGNOSTIC KITS FOR THE DETECTIONS OF HIV-2-SPECIFIC ANTIBODIES EMPLOYING POLYPEPTIDES OBTAINED FROM THE SIMIAN IMMUNODEFICIENCY VIRUS

Erling C. J. Norrby, Lidings, Sweden; D. Elliot Parks, Del Mar, and Richard A. Lerner, La Jolla, both of Calif., assignors to Johnson & Johnson, New Brunswick, N.J.

Continuation of Ser. No. 61,274, May 13, 1993, abandoned, which is a continuation of Ser. No. 782,742, Oct. 17, 1991, abandoned, which is a continuation of Ser. No. 597,096, Oct. 15, 1990, abandoned, which is a continuation of Ser. No. 83,682, Aug. 7, 1987, abandoned. This application Feb. 7, 1994, Ser. No. 192,782

Claims priority, application Sweden, Apr. 16, 1987, 87016283

Int. Cl.⁶ G01N 33/53; C12Q 1/70; A61K 39/21

U.S. Cl. 435—5

15 Claims

12. A method of assaying for the presence of anti-HIV-2 antibodies in a body fluid sample comprising the following steps:

- a) admixing a body fluid sample with a polypeptide containing no more than 33 amino acid residues, said polypeptide consisting of one of the following amino acid sequences, AIEKY-LEDQAQLNAWGCAFRQVCHTTVPWPNAS, AIEKY-LEDQAQLNAWGCAFRQVC, AVEKYLKDQAQLNAWGCAFRQVC, AIEKY-LKDQAQLNSWGCAFRQVC, AIEKYLEDQAQLNAWGCAFRQVC, AWCAFRQVCHTTVPWPNAS, SWGCAFRQVCHTSVPWVNDT, AWGCAFRQVCHTTVPWPNAS, and AWGCAFRQVCHTTVPWPNAS, or a polypeptide differing from one of these sequences by no more than ten percent of the amino acid sequence, wherein said polypeptide contains the sequence —CAFRQVC—, displays immunological cross-reactivity with HIV-2transmembrane envelope glycoprotein-specific antibodies, and fails to display immunological cross-reactivity with HIV-1 transmembrane envelope glycoprotein-specific antibodies;
- b) allowing the polypeptide and anti-HIV-2 antibodies present in the body fluid sample to form a polypeptide-containing immunoreaction product; and
- c) detecting the presence of anti-HIV-2 antibodies in said immunoreaction product.

5,670,310

METHODS AND COMPOSITIONS FOR DIFFERENTIAL DIAGNOSIS OF ACUTE AND CHRONIC HEPATITIS C VIRUS INFECTION

Howard A. Fields, Marietta, and Yuri E. Khudyakov, Atlanta, both of Ga., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Filed Jul. 29, 1994, Ser. No. 282,758

Int. Cl.⁶ C12Q 1/70; G01N 33/576; C07K 7/08

U.S. Cl. 435—5

11 Claims

6. A method of differentiating acute and chronic hepatitis C virus infection in a subject comprising:

- a) contacting an antibody-containing sample from the subject with one or more peptides selected from the group consisting of a peptide as defined in the Sequence Listing as SEQ ID NO:1, a peptide as defined in the Sequence Listing as SEQ ID NO:2 and a peptide as defined in the Sequence Listing as SEQ ID NO:3 under conditions that permit binding between the peptide and the antibodies;
- b) detecting the presence of binding between the peptide and the antibodies in step a);
- c) contacting the antibody-containing sample from the subject with an amount of a peptide as defined in the Sequence Listing as SEQ ID NO:4 under conditions that permit binding between the peptide and the antibodies;
- d) detecting the presence of binding between the peptide and the antibodies in step c); and
- e) comparing the strength of the antibody binding of step b) with the strength of the antibody binding of step d), a stronger

binding in step b) as compared to the binding in step d) indicating acute hepatitis C virus infection and an equivalent binding in both steps b) and d) indicating chronic hepatitis C virus infection.

5,670,311

PEPTIDES FOR DETECTING ANTIBODIES TO HTLV-2
Anders Vahlne, Hovas; Bo Svennerholm, Gothenburg; Lars Rymo, Hovas; Stig Jeansson, and Peter Horal, both of Gothenburg, all of Sweden, assignors to Maxim Pharmaceuticals, Inc., San Diego, Calif.

Continuation of Ser. No. 118,561, Sep. 9, 1993, abandoned, which is a division of Ser. No. 434,239, Nov. 13, 1989, Pat. No. 5,283,320. This application Apr. 17, 1995, Ser. No. 423,022

Int. Cl.⁶ C12Q 1/70

U.S. Cl. 435—5

6 Claims

1. A method for detecting antibodies to HTLV-2 in a biological sample, comprising:
contacting the sample with a peptide having at least one epitope recognized by antibodies specific to HTLV-2, said peptide having the sequence selected from the group consisting of:
Ile-Thr-Ser-Glu-Pro-Thr-Gln-Pro-Pro-Thr-Ser-Pro-Pro-Leu-Val-His-Asp-Ser-Asp-Leu-Glu-His-Val;
Ile-Lys-Lys-Pro-Asn-Ar g-Gln-Gly-Leu-Gly-Tyr-Tyr-Ser-Pro-Ser-Tyr-Asn-Asp-Pro-Cys-Ser-Leu; and
Pro-Leu-Val-His-Asp-Ser-Asp-Leu-Glu-His-Val-Leu-Thr-Pro-Ser-Thr-Ser-Tip-Thr-Thr-Lys-Ile-Leu-Lys;
under conditions such that an immunological complex will form between the peptides and antibodies to HTLV-2 but not antibodies to HTLV-1 if such antibodies are present in the sample; and
detecting the formation, if any, of the immunological complex to determine the presence of antibodies to HTLV-2 in the sample.

5,670,312

METHOD OF OBTAINING DIAGNOSTIC REAGENTS, ASSAYS AND THERAPEUTICS BASED ON CLINICAL MANIFESTATIONS OF A DISEASE

Daniel V. Santi, 211 Belgrave Ave., San Francisco, Calif. 94117
Continuation of Ser. No. 155,943, Nov. 19, 1993, Pat. No. 5,492,807. This application Nov. 17, 1995, Ser. No. 558,235

Int. Cl.⁶ C12Q 1/70; 1/68; G01N 33/543

U.S. Cl. 435—5

20 Claims

1. A method of obtaining a peptide molecule which selectively bind to antibodies uniquely associated with a disease of a patient, comprising:
(a) isolating antibodies from the serum of a first patient having antibodies uniquely associated with the disease;
(b) binding the antibodies to a support surface;
(c) contacting the antibodies on the support surface with a library of peptide molecules in a manner so as to allow peptide molecules in the library to bind to the antibodies;
(d) obtaining peptide molecules in step (c) which bind to an antibody from the first patient;
(e) isolating antibodies from the serum of a second patient having antibodies uniquely associated with the same disease as the first patient;
(f) labeling the antibodies from the second patient with a detectable label;
(g) contacting the labeled antibodies of step (f) with the peptide molecules of step (d) in a manner so as to allow binding of the labeled antibodies to the molecules of step (d); and
(h) obtaining a peptide molecule which bind to antibodies of the first patient and to antibodies of the second patient.

5,670,313

Patent Not Issued For This Number

5,670,314

GENETIC ALTERATIONS THAT CORRELATE WITH LUNG CARCINOMAS

Michael F. Christman; Joe W. Gray; Nikki A. Levin; Plus Brzoska, all of San Francisco, Calif., and Haruhiko Nakamura, Yokohama, Japan, assignors to Regents of the University of California, Oakland, Calif.

Filed Feb. 22, 1994, Ser. No. 199,772

Int. Cl.⁶ C12Q 1/68

U.S. Cl. 435—6

14 Claims

1. A method of screening for the presence of small cell lung carcinoma cells in a sample, the method comprising:
contacting a nucleic acid sample from a human patient with a probe which binds selectively to a target polynucleotide sequence on a chromosomal region which is deleted in small cell lung carcinoma cells and is selected from the group consisting of 1q24, 5p, and Xq26, or a probe which binds selectively to a target polynucleotide sequence on a chromosomal region which is amplified in small cell lung carcinoma cells and is selected from the group consisting of 22q12.1-13.1, 10q26, 16p11.2, and 19p13.3;
wherein the probe is contacted with the sample under conditions in which the probe binds selectively with the target polynucleotide sequence to form a hybridization complex; and
detecting the formation of a hybridization complex.

5,670,315

NUCLEIC ACID DETERMINATION EMPLOYING PYRYLIUM DYE

Nobuko Yamamoto, Isehara; Tadashi Okamoto, Yokohama; Yoshinori Tomida, Atsugi; Tetsuya Yano, Isehara; Takeshi Miyazaki, Ebina, and Masahiro Kawaguchi, Atsugi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 21, 1994, Ser. No. 263,072

Claims priority, application Japan, Sep. 13, 1993, 5-227204; Feb. 21, 1994, 6-022895

Int. Cl.⁶ C12Q 1/68; C12P 19/34

U.S. Cl. 435—6

59 Claims

1. A method for quantifying a target nucleic acid, comprising the steps of:
conducting PCR of a nucleic acid sample with a primer set required for amplification of a specific base sequence region of the target nucleic acid to provide a double stranded nucleic acid;
reacting the double-stranded nucleic acid with a dye compound represented by the following formula to bind the dye compound to the double stranded nucleic acid; and
measuring intensity of the fluorescence from the dye compound bound to the double-stranded nucleic acid to quantitatively determine the target nucleic acid in the sample.



(I)



wherein

is (i) a pyrylium ring or (ii) a pyrylium-analog ring of 5 or 6 members where X is O, S, Se, or Te; R¹ and R² are independently a hydrogen atom, a halogen atom, a sulfonate group, an amino

group, a styryl group, a nitro group, a hydroxyl group, a carboxyl group, a cyano group, a substituted or unsubstituted lower alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted lower aralkyl group, or a substituted or unsubstituted cycloalkyl;

R³ is a group of —A or —L—A wherein L is —L¹—, L²—L³—, or —L⁴—L⁵—L⁶—, L¹ to L⁶ being independently —(CH=CH)—, a bivalent group derived from a substituted or unsubstituted aryl group, a substituted or unsubstituted alkylene group, or —CH=R⁴—, wherein R⁴ is a cyclic structure having an oxo group; A is a substituted or unsubstituted aryl group, or —CH=R⁵—, wherein R⁵ is a substituted or unsubstituted heterocycle, a substituted or unsubstituted cycloalkyl group, or a substituted or unsubstituted aromatic ring;

in the pyrylium ring or a pyrylium-analogous ring containing X, the hydrogen atom bonded to the carbon atom which is not linked to R¹, R², or R³ may be substituted by a halogen atom, a sulfonate group, an amino group, a styryl group, a nitro group, a hydroxyl group, a carboxyl group, a cyano group, a substituted or unsubstituted lower alkyl group, a substituted or unsubstituted aryl group, or a substituted or unsubstituted lower aralkyl group; and
Y⁻ is an anion.

5,670,316

DIAGNOSTIC APPLICATIONS OF DOUBLE D-LOOP FORMATION

Elissa P. Sena, Palo Alto; Cornelia J. Calhoun, San Francisco, and David A. Zarling, Menlo Park, all of Calif., assignors to Dalkin Industries, Ltd., Osaka, Japan

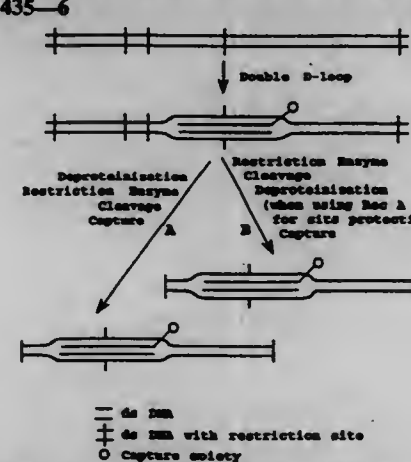
PCT No. PCT/JP92/01135, § 371 Date May 25, 1994, § 102(e) Date May 25, 1994, PCT Pub. No. WO93/05178, PCT Pub. Date Mar. 18, 1993

Continuation-in-part of Ser. No. 910,791, Jul. 9, 1992, abandoned, which is a continuation-in-part of Ser. No. 755,462, Sep. 4, 1991, Pat. No. 5,273,881, which is a continuation-in-part of Ser. No. 520,321, May 7, 1990, Pat. No. 5,223,414. This PCT application Sep. 4, 1992, Ser. No. 199,317

Int. Cl.⁶ C12Q 1/68; 1/70; C12P 19/34; C07H 21/04

U.S. Cl. 435—6

21 Claims



1. A diagnostic method for detecting a linear duplex DNA analyte, having first and second strands, containing a first internal DNA target sequence, comprising

providing a set of two DNA probes, having first and second probe strands, where the first and second probe strands (i) contain complementary sequences to the first and second target sequence strands, and (ii) where these complementary sequences also contain complementary overlap between the probe strands,

coating the probes with RecA protein in a RecA protein coating reaction, said coating reaction containing a nucleotide cofactor selected from the group consisting of ATPγS, rATP, dATP, and GTPγS, or a mixture of nucleotide cofactors consisting of ATPγS and rATP or ATPγS and ADP,

174-443 O.G.—97-15: QL3

combining the RecA coated probes with the linear duplex DNA, which contains the target sequence, under conditions that produce a probe:target complex containing the probe strands and both target strands, where said complex is stable to deproteinization, and
detecting the presence of the probe DNA in the probe:target complex.

5,670,317

DIAGNOSTIC TEST FOR THE DESMOPLASTIC SMALL ROUND CELL TUMOR

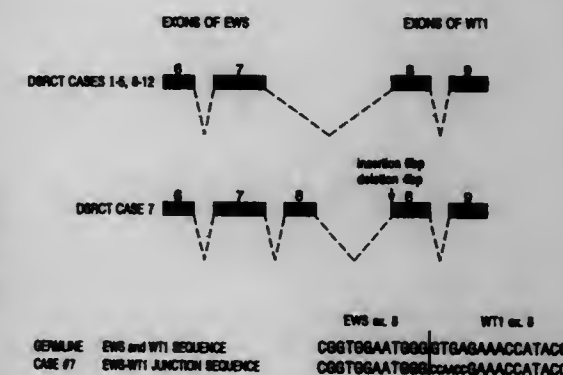
Marc Ladanyi, New York, and William Gerald, Pelham, both of N.Y., assignors to Sloan-Kettering Institute for Cancer Research, New York, N.Y.

Filed May 8, 1995, Ser. No. 437,027

Int. Cl.⁶ C12Q 1/68; C12P 19/34; C07H 21/04

U.S. Cl. 435—6

11 Claims



1. A method of diagnosing a desmoplastic small round cell tumor in a subject which comprises detecting in a sample from the subject a nucleic acid molecule encoding a chimeric EWS-WT1 protein, positive detection indicating the presence of desmoplastic small round cell tumor.

5,670,318

HUMAN BC200 RNA PROBES AND A METHOD OF SCREENING FOR BREAST CANCER USING THE PROBES THEREFOR

Henri Tiedge, and Jurgen Brosius, both of New York, N.Y., assignors to Reel 6624, Frame 0438-Mount Sinai School of Medicine of the City of New York, New York, N.Y.

Continuation of Ser. No. 68,659, May 28, 1993, abandoned.

This application May 10, 1995, Ser. No. 438,500

Int. Cl.⁶ C12Q 1/68; C07H 21/04

U.S. Cl. 435—6

8 Claims

1. An oligonucleotide probe which specifically hybridizes to a human BC200 RNA molecule in a region having the sequence set forth for residues 156-185 of SEQUENCE ID NO 1 but which does not hybridize to a human Alu element.

8. A method of screening human breast tissue for the presence of adenocarcinoma comprising the steps of:

(a) obtaining a sample of human breast tissue;
(b) preparing the test sample such that RNA in the test sample is capable of reacting with a detection reagent; and
(c) combining the test sample with the detection reagent under conditions that produce a detectable reaction product if BC200 RNA is present; wherein detectable reaction product in the test sample has a positive correlation with the presence of breast adenocarcinoma.

5,670,319 ASSAY FOR TUMOR NECROSIS FACTOR RECEPTOR-ASSOCIATED FACTORS

David V. Goeddel, Hillsborough, and Mike Rothe, San Mateo, both of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Continuation-in-part of Ser. No. 2,508,558, May 27, 1994. This application Oct. 28, 1994, Ser. No. 331,394

Int. Cl.⁶ C12N 15/62

U.S. Cl. 435—6

8 Claims

1. An assay for identifying a factor capable of specific binding to the intracellular domain of a native TNF-R2, comprising:
(a) expressing nucleic acid molecules encoding a polypeptide comprising a fusion of an intracellular domain sequence from within amino acids 346-384 to amino acids 423-424 of native human TNF-R2 to the DNA-binding domain of a transcriptional activator, and a fusion of a candidate polypeptide factor to the activation domain of a transcriptional activator, in a single host cell carrying a reporter gene; and
(b) monitoring the binding of said candidate factor to said intracellular domain sequence of TNF-R2 by detecting a signal of the molecule encoded by said reporter gene.

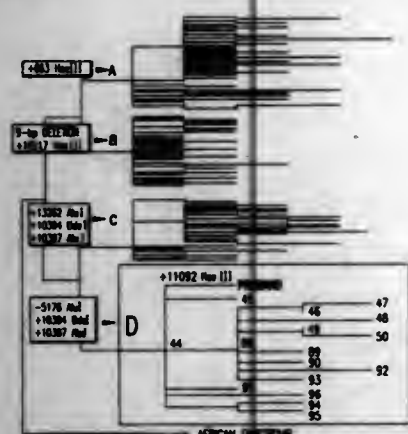
5,670,320 DETECTION OF MITOCHONDRIAL DNA MUTATION 14459 ASSOCIATED WITH DYSTONIA AND/OR LEBER'S HEREDITARY OPTIC NEUROPATHY

Douglas C. Wallace, and Michael D. Brown, both of Atlanta, Ga., assignors to Emory University, Atlanta, Ga.

Filed Nov. 14, 1994, Ser. No. 339,912

Int. Cl.⁶ C12Q 1/68; G01N 33/53; C12M 1/00; C07H 21/02
U.S. Cl. 435—6

5 Claims



(b) determining during said contacting whether there is at least one of (i) a decrease in the percentage of compounds in the library which do not bind to the target molecule, or (ii) an increase in the percentage of compounds in the library which bind to the target molecule, with a change in one of said percentages indicating that said library contains at least one compound that binds to the target molecule with at least the predetermined binding affinity.

5,670,327 ENZYMATIC METHOD FOR DETECTING A LABELLED SEGMENT AND A SOLUTION OR COMPOSITION THEREFOR

Dennis Wright, 3839 Wigginton Rd., Tallahassee, Fla. 32301-3234

Continuation-in-part of Ser. No. 10,344, Jan. 28, 1993, Pat. No. 5,354,658. This application Jan. 25, 1994, Ser. No. 279,940 Int. Cl.⁶ G01N 33/573; 33/535

U.S. Cl. 435—7.4 16 Claims

1. A non-radioactive method of detecting beta galactosidase, or a complex having a ligand and an antiligand, said complex being labelled with beta galactosidase, or a tracer having beta galactosidase conjugated thereto in a sample to be tested comprising reacting said sample 5-bromo-4-chloro-3-indolyl-B-D-galactoside and dimethylthiazol diphenyl tetrazolium (MTT) and allowing the reaction to proceed to produce a colored formazan or a color change indicative of the presence of beta galactosidase in said test sample.

5,670,328 MONOCLONAL ANTIBODIES TO HUMAN PULMONARY SURFACTANT APOPROTEIN D AND USE THEREOF

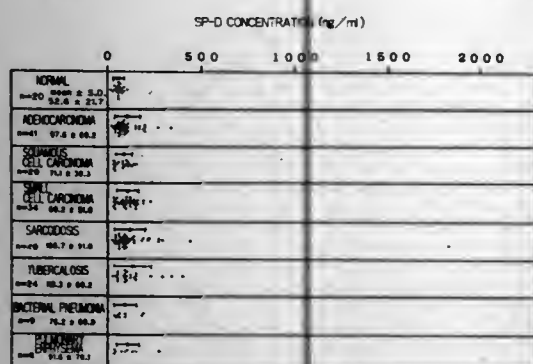
Takeshi Inoue, Katori-gun; Eiji Matsuura, Choshi; Yoshio Kuroki, Sapporo; Toyooki Akino, Sapporo, and Shosaku Abe, Sapporo, all of Japan, assignors to Yamasa Corporation, Chiba-ken, Japan

Continuation of Ser. No. 190,193, Feb. 9, 1994, abandoned.

This application Mar. 7, 1995, Ser. No. 400,530
Claims priority, application Japan, Jun. 9, 1992, 4-174786; Sep. 29, 1992, 4-283961

Int. Cl.⁶ G01N 33/53 6 Claims

U.S. Cl. 435—7.23



5. A method for screening adenocarcinoma in a patient suspected of suffering from respiratory disease, which comprises the steps of: obtaining a lung tissue sample from the patient to prepare a lung tissue specimen; contacting the thus prepared lung tissue specimen with a monoclonal antibody or fragment thereof which specifically binds to human pulmonary surfactant apoprotein D; detecting the presence or absence of human pulmonary surfactant apoprotein D in the sample by detecting the presence or absence of an immune complex formed between the antibody or fragment and human pulmonary surfactant apoprotein D in the specimen; and

comparing the presence of absence of immune complex in the lung tissue specimen with a control tissue specimen so as to assess the presence or absence of adenocarcinoma in the patient,

wherein the monoclonal antibody or fragment has the following additional characteristics:

- (1) specificity: the monoclonal antibody or fragment does not substantially react with other human antigenic substances but specifically reacts only with human pulmonary surfactant apoprotein D;
- (2) reactivity: the monoclonal antibody or fragment reacts with human pulmonary surfactant apoprotein D in a concentration-dependent manner;
- (3) cross-reactivity: the monoclonal antibody or fragment does not substantially react with human pulmonary surfactant apoproteins A, B and C; and
- (4) species specificity: the monoclonal antibody or fragment does not substantially react with rat pulmonary surfactant apoprotein D.

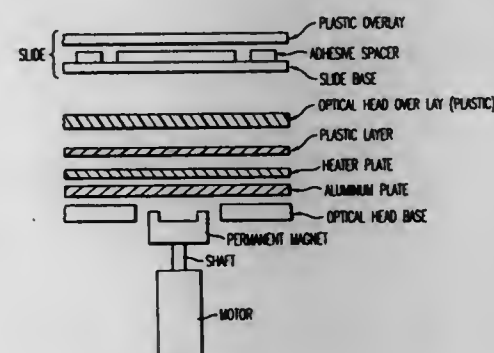
5,670,329 METHOD AND ANALYTICAL SYSTEM FOR PERFORMING FIBRINOGEN ASSAYS ACCURATELY, RAPIDLY AND SIMPLY USING A ROTATING MAGNETIC FIELD

Bruce J. Oberhardt, Raleigh, N.C., assignor to Cardiovascular Diagnostics, Inc., Research Triangle Park, N.C.

Filed May 28, 1993, Ser. No. 68,855

Int. Cl.⁶ C12Q 1/56; G01N 31/22

U.S. Cl. 435—13 26 Claims



1. A method of performing a quantitative fibrinogen assay, comprising:

- (i) contacting a dry reagent matrix, comprised of thrombin and in which is homogeneously embedded a plurality of magnetic particles, contained in a reaction chamber and subjected to a rotating magnetic field generated by a process comprising spinning a north pole and a south pole of a magnetic field about a central point, with an amount of a diluted blood sample sufficient to fill said reaction chamber, thereby freeing said magnetic particles to move under the influence of the rotating magnetic field;
- (ii) optically monitoring the response of said magnetic particles to said rotating magnetic field, during clotting of said blood sample, generating a response curve relating clotting time to fibrinogen concentration;
- (iii) determining a clotting time endpoint from said response curve; and
- (iv) comparing the clotting time endpoint from step (iii) to a stored standard calibration curve relating clotting time endpoint to fibrinogen content, prepared with samples of known fibrinogen content, to determine the amount of clottable fibrinogen in the sample.

5,670,330 ANTI-TUMOR AGENT ASSAY USING PKR

Nahum Sonenberg, Cote St. Luc, Canada; Michael G. Katze, Seattle, Wash.; Sophie Roy, Mount Royal; Antonis E. Koromilas, Montreal, both of Canada, and Glen H. Barber, Seattle, Wash., assignors to McGill University, Canada, and University of Washington, Seattle, Wash.

Continuation-in-part of Ser. No. 141,244, Oct. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 953,681, Sep. 29, 1992, abandoned. This application Oct. 25, 1993, Ser. No. 143,219

Int. Cl.⁶ C12Q 1/48 9 Claims

U.S. Cl. 435—15

1. A method for screening for anti-tumor agent, comprising the steps of:

providing a system containing PKR activity;

contacting said system with a test agent;

measuring PKR activity before and after the addition of said agent, wherein an increase in said PKR activity is indicative of said agent being an effective anti-tumor agent.

5,670,331 METHODS FOR OPTIMIZING FLUOROPYRIMIDINE CANCER THERAPY

Mahmoud H. el Kouni, and Fardos N. M. Naguib, both of Mt. Brook, Ala., assignors to The University of Alabama Research Foundation, Birmingham, Ala.

Filed Jun. 22, 1995, Ser. No. 493,237

Int. Cl.⁶ C12Q 1/48 11 Claims

U.S. Cl. 435—15 1. A method of predicting whether an individual will be intolerant to the effect of fluoropyrimidines comprising the step of measuring the activity of orotate phosphoribosyltransferase activity using orotate as a substrate in a biological sample obtained from said individual, wherein an increased activity of orotate phosphoribosyltransferase in the biological sample indicates that the individual will be intolerant to fluoropyrimidines.

5,670,332 ENZYMATIC REACTIONS AND APPARATUS FOR CARRYING THEM OUT

Peter Kuhl, Ellengburg; Uwe Eichhorn, Grosserkmannsdorf; Hans-Dieter Jakubke, Leipzig; Karlheinz Drauz, Freigericht, and Andreas Bommarius, Frankfurt, all of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Germany

Continuation of Ser. No. 52,928, Apr. 27, 1993, abandoned. This application Sep. 28, 1994, Ser. No. 312,674

Claims priority, application Germany, Apr. 29, 1992, 42 14 157.5

Int. Cl.⁶ C12N 21/00 9 Claims

U.S. Cl. 435—68.1

1. A process involving a water-supported enzymatic reaction for the synthesis of a peptide comprising, forming a solid phase mixture consisting essentially of a substrate, water and a non-immobilized enzyme suitable for the synthesis of the peptide, subjecting the solid phase mixture to conditions suitable for enzymatic activity and intimately mixing the components by the application of ultrasound wherein water is present as a gas or solid and in an amount that is insufficient to form a liquid continuum between substrate and the enzyme but is sufficient for the enzymatic reaction for the synthesis of a peptide to occur.

5,670,333 EXPRESSION OF POLYPEPTIDES IN *E. COLI* UNDER CONTROL OF THE *E. COLI* MDH-GENE PROMOTER

Richard M. Alldread; David J. Nicholls; Michael D. Scawen, and Tony Atkinson, all of Salisbury, Great Britain, assignors to Public Health Laboratory Service Board, London, England

PCT No. PCT/GB92/01897, § 371 Date Jul. 28, 1994, § 102(e) Date Jul. 28, 1994, PCT Pub. No. WO93/08277, PCT Pub. Date Apr. 29, 1993

PCT Filed Oct. 16, 1992, Ser. No. 211,682

Claims priority, application United Kingdom, Oct. 16, 1991, 9121965

Int. Cl.⁶ C12P 21/00; C12N 15/64; 15/67; 15/70 31 Claims

U.S. Cl. 435—69.1

1. An expression vector for expressing in *E. coli* a polypeptide other than *E. coli* malate dehydrogenase coded for by a DNA coding sequence, said vector comprising a DNA sequence coding for said polypeptide and including an initiation codon wherein said DNA sequence is operatively linked to an upstream sequence located upstream of the initiation codon and which is capable of controlling expression of said polypeptide, wherein said upstream sequence consists of the 285 base pair sequence

GCA TGC AAA TTC TGC TTA AAA GTAA AAT TAA TTG TTA

TCA AAT TGA TGT TGT TTT GGC TGA ACG GTA GGG

TAT ATT GTC ACC ACC TGT TGG AAT GTT GCG CTA

ATG CAT AAG CGA CTG TTA ATT ACG TAA GTT AGG

TTC CTG ATT ACG GCA ATT AAA TGC ATA AAC GCT

AAA CTT GCG TGA CTA CAC ATT CTT GAG ATG TGG

TCA TTG TAA ACG GCA ATT TTG TGG ATT AAG GTC

GCG GCA GCG GAG CAA CAT ATC TTA GTT TAT CAA

TAT AAT AAG GAG TTT CAT (SEQ ID NO:3), and wherein if the initiation codon the DNA sequence is not ATG it is changed to ATG.

5,670,334 Patent Not Issued For This Number

5,670,335 MAMMALIAN INWARD RECTIFIER POTASSIUM CHANNEL CDNAS, HOST CELLS EXPRESSING THEM, AND SCREENING ASSAYS USING SUCH CELLS

Lily Y. Jan; Yuh Nung Jan, both of San Francisco, Calif.; Yoshihiro Kubo, Tokyo, Japan; Elithan Reuveny, and Paul A. Slesinger, both of San Francisco, Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation of Ser. No. 103,445, Aug. 6, 1993, Pat. No. 5,492,825. This application Jun. 5, 1995, Ser. No. 461,690

Int. Cl.⁶ C12N 15/12; C07K 14/705 16 Claims

U.S. Cl. 435—29

1. An isolated nucleic acid encoding a mammalian inward-rectifying potassium channel protein, having a nucleotide sequence selected from the group consisting of:

(a) the sequence of a cDNA molecule isolated from a mammalian library, wherein the complementary strand of said cDNA molecule hybridizes under conditions of low stringency with a DNA molecule having a sequence identical to the IRK1 coding sequence shown in SEQ ID NO: 3, and

(b) a sequence degenerate with the sequence of (a).

8. A screening assay for identifying materials which modulate the activity of a mammalian inward-rectifying potassium channel, comprising the steps of:

(a) introducing a nucleic acid according to claim 1 into an expression system and causing the expression system to express the nucleic acid, whereby a potassium channel protein is produced;

(b) contacting said potassium channel protein with one or more candidate channel-modulatory materials;

- (c) monitoring a detectable activity of the potassium channel protein; and
(d) selecting candidate material(s) which modulate said activity relative to a control performed in their absence.

5,670,336 METHOD FOR RECOMBINANT PRODUCTION OF OSTEOGENIC PROTEIN

Hermann Oppermann; Thangavel Kuberasampath, both of Medway; David C. Rueger, West Roxbury, and Engin Ozkaynak, Milford, all of Mass., assignors to Stryker Corporation, Natick, Mass.

Continuation of Ser. No. 145,812, Nov. 1, 1993, which is a division of Ser. No. 995,345, Dec. 22, 1992, Pat. No. 5,258,494, which is a division of Ser. No. 315,342, Feb. 23, 1989, Pat. No. 5,011,691, which is a continuation-in-part of Ser. No. 232,630, Aug. 15, 1988, abandoned, which is a continuation-in-part of Ser. No. 179,406, Apr. 8, 1988, Pat. No. 4,968,590. This application Jan. 20, 1995, Ser. No. 376,731

Int. Cl.⁶ C12N 15/12; 15/00; C07K 14/51

U.S. Cl. 435—69.1

13 Claims

1. A method for producing an OP-1 protein comprising the step of transforming a cell with a vector having inserted therein a DNA sequence which encodes an amino acid sequence comprising
LYVSRDLGWQDWIAPEGYAAAYCEGE-
CAFLNSYMNATNHAIVQTLVHFINPETVPKPC
APTQLNAISVLYFDDSSNVILKRYRNMVVRACGCH,
culturing said cells in a suitable culture medium, and isolating said OP-1 protein produced by said cell.

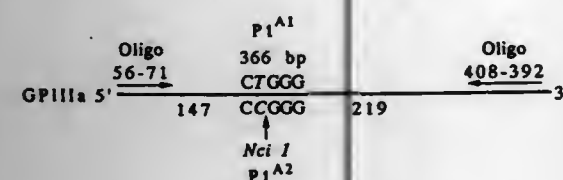
5,670,337 POLYMORPHISM OF HUMAN PLATELET MEMBRANE GLYCOPROTEIN IIIA AND DIAGNOSTIC AND THERAPEUTIC APPLICATIONS THEREOF

Peter J. Newman, Shorewood, and Richard H. Aster, Milwaukee, both of Wis., assignors to Blood Center Research Foundation, Milwaukee, Wis.

Division of Ser. No. 797,117, Nov. 22, 1991, Pat. No. 5,391,714, which is a division of Ser. No. 343,827, Apr. 27, 1989, Pat. No. 5,091,302. This application Feb. 21, 1995, Ser. No. 392,363

Int. Cl.⁶ C12P 21/06; C12Q 1/68; C07H 21/02; 21/04
U.S. Cl. 435—69.1

14 Claims



2. A method for producing an anti-P1^{A1} or anti-P1^{A2} antibody that distinguishes between the P1^{A2} form of GPIIIa, with a leucine at position 33, and the P1^{A1} form of GPIIIa, with a proline at position 33, comprising the steps of (a) immunizing a mammal with a polypeptide comprising between four and fifty amino acids in length having an amino acid sequence, a fragment of GPIIIa of identical length, wherein said fragment comprises amino acid 33 of the GPIIIa, then (b) removing lymphocytes from said mammal, (c) fusing said lymphocytes with mammalian myeloma cells to form hybridoma cells, (d) culturing said hybridoma cells; and thereafter (e) selecting, isolating and cloning hybridoma cells secreting monoclonal antibodies that distinguish between the P1^{A1} and P1^{A2} allelic forms of GPIIIa.

5,670,338 DNA ENCODING BONE MORPHOGENETIC PROTEINS, HOST CELLS TRANSFORMED THERE BY, AND USES THEREOF

Kazuo Murakami; Naoto Ueno, both of Tsukuba, and Yukio Kato, Osaka, all of Japan, assignors to Takeda Chem. Ind. Ltd., Osaka, and Chichibu Onoda Cement Corp., Tokyo, both of Japan

Division of Ser. No. 56,564, Apr. 30, 1993, Pat. No. 5,453,419, which is a continuation of Ser. No. 577,892, Sep. 5, 1990, abandoned. This application May 31, 1995, Ser. No. 455,550
Claims priority, application Japan, Sep. 6, 1989, 1-229250; Jul. 20, 1990, 2-190774

Int. Cl.⁶ C12N 15/00

U.S. Cl. 435—69.1

9 Claims

1. An isolated DNA molecule which encodes *Xenopus laevis* bone morphogenetic protein selected from the group consisting of BMP-2A having amino acid sequence numbers 282 to 398 of SEQ ID NO: 19, BMP-2B having amino acid sequence numbers 288 to 401 of SEQ ID NO: 20, and Vgr-1 having amino acid sequence numbers 328 to 426 of SEQ ID NO: 21.

5,670,339 DNA ENCODING SINGLE CHAIN MONELLIN

Sung-Hou Kim, and Joong Myung Cho, both of Moraga, Calif., assignors to The Regents of the University of California, Berkeley, and Lucky Biotech Corp., Emeryville, both of Calif.

Continuation of Ser. No. 146,326, Nov. 2, 1993, Pat. No. 5,487,983, which is a division of Ser. No. 502,257, Mar. 30, 1990, Pat. No. 5,264,558, which is a continuation-in-part of Ser. No. 465,585, Jan. 18, 1990, abandoned, which is a continuation of Ser. No. 117,124, Nov. 4, 1987, abandoned, and a continuation-in-part of Ser. No. 64,343, Jun. 19, 1987, abandoned, and a continuation-in-part of Ser. No. 64,341, Jun. 19, 1987, abandoned. This application Jun. 6, 1995, Ser. No. 650,545

Int. Cl.⁶ C12P 21/06; C12N 5/06; 15/03; C07H 21/04

U.S. Cl. 435—69.1

12 Claims

1. A synthetic or recombinant DNA in purified and isolated form which encodes a single-chain sweet proteinaceous compound of the formula B-C-A,
wherein B represents a peptide portion consisting of gene-encoded amino acids which is at least 90% homologous to residues 1-45 of the B chain of native monellin and modified only by conservative substitutions;
C is a covalent bond or consists of a peptide of 1-10 gene-encoded amino acids; and
A represents a peptide portion consisting of gene-encoded amino acids at least 90% homologous to residues 6-45 of the A chain of native monellin and modified only by conservative substitutions.

5,670,340 PROCESS FOR PRODUCING PEPTIDES IN *E. COLI*

Masayuki Yabuta, Tatebayashi; Yuji Suzuki, Ashikaga; Kazuhiro Ohsuye, Ohira-gun; Takehiro Oshima, Ashikaga; Seiko Onai, Iseaki; Koji Magota, Takatsuki, and Shoji Tanaka, Ashiya, all of Japan, assignors to Suntory Limited, Osaka, Japan

Continuation of Ser. No. 929,597, Aug. 17, 1992, abandoned. This application Dec. 5, 1994, Ser. No. 352,179
Claims priority, application Japan, Aug. 19, 1991, 3-230769; Jul. 31, 1992, 4-223520

Int. Cl.⁶ C12P 21/00; 21/02; 21/06

U.S. Cl. 435—69.4

5 Claims

1. A process for the production of a (target peptide) comprising:
A) culturing *E. coli* host cells transformed with a plasmid capable of expressing a gene coding for a fusion protein represented by the following formula:

A—L—B

wherein, B is a target peptide selected from the group consisting of calcitonin precursor, atrial natriuretic peptide, brain natriuretic peptide, and C-type natriuretic peptide, A is a protective peptide comprising a fragment of 90-210 amino acids from the N-terminal of the *E. coli* β -galactosidase polypeptide to protect the peptide to which it is fused, and L is a linker peptide positioned between the C-terminal of said protective peptide and the N-terminal of said target peptide and is selected such that when said fusion protein is treated with an enzyme or chemical substance, said target peptide is cleaved from said linker peptide, and wherein the isoelectric point of the entire fusion protein A—L—B is adjusted to a range between 4.9 and 6.9 by including a linker peptide having basic amino acid residues;

- B) obtaining an insoluble fraction comprising inclusion bodies by homogenization of said transformed *E. coli* host cells;
C) solubilizing said fusion protein comprised in said inclusion bodies by treatment of said insoluble fraction with a solubilizing agent; and,
D) cleaving the peptide bond between the C-terminal of the linker amino acid residue and the N-terminal of the target peptide contained in said solubilized fusion protein to release said target peptide from said fusion peptide.

5,670,341

DNA VECTORS, HOSTS, PROBES AND RECOMBINANT LIKE CARRIER PROTEINS OR POLYPEPTIDES

Emerald Martin Spencer, San Francisco, and Carol Talkington-Verser, San Rafael, both of Calif., assignors to Celtrix Pharmaceuticals, Inc., Santa Clara, Calif.

Continuation of Ser. No. 43,030, Apr. 5, 1993, abandoned, which is a division of Ser. No. 763,481, Sep. 20, 1991, Pat. No. 5,200,509, which is a continuation of Ser. No. 290,250, Dec. 22, 1988, abandoned, which is a continuation-in-part of Ser. No. 170,022, Mar. 31, 1988, abandoned, and a continuation-in-part of Ser. No. 34,885, Apr. 6, 1987, abandoned. This application May 19, 1995, Ser. No. 444,419

Int. Cl.⁶ C12N 1/21; 15/18; 15/63; C07K 14/475

U.S. Cl. 435—69.4

20 Claims

1. A recombinant DNA molecule comprising: a first DNA sequence encoding amino acids 27-290 of FIG. 4, wherein said first DNA sequence is preceded by a second DNA sequence encoding a secretion or signal sequence not normally found in a gram-negative bacterial host cell, such that translation is initiated at the beginning of or upstream of said second DNA wherein said second DNA is operably linked to an expression control sequence of a bacterial origin, and wherein the polypeptide encoded by said sequence accumulates inside said gram-negative bacterial host cell in soluble form.

5,670,342

NDF PEPTIDES

Josette Francoise Carnahan, Newbury Park; Shinichi Hara; Hsieng Sen Lu, both of Thousand Oaks, all of Calif.; John Philip Mayer, Boulder, Colo., and Steven Kiyoshi Yoshinaga, Thousand Oaks, Calif., assignors to Amgen Inc., Thousand Oaks, Calif.

Filed Apr. 6, 1995, Ser. No. 417,640

Int. Cl.⁶ C07K 19/00; C12N 15/62; A61K 38/18

U.S. Cl. 435—69.7

9 Claims

1. A peptide having the amino acid sequence

SHLVKCAEKEKTFVNGGECFVMDL (SEQ. ID NO:1)
SNPSRYLCKCQPGFTGARCQNYVMAS

5,670,343

CLONING AND/OR EXPRESSION VECTORS, PREPARATION METHOD AND THEIR USE

Beatrice Cameron; Joel Crouzet, and Sophie Levy-Schill, all of Paris, France, assignors to Rhone Poulenc Biochimie, Antony, France

Continuation of Ser. No. 938,242, Oct. 14, 1992, abandoned.

This application Oct. 28, 1994, Ser. No. 330,621

Claims priority, application France, Apr. 24, 1990, 90 05185
Int. Cl.⁶ C12P 21/00; C12N 5/10; 15/63

U.S. Cl. 435—71.2

12 Claims

12. Method for producing a protein or a metabolite, comprising introducing a gram negative bacterial vector, comprising: (a) an origin of replication, wherein said origin of replication is functional in gram negative bacteria; (b) the par region of plasmid RP4; (c) a mob locus, wherein said mob locus contains a deletion of 1.75 kb on each side of OriT; and (d) a recombinant DNA fragment having at least one structural gene coding for the protein sought to be made or at least one gene participating in biosynthesis of the metabolite, wherein said structural gene is under the control of genetic expression sequences into a Gram-negative bacterium;
culturing said bacterium under conditions for expression of said gene, and recovering the protein or a metabolite produced by the bacterium.

5,670,344

PREVENTING UNDESIRABLE COLOR FORMATION IN IRON FORTIFIED CHOCOLATE-FLAVORED BEVERAGES BY INCLUDING EDIBLE ACIDS OR THEIR SALTS

Halle Mehansho, Fairfield, and Renee Jane Irvine, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Feb. 2, 1996, Ser. No. 595,716

Int. Cl.⁶ A23L 1/304

U.S. Cl. 426—74

8 Claims

1. A nutritional dry chocolate-flavored beverage mix, which comprises:
(a) from about 2 to about 20% cocoa
(b) from about 10 to about 100% of the RDA of an iron source selected from the group consisting of ferrous sulfate, ferrous fumarate, ferrous succinate, ferrous gluconate, ferrous lactate, ferrous tartrate, ferrous citrate, ferrous amino acid chelates, ferric saccharate, ferric ammonium citrate, ferric citrate, ferric sulfate, and mixtures thereof in an amount sufficient to provide;
(c) from about 0.5 to about 15% milk solids;
(d) an effective amount of a sweetener;
(e) a buffering agent selected from the group consisting of edible buffering acids, water-soluble salts of edible buffering acids, and mixtures thereof in an amount sufficient such that the beverage mix, when dissolved in an aqueous liquid provides a pH from about 3.0 to about 6.5.

5,670,345

BIOLOGICAL PRODUCTION OF HUMIC ACID AND CLEAN FUELS FROM COAL

Kallash Chandra Srivastava, Centreville, and Daman S. Walla, Woodbridge, both of Va., assignors to Arctech, Inc., Chantilly, Va.

Filed Jun. 7, 1995, Ser. No. 483,261

Int. Cl.⁶ C12N 1/20; C12P 17/18; 7/44; 19/60

U.S. Cl. 435—75

10 Claims

1. A method for producing humic acid from coal comprising introducing coal into a medium containing an anaerobic culture Mic-1, ATCC 55801, for a minimum period of time to convert said coal to humic acid.

5,670,356

MODIFIED LUCIFERASE

Bruce A. Sherf, Waunakee, and Keith V. Wood, Madison, both of Wis., assignors to Promega Corporation, Madison, Wis.
Filed Dec. 12, 1994, Ser. No. 354,240

Int. Cl.⁶ C12N 9/02; 15/53; 1/10; C07H 21/04

U.S. Cl. 435—189

17 Claims

1. A luciferase gene encoding a modified form of the luciferase of *Photinus pyralis*, wherein:

- the internal palindrome sequence beginning at nucleotide 40 of SEQ. ID. NO: 1 is eliminated by changing the DNA sequence beginning at nucleotide 40 of SEQ. ID. NO: 1 to the DNA sequence of SEQ. ID. NO: 7, namely, TTC TAT CCG CTG GAA GAT GGA A;
- the near consensus TGT-3 regulatory site beginning at nucleotide 373 of SEQ. ID. NO: 1 is altered by changing the DNA sequence beginning at nucleotide 373 of SEQ. ID. NO: 1 to SEQ. ID. NO: 9, namely, GTG GTG TTC GTT, wherein such change in DNA sequence is conducted without affecting the amino acid sequence;
- the near consensus API regulatory site beginning at nucleotide 646 of SEQ. ID. NO: 1 is altered by changing the DNA sequence of SEQ. ID. NO: 1 at nucleotide 646 to SEQ. ID. NO: 11, namely, TGC CGT AG, wherein such change in DNA sequence is conducted without affecting the amino acid sequence;
- the near consensus API regulatory site beginning at nucleotide 1158 of SEQ. ID. NO: 1 is altered by changing the DNA sequence of SEQ. ID. NO: 1 at nucleotide 1158 to SEQ. ID. NO: 13, namely, AAG AGG CGA ACT GTG TGT GAG AGG T, wherein such change is conducted without affecting the amino acid sequence;
- the near consensus API and SPl regulatory sites beginning at nucleotide 1400 of SEQ. ID. NO: 1 are altered by changing the DNA sequence of SEQ. ID. NO: 1 at nucleotide 40 to SEQ. ID. NO: 15, namely, CAG GTG TCG C, wherein such change is conducted without affecting the amino acid sequence;
- the glycosylation site beginning at amino acid 50 of SEQ. ID. NO: 2 is eliminated by replacing asparagine with aspartate;
- the glycosylation site beginning at amino acid 50 of SEQ. ID. NO: 1 is eliminated by replacing the tripeptide codon sequence beginning at nucleotide 148 of SEQ. ID. NO: 1 with SEQ. ID. NO: 17, namely, GAC ATC ACT, such that the amino acid sequence asparagine-isoleucine-threonine is replaced with aspartate-isoleucine-threonine;
- the glycosylation site beginning at amino acid 119 of SEQ. ID. NO: 2 is eliminated by replacing asparagine with glycine; and
- the glycosylation site beginning at amino acid 119 of SEQ. ID. NO: 1 is eliminated by replacing the tripeptide codon sequence beginning at nucleotide 355 of SEQ. ID. NO: 1 with SEQ. ID. NO: 19, namely, GGC ATT TCG, such that the amino acid sequence asparagine-isoleucine-serine is replaced with glycine-isoleucine-serine.

5,670,357

PEROXIDASE PRODUCED BY PLANT CELL CULTURES
Gagik Stepan-Sarkissian, Courbevoie, France; Debbie Grey, Derbyshire, United Kingdom; Margaret Elizabeth Spencer, Sheffield, United Kingdom; Angela Marian Stafford, Castleton, United Kingdom; Sean Michael Vincent Ashton, Sheffield, United Kingdom; and Sandra Jane Scollick, Barnsley, United Kingdom, assignors to Phytera, Inc., Worcester, Mass.

PCT No. PCT/GB92/01700, § 371 Date Sep. 19, 1994, § 102(e) Date Sep. 19, 1994, PCT Pub. No. WO93/06212, PCT Pub. Date Apr. 1, 1993

PCT Filed Sep. 16, 1992, Ser. No. 190,102

Claims priority, application United Kingdom, Sep. 16, 1991, 9119717

Int. Cl.⁶ C12N 9/08

U.S. Cl. 435—192

3 Claims

1. A substantially purified peroxidase isoenzyme, wherein the isoenzyme is PT-S3, which is an unglycosylated, extracellular

isoenzyme obtained from *Theobroma cacao*, having a molecular weight of about 33 kD, an optimum pH of 4.5, a haem peak of 403 nm, a R_z of 2.05, a pI value greater than 10, a highest specific activity measured with 2,2'-azino-bis(3-ethylbenzthiazoline-6-sulfonic acid) of 12046 U/mg, and a highest specific activity measured with guaiacol of 3200 U/mg; and wherein the enzyme retains more than 33% activity after 1 year at 4° C. in sodium acetate or phosphate buffer.

5,670,358

METHOD FOR INHIBITING CHYMOPAPAIN AND PAPAINE ENZYME ACTIVITY WITH POLYSACCHARIDES OF ANIMAL ORIGIN

Catherine T. Lee, Laguna Hills; Cynthia Zerfass, Trabuco Canyon; Tan Thanh Dinh, Garden Grove, and Minh T. Ma, Santa Ana, all of Calif., assignors to Baxter International Inc., Deerfield, Ill.

Filed Oct. 19, 1995, Ser. No. 545,439

Int. Cl.⁶ C12N 9/48; C07G 17/00; 15/00

U.S. Cl. 435—212

15 Claims

1. A process for inhibiting the activity of an enzyme selected from the group consisting of chymopapain and papain which comprises adding a polysaccharide selected from the group consisting of glycogen, desulfated heparin, and hyaluronic acid to a medium containing said enzyme, said polysaccharide being added in a concentration effective to inhibit the activity of said enzyme.

5,670,359

CLONED NSII RESTRICTION-MODIFICATION SYSTEM

Mary C. Longo, Germantown, and Michael D. Smith, Rockville, both of Md., assignors to Life Technologies, Inc., Rockville, Md.

Continuation of Ser. No. 145,518, Nov. 4, 1993, Pat. No. 5,470,740. This application Nov. 27, 1995, Ser. No. 563,266

Int. Cl.⁶ C12N 9/22

U.S. Cl. 435—199

15 Claims

1. A method of producing NsiI restriction endonuclease comprising:

- growing a recombinant host cell which is protected from NsiI cleavage and which comprises a structural gene coding for the NsiI restriction endonuclease under conditions suitable for the expression of said endonuclease; and
- isolating said NsiI endonuclease.

5,670,360

MAMMALIAN RECEPTORS FOR GLUCAGON-LIKE-PEPTIDE-1 (GLP-1), CORRESPONDING DNA AND RECOMBINANT EXPRESSION SYSTEMS, AND SCREENING ASSAYS FOR GLP-1 AGONISTS AND ENHANCERS

Bernard Thorens, Epalinges, Switzerland, assignor to Novo Nordisk A/S, Bagsvaerd, Denmark

PCT No. PCT/EP93/00697, § 371 Date Nov. 24, 1993, § 102(e) Date Nov. 24, 1993, PCT Pub. No. WO93/19175, PCT Pub. Date Sep. 30, 1993

PCT Filed Mar. 23, 1993, Ser. No. 142,439

Claims priority, application Denmark, Mar. 25, 1992, 398/92 Int. Cl.⁶ C07K 14/72; C12N 15/12; C01N 33/53

U.S. Cl. 435—240.2

11 Claims

1. An isolated glucagonlike peptide-1 (GLP-1) receptor polypeptide having the amino acid sequence of a naturally occurring mammalian GLP-1 receptor encoded by a cDNA molecule isolated from a pancreatic islet library and comprising a nucleotide sequence selected from the group consisting of:

- SEQ ID NO: 1;
SEQ ID NO: 3; and

the sequence of a cDNA molecule capable of specifically hybridizing with a probe having the sequence of the comple-

ment of SEQ ID NO: 1 or SEQ ID NO: 3 under conditions of relaxed stringency, wherein a probe having the sequence of the complement of SEQ ID NO: 1 will specifically identify a cDNA comprising the sequence shown in SEQ ID NO: 3 in a human cDNA library,

said receptor polypeptide capable of binding GLP-1 with a K_D of less than 100 nM.

5,670,361

HIV-SPECIFIC RIBOZYMES

Flossie Wong-Staal; Mang Yu, both of San Diego, Calif.; Osamu Yamada, Kobe, Japan; Joshua O. Ojwang, Spring, Tex.; Markley C. Leavitt, La Jolla, and Anthony Ho, San Diego, both of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 62,465, May 17, 1993, abandoned. This application May 17, 1994, Ser. No. 245,742

Int. Cl.⁶ C12N 15/86; 15/11; 5/10

U.S. Cl. 435—240.2

13 Claims

1. A retroviral vector comprising an infectious retrovirus having inserted between the 5' and 3' long terminal repeat sequences of the retrovirus a nucleic acid sequence encoding a ribozyme which specifically cleaves a human immunodeficiency virus nucleic acid under the control of a pol III promoter.

5,670,362

DNA ENCODING AN EIMERIA 100KD ANTIGEN

Arnoldus Nicolaas Vermeulen, Cuijk; Paul van den Boogaart, Oss, and Jacobus Johannes Kok, Nijmegen, all of Netherlands, assignors to Akzo Nobel N.V., Arnhem, Netherlands Division of Ser. No. 310,357, Sep. 21, 1994, which is a continuation of Ser. No. 102,865, Aug. 6, 1993, abandoned, which is a continuation of Ser. No. 904,075, Jun. 18, 1992, abandoned. This application Jun. 6, 1995, Ser. No. 468,853

Claims priority, application European Pat. Off., Jun. 18, 1991, 91201523

Int. Cl.⁶ C12N 5/10; 1/21; 15/30; 15/63

U.S. Cl. 435—240.1

16 Claims

1. A DNA molecule comprising a nucleic acid sequence coding for an Eimeria polypeptide having the amino acid sequence of SEQ ID NO: 10, or a fragment of said polypeptide that specifically binds with antibody raised to said polypeptide, wherein the DNA molecule is free from other genetic material of Eimeria.

9. A host cell transfected with a nucleic acid sequence according to claim 1.

5,670,363

Patent Not Issued For This Number

5,670,364

A83543 COMPOUNDS AND PROCESS FOR PRODUCTION THEREOF

Jon S. Mynderse, Indianapolis, Ind.; James A. Mabe, Hendersonville, N.C.; Jan R. Turner, Carmel, Ind.; Mary L. B. Huber, Danville, Ind.; Mary C. Broughton, Indianapolis, Ind.; Walter M. Nakatsukasa, Seattle, Wash.; Lawrence Creemer; Herbert A. Kirst, both of Indianapolis, Ind., and James W. Martin, Coatesville, Ind., assignors to DowElanco, Indianapolis, Ind.

Division of Ser. No. 385,497, Feb. 8, 1995, which is a division of Ser. No. 30,522, Mar. 12, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 474,026

Int. Cl.⁶ C12N 1/20; C07H 17/04; A61K 31/71; C12P 19/62

U.S. Cl. 435—252.1

1 Claim

1. A biologically pure culture of *Saccharopolyspora spinosa* NRRL 18743, or an A83543K-producing mutant thereof.

5,670,365

IDENTIFICATION OF, AND USES FOR, NEMATOCIDAL BACILLUS THURINGIENSIS GENES, TOXINS, AND ISOLATES

Jerald S. Feltelson, San Diego, Calif., assignor to Mycogen Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 540,104, Oct. 6, 1995. This application Mar. 21, 1996, Ser. No. 620,717

Int. Cl.⁶ C12N 1/20; 15/00; C07H 21/04; A01N 37/18

U.S. Cl. 435—252.3

23 Claims

1. A novel *Bacillus thuringiensis* isolate selected from the group consisting of PS32B (NRRL B-21531), PS 49C (NRRL B-21532), PSS52E3 (NRRL B-21533), PS54G2 (NRRL B-21543), PS101CC3 (NRRL B 21534), PS178D4 (NRRL B-21544), PS185L2 (NRRL B-21535), PS197P3 (NRRL B-21536), PS242B6 (NRRL B-21537), PS242G4 (NRRL B-21538), PS242H10 (NRRL B-21539), PS242K17 (NRRL B-21540), PS244A2 (NRRL B-21541), PS244D1 (NRRL B-21542).

5,670,366

RECOMBINANT DNA SEQUENCES ENCODING PHOSPHOLIPASE

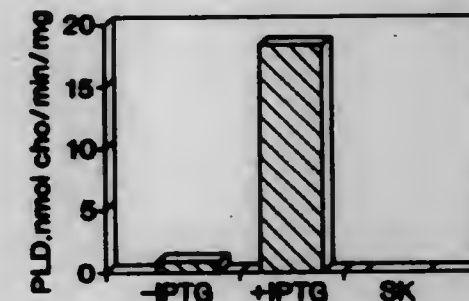
Xuemin Wang, Manhattan, Kans., assignor to Kansas State University Research Foundation, Manhattan, Kans.

Filed Jun. 6, 1995, Ser. No. 471,251

Int. Cl.⁶ C12N 1/20; 9/22; 15/00; C12P 21/06

U.S. Cl. 435—252.33

24 Claims



1. A recombinant DNA sequence, wherein the DNA sequence encodes a phospholipase D, and hybridizes to an oligonucleotide when the DNA sequence and the oligonucleotide are held at 59° C. for 18 hours in a solution including 6X SSC, 10 mM (Na)₂PO₄, 1 mM EDTA, 0.5% SDS, 0.1% nonfat dried milk, and 50 µg/ml denatured salmon sperm DNA,
- wherein the oligonucleotide is selected from the group consisting of GARGACNGTNGGNTTYGGNAARGGNGT (SEQ ID #3) and YTNATYGCNACNATNGAKYT (SEQ ID #4), wherein N is inosine, R is A or G, Y is T or C, and K is T or G.

5,670,367

RECOMBINANT FOWLPOX VIRUS

Friedrich Dörner, Vienna; Friedrich Scheiflinger, Orth/Donau, and Falko Gunter Falkner, Mannsdorf, all of Austria, assignors to Immuno Aktiengesellschaft, Vienna, Austria

Continuation of Ser. No. 935,313, Aug. 26, 1992, abandoned.

This application Apr. 22, 1994, Ser. No. 232,463

Claims priority, application European Pat. Off., Aug. 26, 1991, 91114300

Int. Cl.⁶ C12N 15/86; C07H 21/045

U.S. Cl. 435—320.1

9 Claims

1. Recombinant fowlpox virus, wherein the 3'-region downstream of the fowlpox virus P2 gene is used as a non-essential site for the insertion of foreign DNA.

5,670,368

INHIBITING PLANT PATHOGENS WITH AN ANTAGONISTIC MICROORGANISM(S)

Randy J. McLaughlin, Martinsburg, W. Va.; Charles L. Wilson, Frederick, Md., and Edo Chalutz, Rishon le Zion, Israel, assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Division of Ser. No. 395,681, Aug. 18, 1989, Pat. No. 5,413,783, which is a continuation-in-part of Ser. No. 387,669, Jul. 31, 1989, abandoned, and Ser. No. 177,236, Apr. 4, 1988, abandoned. This application Aug. 29, 1994, Ser. No. 297,088

Int. Cl.⁶ A01N 3/00; C12N 1/16

U.S. Cl. 435—255.5

14 Claims

1. A biocontrol composition comprising a mixture of at least one calcium salt and at least one microorganism which is an antagonist against plant pathogens but is not antibiotic, wherein said at least one microorganism is a yeast selected from the group consisting of *Pichia guilliermondii* and *Hanseniaspora uvarum* and wherein both said at least one microorganism and said at least one calcium salt are present in an amount effective for inhibiting plant pathogen development.

5,670,369

METHOD FOR THE PRODUCTION OF SOLUBLE COLLAGEN

David J. Fink, Shaker Hts., and Kevin M. Virnelson, Mayfield Hts., both of Ohio, assignors to Ranpak Corporation, Concord, Ohio

Filed Jun. 25, 1996, Ser. No. 670,338

Int. Cl.⁶ C07K 1/00; C12P 21/06; A61K 38/17

U.S. Cl. 435—273

29 Claims

1. An improved method for producing an aqueous solution of soluble collagen comprising the steps of:

- (A) providing an aqueous ground slurry of insoluble collagen containing from about 2.0% to about 5.0% by weight of insoluble collagen at a pH effective to obtain activity for a proteolytic enzyme added in step (B);
- (B) adding a proteolytic enzyme to said slurry;
- (C) reacting said slurry and enzyme at a temperature, T_1 and for a time t_1 effective for forming a slurry containing at least some soluble collagen;
- (D) diluting at least a portion of the slurry formed in step (C) with water to form a diluted slurry containing from about 0.1% to about 1% by weight of insoluble collagen; and
- (E) reacting said diluted slurry obtained in step (D) at a temperature, T_2 and for a time t_2 effective to produce a solution containing an increased amount of soluble collagen.

5,670,370

BIOLOGICAL CONTAINMENT

Søren Molin, Holte; Poul Kirketerp, Andersson, Frederiksberg; Kenn Axø, Gerdes, Virum, and Per Klemm, Frederiksberg, all of Denmark, assignors to GX BioSystems A/S, Copenhagen, Denmark

Continuation of Ser. No. 205,824, Mar. 4, 1994, abandoned, which is a continuation of Ser. No. 947,910, Sep. 21, 1992, abandoned, which is a continuation of Ser. No. 132,942, Nov. 6, 1987, abandoned. This application May 30, 1995, Ser. No. 452,494

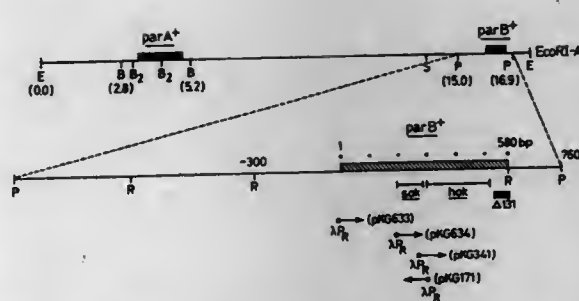
Claims priority, application Denmark, Mar. 26, 1986, 1455/86; Dec. 23, 1986, 6294/86

Int. Cl.⁶ C12N 15/00; C12P 21/06

U.S. Cl. 435—320.1

49 Claims

1. A recombinant replicon which comprises a first gene, whose expression results in the formation of a toxic product which has a toxic effect on Enterobacteriaceae cells in which said replicon can replicate, and an invertible promoter which regulates the expression of said first gene, whereby, when said replicon is introduced into host Enterobacteriaceae cells in which said promoter is func-



5,670,371

BACTERIAL EXPRESSION OF SUPEROXIDE DISMUTASE

Haim Aviv; Marian Gorecki; Avigdor Levanon, all of Rehovot; Amos Oppenheim, Jerusalem, and Jacob Hartman, Holon, all of Israel, assignors to Bio-Technology General Corp., Iselin, N.J.

Continuation of Ser. No. 291,838, Aug. 17, 1994, which is a continuation of Ser. No. 92,759, Jul. 16, 1993, abandoned, which is a continuation of Ser. No. 790,773, Nov. 12, 1991, abandoned, which is a continuation of Ser. No. 355,569, May 23, 1989, abandoned, which is a continuation of Ser. No. 751,791, Jul. 3, 1985, abandoned, which is a continuation-in-part of Ser. No. 514,188, Jul. 15, 1983, abandoned. This application Jun. 2, 1995, Ser. No. 459,356

Claims priority, application European Pat. Off., Jul. 3, 1984, 84107717

Int. Cl.⁶ C12N 15/73

U.S. Cl. 435—320.1

2 Claims

1. A plasmid for production of superoxide dismutase which upon introduction into a suitable *Escherichia coli* host cell containing the thermolabile repressor C_{11} , renders the host cell capable, upon increasing the temperature of the host cell to a temperature at which the repressor is inactivated, of effecting expression of DNA encoding the superoxide dismutase and production of the superoxide dismutase comprising a double-stranded DNA molecule which comprises in 5' to 3' order the following:

- a DNA sequence which contains the promoter and operator $P_{L_{O_2}}$ from lambda bacteriophage;
- the N utilization site for binding antiterminator N protein produced by the host cell;
- a DNA sequence which contains a ribosomal binding site for rendering the mRNA of the gene encoding the superoxide dismutase capable of binding to ribosomes within the host cell, wherein the ribosomal binding site is a mutant C_{11} ribosomal binding site from lambda bacteriophage having the sequence:

TAAGGAAGTACTTACAT
ATTCCTTCATGAATGTA;

an ATG initiation codon;

DNA encoding the superoxide dismutase;

and which additionally includes a DNA sequence which contains an origin of replication from a bacterial plasmid capable of autonomous replication in the host cell and a DNA sequence which contains a gene for a selectable or identifiable phenotypic trait which is manifested when the plasmid is present in the host cell.

5,670,372

PLURIPOTENTIAL EMBRYONIC STEM CELLS AND METHODS OF MAKING SAME

Brigid L. M. Hogan, Brentwood, Tenn., assignor to Vanderbilt University

Division of Ser. No. 958,562, Oct. 8, 1992, Pat. No. 5,453,357.

This application Jun. 5, 1995, Ser. No. 463,192

Int. Cl.⁶ C12N 5/00; A01N 1/02

U.S. Cl. 435—240.2

1 Claim

1. A method of screening factors for the ability to promote the formation of embryonic stem cells, comprising combining primordial germ cells with a factor selected from the group consisting of fibroblast growth factor, leukemia inhibitory factor, membrane associated steel factor, and soluble steel factor with the factor to be screened and determining the formation of embryonic stem cells, the formation of embryonic stem cells indicating a factor capable of promoting the formation of embryonic stem cells.

5,670,373

ANTIBODY TO HUMAN INTERLEUKIN-6 RECEPTOR

Tadamitsu Kishimoto, 5-31, Nakanosho 3-chome, Tondabayashi, Osaka, Japan

Continuation of Ser. No. 899,600, Jun. 18, 1992, abandoned, which is a continuation of Ser. No. 554,534, Jul. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 298,694, Jan. 19, 1989, Pat. No. 5,171,840. This application Dec. 15, 1994, Ser. No. 357,080

Claims priority, application Japan, Jan. 22, 1988, 63-012387; Jan. 25, 1988, 63-012599; Aug. 4, 1988, 63-194855; Jan. 14, 1989, 1-007461; Jul. 20, 1989, 1-186016

Int. Cl.⁶ C07K 16/00; C12P 21/04; C12N 15/00; 5/00

U.S. Cl. 435—344

13 Claims

1. An isolated antibody to human interleukin-6 receptor, wherein said antibody specifically binds to said human interleukin-6 receptor.

5,670,374

METHOD AND TEST KIT FOR THE QUALITATIVE DETERMINATION OF PEROXIDES IN FAT

Gregory Lee Thornton, West Des Moines; Lawrence Keith Schlatter, Ankeny, and Douglas Howard Catron, Des Moines, all of Iowa, assignors to Kemlin Industries, Inc., Des Moines, Iowa

Filed Oct. 13, 1995, Ser. No. 542,937

Int. Cl.⁶ G01N 33/06

U.S. Cl. 436—23

5 Claims

1. A process for determining whether a fat sample contains fat peroxides in an amount above a predetermined fat peroxides amount comprising the steps of:

- (a) dissolving a predetermined weight of fat to be assayed in a predetermined amount of a 3:2 volume:volume solution of acetic acid:isooctane that also contains a dispersing amount of a surfactant to form a first organic solution;
- (b) agitatingly admixing a predetermined amount of a saturated solution of potassium iodide with said first organic solution to form a second organic solution, the amount of said saturated potassium iodide solution being sufficient to provide an amount of iodide ions needed to react with fat peroxides present in the fat in excess of a predetermined fat peroxides amount to form iodine;
- (c) maintaining said second organic solution with agitation for a time sufficient for the fat peroxides present in the fat to react with iodide ions to form iodine; and
- (d) agitatingly admixing an aqueous composition of a starch indicator dispersion in a predetermined amount of iodine reductant solution with said maintained second organic solution to form a two phase, aqueous/organic composition, the predetermined amount of iodine reductant present being sufficient to reduce only an amount of iodine formed from a

predetermined amount of fat peroxides that may be present in the fat, an excess of iodine present in said two phase composition causing the aqueous phase to be other than colorless or yellow and indicating that the peroxide value of the fat sample is above the predetermined fat peroxides amount.

5,670,375

SAMPLE CARD TRANSPORT METHOD FOR BIOLOGICAL SAMPLE TESTING MACHINE

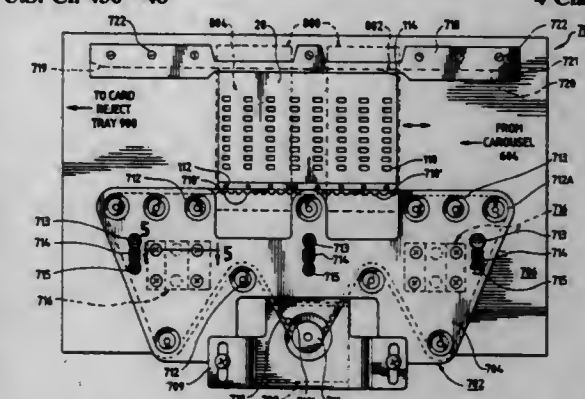
William Ernest Seaton, Chesterfield; David B. Shine, University City, and Craig Drager, Ballwin, all of Mo., assignors to bioMérieux Vitek, Inc., Hazelwood, Mo.

Filed Feb. 21, 1996, Ser. No. 604,472

Int. Cl.⁶ G01N 35/04

U.S. Cl. 436—48

4 Claims



1. A method for transporting a sample card having first and second edges from an incubation station to a reading station in a sample testing machine, comprising the steps of:

- placing said sample card in a snug space defined by (1) a slot in an elongated ledge, said slot receiving said first edge of said card and defining a card travel direction from said incubation to said reading stations, and (2) a drive belt positioned parallel to said slot and supporting said second edge of said card, said slot and said drive belt being in vertical alignment with said sample card;
- biasing said drive belt towards said ledge so as to maintain pressure between said drive belt, said card and said slot; and moving said drive belt in said card travel direction so as to slide said card through said slot to said reading station without substantial slippage of said card relative to said belt, permitting precise movement of said card relative to said reading station.

5,670,376

METHODOLOGY FOR MONITORING SOLVENT QUALITY

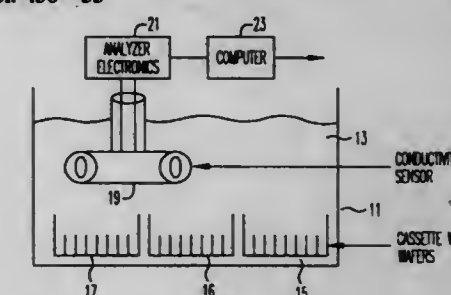
Yaw Samuel Obeng, Orlando, Fla., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 14, 1994, Ser. No. 355,787

Int. Cl.⁶ G01N 35/00

U.S. Cl. 436—55

5 Claims



1. A method of integrated circuit fabrication comprising:

exposing a substrate to an organic solvent capable of carrying charged chemical species;
measuring a conductivity of said organic solvent; and
terminating said exposure of said substrate to said organic solvent when said conductivity reaches a predetermined value.

5,670,377

METHOD OF DIAGNOSING GESTATIONAL DIABETES
Charles M. Peterson, and Lois G. Peterson, both of Santa Barbara, Calif., assignors to Sonum Medical Research Foundation, Santa Barbara, Calif.

Filed Mar. 14, 1996, Ser. No. 615,973
Int. Cl.⁶ G01N 33/50

U.S. Cl. 436—87

24 Claims

1. A method of diagnosing gestational diabetes mellitus in a female comprising the steps of:
obtaining at least one blood sample from said female;
determining in said blood sample the concentrations of fasting plasma glucose and glycosylated plasma protein; and
determining if said concentrations equal or exceed predetermined threshold values as a diagnosis of gestational diabetes.

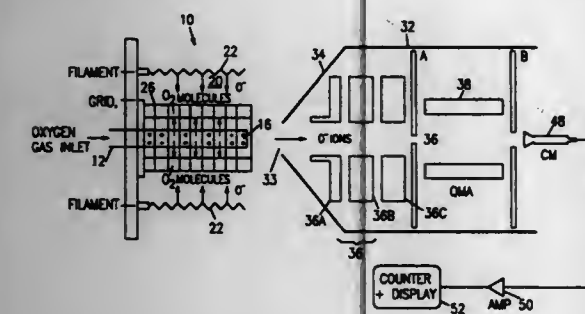
5,670,378

METHOD FOR TRACE OXYGEN DETECTION
Kin Fung Man, Arcadia; Said Boumsellek, Altadena, and Ara Chutjian, La Crescenta, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 23, 1995, Ser. No. 392,575
Int. Cl.⁶ G01N 23/00

U.S. Cl. 436—136

12 Claims



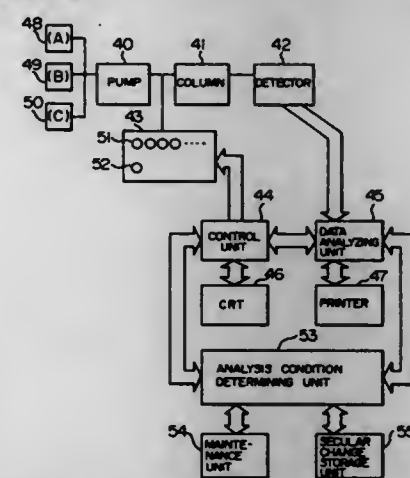
1. A method for measuring an amount of molecular oxygen in a gas comprising the steps of:
a) introducing a gas containing an amount of molecular oxygen into a target zone under vacuum;
b) impacting the molecular oxygen in the target zone with electrons having an energy of from 4 to 10 eV for dissociative electron attachment to produce O^- ions;
c) extracting the O^- ions from the target zone;
d) introducing the extracted ions into a mass analyzer to determine an amount of O^- ions produced; and
e) correlating the amount of O^- ions produced with the amount of molecular oxygen in the target zone.

5,670,379

CHROMATOGRAPH SYSTEM AND METHOD OF USE
Masahito Ito, Katsuta; Junkichi Miura, Hitachi; Yoshio Fujii; Hiroshi Satake, both of Katsuta; Mitsuo Ito, Ibaraki-ken, and Fuminori Umesato, deceased, late of Ibaraki-ken, all of Japan, by Setsuko Umesato, Heiress, assignors to Hitachi, Ltd., Tokyo, and Hitachi Instruments Engineering Co., Ltd., Katsuta, both of Japan
Continuation of Ser. No. 61,130, May 13, 1993, abandoned.
This application Jan. 13, 1995, Ser. No. 372,708
Claims priority, application Japan, May 19, 1992, 4-125895
Int. Cl.⁶ G01N 30/02

U.S. Cl. 436—161

29 Claims



1. A method for automatically correcting a measurement condition of a chromatograph system comprising steps of:
a) chromatographically separating and measuring a plurality of runs of samples with the chromatograph system, each run of samples including, first a standard sample followed by unknown samples, to obtain a chromatogram of each of said samples, said chromatogram of each sample having a main peak and a subsidiary peak, said main peak appearing within a first time window defined by a first retention time and a first allowable width, and said subsidiary peak appearing within a second time window defined by a second retention time which is represented by a linear function of said first retention time of said main peak and a second allowable width;
b) determining a main retention time of said main peak and a subsidiary retention time of said subsidiary peak of each sample;
c) setting a regression line between points each represented by the main retention time on an abscissa and by the subsidiary retention time on an ordinate, for the samples of at least one of said runs;
d) basing said first and second time windows for each of said plurality of runs on a set of preceding runs; and
e) correcting said linear function by fitting said linear function to said regression line so that said second time window is updated.

5,670,380

ASSAY FOR FETAL THYROID FUNCTION
Sing-Yung Wu, 3114 Marna, Long Beach, Calif. 90808
Continuation-in-part of Ser. No. 238,173, May 4, 1994, abandoned. This application Jul. 8, 1994, Ser. No. 273,104
Int. Cl.⁶ G01N 33/53; 33/566

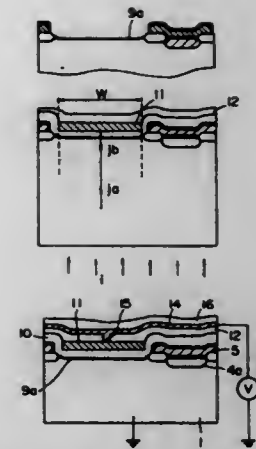
U.S. Cl. 436—500

5 Claims

1. An assay for quantifying fetal thyroid function of a fetus in a pregnant woman, comprising the steps of:
(a) obtaining a sample of fluid from said pregnant woman, wherein said fetus has a gestational age;
(b) determining the amount of Fetal Thyroid Hormone Indicator (FTFI) present in the fluid, said FTFI having the following characteristics: immunological cross-reactivity with L-T₂ sul-

fate (T₂S), presence in cord blood at birth, crosses the placenta, presence in maternal blood in an increasing concentration with gestational age in a normal pregnancy, and has a different chromatographic peak than synthetic T₂S in high pressure liquid chromatography; and is also present in maternal urine; and

- (c) comparing the amount of determined FTFI to a known normal amount of FTFI for the gestational age, wherein a determined amount lower than about 1 standard deviation (SD) of the normal FTFI amount for the gestational age indicates abnormally low thyroid function in said fetus.



5,670,381

DEVICES FOR PERFORMING ION-CAPTURE BINDING ASSAYS

Yi-Her Jou; Stephen D. Stroupe, and James J. Markese, all of Libertyville, Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation of Ser. No. 233,202, Apr. 26, 1994, abandoned, which is a continuation-in-part of Ser. No. 708,137, May 30, 1991, abandoned, which is a continuation-in-part of Ser. No. 375,029, Jul. 7, 1989, abandoned, which is a continuation-in-part of Ser. No. 150,278, Jan. 29, 1988, abandoned. This application May 8, 1995, Ser. No. 436,950

Int. Cl.⁶ G01N 33/53

U.S. Cl. 436—518

23 Claims

1. A test device for determining the presence or amount of an analyte in a test sample, comprising:
at least three zones in a porous material:
a) a first reagent zone containing a diffusive indicator reagent comprising a first specific binding member bound to a detectable label;
b) a second reagent zone containing a diffusive capture reagent comprising a second specific binding member conjugated to a polymeric ion having a predetermined charge; and
c) a reaction zone having a pre-determined charge opposite to said polymeric ion charge, whereby said capture reagent and complexes comprising said capture reagent are coupled to the porous material by the ionic attraction of the oppositely charged polymeric ion and porous material;
wherein said first and second specific binding members are selected from binding members capable of forming a complex with the analyte in a sandwich assay, a competitive assay or an indirect assay, and thereby forming a detectable complex in proportion to the presence or amount of the analyte in the test sample, and
wherein said zones may overlap with the proviso that said capture reagent is spatially separated from said reaction zone such that the test sample contacts said capture reagent before contacting said reaction zone.

rounded by a dielectric isolation layer and spaced from one another, on said first principal surface of said semiconductor substrate;

forming electrode means, in a gap area among said cell regions, for transferring charges produced below said first principal surface of said semiconductor substrate to a location outside of said cell regions for the purpose of reading said charges; removing portions of said oxide film to uncover said first principal surface within each of said cell regions after forming said electrode means;

depositing an electrically conductive material, different from said semiconductor substrate, on said first principal surface after it is uncovered to form a plurality of photoelectric conversion layers, each of which is, respectively, located within one of said cell regions;

covering each area containing one of said cell regions with a first insulating film having a uniform thickness on each of said photoelectric conversion layers;

forming, on said first insulating film and without flattening the first insulating film, a plurality of metal reflecting films for reflecting light, passed through said plurality of photoelectric conversion layers from a side of said semiconductor substrate opposite to said first principal surface, back to said photoelectric conversion layers so that an entire reflective surface of each of said metal reflecting films is parallel to and faces one of said photoelectric conversion layers;

covering said electrode means and said metal reflecting films with a second insulating film;

flattening a surface of said second insulating film; and forming metal wiring for driving said electrode means on the surface of said second insulating film to face said metal reflecting films after flattening the surface of said second insulating film.

5,670,383

METHOD FOR FABRICATION OF DEEP-DIFFUSED AVALANCHE PHOTODIODE

Dante Edmond Piccone, Glenmoore, Pa.; Ahmad Nadeem Ishaque, Clifton Park, N.Y.; Donald Earl Castleberry; Henri Max Rougeot, both of Schenectady, N.Y., and Peter Menditto, Westerlo, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 223,397, Apr. 4, 1994, Pat. No. 5,446,308. This application May 15, 1995, Ser. No. 440,811

Int. Cl.⁶ H01L 31/18

U.S. Cl. 437—3

21 Claims

1. A method of forming a planar deep-diffused semiconductor device, the method comprising the step of:
doping a planar block of n type doped semiconductor material with a p type dopant in accordance with a deep doping pattern to form at least one n type wells in said block, each of said n type wells being disposed so as to respectively adjoin a first surface of said planar block and such that a respective p-n junction is formed between said n type doped semiconductor

5,670,382

METHOD FOR PRODUCING A SOLID STATE IMAGING DEVICE

Tohru Ishizuya, Yokohama; Masahiro Shoda, Gyouda, and Keiichi Akagawa, Kamakura, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

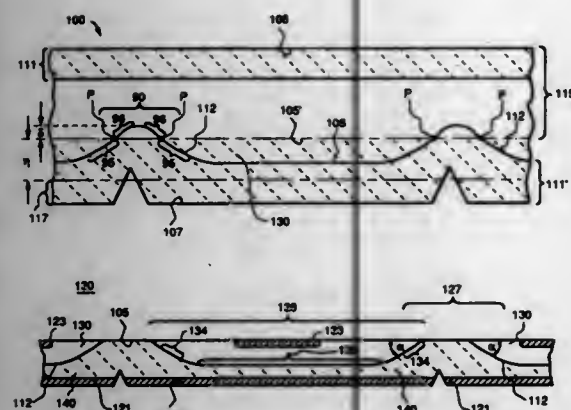
Continuation of Ser. No. 239,774, May 9, 1994, abandoned, which is a division of Ser. No. 99,493, Jul. 28, 1993, Pat. No. 5,416,344. This application Sep. 25, 1996, Ser. No. 717,357
Claims priority, application Japan, Jul. 29, 1992, 4-220983; Mar. 10, 1993, 5-075070

Int. Cl.⁶ H01L 21/70

U.S. Cl. 437—2

14 Claims

1. A method of producing a solid state imaging device comprising the steps of:
forming an oxide film on a first principal surface of a semiconductor substrate to define a plurality of cell regions, sur-

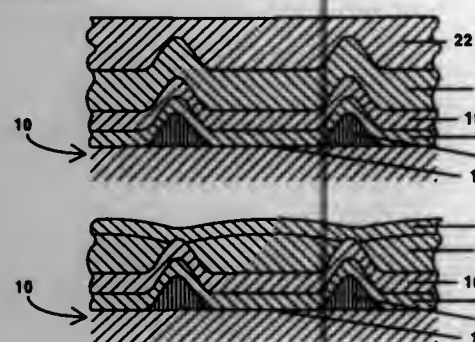


material and surrounding portions of said planar block doped with said p type dopant;
the step of doping said planar block in accordance with said deep doping pattern further comprising doping said block of semiconductor material to form a positive gradient of said p type dopant between each respective p-n junction and a second surface of said planar block such that the concentration of said p type dopant increases away from said p-n junction so that the p type dopant concentration at said second surface is higher than at said p-n junction, said second surface being disposed substantially opposite said first surface of said planar block, so as to form said planar deep-diffused semiconductor device.

5,670,384 PROCESS FOR FORMING SOLID STATE IMAGER WITH MICROLENSSES

Christopher R. Needham, Beverly, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Continuation of Ser. No. 283,209, Jul. 29, 1994, abandoned, which is a division of Ser. No. 123,138, Sep. 17, 1993, abandoned. This application Sep. 26, 1995, Ser. No. 534,093

Int. Cl.⁶ H01L 31/18
U.S. Cl. 437—3 8 Claims



1. A process for forming a solid state imager, the process comprising:
providing a substrate having substantially planar radiation-sensitive regions and spaced electrode regions which are not radiation-sensitive and extend above the plane of the radiation-sensitive regions;
forming a substantially conformal layer of a first material over the substrate, said conformal layer extending across both the radiation-sensitive regions and the electrode regions of the substrate and having a thickness of at least about 0.7 μm and
forming a substantially conformal layer of a second material on the layer of the first material, and thereafter removing upstanding portions of the conformal layer of the second material to render the upper surface of the layer of second material substantially parallel to the plane of the radiation-sensitive regions, thereby forming a layer of the second material having a lower surface in contact with the conformal layer

of the first material and an upper surface substantially planar and substantially parallel to the plane of the radiation-sensitive regions so that the remaining portions of the layer of second material form microlenses disposed above the radiation-sensitive regions, the second material having a refractive index higher than that of the first material at a wavelength to which the radiation-sensitive regions are sensitive; and

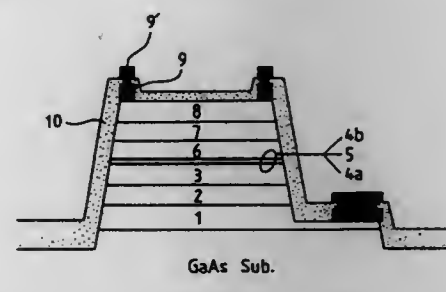
thereafter forming a color filter superposed on the remaining portions of the layer of second material, and thus leaving the upper surface of the layer second material lying substantially parallel to the plane of the radiation-sensitive regions.

5,670,385 METHOD FOR FABRICATING AN OPTICAL CONTROLLED RESONANT TUNNELING OSCILLATOR

Hye-Yong Chu, Daejeon, Rep. of Korea, assignor to Electronics and Telecommunications Research Institute, Daejeon, Rep. of Korea

Division of Ser. No. 345,779, Nov. 22, 1994, Pat. No. 5,569,933. This application Jul. 13, 1995, Ser. No. 501,874
Claims priority, application Rep. of Korea, Oct. 24, 1994, 94-27166

Int. Cl.⁶ H01L 31/18
U.S. Cl. 437—5 1 Claim



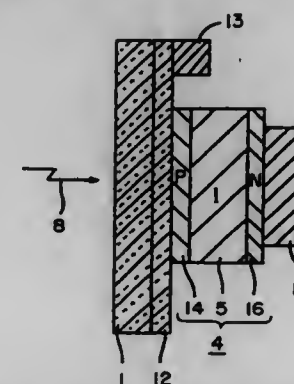
1. A method for fabricating an optically controlled resonant tunneling oscillator comprising the steps:
successively growing a buffer layer made of n⁺-type GaAs, first and second spacer layers, a first barrier layer, a well layer and a second barrier layer having a double quantum well, third and fourth spacer layers, and a window layer over a semi-insulated substrate made of GaAs with a molecular beam epitaxy growth;
mesa-etching the window layer to a portion of the buffer layer using a photoresist pattern as a mask, thereby forming a mesa structure and exposing the buffer layer;
forming openings of a photoresist on the mesa structure and an exposed buffer layer so as to form electrodes;
depositing a multi-metal of AuGe/Ni/Au over a surface and then subjecting the multi-metal to a lift off processing;
etching the exposed buffer layer and a portion of the underlying substrate except for the mesa structure and the openings, so as to isolate the oscillator;
depositing an insulation layer over a whole surface of the substrate;
etching the insulation layer using a photoresist pattern as a mask, thereby forming contact holes on the multi-metal;
forming metal patterns for a bonding pad on the contact holes; and
performing annealing of optically controlled resonant tunneling oscillator after completion of all photo-etching.

5,670,386 METHOD FOR MANUFACTURING SEMICONDUCTOR DEVICES

Shunpei Yamazaki, Tokyo, Japan, assignor to Semiconductor Energy Laboratory Co., Ltd., Atsugi, Japan
Division of Ser. No. 438,374, May 10, 1995, Pat. No. 5,556,794, which is a division of Ser. No. 350,115, Nov. 29, 1994, Pat. No. 5,521,400, which is a division of Ser. No. 694,406, May 1, 1991, Pat. No. 5,391,893, which is a continuation-in-part of Ser. No. 860,441, May 7, 1986, Pat. No. 5,043,772, which is a continuation-in-part of Ser. No. 800,694, Nov. 22, 1985, Pat. No. 4,690,717. This application Apr. 18, 1996, Ser. No. 634,384

Claims priority, application Japan, May 7, 1985, 60-96391; May 7, 1985, 60-96392

Int. Cl.⁶ H01L 31/18; 31/20
U.S. Cl. 437—13 29 Claims



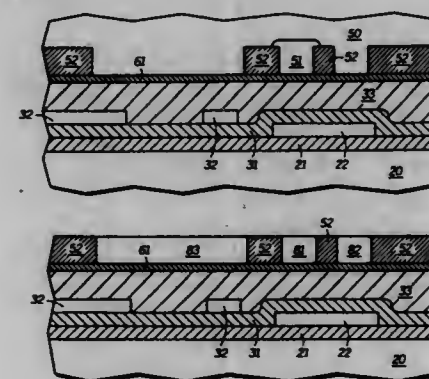
1. A method of manufacturing a semiconductor device having at least one NIN or PIP junction, said method comprising the steps of:
removing sodium from the inside of a reaction chamber; and
then
forming a non-single crystalline semiconductor layer comprising an intrinsic or substantially intrinsic silicon semiconductor containing hydrogen or halogen on a substrate by vapor phase reaction in said reaction chamber, wherein said semiconductor layer contains sodium at a concentration less than 5×10^{18} atoms/cm³.

5,670,387 PROCESS FOR FORMING SEMICONDUCTOR-ON-INSULATOR DEVICE

Shih-Wei Sun, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 3, 1995, Ser. No. 368,673
Int. Cl.⁶ H01L 21/84

U.S. Cl. 437—21 24 Claims



1. A process for forming a semiconductor-on-insulator device comprising the steps of:
providing a first substrate including a first insulating layer;
forming a first interconnect over the first insulating layer;

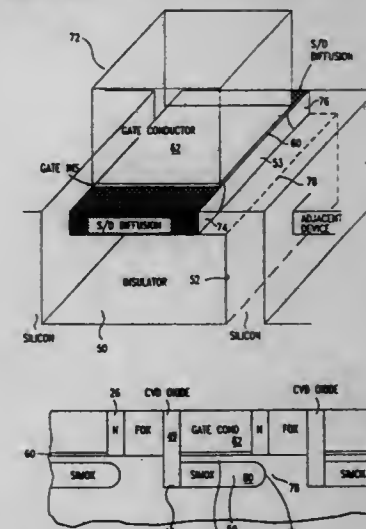
forming trenches within a second substrate having a first thickness and having a first conductivity type;
forming a second insulating layer within the trenches;
bonding the first and second substrates together such that the first and second insulating layers are adjacent to each other, wherein this step is performed after the step of forming the first interconnect; and
removing a portion of the second substrate to expose portions of the second insulating layer thereby forming semiconductor islands.

5,670,388 METHOD OF MAKING CONTACTED BODY SILICON-ON-INSULATOR FIELD EFFECT TRANSISTOR

Brian John Machesney, Burlington, Vt.; Jack Allan Mandelman, Stormville, N.Y., and Edward Joseph Nowak, Essex, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 310,691, Sep. 22, 1994, Pat. No. 5,587,604. This application Oct. 13, 1995, Ser. No. 542,592

Int. Cl.⁶ H01L 21/84
U.S. Cl. 437—21 18 Claims



1. A method of forming a silicon-on-insulator FET comprising the steps of:
a) providing a semiconductor substrate having a buried dielectric, said buried dielectric defining lower and upper regions of said substrate;
b) forming a connection between said lower and upper regions of said substrate;
c) forming a gate dielectric on said upper region;
d) forming a gate on said gate dielectric, said gate having a first side, a second side, and a third side; and
e) forming a source and a drain in said upper region and leaving a body therebetween, wherein said source is aligned to said first side and said drain is aligned to said second side; wherein said step (b) involves forming said connection substantially co-aligned with said third side of said gate.

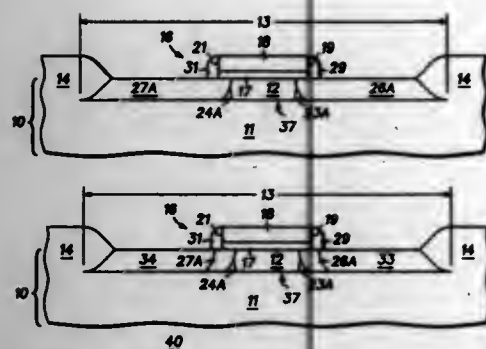
5,670,389 SEMICONDUCTOR-ON-INSULATOR DEVICE HAVING A LATERALLY-GRADED CHANNEL REGION AND METHOD OF MAKING

Wen-Ling Margaret Huang, Phoenix; Hyungcheol Shin, Gilbert, and Marco Racanelli, Phoenix, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 11, 1996, Ser. No. 585,137
Int. Cl.⁶ H01L 21/265; 21/84

U.S. Cl. 437—21 9 Claims

1. A method for making a semiconductor device, comprising the steps of:



providing a semiconductor-on-insulator substrate having a layer of semiconductor material disposed on a layer of insulator material, the layer of semiconductor material having a major surface;

forming a gate structure having first and second edges over a first portion of the major surface;

forming a first doped region in a first portion of the layer of semiconductor material, the first doped region of a first conductivity type and extending vertically from the major surface to the layer of insulator material, extending to underlie the gate structure, and extending laterally in the layer of semiconductor material from the first edge in a direction away from the gate structure;

forming a second doped region in a second portion of the layer of semiconductor material, the second doped region of the first conductivity type and extending vertically from the major surface to the layer of insulator material, extending to underlie the gate structure, and extending laterally in the layer of semiconductor material from the second edge in a direction away from the gate structure; and

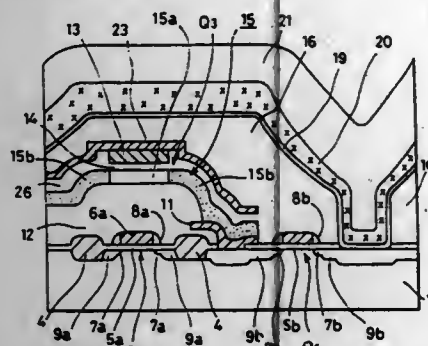
forming a third doped region in a third portion of the layer of semiconductor material, the third doped region of a second conductivity type, adjacent a portion of the first doped region that is adjacent the layer of insulator material, and wherein the third doped region is spaced apart from the major surface, and between the first and second portions of the layer of semiconductor material.

5,670,390 METHOD OF MAKING SEMICONDUCTOR DEVICE HAVING THIN FILM TRANSISTOR

Takeo Muragishi, Hyogo-ken, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 231,215, Apr. 22, 1994, Pat. No. 5,541,126, which is a division of Ser. No. 845,979, Mar. 4, 1992, Pat. No. 5,326,989. This application Apr. 26, 1996, Ser. No. 638,030
Claims priority, application Japan, Dec. 4, 1991, 3-319471
Int. Cl.⁶ H01L 21/824; 21/473

U.S. Cl. 437—21

4 Claims



1. A method of manufacturing a semiconductor device including a thin film transistor including a pair of impurity regions in a thin silicon layer, comprising the steps of:
forming a first insulating layer on the surface of a semiconductor substrate;

forming a silicon layer on the surface of said first insulating layer;
forming a second insulating layer on the surface of said silicon layer;
forming a conductive layer on the surface of said second insulating layer and patterning said conductive layer to form a gate electrode;
forming a pair of impurity regions spaced apart from each other in said silicon layer;
forming a third insulating layer on the surfaces of said silicon layer and said gate electrode;
partially etching said third insulating layer to expose the upper surface of said gate electrode;
forming an oxidation preventing film on the surface of said third insulating layer and on the exposed upper surface of said gate electrode.

5,670,391

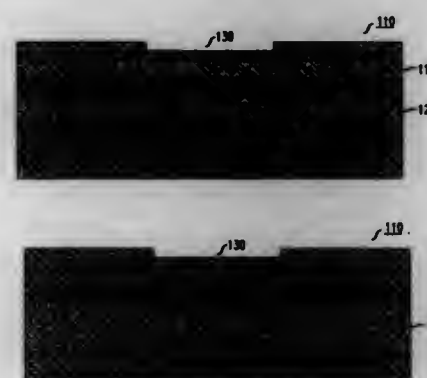
PROCESS FOR REDUCING TRANSIENT DIFFUSION OF DOPANT ATOMS

Desmond R. Lim, Singapore, Singapore, and Conor Stefan Rafferty, Summit, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Aug. 7, 1995, Ser. No. 511,845
Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—25

8 Claims



1. A process for reducing the transient enhanced diffusion of ion-implanted impurity atoms comprising the steps of: implanting a region of a semiconductor material with a dose of impurity atoms having an average depth (R_p) within the semiconductor material; removing an amount of a surface of the region, the amount is between about 10% of R_p to R_p ; and annealing said semiconductor material to remove damage caused by implanting step.

5,670,392

PROCESS FOR MANUFACTURING HIGH-DENSITY MOS-TECHNOLOGY POWER DEVICES

Giuseppe Ferla, Catania, and Ferruccio Frisina, Sant'agata li Battiati, both of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, and Consorzio per la Ricerca Sulla Microelettronica nel Mezzogiorno, Catania, both of Italy
Filed Jun. 30, 1995, Ser. No. 496,006

Claims priority, application European Pat. Off., Jul. 4, 1994, 94830331

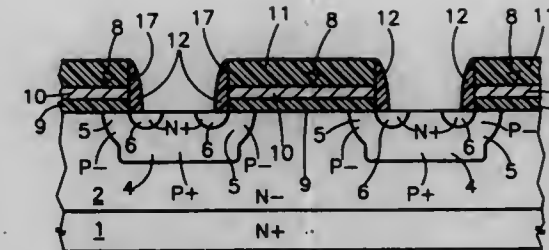
Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—29

24 Claims

1. A process for manufacturing high-density MOS-technology power devices, comprising the steps of:

- a) forming a conductive insulated gate layer on a surface of a lightly doped semiconductor material layer of a first conductivity type;
- b) forming an insulating material layer over the insulated gate;



c) moving the insulating material layer and the underlying insulated gate layer to form a plurality of elongated windows each having two elongated edges and two short edges, delimiting respective uncovered surface stripes of the semiconductor material layer;

d) implanting a high dose of a first dopant of the first conductivity type along first and second directions which lie in a plane transverse to said elongated windows and orthogonal to the semiconductor material layer surface, the first and second directions substantially symmetrical to one another at a first prescribed angle with respect to a direction orthogonal to the semiconductor material layer surface, the first prescribed angle depending on an overall thickness of the insulated gate layer and of the insulating material layer to prevent the first dopant from being implanted in a central stripe of said uncovered surface stripes, to form first and second heavily doped elongated source regions of the first conductivity type which extend along said two elongated edges of each elongated window, respectively, and which are separated by said central stripe;

e) implanting a low dose of a second dopant of a second conductivity type along third and fourth directions which lie in said transverse plane, the third and fourth directions substantially symmetrical to one another at a second prescribed angle with respect to said orthogonal direction, to form third and fourth lightly doped elongated channel regions of the second conductivity type extending, respectively, under the two elongated edges of each elongated window; and

f) implanting a high dose of a third dopant of the second conductivity type substantially along said orthogonal direction, the insulating material layer acting as a mask, to form heavily doped regions substantially aligned with the edges of each of the elongated windows.

5,670,393

METHOD OF MAKING COMBINED METAL OXIDE SEMICONDUCTOR AND JUNCTION FIELD EFFECT TRANSISTOR DEVICE

Ashok K. Kapoor, Palo Alto, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Jul. 12, 1995, Ser. No. 501,289

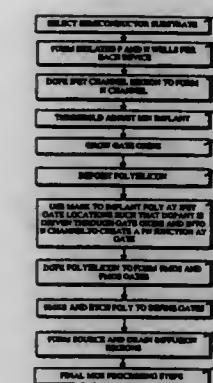
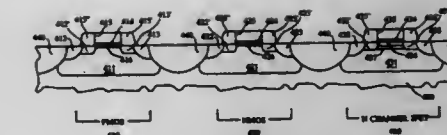
Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—29

3 Claims

1. A method of fabricating a JFET device on a substrate using metal oxide semiconductor processing steps, the method comprising the steps of:

- doping a portion of the substrate with an impurity material of a first conductivity type to form a channel region on the substrate;
- forming a layer of oxide on the substrate;
- depositing a conductive material on the layer of oxide to form a gate electrode;
- implanting the gate electrode with charged material of a second conductivity type such that the charged material is driven through the layer of oxide to form a semiconductor junction in the channel region and wherein the semiconductor junction has a diffusion region of the second conductivity type immediately contiguous with the layer of oxide; and
- forming a source diffusion region of the first conductivity type and a drain diffusion region of the first conductivity type on



the substrate with the source and drain diffusion regions being laterally separated and connected by the channel region.

5,670,394

METHOD OF MAKING BIPOLAR TRANSISTOR HAVING AMORPHOUS SILICON CONTACT AS EMITTER DIFFUSION SOURCE

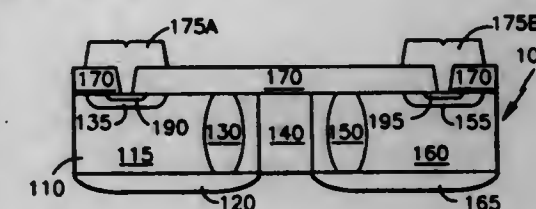
Rick C. Jerome, Monument, and Ian R. C. Post, Colorado Springs, both of Colo., assignors to United Technologies Corporation, Windsor Locks, Conn.

Filed Oct. 3, 1994, Ser. No. 317,155

Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—31

12 Claims



1. A method of fabricating a complementary bipolar junction transistor ("BJT") having an increased Early voltage from a semiconductor substrate, said substrate comprising a first well, a second well, and an isolation-region for isolating said first well from said second well, said first well having a first conductivity and comprising a first base region and a first collector region, said second well having a second conductivity and comprising a second base region and a second collector region, said method comprising the steps of:

- forming an interlevel dielectric layer superjacent said substrate;
- removing portions of said interlevel dielectric layer such that a first segment of said substrate is exposed for accessing said first base region and a second segment of said substrate is exposed for accessing said second base region;
- forming a contact layer superjacent said interlevel dielectric layer, said contact layer comprising a material having a grain size smaller than polycrystalline silicon;
- masking said first base region with a first mask;
- implanting said contact layer with a first dopant;
- removing said first mask;
- masking said second base region with a second mask;
- implanting said contact layer with a second dopant;
- removing said second mask;
- removing portions of said contact layer to form a first and a second electrical contact for the complementary BJT; and
- annealing said substrate such that said first dopant diffuses into said first base region to form a first emitter region and said second dopant diffuses into said second base region to form a

second emitter region, thereby increasing Early voltage of the bipolar junction transistor.

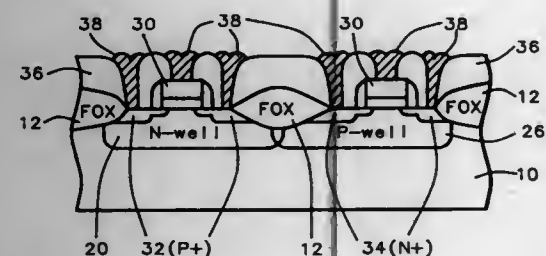
5,670,395
PROCESS FOR SELF-ALIGNED TWIN WELLS WITHOUT N-WELL AND P-WELL HEIGHT DIFFERENCE

Yang Pan, Singapore, Singapore, assignor to Chartered Semiconductor Manufacturing Pte. Ltd., Singapore, Singapore
Filed Apr. 29, 1996, Ser. No. 638,670

Int. Cl.⁶ H01L 21/8238

U.S. Cl. 437—34

23 Claims



1. A method of forming twin wells in the fabrication of an integrated circuit device comprising:
growing a layer of silicon oxide over the surface of a semiconductor substrate;
depositing a layer of silicon nitride overlying said silicon oxide layer;
coating a layer of photoresist over said silicon nitride layer;
exposing said photoresist layer to actinic light and exposing and developing said photoresist layer to form a photoresist mask having an opening to said silicon nitride layer where an N-well is to be formed;
etching away said exposed silicon nitride layer to expose said underlying silicon oxide layer;
implanting first ions into said semiconductor substrate through said silicon oxide layer within said opening;
thereafter removing said photoresist layer;
depositing a dielectric film over said exposed silicon oxide layer and over said silicon nitride layer;
planarizing said dielectric film to the height of said silicon nitride layer;
thereafter removing said silicon nitride layer;
implanting second ions into said semiconductor substrate where it is not covered by said dielectric film;
thereafter removing said dielectric film; and
driving in said first ions to form said N-well within said semiconductor substrate and driving in said second ions to form a P-well within said semiconductor substrate completing the formation of said twin wells in the fabrication of said integrated circuit device.

5,670,396
METHOD OF FORMING A DMOS-CONTROLLED LATERAL BIPOLAR TRANSISTOR

Muhammed Ayman Shibib, Wyomissing, Pa., assignor to Lucent Technologies Inc., Murray Hill, N.J.

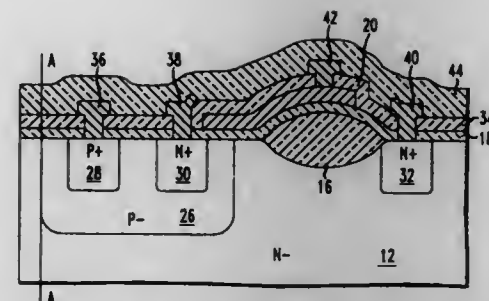
Filed Nov. 21, 1995, Ser. No. 561,473

Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—32

20 Claims

1. A method of making a DMOS-controlled lateral bipolar transistor comprising the steps of:
providing a first region having a first conductivity type and a top surface;
forming a dielectric over a portion of the top surface;
forming an electrode over a portion of the dielectric and a portion of the top surface;
introducing a dopant having a second conducting type opposite the first conductivity type into the first region, using an edge



of the electrode to partially define a first mask opening, to form a second region of second conductivity type in the first region;
diffusing the second region into the first region such that the second region extends into the first region beneath the electrode and is adjacent to the first region at the top surface beneath the electrode;
introducing a first conductivity type dopant into the second region using the edge of the electrode to partially define a second mask opening to form a third region of the first conductivity type in the second region;
diffusing the third region into the second region without diffusing the third region into the first region such that the third region extends into the second region beneath the electrode; and
forming first, second, third and fourth conductors on the first, second and third regions, and on the electrode, respectively, to form collector, base, emitter, and gate terminals, respectively; wherein the electrode forms a gate for a DMOS transistor, the first region forms a collector for the bipolar transistor and a drain for the DMOS transistor, the second region forms a base for the bipolar transistor and a channel region for the DMOS transistor, and the third region forms an emitter for the bipolar transistor and a source for the DMOS transistor.

5,670,397
DUAL POLY-GATE DEEP SUBMICRON CMOS WITH BURIED CONTACT TECHNOLOGY

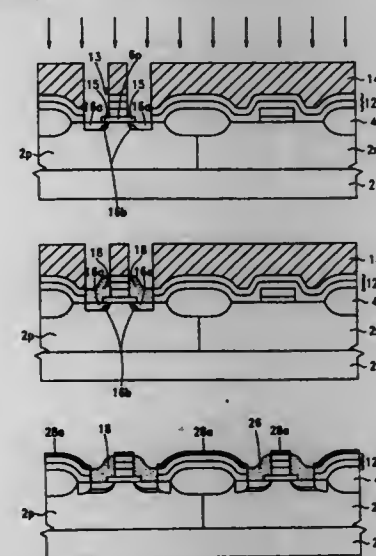
Yih-Jau Chang, and Shye-Lin Wu, both of Hsinchu, Taiwan, assignors to Powerchip Semiconductor Corp., Hsinchu, Taiwan

Filed Jan. 16, 1997, Ser. No. 783,754

Int. Cl.⁶ H01L 21/8238

U.S. Cl. 437—34

21 Claims



1. A method for manufacturing a CMOS device on a semiconductor substrate, the method comprising:
forming a first conductivity well and second conductivity well in said substrate;
forming a gate oxide layer on said substrate;

forming a first polysilicon layer over said gate oxide layer;
patterning a first photoresist on said first polysilicon layer;
etching said gate oxide layer and said first polysilicon layer using said first photoresist as a mask, wherein residual portions of said first polysilicon layer form a gate structure over said first conductivity well and a gate structure over said second conductivity well;
removing said first photoresist;
forming polysilicon stack layers on said substrate and said first polysilicon layer;
patterning a second photoresist on said polysilicon stack layers to define source and drain (S/D) regions and buried contact regions in said first conductivity well;
etching said polysilicon stack layers and said first polysilicon layer using said second photoresist as a mask to form first trenches in said polysilicon stack layers and said first polysilicon layer, said trenches exposing portions of said substrate and portions of said gate oxide over said first conductivity well;
doping portions of said substrate aligned with said first trenches to have a second conductivity lightly doped drain (LDD) with halo doping profile;
forming a first dielectric layer using a liquid phase deposition (LPD) process, wherein said first dielectric layer fills said first trenches in said polysilicon stack layer;
removing said second photoresist;
patterning a third photoresist on said polysilicon stack layers to cover said second conductivity well;
performing a first ion implantation using said third photoresist as a mask to implant ions into portions of said polysilicon stack layers over said first conductivity well;
stripping said third photoresist;
patterning a fourth photoresist on said polysilicon stack layers to define S/D regions and buried contact regions in said second conductivity well;
etching said polysilicon stack layers and said first polysilicon layer by using said fourth photoresist as an etching mask to form second trenches in said polysilicon stack layers and said first polysilicon layer, said second trenches exposing portions of said substrate and portions of said gate oxide over said second conductivity well;
doping portions of said substrate aligned with said second trenches to have a first conductivity LDD with halo doping profile;
forming a second dielectric layer using said LPD process, wherein said second dielectric layer fills said second trenches in said polysilicon stack layers;
stripping said fourth photoresist;
patterning a fifth photoresist on said polysilicon stack layers to cover said first conductivity well;
performing a second ion implantation by using said fifth photoresist as a mask to implant ions into portions of said polysilicon stack layers over said second conductivity well;
stripping said fifth photoresist; and
thermally treating said first and second dielectric layers and said substrate, wherein dopants from said first and second ion implantations diffuse into said substrate to form buried contacts.

5,670,398
METHOD OF MANUFACTURING THIN FILM TRANSISTOR HAVING A DOUBLE CHANNEL

Sung Wook Yin, and Yun Ki Kim, both of Kyoungkido, Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Kyoungkido, Rep. of Korea

Filed Nov. 20, 1995, Ser. No. 559,880

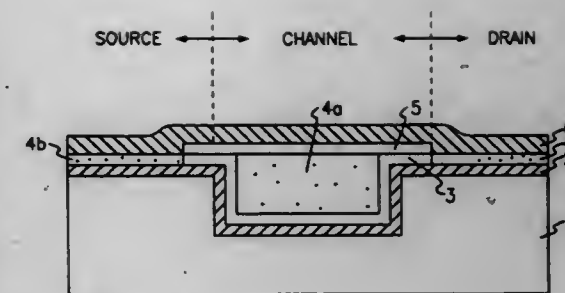
Claims priority, application Rep. of Korea, Dec. 26, 1994, 1994-36936

Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—40 TFT

2 Claims

1. A method for manufacturing a thin film transistor having double channels comprising the steps of:
providing an oxide layer;
etching a portion of the oxide layer so that a recess is formed;
forming a first channel layer on the resulting structure;



forming a first gate oxide layer on the first channel layer in a portion including the recess region;
forming a polysilicon layer on the resulting structure, filling in the recess region;
etching back the polysilicon layer until the surface of a portion of the first gate oxide layer, leaving the residual layer on the first channel layer, which is exposed by the first gate oxide layer, wherein the surface of the resulting structure has uniform topology by the etching process;
forming a second gate oxide layer on the polysilicon layer;
forming a second channel layer on the resulting structure; and
implanting impurity ions for forming source/drain regions, whereby the source/drain region consists of multi-layers, which consists of the first channel layer, the second polysilicon layer and the second channel layer.

5,670,399
METHOD OF MAKING THIN FILM TRANSISTOR WITH OFFSET DRAIN

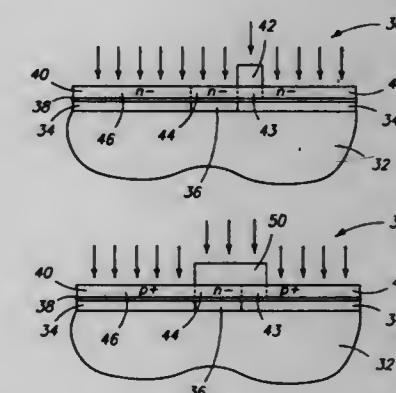
Monte Manning, and Shubneesh Batra, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Dec. 6, 1995, Ser. No. 568,390

Int. Cl.⁶ H01L 21/84; 21/265

U.S. Cl. 437—40

18 Claims

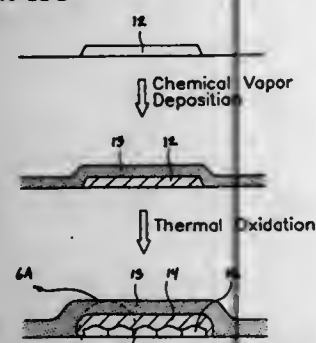


1. A method of forming a thin film transistor of a first conductivity type comprising the following steps:
forming a thin film transistor layer of semiconductive material;
first masking the thin film transistor layer to mask only a drain offset region of the thin film transistor layer while leaving the source and channel exposed;
with the first masking in place, doping the exposed channel region with a conductivity enhancing impurity;
second masking the thin film transistor layer to mask the channel region and the drain offset region and leave opposing source/drain regions exposed; and
with the second masking in place, doping the exposed source/drain regions with a conductivity enhancing impurity of the first conductivity type.

5,670,400
METHOD FOR MAKING DUAL GATE INSULATING FILM WITHOUT EDGE-THINNING
 Joo-Hyung Lee, Seoul; Ju-Bum Lee, Omsan, and Jae-Hyung Lee, Suwon, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
 Filed Dec. 21, 1995, Ser. No. 575,876
 Claims priority, application Rep. of Korea, Dec. 21, 1994, 94-35625

Int. Cl.⁶ H01L 21/786
 U.S. Cl. 437—40 TFT

8 Claims



1. A method for forming a thin film transistor structure, comprising the steps of:
 forming an active pattern of amorphous silicon on a portion of a substrate;
 forming an insulating layer by first forming an oxide film on said active pattern of amorphous silicon and then growing a thermal oxide film so that a portion of said active pattern of amorphous silicon becomes said thermal oxide film, said growing step being controlled such that said amorphous silicon is transformed to polycrystalline silicon and said thermal oxide film totally encloses side and top edges of said active pattern.

5,670,401
METHOD FOR FABRICATING A DEEP SUBMICRON MOSFET DEVICE USING AN IN-SITU POLYMER SPACER TO DECREASE DEVICE CHANNEL LENGTH
 Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

Filed Aug. 22, 1996, Ser. No. 703,917
 Int. Cl.⁶ H01L 21/234

20 Claims

U.S. Cl. 437—44
 1. A method of fabricating a MOSFET device, on a semiconductor substrate, with a local threshold voltage adjust region, comprising the steps of:
 depositing a first dielectric layer on said semiconductor substrate;
 forming a photoresist pattern, in a photoresist layer, on said first dielectric layer, with a narrow opening in said photoresist layer, exposing top surface of said first dielectric layer;
 forming polymer spacers on the sides of said narrow opening in said photoresist layer, creating a polymer coated opening, in said photoresist layer;
 forming a narrow hole opening in said first dielectric layer by etching of said first dielectric layer, using said photoresist pattern, with said polymer coated opening, as a mask;
 removal of said photoresist pattern, and of said polymer spacers;
 ion implanting a first conductivity imparting dopant, into an area of said semiconductor substrate, exposed in said narrow hole opening in said first dielectric layer, to create said local threshold adjust region;
 growing a gate insulator layer on said semiconductor substrate, exposed in said narrow hole opening in said first dielectric layer;
 depositing a polysilicon layer, completely filling said narrow hole opening in said first dielectric layer;

planarization of said polysilicon layer, by removal of said polysilicon layer from top surface of said first dielectric layer;
 forming a polysilicon gate structure in said narrow hole opening in said first dielectric layer;
 removal of a top portion of said first dielectric layer;
 complete removal of said first dielectric layer, exposing all surfaces of said polysilicon gate structure;
 ion implanting a second conductivity imparting dopant into an area of said semiconductor substrate, not covered by said polysilicon gate structure, to form a lightly doped source and drain region;
 depositing a first insulator layer on said semiconductor substrate, and on said polysilicon gate structure;
 anisotropic etching of said first insulator layer, to form an insulator spacer on the sides of said polysilicon gate structure;
 ion implanting a third conductivity imparting dopant into an area of said semiconductor substrate, not covered by said polysilicon gate structure, and not covered by said insulator spacer, to form a heavily doped source and drain region;
 depositing a second insulator layer on said semiconductor substrate, and on said polysilicon gate structure;
 opening a contact hole in said second insulator layer, to expose top surface of said heavily doped source and drain region, and to expose top surface of said polysilicon gate structure;
 depositing a metal layer on top surface of said second insulator layer, on top surface of said heavily doped source and drain region, and on top surface of said polysilicon gate structure, exposed in said contact hole; and
 patterning of said metal layer, to form metal contact structures to said heavily doped source and drain region, and to said polysilicon gate structure.

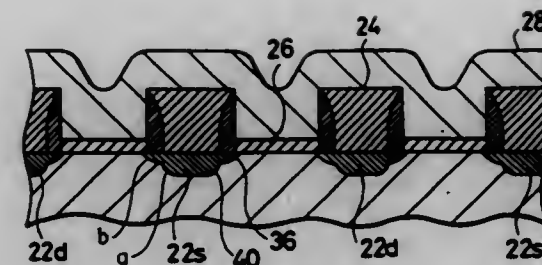
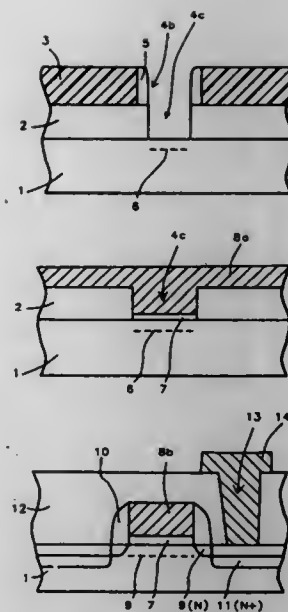
5,670,402
METHOD OF MANUFACTURING CORE IMPLANTED SEMICONDUCTOR DEVICES
 Koichi Sogawa, Kobe, and Yuichi Ando, Sanda, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 335,189, Nov. 7, 1994, abandoned, which is a continuation of Ser. No. 6,835, Jan. 21, 1993, abandoned.
 This application Jul. 6, 1995, Ser. No. 498,885
 Claims priority, application Japan, Feb. 7, 1992, 4-057040
 Int. Cl.⁶ H01L 21/8246

U.S. Cl. 437—48

9 Claims

1. A method of manufacturing core implanted semiconductor memory devices, comprising:
 forming a plurality of masks on a substrate, each of said plurality of masks being spaced apart in a side by side relationship



such that a diffusion region having a predefined width is defined for the space between each of said plurality of masks, each diffusion region being formed in a planar cell structure, and space between each diffusion region defines a channel region on said substrate;
 implanting impurities in each diffusion region to form source and drain regions on said substrate, said source and drain regions are formed with a high impurity concentration in a central portion thereof relative to said width of said diffusion region and a low impurity concentration in edge portions thereof relative to the central portion of said diffusion region;
 forming a first insulation film having a predefined thickness on said diffusion regions;
 removing each of said plurality of masks so that each channel region is exposed;
 forming a second insulation film having a predefined thickness on each channel region, said thickness of said second insulation layer being less than said thickness of said first insulation layer;
 forming a word line layer in a direction crossing said diffusion regions and functioning as a gate electrode, said word line layer being electrically insulated from said diffusion regions by said first insulating film, and being in contact with said second insulating film formed on each channel region;
 implanting impurities in selected channel regions for writing information therein.

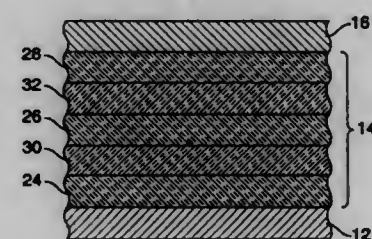
5,670,403
DIELECTRIC-POLYSILICON-DIELECTRIC ANTIFUSE FOR FIELD PROGRAMMABLE LOGIC APPLICATIONS
 Wenn-Jei Chen, Sunnyvale, Calif., assignor to Actel Corporation, Sunnyvale, Calif.

Division of Ser. No. 289,114, Aug. 11, 1994, Pat. No. 5,581,111, which is a continuation-in-part of Ser. No. 88,298, Jul. 7, 1993, Pat. No. 5,449,947. This application Jan. 30, 1995, Ser. No. 441,176

Int. Cl.⁶ H01L 21/311

U.S. Cl. 437—52

4 Claims



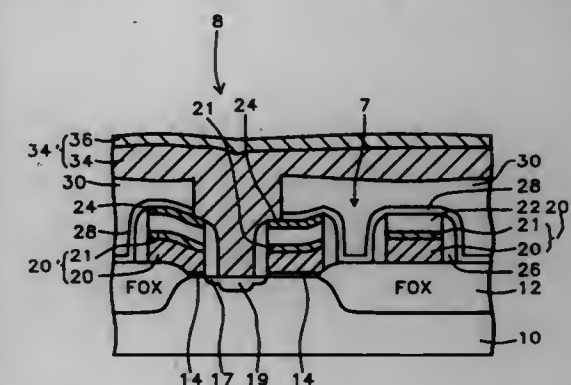
1. A method of fabricating a dielectric/polysilicon/dielectric/a-Si/dielectric antifuse comprising the following steps:
 a. depositing a first dielectric layer over a lower antifuse electrode;
 b. depositing a first polysilicon layer over lower antifuse electrode;
 c. depositing a second dielectric layer over said first polysilicon layer;
 d. depositing a layer of a-Si over said second dielectric layer;
 e. depositing a third dielectric layer over said a-Si layer;

f. depositing an upper antifuse electrode over said third dielectric layer.

5,670,404
METHOD FOR MAKING SELF-ALIGNED BIT LINE CONTACTS ON A DRAM CIRCUIT HAVING A PLANARIZED INSULATING LAYER
 Chang-Ming Dai, Hsinchu, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan
 Filed Jun. 21, 1996, Ser. No. 667,697
 Int. Cl.⁶ H01L 21/770

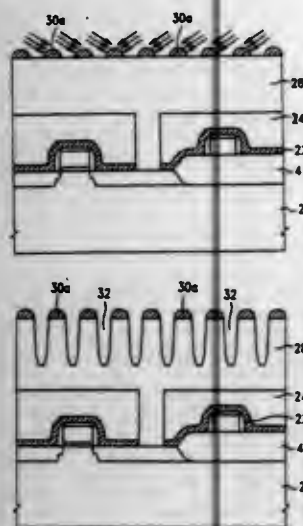
U.S. Cl. 437—52

23 Claims



1. A method for fabricating self-aligned bit line contacts on a dynamic random access memory device comprising the steps of:
 providing a semiconductor substrate having device areas surrounded by field oxide areas;
 forming a gate oxide on said device areas;
 depositing a first polycide layer on said gate oxide and elsewhere on said field oxide areas;
 depositing a first insulating layer over said first polycide layer;
 depositing an etch-stop layer on said first insulating layer;
 patterning said etch-stop layer, said first insulating layer, and said first polycide layer thereby forming an array of word lines, said word lines extending over said gate oxide forming field effect transistor gate electrodes;
 removing portions of said etch-stop layer while leaving portions over said word lines adjacent to areas where bit line contact openings are desired;
 forming lightly doped source/drain areas by ion implantation;
 depositing a conformal second insulating layer and anisotropically plasma etching back said second insulating layer thereby forming sidewall spacers on said array of word lines;
 depositing a conformal third insulating layer over said array of word lines;
 depositing a fourth insulating layer over said third insulating layer;
 planarizing said fourth insulating layer and filling recesses between said word lines;
 coating a photoresist layer on said planar fourth insulating layer and providing openings over said desired bit line contact openings and further extending over said etch-stop layer on said word lines;
 etching said bit line contact openings in said fourth and third insulating layers to said etch-stop layer, and continuing said etching of said fourth and third insulating layers between portions of said etch-stop layer to the surface of said device areas, thereby forming said self-aligned bit line contact openings;
 depositing a conformal second polycide layer in said bit line contact openings and elsewhere over said planar fourth insulating layer;
 patterning said second polycide and forming an array of polycide bit lines essentially orthogonal to said word lines, thereby completing said self-aligned bit line contacts and said bit lines.

5,670,405
METHOD OF MAKING A TOOTH SHAPED CAPACITOR USING ION IMPLANTATION
 Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsinchu, Taiwan
 Filed Jan. 30, 1997, Ser. No. 791,504
 Int. Cl.⁶ H01L 21/70
 U.S. Cl. 437—52 13 Claims

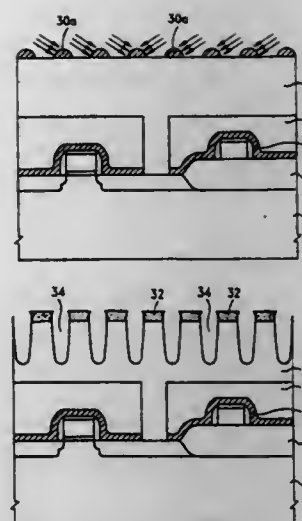


forming a second conductive layer over said dielectric layer to act as a second storage node of said capacitor.

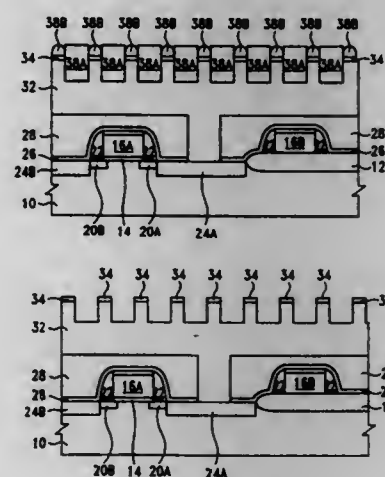
1. A method for manufacturing a capacitor on a semiconductor substrate, said method comprising the steps of:
 forming a first conductive layer over said substrate;
 forming a dot silicon layer on said first conductive layer;
 doping oxygen into said dot silicon layer using an oblique angle;
 thermal annealing said semiconductor substrate in an inert gas ambient to convert said dot silicon layer into silicon oxide;
 removing a portion of said first conductive layer using said silicon oxide as a mask;
 patterning and etching said first conductive layer to form a first storage node of said capacitor;
 forming a dielectric layer on the surface of said first storage node of said capacitor; and
 forming a second conductive layer over said dielectric layer to act as a second storage node of said capacitor.

5,670,406
METHOD OF MAKING A TOOTH SHAPED CAPACITOR
 Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsinchu, Taiwan
 Filed Jan. 30, 1997, Ser. No. 791,505
 Int. Cl.⁶ H01L 21/70
 U.S. Cl. 437—52 16 Claims

1. A method for manufacturing a capacitor on a semiconductor substrate, said method comprising the steps of:
 forming a first conductive layer over said substrate;
 forming a dot silicon layer on said first conductive layer;
 doping nitrogen into said dot silicon layer using an oblique angle to form anti-oxidation regions;
 oxidizing said first conductive layer using said anti-oxidation regions as a mask to form a silicon oxide layer on said first conductive layer;
 removing said anti-oxidation regions and a portion of said first conductive layer using said silicon oxide layer as a mask;
 patterning and etching said first conductive layer to form a first storage node of said capacitor;
 forming a dielectric layer on the surface of said first storage node of said capacitor; and

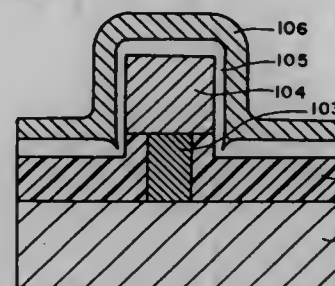


5,670,407
METHOD OF FABRICATING A TOOTHED-SHAPE CAPACITOR NODE IN A SEMICONDUCTOR DRAM CIRCUIT
 Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsinchu, Taiwan
 Filed Jan. 30, 1997, Ser. No. 791,507
 Int. Cl.⁶ H01L 21/8242
 U.S. Cl. 437—52 17 Claims



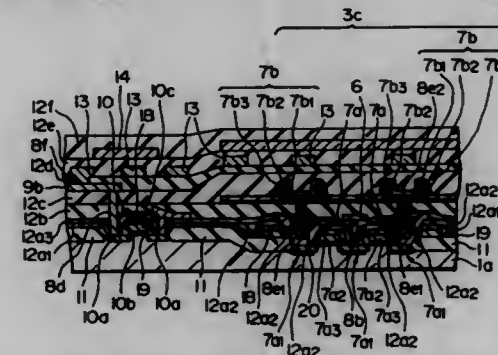
1. A method for forming a toothed-shaped capacitor node on a semiconductor substrate, said method comprising:
 forming a polysilicon layer over said semiconductor substrate;
 forming a dielectric layer on said polysilicon layer;
 forming dot silicon on said dielectric layer;
 removing said dielectric layer left uncovered by said dot polysilicon;
 oxidizing said dot silicon and said polysilicon layer uncovered by said second dielectric layer to form a poly-oxide layer;
 removing said poly-oxide layer to form trenches in said polysilicon layer;
 removing said dielectric layer; and
 patterning and etching said polysilicon layer to form a capacitor node.

5,670,408
THIN FILM CAPACITOR WITH SMALL LEAKAGE CURRENT AND METHOD FOR FABRICATING THE SAME
 Shintaro Yamamichi, and Yoichi Miyasaka, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
 Division of Ser. No. 370,457, Jan. 9, 1995, Pat. No. 5,530,279, which is a continuation of Ser. No. 213,511, Mar. 16, 1994, abandoned. This application Aug. 2, 1995, Ser. No. 510,488
 Claims priority, application Japan, Mar. 17, 1993, 5-056640
 Int. Cl.⁶ H01L 21/8242
 U.S. Cl. 437—60 4 Claims



1. A method for fabricating a thin film capacitor, comprising the steps of:
 depositing an interlayer insulating film on a semiconductor substrate;
 providing a contact at a first location in said interlayer insulating film;
 depositing a lower electrode on said contact and said interlayer insulating film;
 over-etching said interlayer insulating film for partially removing said interlayer insulating film;
 forming a dielectric film of high dielectric constant by a physical vapor deposition method for covering a projected portion constituting said lower electrode; and
 forming an upper electrode on said dielectric film of high dielectric constant.

5,670,409
METHOD OF FABRICATING A SEMICONDUCTOR IC DRAM DEVICE ENJOYING ENHANCED FOCUS MARGIN
 Hiroshi Otori, Plano, Tex.; Kazuhiko Kajigaya, Iruma, Japan; Kazuyuki Miyazawa, Hidaka, Japan; Masaharu Kubo, Hachioji, Japan; Atsuyoshi Koike, Kokubunji, Japan, and Fumiyuki Kanai, Hoya, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Filed Aug. 7, 1995, Ser. No. 511,810
 Claims priority, application Japan, Aug. 10, 1994, 6-188040
 Int. Cl.⁶ H01L 21/8242
 U.S. Cl. 437—60 10 Claims

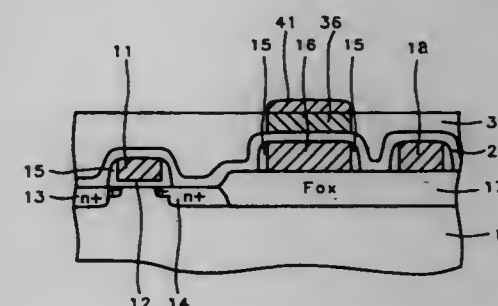


1. A method of fabricating a semiconductor integrated circuit device having first and second circuit regions provided at first and second surface portions of a semiconductor substrate, said first and second circuit regions being capable of performing first and second functions and including elements having relatively small and large

sizes as generally measured in a direction perpendicular to said surface portions of the semiconductor substrate, respectively, an insulating film covering said first and second circuit regions, and wiring conductors provided on said insulating film, the method comprising the steps of:

preparing a semiconductor substrate having first and second surface portions;
 recessing the second surface portion of said semiconductor substrate;
 forming elements of the first circuit region at a first surface portion of said semiconductor substrate and elements of the second circuit region at said recessed second surface portion of said semiconductor substrate;
 forming an insulating film to cover said first and second circuit regions, with a level difference being caused between first and second portions of said insulating film on said first and second circuit regions, respectively, said second portion of said insulating film being at a higher level than said first portion of said insulating film;
 effecting chemical-mechanical planarization of said insulating film to suppress said level difference in said insulating film for enhancing a focus margin for successive photolithographic steps; and
 forming at least one wiring conductor on said insulating film with said suppressed level difference, enjoying said enhanced focus margin.

5,670,410
METHOD OF FORMING INTEGRATED CMP STOPPER AND ANALOG CAPACITOR
 Yang Pan, Singapore, Singapore, assignor to Chartered Semiconductor Manufacturing PTE Ltd., Singapore, Singapore
 Filed Sep. 25, 1996, Ser. No. 719,347
 Int. Cl.⁶ H01L 21/70; 27/00
 U.S. Cl. 437—60 13 Claims



1. A method for end point detection during CMP, including manufacture of an analog capacitor, comprising:
 providing an integrated circuit having active devices electrically isolated from one another by a region of field oxide;
 depositing a first layer of polysilicon on the field oxide;
 patterning and etching said first polysilicon layer to form a lower electrode and a connector thereto;
 depositing a first insulating layer over said first polysilicon layer;
 depositing a second polysilicon layer of a first thickness over said first insulating layer;
 patterning and etching said second polysilicon layer to form an upper electrode that overlies the lower electrode, thereby forming an analog capacitor;
 depositing a second insulating layer over said second polysilicon layer to a thickness greater than said first thickness; and
 using a polishing head, applying CMP to the second insulating layer until the presence of polysilicon in the removed material is detected.

5,670,411

PROCESS OF MAKING SEMICONDUCTOR-ON-INSULATOR SUBSTRATE

Takao Yonehara, Atsugi, and Kenji Yamagata, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 10,296, Jan. 25, 1993, Pat. No. 5,453,394.

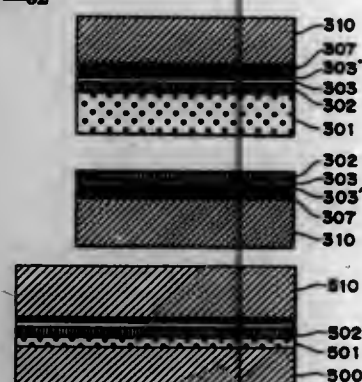
This application May 18, 1995, Ser. No. 444,015

Claims priority, application Japan, Jan. 31, 1992, 4-046300

Int. Cl.⁶ H01L 21/76

U.S. Cl. 437—62

37 Claims



13. A process for preparing a semiconductor substrate, which comprises the steps of:

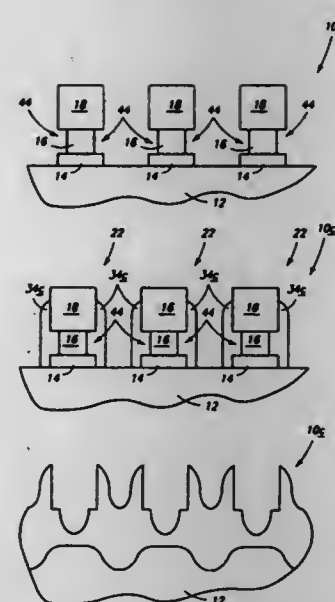
providing a first substrate having a porous monocrystalline semiconductor layer and a non-porous monocrystalline semiconductor layer;

forming a first insulating layer on the non-porous monocrystalline semiconductor layer of the first substrate;

forming a second insulating layer which can be reflowed by heating on the first insulating layer;

bonding the second insulating layer to a second substrate and heating the resulting bonded first and second substrates; and

removing the porous monocrystalline semiconductor layer from the bonded first and second substrates to obtain the semiconductor substrate.



after stripping the Ge layer or any oxidation product therefrom, stripping the pad oxide and any other oxide from the substrate between the pair of adjacent field oxide regions to outwardly expose substrate active area between the pair of field oxide regions.

5,670,413

METHOD AND APPARATUS FOR RADIATION HARDENED ISOLATION

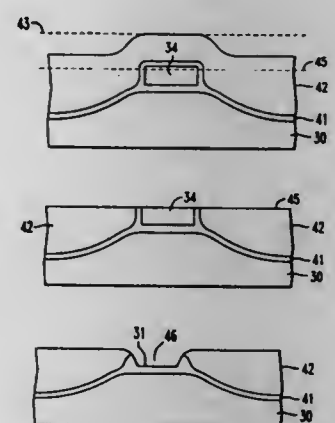
Robert T. Fuller, Melbourne Beach, Fla., assignor to Harris Corporation, Palm Bay, Fla.

Filed Jan. 16, 1996, Ser. No. 586,556

Int. Cl.⁶ H01L 21/76

U.S. Cl. 437—69

10 Claims



1. A method for fabricating a radiation hardened integrated circuit and isolating one radiation hardened device from other radiation hardened devices comprising the steps of:

depositing a layer of polysilicon over a semiconductor substrate; patterning the layer of polysilicon to cover a device area;

covering the polysilicon layer with a layer of radiation hardening dielectric;

planarizing the polysilicon and the radiation hardening dielectric to a common level;

removing the polysilicon to expose device areas self-aligned to the radiation hardening dielectric; and

forming semiconductor devices in the exposed device areas.

5,670,412

SEMICONDUCTOR PROCESSING METHODS OF FORMING FIELD OXIDATION REGIONS ON A SEMICONDUCTOR SUBSTRATE

Werner Juengling, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Jul. 25, 1995, Ser. No. 506,172

Int. Cl.⁶ H01L 21/76

U.S. Cl. 437—69

10 Claims

1. A semiconductor processing method of forming a pair of adjacent field oxide regions on a semiconductor substrate, the method comprising the following steps:

providing a sacrificial pad oxide layer over a semiconductor substrate;

providing a layer of Ge over the pad oxide layer;

providing a patterned nitride oxidation masking layer over the Ge layer to define at least one pair of adjacent nitride masking blocks overlying desired active area regions of the substrate;

etching exposed portions of the Ge layer and thereby defining exposed sidewall edges of the Ge layer;

providing an oxidation restriction layer over the respective Ge sidewalls, the oxidation restriction layer restricting rate of oxidation of the Ge layer from what would otherwise occur if the oxidation restriction layer were not present;

oxidizing portions of the substrate unmasked by the masking layer to form at least one pair of adjacent SiO₂ field oxide regions on the substrate;

stripping the patterned masking layer from the substrate;

after stripping the masking layer, stripping the Ge layer or any oxidation product therefrom from the substrate selectively relative to SiO₂; and

forming semiconductor devices in the exposed device areas.

5,670,414

GRADED-GAP PROCESS FOR GROWING A SiC/Si HETEROJUNCTION STRUCTURE

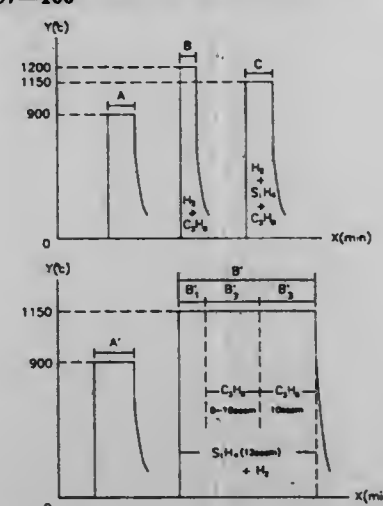
Y. K. Fang, and J. D. Hwang, both of Tainan, Taiwan, assignors to National Science Council, Taipei, Taiwan

Filed Feb. 6, 1996, Ser. No. 596,027

Int. Cl.⁶ H01L 21/20

U.S. Cl. 437—100

16 Claims



1. A graded-gap process for forming a SiC/Si heterojunction electrical element, comprising:

a) providing a Si substrate;

b) introducing a hydrogen containing gas stream to said Si substrate;

c) introducing a silane-containing gas stream of a constant flow rate to said Si substrate for reacting with said hydrogen-containing gas stream for a first period of time;

d) introducing an alkanes-containing gas stream of a gradually changing flow rate to said Si substrate for reacting with said hydrogen-containing gas stream and said silane-containing gas stream to grow a SiC layer on said Si substrate for a second period of time; and

e) introducing said alkanes-containing gas stream at a constant flow rate for reacting with said hydrogen-containing gas stream and said silane-containing gas stream for a third period of time.

5,670,415

METHOD AND APPARATUS FOR VACUUM DEPOSITION OF HIGHLY IONIZED MEDIA IN AN ELECTROMAGNETIC CONTROLLED ENVIRONMENT

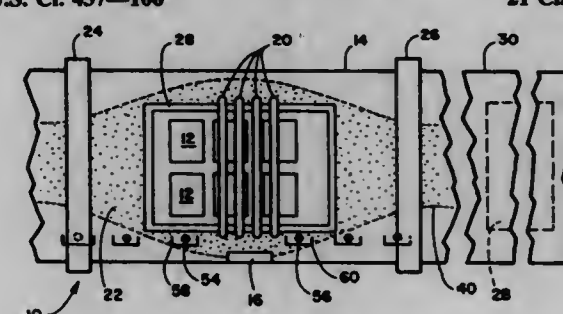
Ray Dean Rust, Midlothian, Va., assignor to DeposiTech, Inc., La Jolla, Calif.

Filed May 24, 1994, Ser. No. 248,406

Int. Cl.⁶ H01L 21/20

U.S. Cl. 437—106

21 Claims



1. A method of vacuum depositing a coating on a substrate, comprising:

providing an evaporant in a vacuum process chamber;

ionizing the evaporant using an external power source to form a plasma within the process chamber;

generating a non-uniform magnetic field within the process chamber having the configuration of a "magnetic bottle" to contain the plasma; and then

moving the substrate into a deposition volume of the "magnetic bottle" along a direction of motion generally parallel to a primary axis of the "magnetic bottle" within the deposition volume to deposit the coating on the substrate to a desired thickness.

5,670,416

Patent Not Issued For This Number

5,670,417

METHOD FOR FABRICATING SELF-ALIGNED SEMICONDUCTOR COMPONENT

Charles T. Lambson, Gilbert, and Paul W. Sanders, Scottsdale, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

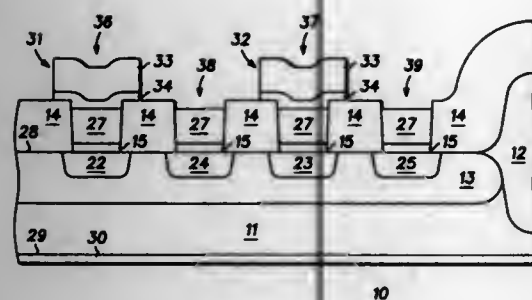
Filed Mar. 25, 1996, Ser. No. 622,535

Int. Cl.⁶ H01L 21/225

U.S. Cl. 437—162

19 Claims

1. A method of fabricating a self-aligned semiconductor component comprising the steps of:



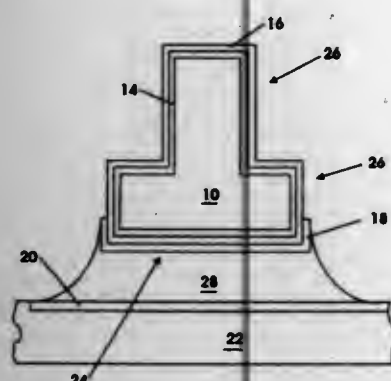
providing a substrate having a first doped region; forming a layer overlying the substrate, the layer having a first opening and a second opening, a portion of the second opening overlying a portion of the first doped region; using the first opening to form a second doped region self-aligned to the first opening; using the first opening to form a first electrical contact coupled to the second doped region, the first electrical contact self-aligned to the first opening; forming a second electrical contact in the second opening; and forming a metal line overlying and contacting the second electrical contact, wherein the first electrical contact in the first opening is substantially free of direct contact with a metal layer overlying the first opening.

5,670,418 METHOD OF JOINING AN ELECTRICAL CONTACT ELEMENT TO A SUBSTRATE

Balaram Ghosal, Fishkill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 17, 1996, Ser. No. 767,918
Int. Cl.⁶ H01L 21/44

U.S. Cl. 437—183

8 Claims



1. A method of joining an electrical contact element to an electrically conductive surface on a substrate, comprising: coating said electrical contact element with gold; applying an outer coating of an electrically conductive material over said gold coating, said electrical conductive material of said outer coating having capillarity with respect to a preselected solder less than the capillarity of gold with respect to said preselected solder; joining said electrical contact element having said outer coating applied over said gold coating to said electrically conductive surface on a substrate by said preselected solder whereby a first portion of the outer coating on said electrical contact element is covered by said preselected solder and a second portion of the outer coating is not covered by said solder; and removing said second portion of the outer coating on the electrical contact element and thereby exposing the gold coating underlying said second portion of the outer coating.

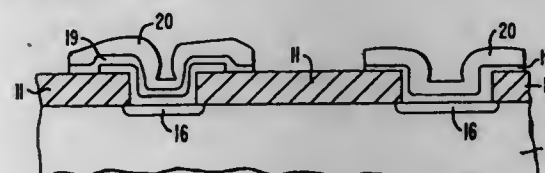
5,670,419 METHOD OF FABRICATING ANTIFUSES IN AN INTEGRATED CIRCUIT DEVICE AND RESULTING STRUCTURE

Pankaj Dixit, San Jose; William P. Ingram, III, Los Altos; Monta R. Holzworth, Santa Clara, and Richard Klein, Mountain View, all of Calif., assignors to Crosspoint Solutions, Inc., Milpitas, Calif.

Continuation of Ser. No. 158,134, Nov. 24, 1993, Pat. No. 5,527,745, which is a division of Ser. No. 782,837, Oct. 24, 1991, Pat. No. 5,322,812, which is a continuation-in-part of Ser. No. 672,501, Mar. 20, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 471,472
Int. Cl.⁶ H01L 21/44

U.S. Cl. 437—189

7 Claims



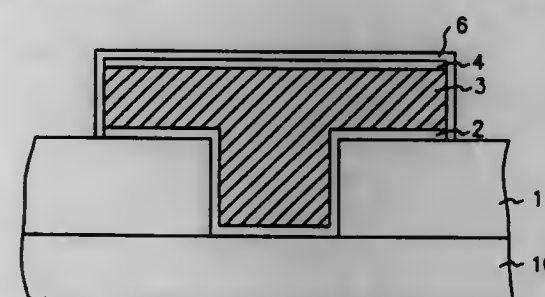
1. In a method of fabricating antifuses in an integrated circuit including the step of depositing a layer of amorphous silicon, an improvement comprising depositing said amorphous silicon layer in a process chamber having a low-pressure atmosphere with essentially no nitrogen, said atmosphere lower than ambient; removing said atmosphere from said chamber at a rate of no more than 2 millitorr per minute; whereby the avoidance of silicon nitride deposition in said amorphous silicon layer is enhanced.

5,670,420 METHOD OF FORMING METAL INTERCONNECTION LAYER OF SEMICONDUCTOR DEVICE

Kyeong Keun Choi, Ichonkun, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Rep. of Korea
Filed Nov. 8, 1995, Ser. No. 555,112
Claims priority, application Rep. of Korea, Dec. 5, 1994, 1994-32859

U.S. Cl. 437—189

8 Claims



1. A method for forming a metal interconnection of a semiconductor device, comprising the steps of: providing an insulating film having an opening exposing a conducting film; implanting refractory metal ions into the insulating film and the conducting film, wherein the refractory metal ions form a first refractory metal film on the insulating film and the conducting film; forming a metal wiring layer by a chemical vapor deposition method on the resulting structure for a metal interconnection; implanting refractory metal ions into the metal wiring layer so that a second refractory metal film is formed on the resulting structure for preventing changes in physical properties of the metal wiring layer;

patterning the first refractory metal film, the metal wiring layer and the second refractory metal film, using a metal interconnection mask; and forming a third refractory metal film on the sidewall of the patterned metal wiring by a selective deposition method.

5,670,421 PROCESS FOR FORMING MULTILAYER WIRING

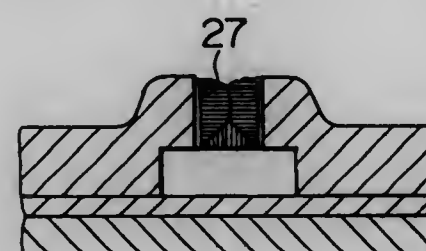
Eisuke Nishitani, Yokohama; Susumu Tsuzuku, Tokyo; Shigeru Kobayashi, Hiratsuka; Osamu Kasahara, Tokyo; Hiroki Nezu, Tokyo; Masakazu Ishino, Yokohama, and Tsuyoshi Tamaru, Ome, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 87,027, Jul. 6, 1993, Pat. No. 5,498,768, which is a continuation of Ser. No. 742,447, Aug. 5, 1991, abandoned, which is a continuation of Ser. No. 384,735, Jul. 24, 1989, abandoned. This application Jan. 23, 1996, Ser. No. 589,867

Claims priority, application Japan, Jul. 27, 1988, 63-185598
Int. Cl.⁶ H01L 21/441

U.S. Cl. 437—192

9 Claims



1. A process for forming a multilayer wiring in a fabricated wafer, said multilayer wiring comprising a plurality of wirings stacked via silicon and oxygen-containing insulating layers each provided between one and another of said wirings, one of said wirings being electrically connected to another wiring through via-holes, the surfaces of the wiring exposed at the via-holes being covered by an oxide film, which comprises the steps of:

- introducing into a pretreatment chamber said fabricated wafer having the wirings, one of which is substantially covered thereon by the oxygen-containing insulating layer having said via-holes;
- introducing a rare gas into said pretreatment chamber and then forming a plasma in said chamber by electric discharge to physically remove a substantial amount of said oxide film from the exposed surfaces due to the collision of plasma particles against the surfaces, said surface of said oxygen-containing insulating layer having a reduced oxygen/silicon ratio after the pretreatment of step (b);
- introducing an etching gas into said chamber, then forming a plasma in said pretreatment chamber by electric discharge and introducing said fabricated wafer from step (b) into said plasma to increase the oxygen content of the surface of said oxygen-containing insulating layer, and restore the reduced oxygen/silicon ratio of the surface of said oxygen-containing insulating layer to that ratio found before the pretreatment of step (b);
- ceasing the introduction of both the rare gas and etching gas in said pretreatment chamber and then evacuating said pretreatment chamber;
- transferring said fabricated wafer from said pretreatment chamber to a deposition chamber;
- introducing a depositing material gas into said deposition chamber and selectively depositing said material only on said exposed surfaces of the wiring in said via-holes to fill said via-holes with the deposited material; and,
- preparing another wiring on said oxygen-containing insulating layer.

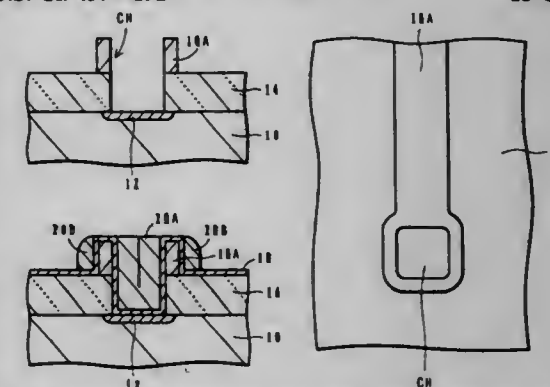
5,670,422 METHOD OF FORMING AN INTERCONNECTION WITH METAL PLUG AND REDUCED STEP

Suguru Tabara, Hamamatsu, Japan, assignor to Yamaha Corporation, Japan

Filed May 21, 1996, Ser. No. 651,880
Claims priority, application Japan, May 24, 1995, 7-149457
Int. Cl.⁶ H01L 21/283

U.S. Cl. 437—192

15 Claims



1. A method of forming an interconnection, comprising the steps of: forming an insulating film covering a surface of a substrate having a region to be connected to an interconnection; forming an interconnection layer on said insulating film; forming a connection hole through a laminate of said interconnection layer and said insulating film, said connection hole exposing said connection region; patterning said interconnection layer to have a desired interconnection pattern and leave a portion of said interconnection layer on said insulating film at least at a peripheral area around said connection hole; forming a conductive adhesion layer on said insulating film, said adhesion layer covering said left portion of said interconnection layer and the inner surface of said connection hole; and forming a conductive layer burying said connection hole and etching back said conductive layer, wherein a portion of said conductive layer is left on an outer side wall of said portion of said interconnection layer left on said insulating film at a peripheral area around said connection hole, so as to relieve a step of said left portion of said interconnection layer.

5,670,423 METHOD FOR USING DISPOSABLE HARD MASK FOR GATE CRITICAL DIMENSION CONTROL

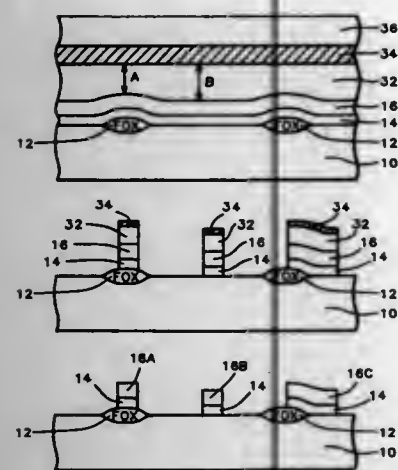
Chue-San Yoo, Hsin-Chu County, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Division of Ser. No. 435,189, May 5, 1995, Pat. No. 5,545,588.
This application Jun. 13, 1996, Ser. No. 663,431
Int. Cl.⁶ H01L 21/28

U.S. Cl. 437—192

10 Claims

1. A method of providing a uniform critical dimension of gate electrodes and interconnection lines during etching in the fabrication of an integrated circuit comprising: providing field oxide isolation areas surrounding bare active areas in and on a semiconductor substrate wherein the surface of said substrate has an uneven topography; growing a gate silicon oxide layer on the surface of said field oxide areas and said active areas of said semiconductor substrate; depositing a conducting layer over said gate silicon oxide layer; covering said conducting layer with a spin-on-glass layer wherein said spin-on-glass layer planarizes the surface of said substrate; depositing a titanium layer over the surface of said spin-on-glass layer wherein said titanium layer is opaque to actinic light;



covering said titanium layer with a uniform thickness layer of photoresist;
 exposing said photoresist layer to actinic light wherein said titanium layer prevents reflection of said actinic light from its surface and developing and patterning said photoresist layer to form a photoresist mask for said conducting layer;
 anisotropically etching away said titanium layer, said spin-on-glass layer, and said conducting layer not covered by said photoresist mask to form said gate electrodes and interconnection lines wherein the width of said gate electrodes and interconnection lines is said critical dimension; and
 removing said photoresist mask, remaining said titanium layer, and remaining said spin-on-glass layer to complete the formation of said gate electrodes and interconnection lines having said uniform critical dimension in the fabrication of said integrated circuit.

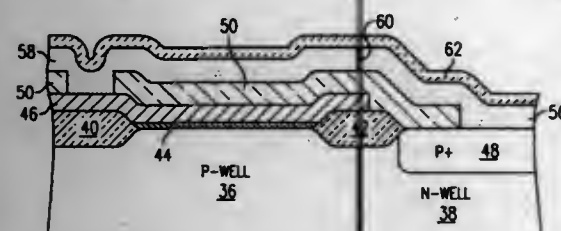
5,670,424 METHOD FOR MAKING LOCAL INTERCONNECT STRUCTURE

Tsiu Chiu Chan, Carrollton; Frank Randolph Bryant, Denton, and John Leonard Walters, Carrollton, all of Tex., assignors to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.
 Continuation of Ser. No. 359,006, Dec. 19, 1994, Pat. No. 5,478,771, which is a continuation of Ser. No. 69,083, May 28, 1993, abandoned. This application Oct. 13, 1995, Ser. No. 542,815

Int. Cl.⁶ H01L 21/44

U.S. Cl. 437—193

9 Claims



1. A method of forming an interconnect structure for an integrated circuit device, comprising the steps of:
 forming an N-channel transistor in a first portion of a substrate, the N-channel transistor having a gate electrode;
 forming a P-channel transistor in a second portion of the substrate, the P-channel transistor having a gate electrode;
 forming an insulating layer over the N-channel and P-channel transistors, including their gate electrodes;
 forming openings through the insulating layer to expose a portion of the N-channel transistor gate electrode and a portion of a source/drain region of the P-channel transistor;
 forming a layer of polycrystalline silicon over the insulating layer and in the openings;

doping a first portion of the polycrystalline silicon layer, in contact with the N-channel transistor gate electrode, with an N-type dopant;
 doping a second portion of the polycrystalline silicon layer, in contact with the source/drain region of the P-channel transistor, with a P-type dopant, wherein the first and second portions of the polycrystalline silicon layer are adjacent, wherein a PN junction is formed between them; and
 forming a refractory metal silicide layer over the polycrystalline silicon to provide a conductive path between the first and second polycrystalline silicon portions which is in parallel with the PN junction.

5,670,425 PROCESS FOR MAKING INTEGRATED CIRCUIT STRUCTURE COMPRISING LOCAL AREA INTERCONNECTS FORMED OVER SEMICONDUCTOR SUBSTRATE BY SELECTIVE DEPOSITION ON SEED LAYER IN PATTERNED TRENCH

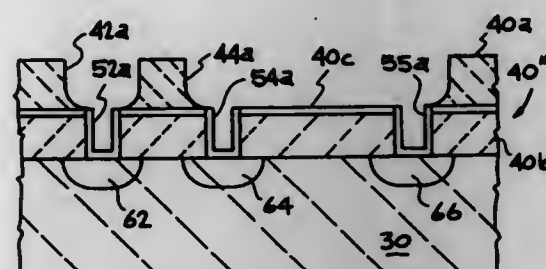
Richard Schinella, Saratoga, and Mahesh K. Sanganeria, Sunnyvale, both of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Nov. 9, 1995, Ser. No. 552,461

Int. Cl.⁶ H01L 21/441

U.S. Cl. 437—195

17 Claims



1. A process for forming one or more electrically conductive interconnects over a semiconductor substrate which comprises:
 a) forming an insulation layer over a semiconductor substrate;
 b) forming one or more trenches in said insulation layer conforming to the desired shape of said one or more electrically conductive interconnects;
 c) selectively forming a seed layer in said one or more trenches by the steps of:
 i) blanket depositing said seed layer over said insulation layer, including the surfaces of said one or more trenches formed in said insulation layer;
 ii) forming a planarizing layer over said seed layer;
 iii) removing portions of said planarizing layer to expose portions of said seed layer formed on a planar surface of said insulation layer;
 iv) removing said exposed portions of said seed layer, thereby leaving said seed layer only on said surfaces of said trenches; and
 v) removing the remainder of said planarizing layer over said seed layer on said surfaces of said trenches; and
 d) then selectively forming an electrically conductive metal compound only over said seed layer in said trenches;
 whereby said electrically conductive metal compound selectively formed only in said trenches over said seed layer will conform to the pattern of said seed layer to form said one or more electrically conductive interconnects.

5,670,426 METHOD FOR REDUCING CONTACT RESISTANCE

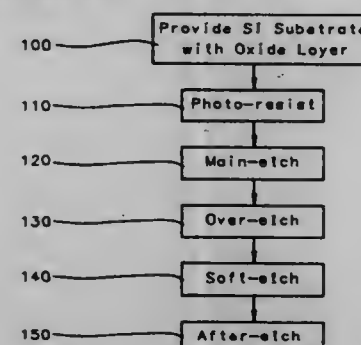
So Wen Kuo, and Chia-Shiung Tsai, both of Hsin-chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company Ltd., Hsin-Chu, Taiwan

Filed Jan. 29, 1996, Ser. No. 592,927

Int. Cl.⁶ H01L 21/28

U.S. Cl. 437—195

52 Claims



1. A method of forming an electrically enhanced contact surface in a contact hole on a semiconductor substrate comprising the steps of:

providing a silicon substrate over which is formed a blanket oxide layer overlying regions including FET devices therein;
 performing a main-etch of said oxide layer through patterned photo-resist mask deposited on the oxidelayer to form contact holes;
 performing an over-etch of said oxide layer through said mask;
 performing soft-etch of exposed silicon in said contact holes through said mask;
 performing after-etch of said silicon through said mask thereby increasing the surface area of said silicon; and
 depositing metal in said holes to form contact-plugs.

5,670,427 METHOD FOR FORMING METAL CONTACTS IN SEMICONDUCTOR DEVICES

Gyung-Su Cho, Kyongki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Ich'on, Rep. of Korea

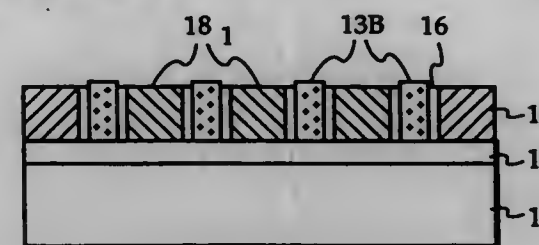
Filed Mar. 4, 1996, Ser. No. 610,716

Claims priority, application Rep. of Korea, Mar. 4, 1995, 4452/95

Int. Cl.⁶ H01L 21/283; 21/31

U.S. Cl. 437—195

7 Claims



1. The method for forming metal contacts in an integrated circuit, comprising the steps of:

(a) providing a silicon substrate;
 (b) forming a first insulating layer on said substrate;
 (c) forming and patterning a first metal layer into a first metal pattern on said first insulating layer;
 (d) forming and patterning a photoresist layer on said first insulating layer and said first metal pattern such that a portion of said first insulating layer and a portion of the first metal pattern are partially exposed;
 (e) etching the exposed portion of the first metal pattern using the photoresist pattern to thereby form a fine metal pattern;
 (f) removing the photoresist pattern;

(g) depositing a second insulating layer on the overall surface of the structure having the fine metal pattern disposed on the insulating layer;
 (h) removing the second insulating layer to a depth until the fine metal pattern is exposed;
 (i) coating a third photoresist layer on a surface of the second insulating layer and a surface of the fine metal pattern;
 (j) patterning the third photoresist layer such that the surface of the fine metal pattern and portions of the surface of the second insulating layer adjacent to and on both sides of the fine metal pattern are covered;
 (k) etching the second insulating layer using the third photoresist pattern to form spaces in the second insulating layer;
 (l) removing the third photoresist pattern;
 (m) forming a second metal layer to fill the spaces in the second insulating layer; and
 (n) removing the second metal layers until a top surface of the second insulating layer is exposed to thereby form metal contacts.

5,670,428 SEMICONDUCTOR CHIP KERF CLEAR METHOD AND RESULTANT SEMICONDUCTOR CHIP AND ELECTRONIC MODULE FORMED FROM THE SAME

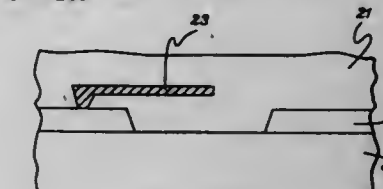
Kenneth Edward Belstein, Jr., Essex Junction; Claude Louis Bertin, So. Burlington; Timothy Harrison Daubenspeck, Colchester, and Wayne John Howell, Williston, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 301,290, Sep. 6, 1994, Pat. No. 5,596,226. This application Apr. 13, 1995, Ser. No. 422,029

Int. Cl.⁶ H01L 21/60

U.S. Cl. 437—205

15 Claims

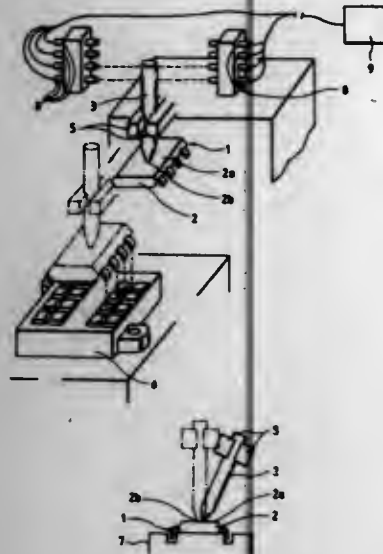


1. A method for forming a plurality of integrated circuit ("IC") chips comprising the steps of:

(a) providing a wafer;
 (b) forming a plurality of IC chips integral with said wafer such that said wafer has a plurality of kerf regions separating active chip regions of said plurality of IC chips, said plurality of kerf regions having a first chip metal layer contained therein;
 (c) removing said first chip metal layer from said plurality of kerf regions;
 (d) subsequent to step (c), forming a transfer metal layer above said plurality of IC chips such that said transfer metal layer is mechanically coupled to said plurality of IC chips and provides transfer metal leads from said active chip regions into said kerf regions; and
 (e) dicing said wafer into separated IC chips such that each separated IC chip contains: at least one of said active chip regions, a kerf region of said plurality of kerf regions from which said chip metal layer has been removed, and a transfer metal lead extending from said at least one active chip region into said kerf region, said kerf region being contiguous with a side edge of said separated IC chip; and wherein prior to said step (d) the method further comprises depositing an insulation layer above said plurality of IC chips and planarizing said

insulation layer for facilitating substantially planar formation of said transfer metal layer.

5,670,429
PROCESS OF CONVEYING AN ENCAPSULATED ELECTRONIC COMPONENT BY ENGAGING AN INTEGRAL RESIN PROJECTION
 Tomohiro Murayama, Fukuoka, Japan, assignor to Rohm Co. Ltd., Kyoto, Japan
 Filed Jun. 16, 1994, Ser. No. 260,047
 Claims priority, application Japan, Jun. 30, 1993, 5-189227; Jun. 30, 1993, 5-189228
 Int. Cl.⁶ H01L 21/56; 21/58; 21/68
 U.S. Cl. 437—210

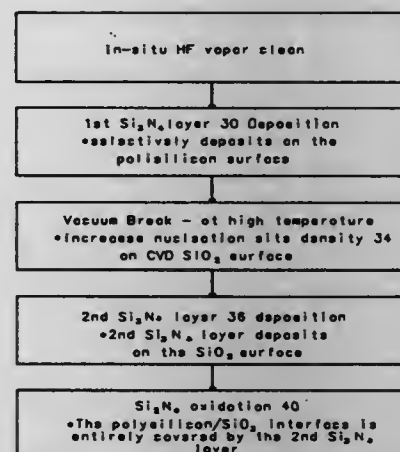


1. A method of manufacturing an electronic circuit comprising: providing an encapsulated electronic component by forming a resin body having an external top surface and containing an electronic component having exposed leads and having a projection in the form of a resin bar integral with and projecting substantially perpendicularly away from the resin body, the resin bar being tapered inwardly toward a joint at which it is attached to the external top surface of the resin body; holding the encapsulated electronic component with a holding device engaging the projection; and conveying the encapsulated electronic component to a position by moving the holding device.

5,670,430
 Patent Not Issued For This Number

5,670,431
METHOD OF FORMING AN ULTRA THIN DIELECTRIC FILM FOR A CAPACITOR
 Julie Huang, and Mong-Song Liang, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company Ltd., Hsin-Chu, Taiwan
 Filed Jun. 13, 1996, Ser. No. 663,430
 Int. Cl.⁶ H01L 21/02

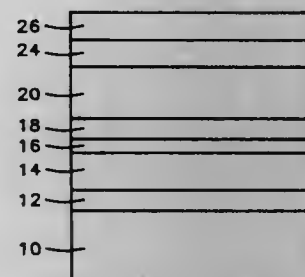
U.S. Cl. 437—241 20 Claims
 1. A method of fabricating a uniform thin silicon nitride layer over a polysilicon layer and over an adjacent insulating layer, said polysilicon layer and said insulating layer join at an interface, the method comprises the steps of:



- under a non-oxidizing environment, cleaning the surface of said polysilicon layer with an HF vapor;
- under a non-oxidizing environment, selectively forming a first silicon nitride layer over said polysilicon layer and said interface;
- subjecting the semiconductor substrate to air thereby growing a native oxide over the said insulating layer and said first silicon nitride layer;
- under a reduced pressure, forming a second silicon nitride layer over said first silicon nitride layer and said native oxide layer, said second nitride layer completely covering said interface between said polysilicon layer and said insulating layer.

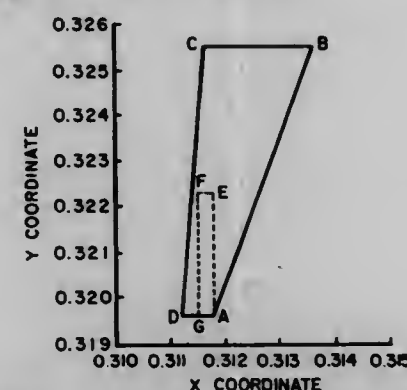
5,670,432
THERMAL TREATMENT TO FORM A VOID FREE ALUMINUM METAL LAYER FOR A SEMICONDUCTOR DEVICE
 Chau-Jie Tsai, Hsin-Chu, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan
 Filed Aug. 1, 1996, Ser. No. 691,079
 Int. Cl.⁶ H01L 21/46S

U.S. Cl. 437—245 25 Claims



- A method of forming a void free, reduced stress aluminum layer and an overlying nitride layer on a substrate, comprising:
 - forming an aluminum alloy layer over a substrate surface;
 - forming a silicon nitride layer over said aluminum alloy layer by ramping said substrate from room temperature up to between about 345° and 355° C.; and ramping the temperature down to a temperature between 315° and 325° C. and depositing silicon nitride over said aluminum alloy layer at a temperature of between about 315° and 325° C.

5,670,433
LIGHT GREEN GLASSWARE
 W. Duane Amundson, Jr., Corning, N.Y., assignor to Corning Incorporated, Corning, N.Y.
 Filed Jan. 2, 1997, Ser. No. 775,917
 Int. Cl.⁶ C03C 3/087
 U.S. Cl. 501—71 12 Claims



1. A transparent glass exhibiting a light green color defined by color coordinates falling within the polygon ABCDA in the accompanying drawing, the glass, as analyzed, consisting essentially of 40–200 ppm chromium oxide in a soda lime silicate base glass that contains as impurities no more than about 400 ppm MnO₂ and 500 ppm Fe₂O₃.

5,670,434
(BI,PB)SRCACUO PRECURSOR MATERIAL FOR THE OXIDE POWDER IN TUBE METHOD (OPIT)
 Marc Neubacher, Frankfurt am Main; Joachim Bock, Erftstadt; Christoph Lang, Frankfurt am Main; Eberhard Preisler, Erftstadt, and Helga Weis, Frankfurt am Main, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany
 Division of Ser. No. 197,185, Feb. 16, 1994, Pat. No. 5,541,154. This application Jan. 30, 1996, Ser. No. 594,035
 Claims priority, application Germany, Feb. 17, 1993, 43 04 755.6

Int. Cl.⁶ C04B 35/01; 35/45; H01B 12/00
 U.S. Cl. 501—123 6 Claims
 1. A precursor for a Bi-2223 high-temperature superconductor prepared according to a process wherein a mechanical mixture of metal oxides containing bismuth, lead, strontium, calcium and copper in a stoichiometric ratio corresponding to a superconductor is completely melted in air at temperatures above 1000° C., wherein the melt is then poured out onto a base which is kept at room temperature and wherein the cooled melt body is subsequently disintegrated and then ground into powder, wherein the precursor has a composition corresponding to the formula selected from the group consisting of Bi_{2-2x}Pb_x(Sr,Ca)_{4-2x}Cu₃O_x wherein y<0.4, Bi_{2-1.3y}Pb_{0.7y}(Sr,Ca)_{3.6y}Cu₃O_x wherein y<0.33, Bi_{2-1.1y}Pb_{0.9y}(Sr,Ca)_{3.9y}Cu₃O_x wherein y<0.4 and Bi_{2-1.1y}Pb_{0.9y}(Sr,Ca)_{2.9y}Cu₃O_x wherein y<0.4.

5,670,435
METHOD AND COMPOSITION FOR CLARIFYING WASTE WATER
 Laura Kajita, Palatine, Ill., assignor to AMCOL International Corporation, Arlington Heights, Ill.
 Filed Oct. 25, 1994, Ser. No. 329,091
 Int. Cl.⁶ B01J 21/16 28 Claims

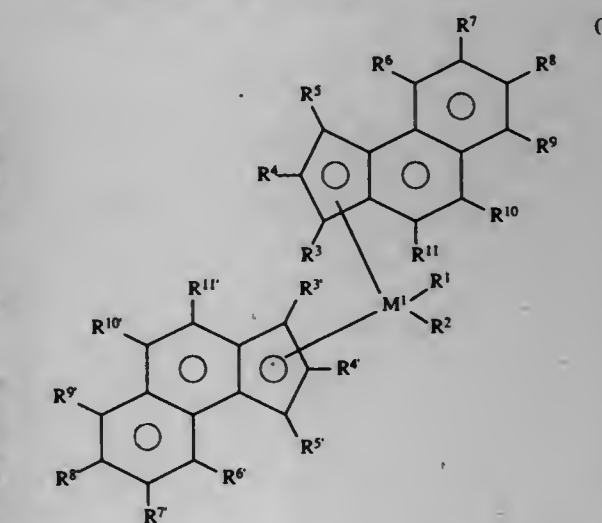
U.S. Cl. 502—81
 1. A method of manufacturing a composition for the treatment of contaminated waste water comprising sodium bentonite, and calcium bentonite for absorption and encapsulation of a contaminant selected from the group consisting of oil, grease, metals and

mixtures thereof, said composition including an acid for lowering the pH of the waste water and break oily emulsions, said method comprising:

- extruding a portion of the composition comprising the calcium bentonite and the acid, at a moisture content in the range of about 20% to about 45% by weight, to bind the acid to the calcium bentonite and prevent substantial reaction of the acid with the sodium bentonite;
- maintaining the sodium bentonite in a separate composition portion, separate from the acid and calcium bentonite during extrusion of the calcium bentonite and the acid so that the sodium bentonite is not extruded with the acid;
- pulverizing the extruded calcium bentonite to a desired powdered or granular particle size distribution; and
- combining the sodium bentonite with the calcium bentonite and the acid to form the composition.

5,670,436
METALLOCENE COMPOUND
 Hans-Friedrich Herrmann, Dornheim; Michael Aulbach, Hofheim, and Frank Küber, Oberursel, all of Germany, assignors to Hoechst AG, Germany
 Filed Oct. 6, 1995, Ser. No. 540,201
 Claims priority, application Germany, Oct. 10, 1994, 44 36 113.0

Int. Cl.⁶ C07F 17/00; 7/00; C08F 4/64; 4/642
 U.S. Cl. 502—103 19 Claims
 1. A metallocene compound of the formula (I)



where
 M¹ is a metal of group IVb, Vb or VIb of the Periodic Table, R¹ and R² are identical or different and are each a hydrogen atom, a C₁–C₁₀-alkyl group, a C₁–C₁₀-alkoxy group, a C₆–C₁₀-aryl group, a C₆–C₁₀-aryloxy group, a C₂–C₁₀-alkenyl group, a C₇–C₄₀-arylalkyl group, a C₈–C₄₀-arylalkenyl group, an OH group or a halogen atom, the radicals R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰ and R¹¹ are identical or different and are each a hydrogen atom, a halogen atom, a C₁–C₂₀-hydrocarbon radical which may be halogenated, an —NR₂, —SR, —OR, —OSiR₃, —SiR₃ or PR₂ radical, where R is a halogen atom, a C₁–C₁₀-alkyl group or a C₆–C₁₀-aryl group, or two or more of the radicals R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰ and R¹¹ together with the atoms connecting them form a ring system, and the radicals R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰ and R¹¹ are identical or different and are each a hydrogen atom, a halogen atom, a C₁–C₂₀-hydrocarbon radical which may be halogenated, an —NR₂, —SR, —OR, —OSiR₃, —SiR₃ or PR₂ radical, where R is a halogen atom, a C₁–C₁₀-alkyl group or a C₆–C₁₀-aryl group, or two or more of the radicals R³, R⁴, R⁵, R⁶, R⁷, R⁸, R⁹, R¹⁰ and R¹¹ together with the atoms connecting them form a ring system.

5,670,437

METHOD OF PREPARATION OF A HYDROGENATION CATALYST SOLUBLE IN AN ORGANIC LIQUID PHASE
Daniel Durand, Ruell Malmanson; Gérard Hillion, Herblay, and Patrick Sarrazin, Ruell Malmanson, all of France, assignors to Institut Français du Pétrole, Ruell-Malmanson, France

Filed Jan. 13, 1995, Ser. No. 372,396

Claims priority, application France, Jan. 13, 1994, 94 00413
Int. Cl.⁶ B01J 31/00; 37/00; C08F 4/02; 4/60

U.S. Cl. 502—104

35 Claims

1. In a method of preparation of a catalyst in a homogeneous phase, soluble in an organic medium, said method comprising:

- (a) reacting a solution of at least one compound of at least one metal A in at least one organic solvent S with at least one compound R of at least one metal B, in at least one organic solvent S', said solvents S and S' solubilizing said compounds and being essentially free of oxidizing agents, said compound R capable of reducing said compound of metal A, the improvement comprising subsequent to (a), and prior to use of the catalyst, (b) neutralizing residual reducing capacity of the reducing compound R for the compound of metal A with at least one oxidizing agent O.

5,670,438

CATALYST COMPOSITIONS AND CATALYTIC PROCESSES

Rickey D. Badley, Dewey, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 144,751, Oct. 27, 1993. This application May 25, 1995, Ser. No. 449,989

Int. Cl.⁶ C08F 4/24

U.S. Cl. 502—120

9 Claims

1. A catalyst composition comprising:

- (a) discrete silica particles, wherein said discrete silica particles are produced by the process consisting essentially of contacting together, in the absence of an acid, a tetraalkoxysilane composition, an alcohol composition, an ammonia composition, and water;
(b) chromium; and
(c) a support comprising silica.

5,670,439

VANADIUM-CONTAINING CATALYST SYSTEM

Linda N. Winslow, Cincinnati, Ohio, and Raghu K. Menon, Houston, Tex., assignors to Quantum Chemical Corporation, Cincinnati, Ohio

Continuation-in-part of Ser. No. 412,633, Mar. 29, 1995, Pat. No. 5,534,472. This application Jan. 5, 1996, Ser. No. 583,371
Int. Cl.⁶ B01J 31/00; 37/00; C08F 9/02; 9/60

U.S. Cl. 502—124

53 Claims

31. A vanadium-containing catalyst component formed by the steps which comprise:

- (a) contacting silica particles with a hexaalkyldisilazane;
(b) disposing said product of step (a) in an inert hydrocarbon liquid under ambient conditions, whereby a slurry is formed;
(c) contacting said slurry with a contacting agent selected from the group consisting of (1) a compound or complex which includes at least one carbon to magnesium covalent bond, (2) a compound which includes at least one carbon to metal of Group 13 of the Periodic Table of the Elements covalent bond and (3) a mixture thereof wherein said compound (1), if present, is introduced into said slurry at a concentration in the range of between about 0.1 millimole and about 2.0 millimoles of magnesium per gram of silica and said compound (2) is introduced into said slurry at a concentration in the range of between about 0.1 millimole and about 2.0 millimoles of said Group 13 metal per gram of silica;
(d) contacting the product of step (c) with whichever of compound (1) or (2) that does not contact said silica in step (c),

said concentration of said compound (1) or (2) per gram of silica being the concentration of that compound recited in step (c), with the proviso that this step is omitted if (3) a mixture of compounds (1) and (2) is introduced into said slurry in step (c);

(e) washing said product of step (c) or (d) with said insert hydrocarbon liquid slurring agent;

(f) contacting the product of step (e) with a vanadium compound which includes at least one halogen atom in a concentration such that between about 0.2 millimole and about 2.0 millimoles of vanadium are present per gram of silica; and
(g) contacting the product of step (f) with an alcohol in a concentration such that between about 0.1 millimole and about 2.0 millimoles of alcohol per gram of silica.

5,670,440

PREPARATION OF POLYMERS OF CARBON MONOXIDE AND AN ALIPHATIC ALPHA-OLEFIN

Simona Bronco, Zurich; Giambattista Consiglio, Schwerzenbach; Silvia Di Benedetto, Zurich, all of Switzerland; Elt Drent, Amsterdam, Netherlands; Hero Jan Heeres, Amsterdam, Netherlands; Johannes Adrianus Maria Van Broekhoven, Amsterdam, Netherlands, and Marinus Johannes Reynhout, Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Division of Ser. No. 457,965, May 31, 1995, Pat. No.

5,608,001. This application Oct. 22, 1996, Ser. No. 731,906

Int. Cl.⁶ B01J 31/00

U.S. Cl. 502—162

8 Claims

1. A catalyst composition comprising

- a) a palladium compound,
b) an anion, and
c) an asymmetric phosphorus bidentate ligand of the general formula $R^3R^4P-Q-CHR^2-PR^2R^3$, wherein Q is a 1,2-ferrocenyl bridging group, R^3 , R^4 , R^7 and R^8 are identical or different optionally polar substituted hydrocarbyl groups and R^2 is hydrogen or an optionally polar substituted hydrocarbyl group.

5,670,441

BISMUTH CATALYSTS USEFUL FOR CURING OF CATAPHORETIC DEPOSITION COATING MATERIALS

Hartmut Foedde, Tannusstein; Markus A. Schafheutle, Hochheim; Achim Voelker, Wiesbaden; Susanne Wehner, Villmar, and Klausjoerg Klein, Wuppertal, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany
Filed Jun. 23, 1995, Ser. No. 493,994

Claims priority, application Germany, Jul. 1, 1994, 44 23 139.3

Int. Cl.⁶ B01J 27/24; 23/18; 31/00

U.S. Cl. 502—200

18 Claims

1. A composition which is useful as a catalyst for the curing of cataphoretic deposition coating materials, which comprises an epoxy-amine adduct, and a water-soluble bismuth compound, wherein the ratio of the number of bismuth atoms to the number of β -hydroxy amine groups in the epoxy amine adduct is from 1:10 to 1:1, and

wherein the composition is prepared by dissolving a basic bismuth compound in an aqueous acid, which acid is employed in a quantity such that there are between 0.1 mol and less than 2 mol of dissociable protons per mole of bismuth, and then adding thereto a reaction product of at least one epoxide and at least one organic amine as the epoxy-amine adduct, and wherein the composition is free of lead compounds and tin compounds.

5,670,442

CATALYST FOR CONVERTING METHANE INTO HIGHER HYDROCARBON PRODUCTS

Giuseppe Fornasari, Cremona, and Giuseppe Bellussi, Piacenza, both of Italy, assignors to Eniicerche S.p.A., Milan, Italy

Division of Ser. No. 142,004, Oct. 28, 1993, Pat. No. 5,527,978.

This application Mar. 8, 1996, Ser. No. 613,992

Claims priority, application Italy, Oct. 30, 1992, MI92A/2488

Int. Cl.⁶ B01J 23/00

U.S. Cl. 502—303

10 Claims

1. A solid catalyst for converting methane into higher hydrocarbon, comprising calcium oxide, magnesium oxide, a lanthanide oxide and optionally lithium oxide, where:

in the following expressions said lithium oxide, calcium oxide, magnesium oxide and lanthanide oxide are measured as lithium content, calcium content, magnesium content or lanthanide content, respectively, by weight of the catalyst, said lithium content is between 0 and 0.20 wt. %, a calcium/magnesium atomic ratio is between 0.08 and 0.7, and a (calcium+magnesium)/lanthanide atomic ratio is between 0.8/1 and 8/1.

5,670,443

EXHAUST GAS CLEANER AND METHOD FOR CLEANING EXHAUST GAS

Naoko Irite, Akira Abe, and Kiyohide Yoshida, all of Kumagaya, Japan, assignors to Kabushiki Kaisha Riken, Tokyo, Japan

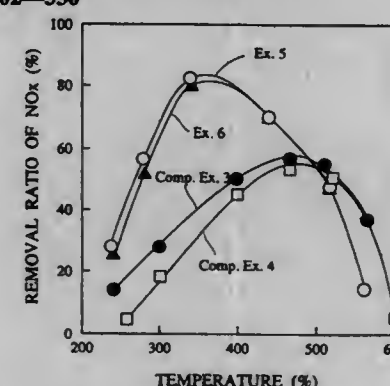
Division of Ser. No. 378,258, Jan. 26, 1995, abandoned. This application May 18, 1995, Ser. No. 444,050

Claims priority, application Japan, Feb. 10, 1994, 6-037860; Feb. 10, 1994, 6-037876; Apr. 6, 1994, 6-092949; Apr. 6, 1994, 6-092962; May 24, 1994, 6-133586; May 24, 1994, 6-133602; Dec. 5, 1994, 6-329949; Dec. 5, 1994, 6-330018

Int. Cl.⁶ B01J 23/56

U.S. Cl. 502—330

9 Claims



1. An exhaust gas cleaner for removing nitrogen oxides by reduction and unburned components of carbon monoxide and hydrocarbons by oxidation from an exhaust gas containing nitrogen oxides and oxygen in an amount larger than its stoichiometric amount relative to said unburned components in said exhaust gas, wherein said exhaust gas cleaner consists essentially of

a first catalyst disposed on an inlet side of said exhaust gas cleaner and consisting essentially of a first porous inorganic oxide supporting 0.2–15 weight % of an Ag component, 0.01–10 weight % of a base metal component and 1 weight % or less of a platinum-group metal component and optionally a second catalyst disposed on an outlet side of said exhaust gas cleaner and consisting essentially of a second porous inorganic oxide supporting 5 weight % or less of a platinum-group metal component alone or in combination with 10 weight % or less of a base metal component, said weight percentages being expressed by metal basis, said Ag component consisting essentially of at least one of Ag and compounds thereof, said platinum-group metal component of

said first and second catalysts consisting essentially of at least one of Pt, Pd, Ru, Rh and Ir, and said base metal component of said first and second catalysts consisting essentially of at least one of W, V, Mn, Mo, Nb and Ta.

5,670,444

EXHAUST GAS CLEANER AND METHOD FOR CLEANING SAME

Kiyohide Yoshida; Gyo Muramatsu; Akira Abe, and Naoko Irite, all of Kumagaya, Japan, assignors to Kabushiki Kaisha Riken, Tokyo, Japan

Division of Ser. No. 340,329, Nov. 14, 1994. This application Sep. 21, 1995, Ser. No. 531,904

Claims priority, application Japan, Jul. 15, 1994, 6-186564; Jul. 15, 1994, 6-186594; Jul. 15, 1994, 6-186606

Int. Cl.⁶ B01J 23/72; 20/00

U.S. Cl. 502—331

17 Claims

1. An exhaust gas cleaner for removing nitrogen oxides from an exhaust gas containing nitrogen oxides and oxygen in an amount larger than its stoichiometric amount relative to unburned components in said exhaust gas, which consists essentially of

a first catalyst on an inlet side of said exhaust gas cleaner and a second catalyst on an outlet side of said exhaust gas cleaner, said first catalyst consisting essentially of 0.2–15 weight % (on a metal basis) of at least one silver salt supported on a porous inorganic oxide, and

said second catalyst consisting essentially of (a) 0.2–15 weight % (on a metal basis) of at least one silver salt and (b) up to 2 weight % (on a metal basis) of copper or copper oxide supported on a porous inorganic oxide.

said silver salt for each catalyst being selected from the group consisting of silver halides silver sulfate and silver phosphate.

5. An exhaust gas cleaner for cleaning an exhaust gas containing nitrogen oxides, unburned components comprising carbon monoxide and hydrocarbons, and oxygen in an amount larger than its stoichiometric amount relative to said unburned components, by removing nitrogen oxides by reduction and carbon monoxide and hydrocarbons by oxidation from said exhaust gas, which consists essentially of

first, second and third catalysts in this order from an inlet side to an outlet side of said exhaust gas cleaner,

said first catalyst consisting essentially of 0.2–15 weight % (on a metal basis) of at least one silver salt supported on a porous inorganic oxide,

said second catalyst consisting essentially of (a) 0.2–15 weight % (on a metal basis) of at least one silver salt and (b) up to 2 weight % (on a metal basis) of copper or copper oxide supported on a porous inorganic oxide, and

said third catalyst consisting essentially of up to 2 weight % (on a metal basis) of at least one element selected from the group consisting of Pt, Pd, Ru, Rh, Ir and Au supported on a porous inorganic oxide.

said silver salt for each catalyst being selected from the group consisting of silver halides, silver sulfate and silver phosphate.

9. An exhaust gas cleaner for removing nitrogen oxides from an exhaust gas containing nitrogen oxides and oxygen in an amount larger than its stoichiometric amount relative to unburned components in said exhaust gas, which consists essentially of

a first catalyst consisting essentially of 0.2–15 weight % (on a metal basis) of at least one silver salt having an average diameter of 10–1000 nm and supported on a porous inorganic oxide, said silver salt being selected from the group consisting of silver halides, silver sulfate and silver phosphate, and

a second catalyst consisting essentially of 0.02–5 weight % (on a metal basis) of at least one element selected from the group consisting of Pt, Pd, Ru, Rh, Ir and Au supported on a porous inorganic oxide.

5,670,445
CLEANING AGENT OF HARMFUL GAS AND CLEANING METHOD

Koichi Kitahara; Kenji Otsuka; Toshiya Hatakeyama, and Hideki Fukuda, all of Kanagawa, Japan, assignors to Japan Pionics Co., Ltd., Tokyo, Japan

Filed Mar. 23, 1995, Ser. No. 409,031
 Claims priority, application Japan, Mar. 24, 1994, 6-079963; May 9, 1994, 6-119570

Int. Cl.⁶ B01J 20/02; 23/40; 23/42; 23/58
 U.S. Cl. 502—406

8 Claims

1. A cleaning agent for removing acidic gases from a harmful gas containing the acidic gases, comprising a molded product of a composition comprising strontium hydroxide and an iron oxide as the main components wherein the cleaning agent contains water in an amount of 5 to 60% by weight based on the total weight of the cleaning agent and wherein the acidic gases are halogen-based acidic gases.

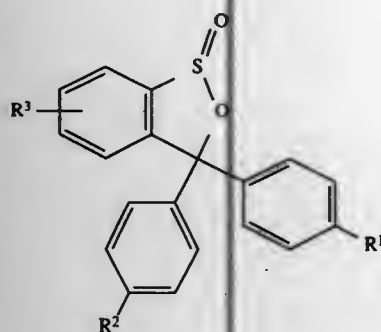
5,670,446
SULTINE COLOR-FORMER COMPOUNDS AND THEIR USE IN CABONLESS COPY PAPER

Nusrallah Jubran, St. Paul, Minn.; Alan R. Katritzky, Gainesville, Fla., and Josef V. Ugro, Jr., Mahtomedi, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 30, 1996, Ser. No. 656,937
 Int. Cl.⁶ B41M 5/136; 5/145
 U.S. Cl. 503—201

12 Claims

1. An imaging construction comprising:
 a first substrate having a front and back surface;
 coated on at least one of the front and the back surfaces of the first substrate, a color-forming compound having the general formula:



wherein R¹, R², and R³ are independently selected from the group consisting of hydrogen, alkyl groups of up to 20 carbon atoms, cycloalkyl groups of up to 20 carbon atoms, amino groups, and strongly electron donating groups, provided that at least one of R¹, R², and R³ is an amino group and at least one other of R¹, R², and R³ is a strongly electron donating group;

a developer; and
 a means for separating the color-forming compound from the developer until the construction is subjected to activating pressure.

5,670,447
35MM FORMAT TRANSPARENCIES

Kenneth West Hutt, Wix; Ian Richard Stephenson, Felsted, and Ha Cong Viet Tran, Northfield, all of Great Britain, assignors to Imperial Chemical Industries PLC, United Kingdom

PCT No. PCT/GB93/02104, § 371 Date May 16, 1995, § 102(e) Date May 16, 1995, PCT Pub. No. WO94/08795, PCT Pub. Date Apr. 28, 1994

PCT Filed Oct. 12, 1993, Ser. No. 407,020
 Claims priority, application United Kingdom, Oct. 13, 1992, 9221502

Int. Cl.⁶ B41M 5/035; 5/38

U.S. Cl. 503—227

2 Claims

1. A 35 mm format transparency comprising a dye diffusion thermal printing receiver sheet consisting of a transparent substrate having on one surface thereof an image layer on which the image is formed by thermal dye transfer using a laser as the source of heat to effect the thermal transfer, the transparent substrate and the image layer consisting of materials having, in combination, a moisture absorption of less than 1.5% and being positioned removably between two transparent, glass sheets.

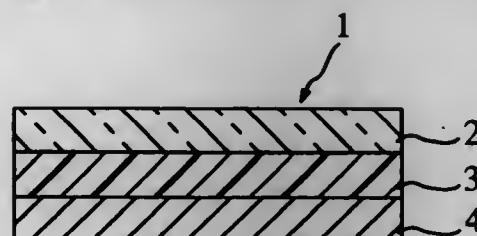
5,670,448
RECORDING SHEET FOR MAKING TRANSPARENCIES AND METHOD OF MAKING THE SAME

Shinji Kometani, Tokyo, Japan, assignor to Dai Nippon Printing Co., Ltd., Japan

Filed Jun. 15, 1995, Ser. No. 490,630
 Claims priority, application Japan, Jun. 17, 1994, 6-159540
 Int. Cl.⁶ B41M 5/035; 5/38

U.S. Cl. 503—227

13 Claims



1. A transparency-making recording sheet comprising:
 a transparent substrate;
 a support sheet releasably provided on a non-recording surface of the transparent substrate; and
 a thermoplastic resin layer interposed between the transparent substrate and the support sheet, the thermoplastic resin being formed by an extrusion coating.

5,670,449
DYE-DONOR ELEMENT CONTAINING ELASTOMERIC BEADS FOR THERMAL DYE TRANSFER

William Henry Simpson, Pittsford, and Jacob John Hastreiter, Jr., Spencerport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 2, 1996, Ser. No. 626,443
 Int. Cl.⁶ B41M 5/035; 5/38

U.S. Cl. 503—227

20 Claims

8. A process of forming a dye transfer image comprising:
 a) imagewise-heating a dye-donor element comprising a support having thereon a dye layer comprising a dye dispersed in a binder, and
 b) transferring a dye image to a dye-receiving element comprising a support having thereon a dye image-receiving layer to form said dye transfer image,

wherein said dye-donor element contains crosslinked elastomeric beads having a T_g of 45° C. or less, said elastomeric beads being made from an acrylic polymer, an acrylic copolymer or a styrenic

copolymer, said elastomeric beads having from about 5 to about 40% by weight of a crosslinking agent, said elastomeric beads having a particle size of from about 0.5 to about 20 μm.

5,670,450
COMPOSITION AND METHOD OF USING FUNGICIDES FOR INHIBITING INDUCED PHYTOTOXICITY IN RICE FROM HALOGENATED AROMATIC HERBICIDES

Donald E. Groth, Rayne, and Daryl E. Sanders, Slaughter, both of La., assignors to Board of Supervisors of Louisiana State University and Agricultural and Mechanical College, Baton Rouge, La.

Filed Jan. 2, 1997, Ser. No. 778,028
 Int. Cl.⁶ A01N 25/32; 43/50

U.S. Cl. 504—103

28 Claims

1. A composition of matter useful for controlling weeds in a rice field without inducing substantial phytotoxicity in rice plants, said composition comprising a mixture of a halogenated aromatic herbicide suitable for use in a rice field, and a fungicide, wherein the concentration of said fungicide is sufficient to inhibit fungal dehalogenation of said halogenated aromatic herbicide.

5,670,451
COMPOSITIONS AND METHODS FOR CONTROLLING THE GROWTH OF MICROBIALS IN AQUEOUS MEDIA

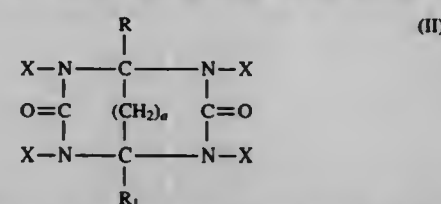
Ronald Lee Jones, Norcross; Henry Daniel Caughman, Lithuania; Susan M. Shelor, Stone Mountain, and Ellwood LeRoy Lines, Jr., Atlanta, all of Ga., assignors to Bio-Lab, Inc., Decatur, Ga.

Division of Ser. No. 355,112, Dec. 13, 1994, Pat. No. 5,591,692.
 This application Aug. 5, 1996, Ser. No. 695,123

Int. Cl.⁶ A01N 43/713; 59/08; 43/66
 U.S. Cl. 504—134

10 Claims

1. A disinfecting composition, comprising a mixture of:
 a 50–99.99% by weight of a chlorine-source material; and
 b. 0.01–50% by weight of glycolurils having the structure:



in which R and R₁ are independently selected from the group consisting of hydrogen, lower alkyl radicals of from 1 to 4 carbon atoms, and phenyl; each X is hydrogen; and a is either 0 or 1.

5,670,452
INDAZOLESULFONYLUREA DERIVATIVE, ITS USE AND INTERMEDIATE FOR ITS PRODUCTION

Chiharu Suzuki; Katsumi Masuda; Masatoshi Tamaru; Masahito Inamori; Nobuo Takefuji; Katsutada Yanagisawa, all of Shizuoka, and Yasunori Ogawa, Kakegawa, all of Japan, assignors to Kumiai Chemical Industry Co., Ltd., and Ihara Chemical Industry Co., Ltd., both of Tokyo, Japan

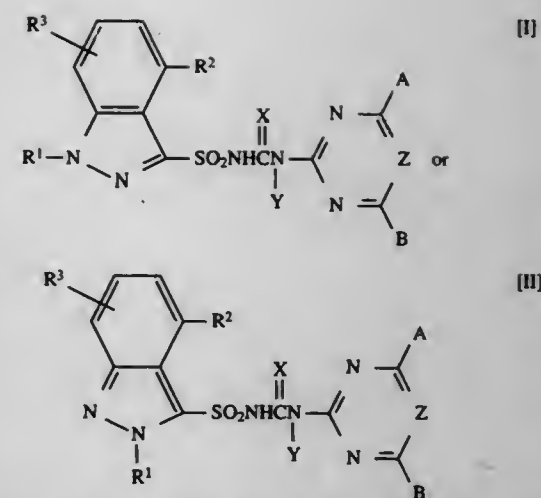
Division of Ser. No. 373,273, Jan. 30, 1995, Pat. No. 5,534,481.
 This application Apr. 9, 1996, Ser. No. 630,092

Claims priority, application Japan, Jun. 25, 1993, 5-180809; Jun. 25, 1993, 5-180810; Dec. 10, 1993, 5-341772

Int. Cl.⁶ C07D 40/12; A01N 43/66
 U.S. Cl. 504—213

4 Claims

1. An indazolesulfonylurea derivative represented by the general formula:



{wherein R¹ is a hydrogen atom, an alkyl group, a cycloalkyl group, a haloalkyl group, an alkoxyalkyl group, a benzyloxyalkyl group, a benzyl group, a phenyl group, a pyridyl group, a dialkylaminocarbonyl group, an alkoxyalkyl group, an alkylsulfonyl group, a phenylsulfonyl group, a dialkylaminosulfonyl group, a haloalkylcarbonyl group, an alkylcarbonyl group, a benzoyl group or an alkenyl group, R² and R³ are the same or different and represent a hydrogen atom, a halogen atom, an alkyl group, a cycloalkyl group, an alkenyl group, an alkoxyalkyl group, an alkoxyalkyl group, an alkoxyalkyl group, an alkoxyalkyl group, a cycloalkylcarbonyl group, an alkylcarbonyl group, a dialkylaminocarbonyl group, a dialkylaminocarbonyl group, a dialkylaminosulfonyl group, an azidoalkyl group, a benzyl group, a phenyl group, a nitro group, a cyano group, an azide group, an amino group, a monoalkylamino group, a dialkylamino group, a benzylamino group, an alkylcarbonylamino group which may be substituted by a halogen atom, a benzoylamino group, an alkoxyalkyl group, a phenoxycarbonylamino group, an alkylsulfonylamino group wherein the amino group may be substituted by an alkyl group, an alkylideneamino group, a benzylideneamino group, a tetrazolyl group which may be substituted, a group represented by the formula —COR⁴ (wherein R⁴ is a hydrogen atom, a hydroxyl group, an alkyl group, a cycloalkyl group, a haloalkyl group, an alkenyl group, an alkoxyalkyl group, a benzyl group, a phenyl group, an alkoxy group, a haloalkoxy group, an alkoxyalkoxy group, an alkenyloxy group, a haloalkenyloxy group, an alkenyloxy group, a benzyloxy group or a phenoxy group), a group represented by the formula —C(O)NR⁵R⁶ (wherein R⁵ and R⁶ are the same or different and represent a hydrogen atom, an alkyl group, an alkenyl group, an alkenyl group, a benzyl group, a phenyl group or an alkoxy group), a group represented by the formula —SR⁷ (wherein R⁷ is a hydrogen atom, an alkyl group or a haloalkyl group), a group represented by the formula —SO₂NR⁸R⁹ (wherein R⁸ and R⁹ have the same meanings as defined above), a group represented by the formula —S(O)_nR¹⁰ (wherein n represents an integer of 1 or 2, and R¹⁰ represents an alkyl group, an alkenyl group or a haloalkyl group), a group represented by the formula —OR¹¹ (wherein R¹¹ is a hydrogen atom, an alkyl group, a cycloalkyl group, an alkenyl group, an alkenyl group, a benzyl group (said group may be substituted by a halogen atom, an alkyl group or an alkoxy group), an alkoxyalkyl group, an alkoxyalkoxyalkyl group, a haloalkoxyalkyl group, a benzyloxyalkyl group, a phenoxyalkyl group, an alkylthioalkyl group, a dialkylaminoalkyl group, an azidoalkyl group, an alkylcarbonyl group, a haloalkylcarbonyl group, a benzoyl group, a dialkylaminocarbonyl group, a cyanoalkyl group, an alkylideneamino group, a dialkylideneamino group, a benzylideneamino group or an alkoxyalkyl group), or the formula —C(=NOR¹²)R¹³ (wherein R¹² represents a hydrogen atom, an alkyl group, an alkenyl group, an alkenyl group,

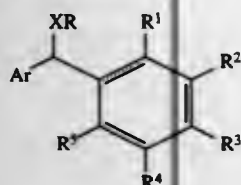
group, a benzyl group, a haloalkyl group or a phenyl group, and R¹¹ represents a hydrogen atom, an alkyl group, a benzyl group, a haloalkyl group or a phenyl group, R¹ and R² may together form a ring with an alkyl group which may contain a hereto atom, A and B are the same or different and represent an alkyl group, a haloalkyl group, an alkoxy group, a monoalkylamino group, a dialkylamino group, a halogen atom or a haloalkoxy group, Z represents a nitrogen atom, X represents an oxygen atom or a sulfur atom, and Y represents a hydrogen atom, an alkyl group or an alkoxyalkyl group.

5,670,453
HERBICIDAL HYDROXYBENZYL-SUBSTITUTED
HETEROARYL COMPOUNDS AND DERIVATIVES
THEREOF

Hsiao-Ling M. Chin, Moraga; Yi-Qiu Wei, Pinole; Nhan H. Nguyen, Richmond, and David B. Kanne, Corte Madera, all of Calif., assignors to Zeneca Limited, London, England
Division of Ser. No. 236,309, May 2, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 468,893

Int. Cl.⁶ A01N 43/60; C07D 241/12; 413/10
U.S. Cl. 504—235 15 Claims

1. A compound of the formula



wherein:

Ar is a substituted or unsubstituted pyrazine ring;
R¹, R², R³, R⁴ and R⁵ are each independently hydrogen, halogen, C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, nitro, cyano, hydroxy, thiocarbonyl, —N(R¹¹)(R¹²), C₁-C₆ haloalkyl, C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, (C₁-C₆)alkoxy-(C₁-C₆)alkyl, halo(C₁-C₆)alkoxy-(C₁-C₆)alkyl, —C(X)—R¹⁰ or —S(O)_k—R¹⁰;

X is oxygen or sulfur;

R is hydrogen, hydrocarbyl, hydrocarbyl substituted with one or more of halogen or C₁-C₆ alkoxy or is of the formula —C(Y)—R⁶, —C(O)—C(O)—R⁶, —S(O)₂—R⁶, —P(Y)(R¹¹)(R¹²), or —Si(R¹³)(R¹⁴)(R¹⁵); wherein:

Y is oxygen or sulfur;

R⁶ is hydrocarbyl, substituted hydrocarbyl, hydrocarbyloxy, substituted hydrocarbyloxy, hydrocarbyl-S-, substituted hydrocarbyl-S- or is of the formula —N(R⁷)(R⁸);

wherein R⁷ and R⁸ are each independently hydrogen, hydrocarbyl, substituted hydrocarbyl, hydrocarbyloxy, substituted hydrocarbyloxy, pyridyl, furyl, thienyl, (C₁-C₆)alkoxycarbonyl(C₁-C₆)alkyl,

hydroxycarbonyl(C₁-C₆)alkyl, or N(R⁹)(R¹⁰) wherein R⁹ and R¹⁰ are each independently hydrogen, C₁-C₆ alkyl or phenyl;

or R⁷ and R⁸ together with the nitrogen to which they are bound form an aziridine, piperazine, morpholine, thiomorpholine, thiomorpholine 1-oxide, thiomorpholine 1,1-dioxide fonyl, hexamethyleneimine, piperidine or pyrrolidine ring, any of which may be optionally substituted with C₁-C₆ alkyl;

R¹¹ and R¹² are each independently C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ haloalkyl, aryl or alkylalkyl; and

R¹³, R¹⁴ and R¹⁵ are each independently C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ haloalkyl, aryl or alkylalkyl; and

k is 0, 1 or 2;

or an agriculturally acceptable salt thereof;

wherein hydrocarbyl, whether alone or part of another group, is a member selected from (C₁-C₆)alkyl, (C₂-C₆)cycloalkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, phenyl(C₁-C₆)alkyl, (C₁-C₆)alkylphenyl, (C₂-C₆)alkenylphenyl, (C₂-C₆)alkynylphenyl, (C₁-C₆)alkylbenzyl, (C₂-C₆)alkenylbenzyl and (C₁-C₆)alkynylbenzyl;

with the proviso that when R is hydrogen or (C₁-C₆)alkyl, at least one of R¹, R², R³, R⁴ and R⁵ is not hydrogen and if one of them is methyl or ethyl at least one of them is other than hydrogen.

5,670,454
HERBICIDES OF THE AUXIN TYPE FOR TREATING
TRANSGENIC CROP PLANTS

Klaus Grossmann, Limburgerhof, and Helmut Walter, Obrigheim, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Dec. 14, 1995, Ser. No. 572,044
Claims priority, application Germany, Dec. 15, 1994, 44 44 708.6

Int. Cl.⁶ A01N 37/10; 43/40; 43/42
U.S. Cl. 504—244 6 Claims
1. A method for controlling broad-leaved weeds and grass weeds in transgenic crop plants which contain an ACC synthase antisense gene, ACC oxidase antisense gene, ACC deaminase gene or combinations thereof by treating the broad-leaved weeds, grass weeds and transgenic crop plants with herbicides of the auxin type.

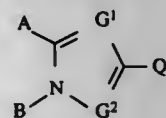
5,670,455
SUBSTITUTED PHENYLHETEROCYCLIC HERBICIDES
Thomas P. Selby, Wilmington, and Thomas M. Stevenson, Newark, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

PCT No. PCT/US92/11300, § 371 Date Jul. 27, 1994, § 102(e)
Date Jul. 27, 1994, PCT Pub. No. WO93/15074, PCT Pub. Date Aug. 5, 1993

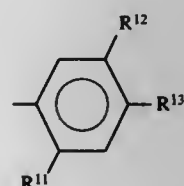
Continuation-in-part of Ser. No. 827,788, Jan. 29, 1992, abandoned. This PCT application Dec. 30, 1992, Ser. No. 256,622

Int. Cl.⁶ A01N 43/50; C07D 233/70; 233/32; 405/10
U.S. Cl. 504—275 4 Claims

1. A compound of Formula I



wherein
Q is



G¹ is N;

G² is CR⁴;

A is C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₂-C₄ alkenyl, C₂-C₄ alkynyl, OR¹⁰, SR¹⁰ or halogen;

B is C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₃-C₄ alkenyl or C₃-C₄ alkynyl;

n is 0, 1 or 2;

R⁴ is halogen or CN;

R¹⁰ is C₁-C₄ alkyl or C₁-C₄ haloalkyl;

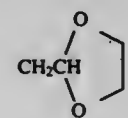
R¹¹ is halogen;

R¹² is H, C₁-C₆ alkyl, C₁-C₆ haloalkyl, halogen, OH, OR¹⁷, SH, S(O)_k, COR¹⁷, CO₂R¹⁷, C(O)SR¹⁷, CH₂CHR¹⁷CO₂R¹⁷, C(O)NR¹⁹R²⁰, CHO, CR¹⁹=NOR²⁶, CH=CR²⁷CO₂R¹⁷, NO₂, CN, NHSO₂R²³, NH₂ or phenyl optionally substituted with R²⁹;

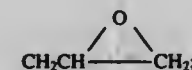
R¹³ is C₁-C₂ alkyl, C₁-C₂ haloalkyl, OCH₃, SCH₃, OCHF₂, halogen, CN or NO₂;

R¹⁷ is C₁-C₈ alkyl; C₃-C₈ cycloalkyl; C₃-C₈ alkenyl; C₃-C₈ alkynyl; C₁-C₈ haloalkyl; C₂-C₈ alkoxyalkyl; C₄-C₈

cycloalkylalkyl; C₃-C₈ cyanoalkyl; C₃-C₈ haloalkenyl; C₂-C₈ alkyl carbonyl; benzyl optionally substituted with halogen, C₁-C₃ alkyl or C₁-C₃ haloalkyl; CHR²⁴COR¹⁸; CHR²⁴C(O)NR¹⁹R²⁰; CHR²⁴C(O)NH₂; CHR²⁴CO₂R¹⁸; SO₂R¹⁸;



or



R¹⁸ is C₁-C₆ alkyl, C₁-C₆ haloalkyl, C₃-C₆ alkenyl or C₃-C₆ alkynyl;

R¹⁹ is H or C₁-C₄ alkyl;

R²⁰ is C₁-C₄ alkyl or phenyl optionally substituted with halogen, C₁-C₃ alkyl or C₁-C₃ haloalkyl;

R¹⁹ and R²⁰ may be taken together as —(CH₂)₅—, —(CH₂)₄— or —CH₂CH₂OCH₂CH₂—, each ring optionally substituted with C₁-C₃ alkyl, phenyl or benzyl;

R²³ is C₁-C₄ alkyl or C₁-C₄ haloalkyl;

R²⁴ is H or C₁-C₄ alkyl;

R²⁶ is H, C₁-C₆ alkyl, C₃-C₆ alkenyl or C₃-C₆ alkynyl;

R²⁷ is H or C₁-C₄ alkyl; and

R²⁹ is C₁-C₂ alkyl, C₁-C₂ haloalkyl, OCH₃, SCH₃, OCHF₂, halogen, CN or NO₂;

and their corresponding N-oxides and agriculturally suitable salts provided that when R¹² is CO₂R¹⁷, C(O)SR¹⁷, CH=CR²⁷CO₂R¹⁷ or CH₂CHR²⁷CO₂R¹⁷ then R¹⁷ is other than C₁ haloalkyl and when R¹⁷ is CHR²⁴CO₂R¹⁸ then R¹⁸ is other than C₁ haloalkyl.

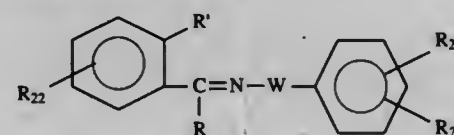
5,670,456
COMPOUNDS

Richard J. Anderson; Joe T. Bamberg, both of Palo Alto, and Michael M. Leippe, Boulder Creek, all of Calif., assignors to Sandoz Ltd., Basel, Switzerland

Continuation of Ser. No. 225,037, Apr. 8, 1994, Pat. No. 5,506,191, which is a continuation of Ser. No. 26,247, Mar. 4, 1993, abandoned, which is a continuation of Ser. No. 718,719, Jun. 21, 1991, abandoned, which is a continuation-in-part of Ser. No. 492,527, Mar. 9, 1990, abandoned, which is a continuation of Ser. No. 115,288, Nov. 2, 1987, abandoned. This application May 22, 1995, Ser. No. 447,332

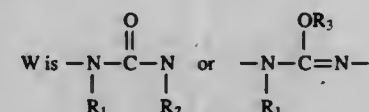
Int. Cl.⁶ C07C 281/14; A01N 47/30
U.S. Cl. 504—280 12 Claims

1. A compound of the formula



wherein

R' is a carboxyl group in a free acid, salt or ester form, a thiocarboxyl group in free acid or ester form, or a carbamoyl group;



R and R₁ taken together form 2 to 4 membered alkylene, alkenylene or mixed alkylenealkenylene bridge which may bear one or more substituents selected from halogen, C₁-alkyl, C₁-alkoxy or phenyl optionally substituted with

halogen, C₁-alkyl, C₁-haloalkyl or C₁-alkoxy, and in which any methylene may be replaced by a group selected from oxygen, sulfur, NR₁₂, carbonyl or thiocarbonyl;

R₂ and R₃ are each independently hydrogen, C₁-alkyl, C₁-alkoxy, C₁-alkylamino, C₁-alkoxyC₁-alkyl, or hydroxyC₁-alkyl;

R₂₀, R₂₁ and R₂₂ are each independently hydrogen, halogen, C₁-alkyl, C₂-alkenyl, C₂-alkynyl, C₁-alkoxy, C₂-alkenyl, C₂-alkynyl, or C₁-alkylthio each optionally substituted by 1 to 4 halogen atoms; phenyl or phenoxy each optionally substituted with nitro, cyano, hydroxy, amino, alkylamino, dialkylamino, alkylcarbonyl or alkoxyalkyl; and

R₁₂ is hydrogen, alkyl or alkoxy.

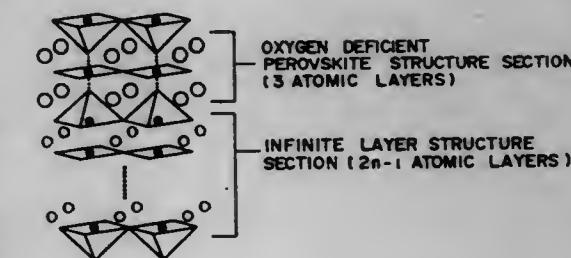
5,670,457
OXIDE SUPERCONDUCTOR AND METHOD OF
PRODUCING SAME

Seiji Adachi, Fujimi; Changqin Jin, Tokyo; Xiao-Jing Wu, Funabashi; Hisao Yamauchi, Nagareyama, and Shoji Tanaka, Tokyo, all of Japan, assignors to International Superconductivity Technology Center, and Matsushita Electric Industrial Co., Ltd., both of Japan

Filed Dec. 15, 1994, Ser. No. 356,640

Claims priority, application Japan, Dec. 24, 1993, 5-328547
Int. Cl.⁶ H01B 12/00; H01L 39/12; C04B 35/01; 35/03

U.S. Cl. 505—125 6 Claims



1. An oxide superconductor composed of Cu, O and at least one alkaline earth metal selected from the group consisting of Ba, Sr and Ca and consisting of alternately arranged at least one oxygen-deficient perovskite structure section and at least one infinite layer structure section,

said perovskite structure section consisting of two first atomic layers each consisting of O and an element M¹ which is at least one alkaline earth metal selected from the group consisting of Ba, Sr and Ca and each having an atomic ratio O/M¹ of 1 or less, wherein M¹ in each of said two first layers is the same, and a second atomic layer sandwiched between said first atomic layers, said second atomic layer consisting of O and Cu and having an atomic ratio O/Cu of 2 or less,

said infinite layer structure section consisting of j-number and k-number of third and fourth atomic layers, respectively, wherein j is an integer of 1 or more and k is equal to j-1, said third and fourth atomic layers being alternately arranged when

is 2 or more,

each of said j-number third atomic layers consisting of O and Cu and having an atomic ratio O/Cu of 2, and

each of said k-number fourth atomic layers consisting of an element M² which is at least one alkaline earth metal selected from the group consisting of Ba, Sr and Ca, wherein M² in each of said fourth atomic layers is the same.

5,670,458 OXIDE SUPERCONDUCTOR AND METHOD FOR PRODUCING THE SAME

Mikio Takano, Kyoto; Zenji Hiroi, Uji; Yasuo Takeda, Tsu; Toshio Takada, deceased, late of Kyoto; by Komichi Takada, administrator, Kyoto; by Jun Takada, administrator, Okayama, and by Kei Takada, administrator, Kyoto, all of Japan, assignors to Seisan Kaibutsu Kagaku Kenkyusho, and NEC Corporation, both of Japan

Continuation of Ser. No. 248,204, May 24, 1994, abandoned.

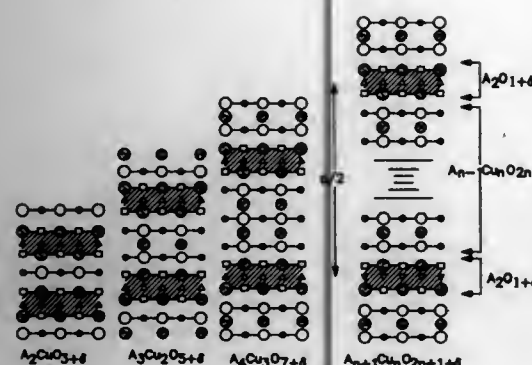
This application Feb. 7, 1994, Ser. No. 598,040

Claims priority, application Japan, Jun. 2, 1993, 5-131778

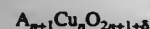
Int. Cl.⁶ H01B 12/00; C04B 35/01; 35/057; H01L 39/12

U.S. Cl. 505—125

6 Claims



1. An oxide superconductor having a composition of the formula:



wherein A is at least one alkaline earth metal element selected from the group consisting of calcium, strontium and barium, n is an integer of at least one, and δ is a number in the range of 0.02 to 0.20, said oxide superconductor having a laminate structure in which a layer having a composition of $A_{n-1}Cu_nO_{2n+1+\delta}$ and a layer having a composition of $A_nCu_{n+1}O_{2n+1+\delta}$ are alternately laminated, and having a superconductive critical temperature equal to or higher than 70 K.

5,670,459 BISMUTH OXIDE SUPERCONDUCTOR OF PREPARING THE SAME

Kenichi Sato, and Takeshi Hikata, both of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Continuation of Ser. No. 670,124, Mar. 15, 1991, abandoned.

This application Aug. 1, 1994, Ser. No. 283,498

Claims priority, application Japan, Mar. 16, 1990, 2-67934; Mar. 27, 1990, 2-80421

Int. Cl.⁶ H01L 39/12

U.S. Cl. 505—230

3 Claims

1. A bismuth oxide superconductor having a longitudinal direction, comprising:
a 2223 superconducting phase of a 2223 composition of Bi-Sr-Ca-Cu or (Bi,Pb)-Sr-Ca-Cu, whose a-b plane is oriented along said longitudinal direction;
a superconducting phase consisting essentially of a 2212 superconducting phase; and
a non-superconducting phase having a composition of Sr-Pb-O, wherein, said non-superconducting phase is simultaneously formed with formation of said 2223 superconducting phase, and said 2212 superconducting phase and said non-superconducting phases are oriented along said a-b plane of said 2223 phase.

5,670,460 METHOD AND COMPOSITION FOR ENHANCING HYDROCARBON PRODUCTION FROM WELLS

Jerry S. Neely, 2805 N. Dustin, and Richard D. Neely, 201 McDonald Rd., both of Farmington, N. Mex. 87401

Continuation-in-part of Ser. No. 95,156, Jul. 20, 1993, abandoned.

This application Jan. 16, 1996, Ser. No. 587,040

Int. Cl.⁶ C09K 7/06; 7/02; E21B 37/06

U.S. Cl. 507—203

9 Claims

1. A concentrate to be added to carrier fluid, the combination of concentrate and carrier being injected into a well to increase the production of fluid hydrocarbons therefrom, said concentrate comprising:

- an aromatic xylene solvent containing at least one isomer of xylene, said xylene solvent being present in the concentrate at 20 to 60 percent by weight;
- an aliphatic hydrocarbon solvent at 20 to 60 percent by weight;
- a polysorbate emulsifier at 2 to 30 percent by weight;
- a fatty acid ester of sorbitan at 2 to 20 percent by weight; and
- a fatty acid amide detergent at 2 to 20 percent by weight.

5,670,461 HIGH TEMPERATURE LUBRICATING GREASE CONTAINING UREA COMPOUNDS

Hans Schreiber, Völklingen-Ludweiler; Peter Seigert, Lohmar; Herbert Konegen, Rösraath, and Wolfgang Hildebrandt, Siegburg, all of Germany, assignors to GKN Automotive AG, Lohmar, Germany

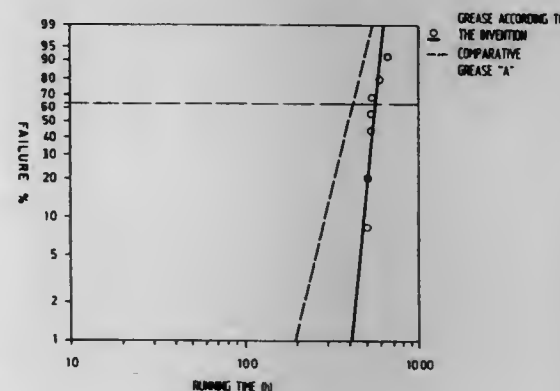
Filed Aug. 15, 1995, Ser. No. 515,287

Claims priority, application Germany, Aug. 19, 1994, 44 29 507.3; Oct. 21, 1994, 44 37 742.8

Int. Cl.⁶ C10M 123/02; 169/06

U.S. Cl. 508—117

17 Claims



1. A lubricating grease suitable for high temperature use, consisting essentially of:
60 to 90% by weight of a base oil mixture comprising at least one mineral oil and at least one synthetic oil,
5 to 17% by weight of at least one urea compound as a thickener, wherein the at least one urea compound is a reaction product of at least one fatty amine and at least one isocyanate or at least one diisocyanate,
2 to 20% by weight of calcium complex grease,
1 to 4% by weight of molybdenum disulphide,
0.2 to 1% by weight of graphite powder,
0.2 to 1% by weight of polytetrafluoroethylene powder,
0.2 to 1% by weight of solid particles of at least one organo-molybdenum compound selected from a molybdenum dithiocarbamate and a molybdenum dithiophosphate,
up to 2% by weight of a metal deactivator and
up to 2% by weight of a corrosion inhibitor.

5,670,462 LUBRICATING OIL ADDITIVES Douglas McP. Barr, Brighton; David J. Moreton, Hull, and Alexander F. Psaila, North Humberside, all of United Kingdom, assignors to BP Chemicals (Additives) Limited, London, England

Filed May 11, 1995, Ser. No. 439,452

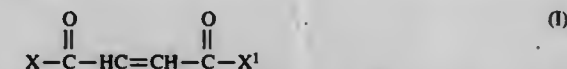
Claims priority, application United Kingdom, May 11, 1994, 9409346

Int. Cl.⁶ C10M 149/10

U.S. Cl. 508—291

15 Claims

1. A process comprising reacting at elevated temperature (a) a copolymer of an olefin and a compound having the structure



wherein X and X¹ are the same or different provided that at least one of X and X¹ is such that the copolymer can function as a carboxylic acylating agent, and

(b) a succinimide prepared from an acyclic hydrocarbyl-substituted succinic acylating agent and a polyamine wherein the hydrocarbyl substituted succinic acylating agent is prepared by reacting a polyisobutene wherein greater than 50% of the residual olefinic bonds are represented by the formula $-\text{CH}_2-\text{C}(\text{CH}_3)=\text{CH}_2$ and a compound of formula I under conditions such that at least 75 mole % of the polyisobutene is converted to the hydrocarbyl-substituted succinic acylating agent.

5,670,463 DRY LUBRICANT Paul D. Maples, 3198 Beachcomber Dr., Morro Bay, Calif. 93442

Continuation-in-part of Ser. No. 209,217, Mar. 11, 1994, Pat. No. 5,472,625. This application Dec. 4, 1995, Ser. No. 566,680

Int. Cl.⁶ C10M 105/04

U.S. Cl. 508—539

34 Claims

1. A multi-functional, light duty lubricant comprising:
an insoluble soap within a range of approximately 5 to approximately 25 percent per total weight, in suspension in a solution of:
a soluble wax having a melting point between approximately 41° C. and approximately 85° C. within a range of approximately 6 to approximately 35 percent per total weight;
an oil within a range of approximately 0.3 to approximately 20 percent per total weight, selected from the group consisting of: hydrocarbon oils, silicon oils, vegetable oils and greases prepared therefrom;
a volatile solvent within a range of approximately 35 to approximately 90 percent per total weight; and
a surfactant within a range of approximately 0.03 to approximately 2.0 percent per total weight wherein said lubricant has properties such that when said solvent evaporates, a bond is formed between a portion of said wax and a portion of said oil or grease, said bond weakened by a portion of said soap.

5,670,464 ADDITIVE FOR LUBRICATING OILS FOR DIESEL ENGINES AND LUBRICATING OIL COMPOSITIONS CONTAINING THE SAME

Kazuo Kita; Takashi Ohtani, and Jiro Hashimoto, all of Wakayama, Japan, assignors to Kao Corporation, Tokyo, Japan

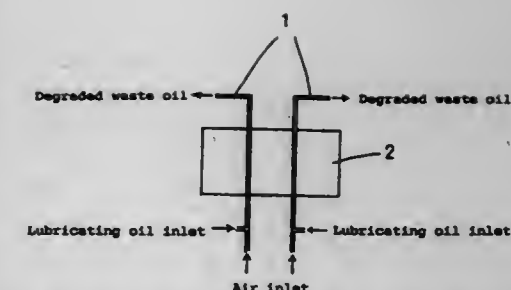
Filed Sep. 28, 1995, Ser. No. 535,953

Int. Cl.⁶ C10M 133/08

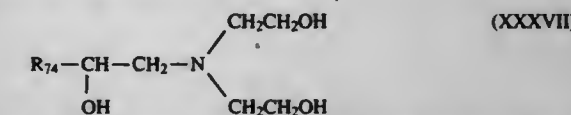
U.S. Cl. 508—562

8 Claims

1. A method for dispersing water-containing calcium sulfate in a lubricating oil for diesel engines, comprising adding to a base oil



one or more of the additives for lubricating oils for diesel engines having the formula XXXVII:



where R₇₄ is a linear or branched alkyl group having 10 to 14 carbon atoms.

5,670,465 PREPARATION OF P-FUCHSONES AND SYNTHESIS OF P-DIHYDROXYLATED AROMATIC COMPOUNDS THEREFROM

Michel Costantini, Lyons; Daniel Manaut, Meyzieu, and Daniel Michelet, Saint-nom-la-Bretteche, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie Cedex, France

Division of Ser. No. 179,234, Jan. 10, 1994, Pat. No. 5,460,839.

This application Jun. 5, 1995, Ser. No. 464,311

Claims priority, application France, Jan. 8, 1993, 93 00119; Jan. 8, 1993, 93 00120; Jan. 8, 1993, 93 00121; Sep. 22, 1993, 93 11262

Int. Cl.⁶ C07C 37/60

U.S. Cl. 568—771

22 Claims

1. A process for the preparation of a para-dihydroxylated aromatic compound, comprising reacting an oxidizing agent with a p-fuchson.

5,670,466 SULFONATE PERFUMES FOR LAUNDRY AND CLEANING COMPOSITIONS

Mark Robert Slvik, Fairfield, and Frederick Anthony Hartman, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 20, 1995, Ser. No. 574,754

Int. Cl.⁶ D06M 13/256

U.S. Cl. 510—102

19 Claims

1. Laundry and cleaning compositions comprising:
(a) an amount, effective to provide a perfume effect, of a perfume component selected from the group consisting of sulfonates having the formula (I), (II), or combinations thereof:

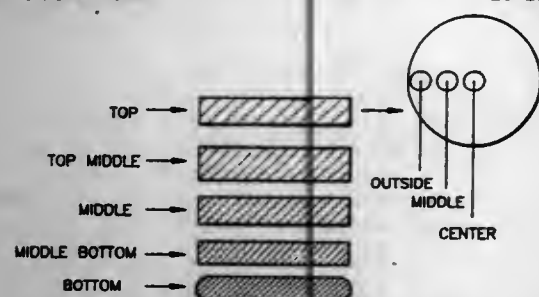


wherein R and Z are independently selected from the group consisting of nonionic or anionic, substituted or unsubstituted C₁-C₃₀ straight, branched or cyclic alkyl, alkenyl, alkynyl, alkylaryl or aryl group; Y is a radical that, upon hydrolysis of said sulfonate,

forms an alcohol with a boiling point at 760 mm Hg of less than about 300° C. which are perfumes; and

(b) ingredients useful for formulating laundry and cleaning compositions selected from the group consisting of cationic or nonionic fabric softening agents, enzymes, enzyme stabilizers, detergent surfactants, builders, bleaching compounds, polymeric soil release agents, dye transfer inhibiting agents, polymeric dispersing agents, suds suppressors, optical brighteners, chelating agents, fabric softening clays, anti-static agents, and mixtures thereof.

5,670,467
STRATIFIED SOLID CAST DETERGENT COMPOSITIONS
Howard Fleisher, 124 Sand Hill Rd., Monmouth Junction, N.J. 08852
Continuation of Ser. No. 115,070, Sep. 2, 1993, Pat. No. 5,482,641. This application Apr. 19, 1995, Ser. No. 424,919
Int. Cl.⁶ C11D 17/02; 7/06; 7/10; 7/60
U.S. Cl. 510—224



1. A stratified, heterogeneous, substantially non-uniform, solid cast alkaline detergent composition comprising the following components (a)–(c):

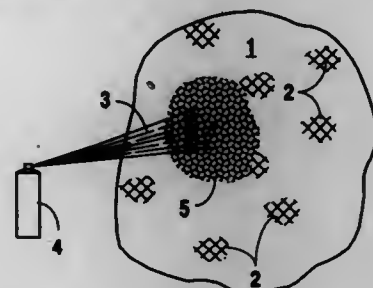
- (a) an active alkalinity source sufficient to provide an average alkalinity content of about 5% to about 65% by weight throughout said composition;
- (b) a granular inorganic water conditioning material sufficient to maintain detergency and threshold water conditioning effect even where minimal conditioner concentrations are present, and
- (c) water of hydration sufficient to solidify said composition, wherein the amounts of components (a) and (b) vary continuously in concentration from the inner to the outer regions of said composition, and wherein such variation in concentration is produced by cooling to solidification an aqueous suspension comprising components (a)–(c) so that components (a) and (b) will stratify upon solidification to yield said stratified, heterogeneous, substantially non-uniform, solid cast alkaline detergent composition.

5,670,468
MACHINE DISHWASHING METHOD EMPLOYING A METALLO CATALYST AND ENZYMATIC SOURCE OF HYDROGEN PEROXIDE
Marnix Karel Christiane Moens, Wielsbeke, Belgium, assignor to The Procter & Gamble Company, Cincinnati, Ohio
PCT No. PCT/US94/03169, § 371 Date Oct. 10, 1995, § 102(e) Date Oct. 10, 1995, PCT Pub. No. WO94/23637, PCT Pub. Date Oct. 27, 1994
PCT Filed Mar. 23, 1994, Ser. No. 537,652
Claims priority, application European Pat. Off., Apr. 9, 1993, 93870066
Int. Cl.⁶ C11D 7/54

U.S. Cl. 510—226 18 Claims
1. A method of washing dishes wherein said dishes are treated with an effective amount of a detergent composition comprising:
A. a metallo catalyst selected from
a) metallo porphyrin and water-soluble or water dispersible derivatives thereof;

- b) metallo porphyrin and water-soluble or water-dispersible derivatives thereof
c) metallo phthalocyanine and water-soluble or water-dispersible derivatives thereof;
B. an enzymatic system capable of generating hydrogen peroxide; and wherein further said metallo catalyst is present at a level of from 10⁻⁸ molar to 10⁻³ molar and said enzymatic system is present at a level to provide in the dishwashing method a constant generation of 0.005 to 10 ppm AvO per minute.

5,670,469
METHODS AND COMPOSITIONS FOR CLEANING AND DECONTAMINATION
Michael L. Dingus; Walter P. Zoch; Thomas R. Mayfield; Alan Bray, and Rock A. Rushing, all of Austin, Tex., assignors to Texas Research Institute, Austin, Tex.
Filed Jan. 6, 1995, Ser. No. 369,548
Int. Cl.⁶ C09K 11/06; G01N 31/00; C11D 1/00
U.S. Cl. 510—274 16 Claims



1. A composition comprising:
(a) about 1% to about 90%/weight of a surfactant consisting essentially of sulfated ethoxylate alcohol or nonyl-phenol ethoxylate;
(b) about 0.1% to about 90%/weight of a solvent consisting essentially of a terpene;
(c) about 1% to about 80%/weight of a viscosity builder/emulsifier selected from the group consisting of carboxymethylcellulose, plant gum, polyvinylpyrrolidone, polyvinyl alcohol, alginates, pectin, gelatin, polyacrylamide, and polyacrylic acid liquid;
(d) about 0.1% to about 90%/wt of a colored pigment; and
(e) about 20% to about 95%/wt of a compound that is a liquid at room temperature selected from the group consisting of polyethylene glycol, polypropylene glycol, a glycol ester, and n-methyl pyrrolidone.
wherein the composition retains the original pigment color upon application to a surface.

5,670,470
PERCARBONATE STABILISED BY COATING WITH AN AQUEOUS SOLUTION OF PHOSPHATE AND BORON COMPOUNDS
Graham Robert Horne, Warrington, and Alun Pryce James, Blundellsands, both of England, assignors to Solvay Interco Limited, Warrington, England
PCT No. PCT/GB93/02552, § 371 Date Jun. 21, 1995, § 102(e) Date Jun. 21, 1995, PCT Pub. No. WO94/14702, PCT Pub. Date Jul. 7, 1994
PCT Filed Dec. 15, 1993, Ser. No. 464,662
Claims priority, application United Kingdom, Dec. 23, 1992, 9226797
Int. Cl.⁶ C01B 15/10; C11D 3/06; 3/39; 17/06
U.S. Cl. 510—375 16 Claims
1. A process for stabilising alkali metal percarbonate particles by coating by means of a coating agent which comprises:
contacting the percarbonate particles with an aqueous solution containing at least 15% by weight of a coating agent, said

coating agent solution being prepared by dissolving at least one boric acid selected from the group consisting of metal and ortho boric acids and at least one phosphate selected from the group consisting of alkali metal, alkaline earth metal, and ammonium phosphates, the boric acid calculated as H₃BO₃ constituting from 5–85% by weight of the boric acid and phosphate, and the phosphate constituting from 15–95% by weight of the boric acid and phosphate; and
removing water to provide a coating of the coating agent on the percarbonate particles, the amount of the coating agent being from 0.5 to 20% by weight based on the weight of the coated alkali metal percarbonate particles.

5,670,471
CONCENTRATE COMPRISING ALKYLGLYCOSIDE MIXTURE AND FATTY ALCOHOL AND CORRESPONDING METHODS OF USE
Chantal Amalric, Blan, and Nelly Lecocq-Michel, Maisons-Alfort, both of France, assignors to Societe d'Exploitation de Produits pour les Industries Chimiques, S.E.P.I.C., Paris, France
PCT No. PCT/FR94/01336, § 371 Date Nov. 8, 1995, § 102(e) Date Nov. 8, 1995, PCT Pub. No. WO95/13863, PCT Pub. Date May 26, 1995
PCT Filed Nov. 16, 1994, Ser. No. 549,675
Claims priority, application France, Nov. 19, 1993, 93 13895
Int. Cl.⁶ C11D 3/22; 3/20; A61K 7/00; B01F 17/56
U.S. Cl. 510—416 31 Claims

1. Concentrate for making a pearlescent composition or an emulsion, said concentrate comprising:

- i) from 60 to 90% by weight of a mixture of at least one alkylglycoside selected from the group consisting of formula (I) and of at least one alkylglycoside selected from the group consisting of formula (II):



in which:

R represents a saturated or unsaturated linear or branched aliphatic radical containing from 8 to 15 carbon atoms,

R' represents a saturated or unsaturated linear or branched aliphatic radical containing from 16 to 22 carbon atoms,

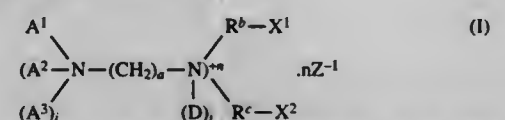
G and G', which are identical or different, represent a saccharide residue, and

x and x', which are identical or different, represent a number between 1 and 10; and

ii) from 10 to 40% by weight of at least one fatty alcohol of formula R₁OH, R₁ representing a saturated or unsaturated linear or branched aliphatic radical containing from 8 to 22 carbon atoms.

5,670,472
BIODEGRADABLE ESTER DIQUATERNARY COMPOUNDS AND COMPOSITIONS CONTAINING THEM
Robert O. Keys, Columbus, Ohio, assignor to Witco Corporation, Greenwich, Conn.
Continuation-in-part of Ser. No. 230,319, Apr. 19, 1994, abandoned. This application May 26, 1995, Ser. No. 450,473
Int. Cl.⁶ D06M 10/08; C07C 229/26
U.S. Cl. 510—433 25 Claims

1. A compound of the formula (I)



wherein A¹, A² and A³ are the same or different and each is alkyl containing up to 3 carbon atoms, benzyl, or H—(Alk—O)_{1–3}—

Alk— wherein Alk signifies —CH₂CH₂—, —CH(CH₃)CH₂—, or —CH₂CH(CH₃)—, provided further that A¹, can be —(CH₂)₁—, —COO— and that A³ can be hydrogen;

R^b is —Alk—(O—Alk)_{2–6};

R^c is —Alk—(O—Alk)_{2–6};

a is 2 to 6;

D is methyl, ethyl, propyl, —(CH₂)_{1–3}COO—, or benzyl;

i is 0 or 1 and j is 1, provided that the sum of (i+j) is 1 or 2; and provided that if i is 0 then A¹ and D cannot both be —(CH₂)₁—, —COO—;

X¹ and X² are independently YC(O)O— or YOC(O)— wherein Y is a straight or branched saturated or unsaturated aliphatic group containing up to 3 carbon-carbon double bonds and containing 11 to 23 carbon atoms;

n is ((i+j) minus the number of —(CH₂)_{1–3}COO— substituents present); and

Z is an anion.

5,670,473
SOLID CLEANING COMPOSITIONS BASED ON HYDRATED SALTS
William H. Scepanski, Bloomington, Minn., assignor to Sunburst Chemicals, Inc., Minneapolis, Minn.
Filed Jun. 6, 1995, Ser. No. 467,213
Int. Cl.⁶ C11D 17/00; 3/06
U.S. Cl. 510—445 3 Claims

1. A solid cleaning composition consisting of:
at least about 15% by weight of a hydrated salt cleaning agent selected from the group consisting of trisodium orthophosphate dodecahydrate, trisodium orthophosphate decahydrate, sodium dihydrogen orthophosphate dihydrate, disodium hydrogen orthophosphate heptahydrate, disodium hydrogen orthophosphate dodecahydrate, sodium trimetaphosphate heptahydrate, sodium perborate trihydrate, and mixtures thereof; between about 5% and 80% by weight surfactant, the surfactant selected from the group consisting of nonionic surfactants, anionic surfactants and any mixture thereof; between about 5% and 50% by weight of a multivalent metal sequestering agent selected from the group consisting of anhydrous sodium tripolyphosphate, aminocarboxylic acids or salts thereof, polycarboxylic acids or salts thereof, polyacrylic acid polymers, copolymers of acrylic acid and maleic acid or salts thereof, copolymers of acrylic acid and itaconic acid or salts thereof, copolymers of maleic acid and itaconic acid or salts thereof, and aminophosphonic acids or salts thereof; and between about 5% and 50% by weight of an alkaline builder selected from the group consisting of sodium or potassium silicate and sodium or potassium carbonate; in which the cleaning composition is an effectively homogeneous cast solid.

5,670,474
HIGH PERFORMANCE DETERGENT POWDERS
Robert John Crawford, Wirral, and Alastair Richard Sanderson, South Wirral, both of United Kingdom, assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.
Filed Nov. 30, 1995, Ser. No. 565,533
Claims priority, application United Kingdom, Dec. 2, 1994, 9424444
Int. Cl.⁶ C11D 3/22; 3/32
U.S. Cl. 510—470 22 Claims

1. A particulate detergent composition comprising:
(a) from 50 to 90 wt. % of a nonionic surfactant component comprising:
(a1) 55 to 100 wt. % based on the nonionic surfactant component of a nonionic surfactant solid at ambient temperature, selected from the group consisting of gluconamides, lactobionamides, other aldionamides, sophorose lipids, and aldiamides,

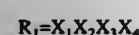
5,670,482
NEUROPEPTIDE Y ANTAGONISTS
 Alejandro Jose Daniels; Dennis Hoyer; Antonio Landavazo; Johann Jakob Leban, all of Durham, and Andreas Spaltenstein, Raleigh, all of N.C., assignors to Glaxo Wellcome Inc., Research Triangle Park, N.C.
 PCT No. PCT/GB93/01297, § 371 Date Feb. 17, 1995, § 102(e) Date Feb. 17, 1995, PCT Pub. No. WO94/00486, PCT Pub. Date Jan. 6, 1994

PCT Filed Jun. 18, 1993, Ser. No. 360,706
 Claims priority, application United Kingdom, Jun. 20, 1992, 9213215

Int. Cl.⁶ A61K 38/04; 38/16
 U.S. Cl. 514—12
 1. A peptide of formula (I), or a multimer thereof or a salt thereof:



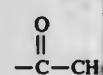
where



in which

X_1 =Ile, TyrIle, or desNH₂TyrIle
 X_2 =Asn, Asp, Cys, Dpr, Glu or Gly
 X_3 =Leu, Pro or 3,4-DihydroPro
 X_4 =Aib, Asp, Cys, Dpr, Glu, Gly, Ile, Orn, Tyr or O-MethylTyr
 X_5 =Phe, Tyr or [O-(2,6-Dichlorobenzyl)Tyr]
 X_6 =Phe or Leu

where R_2 =(CH₂)_nCH₃, —(CH₂)_nNH₂ or



in which n=0-4.

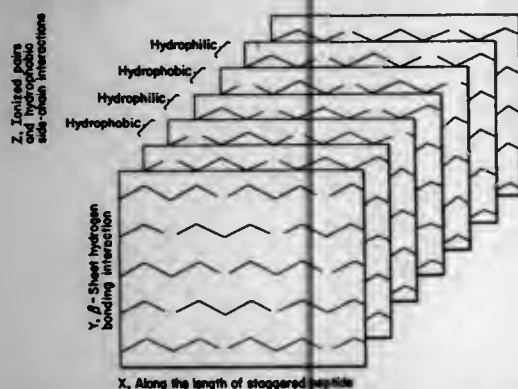
5,670,483
STABLE MACROSCOPIC MEMBRANES FORMED BY SELF-ASSEMBLY OF AMPHIPHILIC PEPTIDES AND USES THEREFOR

Shuguang Zhang, Cambridge; Curtis Lockshin, Lexington; Alexander Rich, and Todd Holmes, both of Cambridge, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 973,326, Dec. 28, 1992, abandoned. This application Nov. 30, 1994, Ser. No. 346,849

Int. Cl.⁶ A61K 7/08; 14/00; C07K 38/10; 38/16

U.S. Cl. 514—14
 48 Claims



1. A macroscopic membrane which is formed by self-assembly of amphiphilic peptides in an aqueous solution containing monovalent metal cations, wherein the peptides contain 12 or more amino acids, have alternating hydrophobic and hydrophilic amino acids and are complementary and structurally compatible.

5,670,484
METHOD FOR TREATMENT OF SKIN LESIONS ASSOCIATED WITH CUTANEOUS CELL-PROLIFERATIVE DISORDERS

William J. Binder, 1640 Amalfi Dr., Pacific Palisades, Calif. 90272

Continuation-in-part of Ser. No. 240,973, May 9, 1994, abandoned. This application Jan. 12, 1995, Ser. No. 372,054
 Int. Cl.⁶ A61K 38/10; 38/04

U.S. Cl. 514—14
 9 Claims

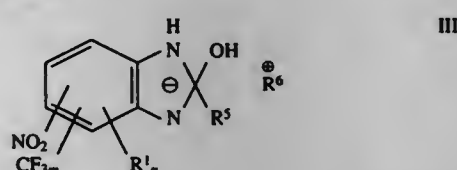
1. A method for mitigating or inducing remission of a skin lesion associated with a cutaneous cell-proliferative disorder in a mammal comprising administering a therapeutically effective amount of a Botulinum toxin in a pharmaceutically safe form to the mammal by delivery of the Botulinum toxin to the site of the lesion.

5,670,485
ANTICOCCIDIAL METHODS AND FEEDSTUFFS
 George O. P. O'Doherty, Greenfield, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 230,959, Apr. 21, 1994, Pat. No. 5,502,040, which is a division of Ser. No. 37,800, Mar. 26, 1993, Pat. No. 5,331,003. This application Apr. 21, 1995, Ser. No. 426,767
 Int. Cl.⁶ A61K 31/70; 31/415

U.S. Cl. 514—25
 3 Claims

1. A method of treating coccidiosis in a fowl in need of such treatment which comprises administering to the fowl both a first substance and a second substance, said first substance being a polyether antibiotic and said second substance selected from compounds of the formula



wherein

R^1 represents bromo or chloro,
 m represents an integer of 0 or 1 and n represents an integer of from 0 to 3, with the sum of m and n being an integer of from 1 to 3;

R^5 represents difluoromethyl, chlorodifluoromethyl, 1,1,2,2-tetrafluoroethyl, or a perfluoroalkyl of C_1-C_3 ; and
 R^6 represent sodium, potassium, lithium, silver, calcium, ammonium, or substituted ammonium derived from an organic amine which is as basic as, or more basic than, ammonia; said first and second substance being administered in amount which together, are effective to treat coccidiosis in the fowl.

5,670,486
A83543 COMPOUNDS AND PROCESS FOR PRODUCTION THEREOF

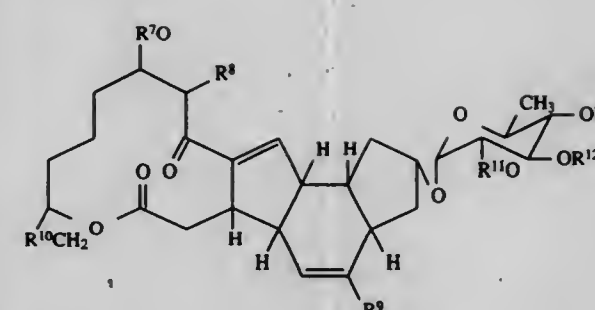
Jon S. Mynderse, Indianapolis, Ind.; James A. Mabe, Hendersonville, N.C.; Jan R. Turner, Carmel, Ind.; Mary L. B. Huber, Danville, Ind.; Mary C. Broughton, Indianapolis, Ind.; Walter M. Nakatsukasa, Seattle, Wash.; Lawrence Creemer; Herbert A. Klrst, both of Indianapolis, Ind., and James W. Martin, Coatesville, Ind., assignors to DowElanco, Indianapolis, Ind.

Division of Ser. No. 385,497, Feb. 8, 1995, which is a division of Ser. No. 30,522, Mar. 12, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 483,440

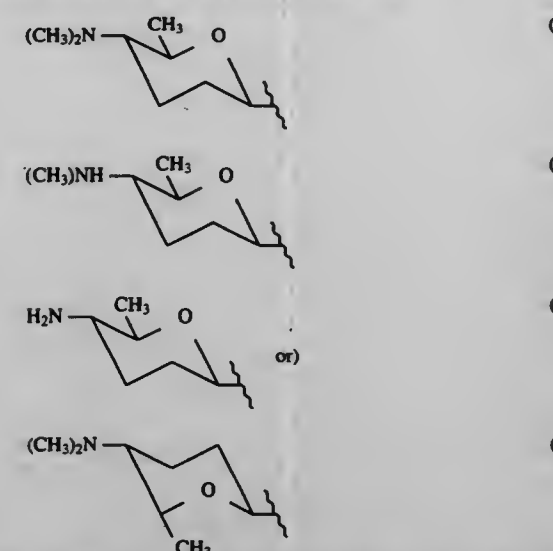
Int. Cl.⁶ A61K 31/71; C07H 17/04; C12P 19/62

U.S. Cl. 514—28
 2 Claims

1. A method of reducing a population of insect ectoparasites which consume blood of a host animal which comprises administering to the host animal an insect-inactivating amount of a compound of the following formula:



wherein R^7 is hydrogen or a group of formula



R^8 , R^9 , R^{10} , R^{11} , and R^{12} are independently hydrogen or methyl, provided that R^{11} and R^{12} are not concurrently hydrogen; or an acid addition salt thereof when R^7 is other than hydrogen.

5,670,487
COMPOSITION FOR PROTECTING AND/OR COMBATING BLEMISHES ON AND/OR AGEING OF THE SKIN, AND USES THEREOF

Jean-Francois Grollier, Paris; Herve Cantin, Morangis, and Didier Gagnebien, Chatillon, all of France, assignors to L'Oreal, Paris, France

Filed Jun. 20, 1996, Ser. No. 666,211

Claims priority, application France, Jun. 20, 1995, 95 07335

Int. Cl.⁶ A61K 31/70

U.S. Cl. 514—35
 28 Claims

1. A composition comprising:

a) arbutin; and
 b) an ultraviolet screening agent selected from the group consisting of benzylidenecamphor and a benzylidenecamphor derivative.

wherein arbutin and the screening agent are present in amounts such that their combination shows a synergy of activity against oxygen free radicals.

11. A method of cosmetically or dermatologically depigmenting or beautifying skin, comprising applying a depigmenting or beautifying amount of a composition comprising:

a) arbutin; and
 b) an ultraviolet screening agent selected from the group consisting of benzylidenecamphor and a benzylidenecamphor derivative to the skin of a human being.

5,670,488
ADENOVIRUS VECTOR FOR GENE THERAPY
 Richard J. Gregory, Carlsbad, Calif.; Donna Armentano, Watertown, Mass.; Larry A. Couture, Framingham, Mass., and Alan E. Smith, Wellesley, Mass., assignors to Genzyme Corporation, Framingham, Mass.

Continuation-in-part of Ser. No. 985,478, Dec. 3, 1992, abandoned. This application Oct. 13, 1993, Ser. No. 136,742

Int. Cl.⁶ A61K 48/00; C12N 15/00

U.S. Cl. 514—44
 19 Claims

1. An adenoviral vector comprising an adenovirus genome from which one or more of the E4 open reading frames has been deleted, but retaining sufficient E4 sequences to promote virus replication in vitro, and additionally comprising a DNA sequence of interest operably linked to expression control sequences and inserted into said adenoviral genome.

5,670,489
OLIGONUCLEOTIDE ANALOGUES

Anthony David Baxter, Northwich; Eric Keith Baylis, Stockport; Stephen Paul Collingwood, Westhoughton; Roger John Taylor, Stretford, all of England; Alain De Mesmaeker, Kanerkinden, and Chantal Schmit, Basel, both of Switzerland, assignors to Novartis Corporation, Summit, N.J.

Division of Ser. No. 204,020, Feb. 28, 1994. This application Jun. 2, 1995, Ser. No. 463,139

Claims priority, application United Kingdom, Mar. 6, 1993, 9304618

Int. Cl.⁶ A61K 31/70; C07H 21/04

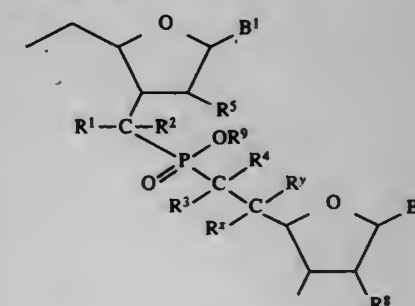
U.S. Cl. 514—44
 14 Claims

1. An oligonucleotide of Formula



where U, V, and W are selected from the group consisting of a natural or a synthetic nucleoside, nucleotide or oligonucleotide at least one of the residues U, V, and W being a dinucleotide residue having the formula

XXXXII



where L is a nucleoside bridging group, n is a number from 0 to 200 and

B^1 and B^2 are each independently a monovalent nucleoside base radical;
 R^1 is R^1 or Z;
 R^2 , R^3 , R^4 and R^5 are each independently hydrogen, halogen or hydroxy;
 R^6 is R^6 or Z;
 R^7 and R^8 are each independently hydrogen, halogen, hydroxy, —OR¹⁰, —OCOR¹⁰ or silyloxy substituted by three C_1-C_{15} hydrocarbyl groups;
 R^9 is hydrogen, a C_1-C_8 aliphatic radical, a C_3-C_8 cycloaliphatic radical, a C_6-C_{15} aromatic radical, a C_7-C_{13} araliphatic radical, an alkali metal ion or an ammonium ion;
 R_{10} is a C_1-C_{10} aliphatic radical, a C_3-C_8 cycloaliphatic radical, a C_6-C_{15} aromatic radical or a C_7-C_{16} araliphatic radical;
 R^1 and R^2 are independently hydrogen, halogen, hydroxy, a C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_3-C_8 cycloalkyl, C_6-C_{15} aryl, C_7-C_{16} aralkyl, C_1-C_{10} alkoxy, C_2-C_{10} alkenoxy, C_6-C_{10} aryloxy or C_7-C_{16} aralkyloxy group, which is substituted or unsubstituted, or —OCOR²;

R² is a substituted or unsubstituted C₁-C₁₀ alkyl, C₂-C₁₀ alk- enyl, C₃-C₈ cycloalkyl, C₆-C₁₃ aryl or C₇-C₁₆ aralkyl group; and

Z is C₆-C₁₀ aryloxythiocarbonyloxy, the C₆-C₁₀ aryl group being substituted or unsubstituted.

14. A pharmaceutical composition comprising as active ingredi- ent an oligonucleotide according to claim 1 and a pharmaceutically acceptable carrier.

5,670,490

POROUS PARTICLE AGGREGATE AND METHOD THEREFOR

Roy L. Whistler, West Lafayette, Ind., assignor to Fuisz Tech- nologies Ltd., Chantilly, Va.

Division of Ser. No. 182,442, Jan. 14, 1994, Pat. No. 5,486,507.

This application Jan. 16, 1996, Ser. No. 585,834

Int. Cl.⁶ A61K 31/715; C07H 1/00; C08B 30/00; 11/00

U.S. Cl. 514-54

22 Claims

1. A method for preparing porous aggregates of discrete particles having an average particle size of about 1 to about 100 microns in their largest dimension, said aggregated particles bound together in said porous aggregate with a binder not endogenous to the discrete particles at least at their points of contact in said aggregate, the surfaces of said aggregated particles cooperating to define an intraaggregate reticular volume adapted for releasable containment of functional substances, said method comprising the steps of forming a suspension of said particles in a solution of the binder and spray drying said suspension.

5,670,491

CHELATE COMPLEXES AND PROCESSES FOR THEIR PREPARATION

Hans Georg Capraro, Rheinfelden, and Marcus Baumann, Basel, both of Switzerland, assignors to Ciba-Geigy Corpo- ration, Tarrytown, N.Y.

Division of Ser. No. 22,246, Feb. 25, 1993, Pat. No. 5,358,940.

This application Jun. 30, 1994, Ser. No. 269,290

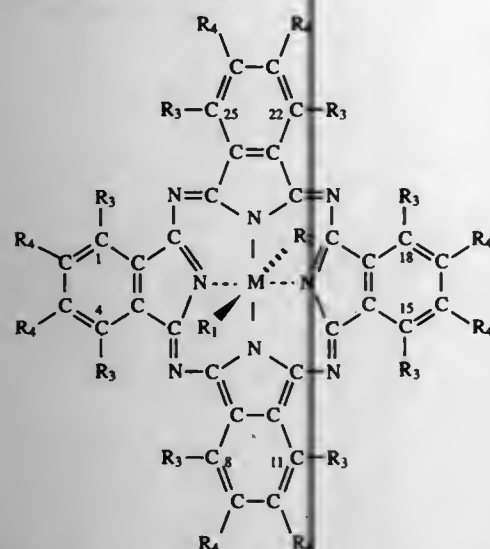
Claims priority, application Switzerland, Feb. 27, 1992, 00600/92

Int. Cl.⁶ A61K 31/40; C09B 47/04

U.S. Cl. 514-63

16 Claims

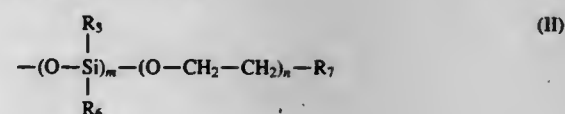
1. A compound of formula I



wherein

M is an element of main group III or IV or the Periodic Table having an atomic number of from 31 to 50 inclusive, aluminum or ruthenium,

R₁ is a radical of formula II



wherein

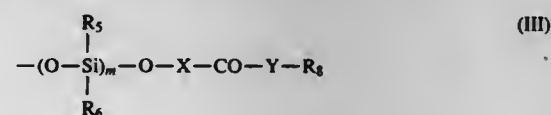
m is 0 or 1,

n is an integer from 0 to 200 inclusive,

R₃ and R₆ are each independently of the other lower alkyl or unsubstituted or substituted phenyl, and

R₇ is alkylthio having 1 to 20 carbon atoms, alkanoyloxy having 1 to 20 carbon atoms, unsubstituted aliphatic hydrocarbyloxy hav- ing 1 to 24 carbon atoms, or, when m is 1 and n is 0, aliphatic hydrocarbyl having from 12 to 24 carbon atoms, or

R₁ is a radical of formula III



wherein

X is a bivalent aliphatic hydrocarbon radical having 1 to 23 carbon atoms,

Y is oxygen or the group -NH-,

R₈ is aliphatic hydrocarbyl having 1 to 24 carbon atoms or unsub- stituted aliphatic hydrocarbyl having 1 to 24 carbon atoms in the aliphatic moiety, and

R₅, R₆ and m are as defined above,

R₂ has the same definition as R₁ when M is an element of main group IV, or R₂ is absent when M is an element of main group III or ruthenium,

R₃ is hydrogen, lower alkyl, lower alkylthio, unsubstituted or lower alkoxy-substituted alkoxy having 1 to 20 carbon atoms, tri-lower alkylsilyl or halogen, and

R₄ is hydrogen, lower alkyl, lower alkylthio, unsubstituted or lower alkoxy-substituted alkoxy having 1 to 20 carbon atoms, tri-lower alkylsilyl or halogen.

5,670,492

DC-89 DERIVATIVES

Nobuyoshi Amishiro, Shizuoka; Satoru Nagamura, Hofu; Hiromitsu Saito, Kawasaki; Elji Kobayashi, Tokyo; Akihiko Okamoto, Numazu, and Katsushige Gomi, Susono, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/00626, § 371 Date Nov. 28, 1995, § 102(e) Date Nov. 28, 1995, PCT Pub. No. WO95/26964, PCT Pub. Date Oct. 12, 1995

PCT Filed Mar. 31, 1995, Ser. No. 557,055

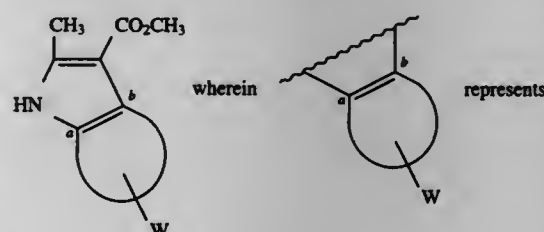
Claims priority, application Japan, Apr. 1, 1994, 6-065236

Int. Cl.⁶ A61K 31/40; 31/495; 31/405; C07D 487/04

U.S. Cl. 514-63

3 Claims

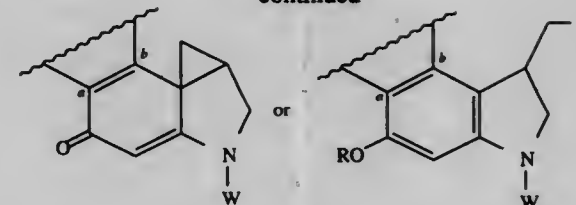
1. A DC-89 derivative represented by the formula:



wherein

represents

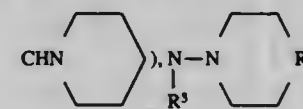
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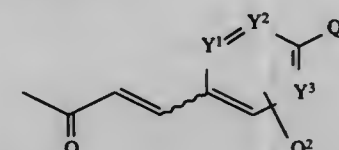
in which X represents Cl or Br, R represents hydrogen or COR¹ in which R¹ represents hydrogen, substituted or unsubstituted lower alkyl (wherein the substituted lower alkyl is substituted with 1 to 3 moieties selected from the group consisting of lower alkoxy, lower alkylthio optionally substituted with carboxy, carboxy, lower alkoxy-carbonyl, amino, mono- or di(lower alkyl)amino, cyclic amino optionally substituted with lower alkyl or cyclic amino, halogen and phenyl), substituted or unsubstituted C₆₋₁₀ nonhetero- cyclic aryl, substituted or unsubstituted heterocyclic group selected from the group consisting of pyridyl, pyrazinyl and pyrimidinyl (wherein the substituted aryl and substituted heterocyclic group are substituted with 1 to 3 moieties independently selected from the group consisting of substituted or unsubstituted lower alkyl, lower alkoxy, lower alkoxy-carbonyl, amino, mono- or di(lower alkyl)amino and halogen), NR²R³ (in which R² and R³ independently represent hydrogen or substituted or unsubstituted lower alkyl, amino, or mono- or di(lower alkyl) amino),



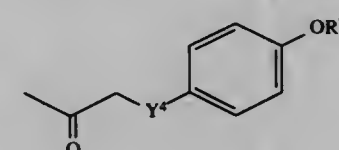
(in which R⁴ represents oxygen, N-R⁵ (in which R⁵ represents hydrogen or lower alkyl), CH₂ or



or OR⁶ (in which R⁶ represents substituted or unsubstituted lower alkyl, or substituted or unsubstituted C₆₋₁₀ nonheterocyclic aryl); and W represents



O(CH₂)_nCO₂R⁷ in which Y¹, Y² and Y³ independently represent CH or N, Q¹ and Q² independently represent hydrogen, OR⁷ (in which R⁷ represents hydrogen or substituted or unsubstituted lower alkyl), NR²R³, NECO₂R⁶, or O(CH₂)_nR⁸ in which n represents an integer of 1 to 4, and R⁸ represents CO₂R⁷, N₃, or NR²R³, provided that when Y¹, Y² and Y³ are CH, at least one of Q¹ and Q² is a group other than hydrogen or alkoxy, or



(in which Y⁴ represents oxygen, sulfur or NH, or a pharmaceuti- cally acceptable salt thereof.

5,670,493

AMINOPHENYLPHOSPHONIC ACID COMPOUNDS
Alex Cordi, Suresnes; Patrice Desos, Courbevoie; Angela D. Morris, Montigny Le Bretonneux, and Ghanem Atassi, Saint Cloud, all of France, assignors to Adir et Compagnie, Cour- bevoie, France

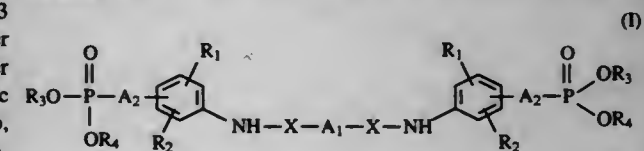
Filed Jul. 19, 1996, Ser. No. 684,469

Claims priority, application France, Jul. 21, 1995, 95 08821
Int. Cl.⁶ A61K 31/66; 31/665; 31/67; 31/675; C07F 9/38; 9/40; 9/ 572; 9/655; 9/6553

U.S. Cl. 514-80

14 Claims

1. A compound selected from the group consisting of those of formula (I):

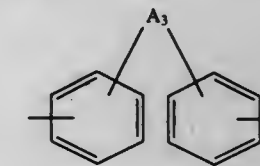


in which:

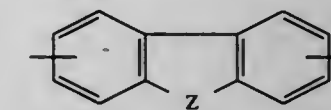
R₁, R₂, which may be identical or different, represent hydrogen, halogen, linear or branched (C₁-C₆) alkyl, linear or branched (C₁-C₆) alkoxy, nitro, or trihalomethyl,

X represents CO, SO₂, or CH₂,

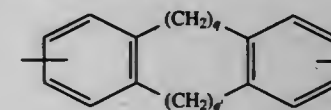
A₁ represents selected from the group consisting of those linear or branched (C₁-C₂₀) alkylene chain containing 0 to 6 double bonds and in which one or more -CH₂- groups of the chain are optionally replaced by any one of the following groups: phenylene, substituted or unsubstituted, naphthylene, substituted or unsubstituted, anthracenylene, substituted or unsubstituted, (C₃-C₇) cycloalkylene,



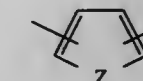
in which A₃ represents -(CH₂)_m in which m represents 0, 1 or 2, -(CH=CH)-, or SO₂,



in which Z represents O, S, or NR₅ in which R₅ represents hydrogen or linear or branched (C₁-C₆) alkyl,



in which q or q', which may be identical or different, represent 0, 1 or 2,



in which Z is as defined above,

A₂ represents:

-(CH₂)_n in which n is 0, 1, 2, or 3,

or -CH=CH-,

R₃, R₄, which may be identical or different, represent hydrogen or linear or branched (C₁-C₆) alkyl,

its isomers and its addition salts with a pharmaceutically- acceptable acid or base, the term "substituted" meaning that the relevant group is substituted with one or more halogen atoms or linear or branched (C₁-C₆) alkoxy, hydroxyl, nitro, cyano, or

amino (optionally substituted with one or more linear or branched (C₁-C₆) alkyl groups) groups.

5,670,494

N-(PYRIMIDINYL)-ASPARTIC ACID ANALOGS AS INTERLEUKIN-1 β CONVERTING ENZYME INHIBITORS
Roland E. Dolle, King of Prussia; Catherine P. Prouty, Doylestown, both of Pa.; Prasad V. Chaturvedula, Cheshire, Conn., and Stanley J. Schmidt, Chester Springs, Pa., assignors to Sanofi, Paris Cedex

Continuation-in-part of Ser. No. 221,712, Mar. 31, 1994, abandoned. This application Nov. 24, 1995, Ser. No. 559,870
Int. Cl.⁶ A61K 31/675; 31/505; C07D 239/22; C07F 9/6512
U.S. Cl. 514—86 2 Claims

1. A compound selected from the group consisting of:
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(4-fluorophenyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 2,6-dichlorobenzoyloxymethyl ketone;
N-[2-(5-thiomethyl-benzoylamino-6-oxo-2-(4-fluorophenyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 2,6-dichlorobenzoyloxymethyl ketone;
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(4-fluorophenyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid diphenylphosphinoxymethyl ketone;
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(4-fluorophenyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 5-(1-(4-chlorophenyl)-3-trifluoromethyl)pyrazoloxymethyl ketone;
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(4-fluorophenyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 5-(3-phenylcoumarinyl)oxymethyl ketone;
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(4-fluorophenyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 5-(1-phenyl-3-fluoromethyl)pyrazoloxymethyl ketone;
N-[2-(5-isopropoxyloxycarbonylamino-6-oxo-2-phenyl-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 5-(1-phenyl-3-trifluoromethyl)pyrazoloxymethyl ketone;
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(3-pyridinyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 5-(1-phenyl-3-trifluoromethyl)pyrazoloxymethyl ketone;
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(2-thienyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 5-(1-phenyl-3-trifluoromethyl)pyrazoloxymethyl ketone;
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-methyl-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 5-(1-phenyl-3-trifluoromethyl)pyrazoloxymethyl ketone;
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(2-thienyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 5-(1-(4-chlorophenyl)-3-trifluoromethyl)pyrazoloxymethyl ketone;
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(2-thienyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid 2,6-dichlorobenzoyloxymethyl ketone; and
N-[2-(5-benzoyloxycarbonylamino-6-oxo-2-(2-thienyl)-1,6-dihydro-1-pyrimidinyl)acetyl]-L-aspartic acid aldehyde.

5,670,495

METHOD OF PRETREATING AN ANIMAL WITH A CORTICOSTEROID PRIOR TO INFUSION OF A PERFLUORO-CHEMICAL EMULSION

Thomas H. Goodin, Manchester, and Robert J. Kaufman, University City, both of Mo., assignors to HemaGen/PFC, St. Louis, Mo.

Continuation of Ser. No. 331,326, Oct. 28, 1994, abandoned.
This application Apr. 25, 1996, Ser. No. 637,580
Int. Cl.⁶ A61K 11/56 10 Claims

1. A method of improving the adverse effects of a perfluorochemical emulsion on the hemostatic system of a primate, comprising the steps of:

intravenously administering a corticosteroid to a primate prior to intravenous administration of a perfluorochemical emulsion including a perfluorochemical, said corticosteroid administered at a dose of from about 0.2 mg/kg of body weight to about 6 mg/kg of body weight to improve the adverse effects of said perfluorochemical which occur at least about one day or more post administration of said perfluorochemical upon the hemostatic system of said primate; and subsequently intravenously administering said perfluorochemical emulsion.

5,670,496

TREATMENT FOR TOXOPLASMOSIS WITH A COMPOSITION COMPRISING A FOLATE ANTAGONIST AND A SPIROPYPERIDYL DERIVATIVE OF RIFAMYCIN S

Jack S. Remington, Menlo Park, and Fausto G. Araujo, Palo Alto, both of Calif., assignors to Palo Alto Medical Foundation, Palo Alto, Calif.

Continuation of Ser. No. 203,539, Feb. 28, 1994, Pat. No. 5,529,994, which is a continuation-in-part of Ser. No. 57,288, May 5, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 476,508
Int. Cl.⁶ A61K 31/33; 31/505 7 Claims

1. A method of reducing the severity of toxoplasmosis resulting from infection of a mammalian host with *Toxoplasma gondii*, which method comprises:
administering to a host in need of said treatment, either after infection or before exposure to said infection, a therapeutically effective amount of a folate antagonist in combination with a therapeutically effective amount of a compound that is a spiroperidyl derivative of rifamycin S, wherein said derivative comprises an imidazole ring that includes carbons at positions 3 and 4 of the rifamycin ring, the carbon at position 2 of said imidazole ring also being a ring carbon at position 4 of a piperidine ring system, thereby forming a spiroperidyl ring system, said spiroperidyl ring system optionally comprising a lower hydrocarbon substituent on the nitrogen of said piperidine.

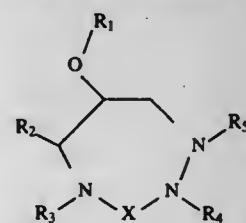
5,670,497

CYCLIC HYDRAZINE COMPOUNDS

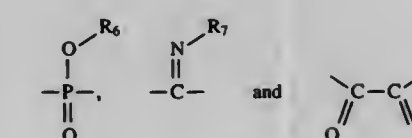
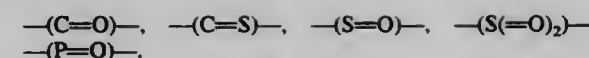
Guido Bold, Gifp-Oberfrick, Switzerland; Shripad S. Bhagwat, Libertyville, Ill.; Alexander Fässler, Oberwil, Switzerland, and Marc Lang, Mulhouse, France, assignors to Ciba-Geigy Corporation, Tarrytown, N.Y.

PCT No. PCT/EP94/02235, § 371 Date Jan. 11, 1996, § 102(e)
Date Jan. 11, 1996, PCT Pub. No. WO95/02582, PCT Pub. Date Jan. 26, 1995
PCT Filed Jul. 7, 1994, Ser. No. 581,508
Claims priority, application Switzerland, Jul. 14, 1993, 02 114/93; Nov. 5, 1993, 03 333/93
Int. Cl.⁶ A01N 43/00; A61K 31/33 17 Claims

U.S. Cl. 514—183 1. A compound of formula I



wherein
R₁ is hydrogen or acyl,
R₂, R₃, R₄ and R₅ are each independently of the others unsubstituted or substituted alkyl or alkenyl, and
X together with the two bonds shown in the formula forms a bivalent radical selected from the group consisting of



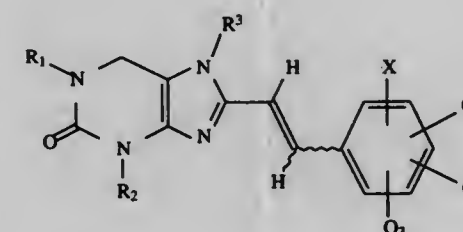
R₆ being unsubstituted or substituted alkyl and
R₇ being hydrogen, unsubstituted or substituted alkyl, hydroxy, amino, alkoxy, cyano or aryloxy, or a salt thereof.

5,670,498

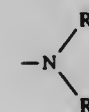
8-SUBSTITUTED STYRYL XANTHINE DERIVATIVES
Fumio Suzuki, Mishima; Junichi Shimada; Nobuaki Koike, both of Shizuoka-ken; Hiroshi Kase, Koganei; Joji Nakamura, Shizuoka-ken; Shizuo Shiozaki, Fuji, and Hiromi Nonaka, Shizuoka-ken, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 171,602, Dec. 22, 1993, abandoned.
This application Sep. 13, 1995, Ser. No. 527,497
Claims priority, application Japan, Dec. 24, 1992, 4-344116
Int. Cl.⁶ C07D 473/12; 473/10; 473/06; A61K 31/52
U.S. Cl. 514—212 10 Claims

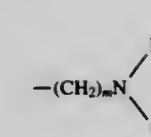
1. A xanthine derivative represented by the following Formula (I):



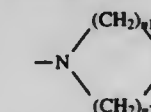
in which R¹, R², and R³ independently represent hydrogen or lower alkyl;
Q¹, Q², and Q³ independently represent hydrogen, lower alkyl, lower alkoxy, or halogen;
and X represents —COR⁴ (in which R⁴ represents hydrogen, hydroxy, lower alkyl, or lower alkoxy) or —SO₂R⁵ (in which R⁵ represents hydroxy, lower alkoxy, trifluoromethyl,



in which R⁶ and R⁷ independently represent hydrogen, hydroxy-substituted or unsubstituted lower alkyl, aryl, or



(in which m represents an integer of 1 to 3; and R⁸ and R⁹ independently represent hydrogen or lower alkyl), or



(in which Y represents a single bond, oxygen, or N—R¹⁰ in which R¹⁰ represents hydrogen or lower alkyl; and n1 and n2 independently represent an integer of 1 to 3), or a pharmaceutically acceptable salt thereof.

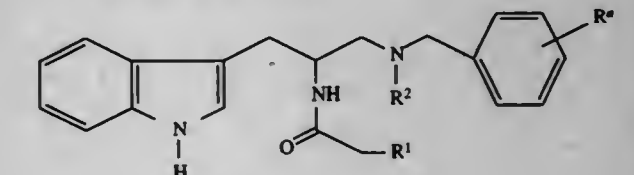
5,670,499

NON-PEPTIDE TACHYKININ RECEPTOR ANTAGONISTS

Sung Y. Cho; Thomas A. Crowell, both of Indianapolis; Bruce D. Gitter, Carmel; Philip A. Hipskind, New Palestine, all of Ind.; J. Jeffery Howbert, Bellevue, Wash.; Joseph H. Krushinski, Jr., Indianapolis, Ind.; Karen L. Lobb, Indianapolis, Ind.; Brian S. Muehl, Indianapolis, Ind., and James A. Nixon, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 153,847, Nov. 17, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 462,415
Int. Cl.⁶ A61K 31/40; C07D 295/108 9 Claims

U.S. Cl. 514—231.5 1. A compound of the formula



wherein R^a is halo, C₁-C₃ alkoxy, C₁-C₃ alkylthio, nitro, trifluoromethyl, or C₁-C₃ alkyl;

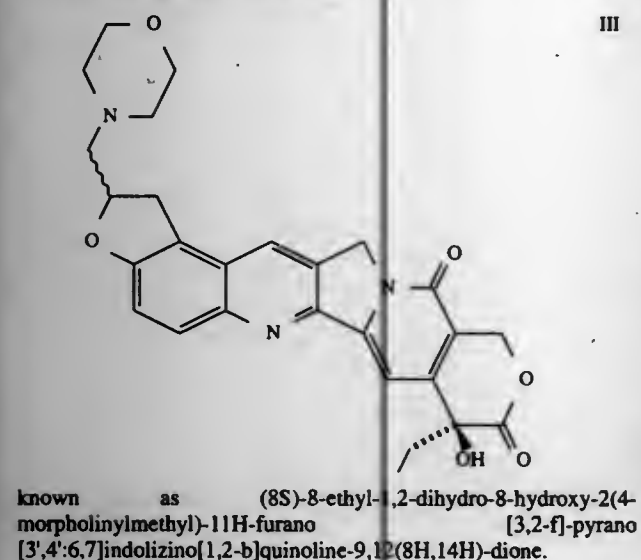
R¹ is pyrrolidinyl, morpholinyl, indolinyl, indolyl, benzothienyl, benzofuranlyl, quinolinyl, tetrahydropyridinyl, isoquinolinyl, reduced quinolinyl, or reduced isoquinolinyl, which may be substituted with halo, C₁-C₄ alkyl, C₁-C₄ alkoxy, trifluoromethyl, amino, C₁-C₄ alkylamino, or di(C₁-C₄ alkyl)amino;
or which may be substituted with phenyl, piperazinyl, C₃-C₈ cycloalkyl, benzyl, C₁-C₄ alkyl, piperidinyl, pyridinyl, pyrimidinyl, C₂-C₆ alkanoylamino, pyrrolidinyl, C₂-C₆ alkanoyl, or C₁-C₄ alkoxycarbonyl;
any one of which phenyl, piperazinyl, C₃-C₈ cycloalkyl, benzyl, C₁-C₄ alkyl, piperidinyl, pyridinyl, pyrimidinyl, C₂-C₆ alkanoylamino, pyrrolidinyl, C₂-C₆ alkanoyl, or C₁-C₄ alkoxycarbonyl groups may be substituted with halo, C₁-C₄ alkyl, C₁-C₄ alkoxy, trifluoromethyl, amino, C₁-C₄ alkylamino, di(C₁-C₄ alkyl)amino, or C₂-C₆ alkanoylamino;

R² is hydrogen, acetyl or methylsulfonyl; or a pharmaceutically acceptable salt or solvate thereof.

5,670,500
WATER SOLUBLE CAMPTOTHECIN ANALOGS
 David A. Berges, Provo, Utah, and John J. Taggart, Elkins Park, Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

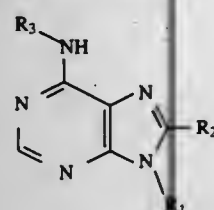
Filed May 31, 1995, Ser. No. 454,794
 Int. Cl.⁶ A61K 31/47; C07D 491/147
 U.S. Cl. 514—233.2

1. A compound of Formula III:

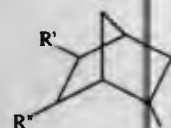


5,670,501
N-SUBSTITUTED 9-ALKYLADENINES
 James V. Peck; Ronald J. Wysocki; Ibrahim M. Uwaydah, and Noel J. Cusack, all of Richmond, Va., assignors to Discovery Therapeutics, Inc., Richmond, Va.
 Filed Sep. 1, 1994, Ser. No. 299,992
 Int. Cl.⁶ C07D 473/34; 31/772; A61K 31/52; 31/535
 U.S. Cl. 514—234.2

1. A compound having the formula:



or a pharmaceutically acceptable salt thereof;
 where R₁ is C₁ to C₄ straight chain or branched alkyl;
 R₂ is selected from the group consisting of —H, —OR₁, —SR₁, —NH(R₁), —N(R₁)(R₂), aminocarbonyl, halogen and —CN, where R₁ is defined as above;
 R₃ and R₄ are independently C₁ to C₄ straight chain or branched alkyl, or R₃ and R₄ taken together with the nitrogen to which they are attached form a heterocyclic substituent selected from the group consisting of aziridinyl, piperidinyl, piperazinyl, imidazolidinyl, pyrrolidinyl, imidazolyl, morpholinyl, pyrazolidinyl and pyrazolinyl;
 R₅ is a cyclopentyl or



where R' and R'' are independently —H, —O, —OH or —NH₂, with the proviso that one of R' and R'' is other than —H; or R' and

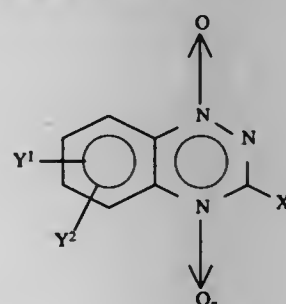
R' can be taken together with the norbornyl group to which they are attached to form the following structure as R₃:



where R'' is —OH or —NH₂; and with the proviso that when R₃ is cyclopentyl, then R₂ cannot be —H or halogen.

5,670,502
METHOD OF TUMOR TREATMENT
 J. Martin Brown, Redwood City, Calif., assignor to The Board of Trustees of Leland Stanford Jr. Univ., Stanford, Calif.
 Division of Ser. No. 125,609, Sep. 22, 1993. This application May 24, 1995, Ser. No. 448,705
 Int. Cl.⁶ A61K 31/53; 31/535; 31/675; 31/28
 U.S. Cl. 514—243

1. A method of treating a mammal having a solid tumor, said mammal in need of such treatment, comprising
 (a) administering to said mammal an effective amount of a compound having the formula

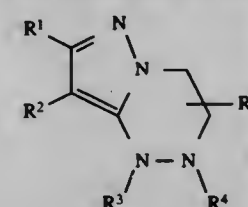


wherein X is NH₂;
 n is 0 or 1; and
 Y¹ and Y² are independently either H; nitro; halogen; hydrocarbyl (1-14C) including cyclic and unsaturated hydrocarbyl, optionally substituted with 1 or 2 substituents selected from the group consisting of halogen, hydroxy, epoxy, alkoxy (1-4C), alkylthio (1-4C), primary amine (NH₂), alkyl (1-4C) secondary amine, dialkyl (1-4C) tertiary amino, dialkyl (1-4C) tertiary amine where the two alkyls are linked together to produce a morpholino, pyrrolidino or piperidino, acyloxy (1-4C), acylamido (1-4C) and thio analogs thereof, acetylaminocarbonyl (1-4C), carboxy, alkoxycarbonyl (1-4C), carbamyl, alkylcarbamyl (1-4C), alkylsulfonyl (1-4C) or alkylphosphonyl (1-4C), wherein the hydrocarbyl can optionally be interrupted by a single ether (—O—) linkage; or wherein Y¹ and Y² are independently either morpholino, pyrrolidino, piperidino, NH₂, NHR', NR'R'(CO)R', NH(CO)R', O(SO)R', or O(POR')R' in which R' is a hydrocarbyl (1-4C) which may be substituted with OH, NH₂, alkyl (1-4C) secondary amino, dialkyl (1-4C) tertiary amine, morpholino, pyrrolidino, piperidino, alkoxy (1-4C), or halogen substituents, or pharmacologically acceptable salt of said compound; and
 (b) administering to said mammal, from about one half hour to about twenty-four hours after administering said compound, an effective amount of carboplatin wherein a synergistic effect is derived from the administration of said compound and said carboplatin.

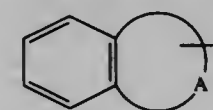
5,670,503
PYRAZOLE DERIVATIVES
 Yoshio Kawai, Ushiku; Hitoshi Yamazaki, Tsukuba; Hirokazu Tanaka, Takarazuka, and Teruo Oku, Tsukuba, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan
 PCT No. PCT/JP94/00213, § 371 Date Aug. 21, 1995, § 102(e) Date Aug. 21, 1995, PCT Pub. No. WO94/19350, PCT Pub. Date Sep. 1, 1994
 PCT Filed Feb. 9, 1994, Ser. No. 505,284
 Claims priority, application United Kingdom, Feb. 26, 1993, 9303993

Int. Cl.⁶ C07D 251/72; 253/10
 U.S. Cl. 514—243

1. A compound of the formula:



wherein R¹ is optionally substituted aryl or optionally substituted saturated or unsaturated, monocyclic or polycyclic heterocyclic group containing at least one hetero-atom selected from the group consisting of oxygen, sulfur, and nitrogen atoms.
 R² is optionally substituted aryl or optionally substituted saturated or unsaturated, monocyclic or polycyclic heterocyclic group containing at least one hetero-atom selected from the group consisting of oxygen, sulfur, and nitrogen atoms.
 R³ is hydrogen or acyl.
 R⁴ is hydrogen, lower alkyl, cyclo(lower)alkyl, cyclo(lower)alkyl-(lower)alkyl, carboxy(lower)alkyl, protected carboxy(lower)alkyl, optionally substituted ar(lower)alkyl, ar(lower)alkenyl, bridged tricyclicalkyl, optionally substituted saturated or unsaturated, monocyclic or polycyclic heterocyclic group containing at least one hetero-atom selected from the group consisting of oxygen, sulfur, and nitrogen atoms, optionally substituted dioxaspirodecanyl, acyl, or a group of the formula:

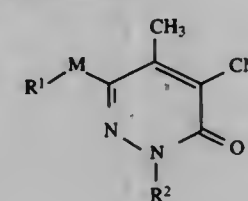


(in which A is lower alkylene), and
 R⁵ is hydrogen or lower alkyl,
 and a pharmaceutically acceptable salt thereof.

5,670,504
2,6-DIARYL PYRIDAZINONES WITH IMMUNOSUPPRESSANT ACTIVITY
 Richard J. Bochs, East Brunswick; Andrew Kotliar, Somerset; William H. Parsons, Belle Mead, and Kathleen Rupprecht, Cranford, all of N.J., assignors to Merck & Co. Inc., Rahway, N.J.

Filed Feb. 23, 1995, Ser. No. 392,588
 Int. Cl.⁶ A61K 31/50
 U.S. Cl. 514—247

1. A compound of formula I



or a pharmaceutically acceptable salt, hydrate or crystal form thereof, wherein:

M is S(O)_p,
 p is 0, 1 or 2,
 R¹ and R² are selected from:
 (a) aryl;
 (b) substituted aryl in which as many as three substituents, X, Y, and Z, may be present;
 X, Y and Z independently are selected from:
 (a) hydrogen, except that when R¹ is 4-chlorophenyl, then R² can not be phenyl;
 (b) C₁₋₁₀ alkyl, unsubstituted or substituted with a substituent selected from the group consisting of:
 (i) aryl,
 (ii) C₁₋₆ alkoxy,
 (iii) —NO₂,
 (iv) —NR³R⁴,
 (v) —CO₂H,
 (vi) —OH, and
 (vii) oxo;
 except that when R² is 2-methyl-phenyl—, 3-methyl-phenyl, or 4-methyl-phenyl, then R¹ can not be 4-chlorophenyl;
 (c) C₁₋₁₀ alkoxy, unsubstituted or substituted with a substituent selected from the group consisting of:
 (i) aryl,
 (ii) C₁₋₆ alkoxy,
 (iii) —NO₂,
 (iv) —NR³R⁴,
 (v) —CO₂H,
 (vi) —OH, and
 (vii) oxo;
 except that when R² is 4-methoxyphenyl, then R¹ is not 4-chlorophenyl, phenyl or —SO₂-phenyl;
 (d) aryl,
 (e) aryloxy,
 (f) halogen, except that when R² is 2-chlorophenyl, 3-chlorophenyl, 4-chlorophenyl or 4-bromophenyl, then R¹ is not 4-chlorophenyl,
 (g) —NO₂, except that when R² is 3-nitrophenyl, then R¹ is not 4-chlorophenyl,
 (h) —NR³R⁴,
 (i) —CN,
 (j) —CF₃,
 (l) —S(O)_pR⁷, wherein R⁷ is hydrogen, C₁₋₆ alkyl, trifluoromethyl, or phenyl, except that when X, Y or Z is S(O)_pR⁷, then M cannot be SO or SO₂,
 (m) —CH(OR⁸)(OR⁹),
 (n) OH, and
 (o) OCF₃, provided that p is 0, R¹ is phenyl, and R² is phenyl substituted with methoxy;
 R³ and R⁴ are independently selected from:
 (a) hydrogen,
 (b) C₁₋₆ alkyl unsubstituted or substituted, wherein the substituted group is selected from:
 (i) —OH,
 (ii) —C₁₋₆ alkoxy,
 (iii) —CO₂H,
 (iv) oxo,
 (v) —C₃₋₇ cycloalkyl, and
 (vi) —C₁₋₆ alkyl—OH;
 R⁸ and R⁹ are C₁₋₃ alkyl or taken together form an ethyl or propyl bridge; M⁺ is a positively charged inorganic or organic counterion,
 n is 1 or 2;
 q is 1, 2 or 3;
 aryl is defined in all instances above as phenyl or naphthyl; and
 aryloxy is defined in all instances above as phenoxy or naphthoxy;
 provided that when M represents S and more than one of X, Y or Z represents S(O)_pR⁷, then p represents the same number of oxygen atoms on S(O)_pR⁷; and when M is SO or SO₂, then X, Y or Z cannot represent S(O)_pR⁷.

5,670,505

PIPERAZINE DERIVATIVES

Masaaki Matsuo, Toyonaka; Daijiro Hagiwara, Moriguchi; Takashi Manabe, Kawanishi; Nobuyuki Konishi, Nagaoka-kyo; Shinji Shigenaga, Kobe; Kenji Murano; Hiroshi Matsuda, both of Osaka, and Hiroshi Miyake, Kyoto, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Filed Nov. 28, 1994, Ser. No. 348,176

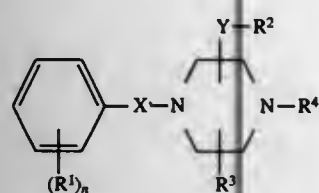
Claims priority, application United Kingdom, Nov. 29, 1993, 9324479; Feb. 2, 1994, 9402010; Jun. 24, 1994, 9412708

Int. Cl.⁶ A61K 31/495; 31/55; C07D 403/14; 401/14

U.S. Cl. 514—253

8 Claims

1. A compound of the formula:



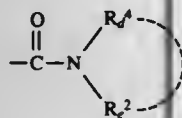
wherein:

X is carbonyl;

Y is lower alkylene;

R¹ is halo (lower alkyl);R² is indolyl;R³ is hydrogen;

R⁴ is a group of the formula —A—(Z)_n, in which A is a direct bond or lower alkylene, wherein Z is benzoyl which is substituted by lower alkyl or lower alkylsulfonylamino; or a carbamoyl derivative having the formula:



wherein

R⁴ is hydrogen and R² is hydrogen or 1-piperazinyl substituted by lower alkyl; or

R⁴ and R² together with the nitrogen atom form 1-piperazinyl substituted by cyclo (lower) alkyl, 1-piperidyl substituted by piperidyl or 1-homopiperazinyl substituted by lower alkyl; P is 1; and

n is 2; or a pharmaceutically acceptable salt thereof.

5,670,506

HALOGEN, ISOTHIOCYANATE OR AZIDE SUBSTITUTED XANTHINES

Alistair Leigh, Brier; John Michnick; Anil Kumar, both of Seattle, and Gail Underiner, Brier, all of Wash., assignors to Cell Therapeutics, Inc., Seattle, Wash.

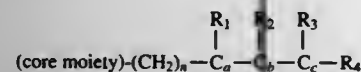
Filed Apr. 5, 1993, Ser. No. 42,946

Int. Cl.⁶ A61K 31/52; C07D 473/00

U.S. Cl. 514—258

17 Claims

1. A compound having the formula:



wherein n is an integer from 5 to 9, wherein the core moiety is a xanthine, wherein C_a, C_b, and C_c are an R or S enantiomer or

racemic mixture and the C_a, C_b, and C_c carbon atoms are bonded together by a single bond, double bond, or ether linkage, wherein R₁, R₂ and R₃ are independently halo, hydroxy, hydrogen, keto, isothiocyano, azide or haloacetoxy with the proviso that at least one of R₁, R₂ or R₃ must be a halo, isothiocyano, azide or haloacetoxy group, wherein R₄ is hydrogen, C₁₋₆ alkyl, C₁₋₆ alkenyl, cyclo C₄₋₆ alkyl, or phenyl, and wherein halo refers to fluoro, chloro, bromo and iodo.

5,670,507

METHOD FOR REVERSING MULTIPLE DRUG RESISTANT PHENOTYPE

Glenn C. Rice, and Jack W. Singer, both of Seattle, Wash., assignors to Cell Therapeutics, Inc., Seattle, Wash.

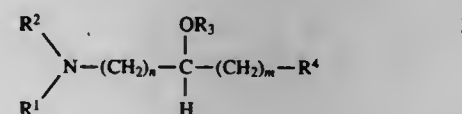
Filed Jan. 27, 1995, Ser. No. 379,232

Int. Cl.⁶ A61K 31/52; 31/565; 31/44; 31/47

U.S. Cl. 514—263

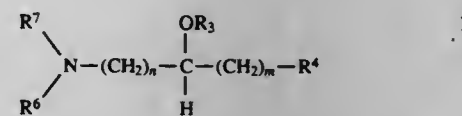
6 Claims

1. A method for reversing multiple drug resistance (MDR) phenotype in tumors insensitive to hydrophobic chemotherapeutic drugs due to over expression of mdr-1, comprising administering an effective amount of a long chain amino alcohol compound, wherein the long chain amino alcohol compound includes resolved enantiomers, resolved diastereomers, hydrates, salts, solvates or mixtures thereof from formula I or from formula II: formula I

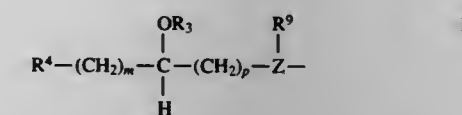


wherein n is an integer from one to four and m is an integer from four to twenty, R₁ and R₂ are independently hydrogen, a straight or branched chain alkyl, alkenyl or alkynyl of up to twenty carbon atoms in length or —(CH₂)_nR₅, wherein if R₁ or R₂ is —(CH₂)_nR₅, w is an integer from one to twenty and R₅ is an hydroxyl, halo, or C₁₋₈ alkoxyl group, R₁ and R₂ jointly form a saturated or unsaturated heterocyclic having from four to eight carbon atoms, R₃ is hydrogen or C₁₋₃, wherein a total sum of carbon atoms comprising R₁ and R₂, (CH₂)_n and (CH₂)_m does not exceed forty, R₄ is a heterocyclic moiety having from 4–7 atoms, including a nitrogen atom in one ring or two fused rings; or

formula II



wherein n, m, R₃, and R₄ are defined as provided in formula I, R₆ and R₇ are hydrogen, a straight or branched chain alkane, alkene or alkyne of up to twenty carbon atoms in length, or —(CH₂)_nR₈, at least one of R₆ or R₇ is —(CH₂)_nR₈, x is an integer from zero to fourteen and R₈ is a moiety having a general structure as provided in formula III



wherein m, R₃, and R₄ are defined as provided in formula I, Z is N or CH, p is an integer from zero to four, and R₉ is H or a straight or branched chain alkane, alkene or alkyne of up to twenty carbon atoms in length.

5,670,508

2-AMINO-6-ALKYL-5-(4-SUBSTITUTED-1-PIPERAZINYL) PYRIMIDIN-4-ONES, THE PREPARATION AND USE THEREOF

Hui-Po Wang, and Tung-Shing Bai, both of Taipei, Taiwan, assignors to National Science Council, Taipei, Taiwan

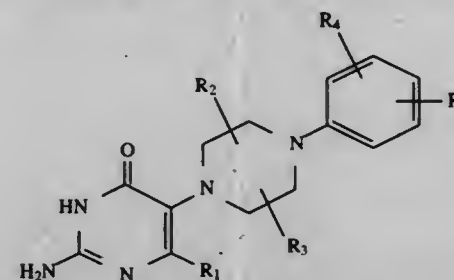
Filed Oct. 25, 1995, Ser. No. 548,211

Int. Cl.⁶ A61K 31/535; C07D 403/02

U.S. Cl. 514—272

16 Claims

1. A compound having the structural formula I where



R₁ is hydrogen or alkyl of from one to six carbon atoms;

R₂ and R₃ are independently hydrogen or alkyl of from one to six carbon atoms, vinyl or acetylenyl;

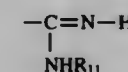
R₄ and R₅ are independently

(1). hydrogen, halogen, nitro, cyano, trifluoromethyl, hydroxyl, alkyl of from one to six carbon atoms, alkoxy of from one to six carbon atoms, or alkanoyl of from one to six carbon atoms;

(2). —NR₆R₇, where R₆ and R₇ are independently hydrogen, alkyl of from one to six carbon atoms, or alkanoyl of from one to six carbon atoms;

(3). —COOR₈, where R₈ is hydrogen, a pharmaceutically acceptable metal cation, a pharmaceutically acceptable amine cation, or alkyl of from one to six carbon atoms;

(5)



where R₁₁ is hydrogen, or alkyl of from one to six carbon atoms;

(6). —SO₂R₁₂, where R₁₂ is hydroxyl, alkyl of from one to six carbon atoms, alkoxy of from one to six carbon atoms or —NR₁₃R₁₄ where R₁₃ and R₁₄ are independently hydrogen or alkyl of from one to six carbon atoms or benzyl;

and the pharmaceutically acceptable salts thereof.

5,670,509

TOCOLYTIC OXYTOCIN RECEPTOR ANTAGONISTS

Ben E. Evans; Douglas W. Hobbs, both of Lansdale; Joseph M. Pawluczyk, Plymouth Meeting; Douglas J. Pettibone, Chalfont; Kenneth E. Rittle, Green Lane, and Peter D. Williams, Harleysville, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

PCT No. PCT/US93/09152, § 371 Date Apr. 5, 1995, § 102(e) Date Apr. 5, 1995, PCT Pub. No. WO94/07496, PCT Pub. Date Apr. 14, 1994

PCT Filed Sep. 27, 1993, Ser. No. 411,619

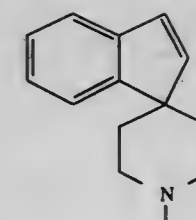
Int. Cl.⁶ A61K 31/44; C07D 471/10

U.S. Cl. 514—278

11 Claims

1. A compound or a pharmaceutically acceptable salt thereof, of the formula X-Y-Z-R¹, wherein

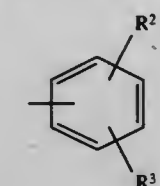
X is

Y is —CO—, or —SO₂—;

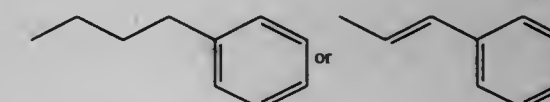
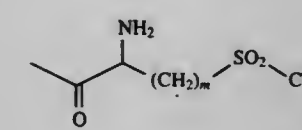
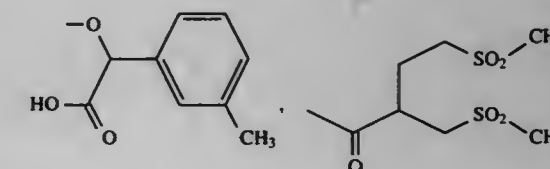
Z is an optional substituent that, when present, is —NH—, —O—, —CHR—, —CH=CH—, —CH=, —(CH₂)_m— or —CHCHOH—;

R is C₁₋₅ alkyl or C₁₋₅ alkoxy carbonylamino,

R¹ is —CH₃, —CH(CH₃)₂, —NR²R³, —NCOR⁴ or



R² is acetyl, O-Het where Het is imidazole or benzimidazole or azimidobenzene, or where R² is further defined as —COR⁶, —(CH₂)_m—NHCOR⁷, —(CH₂)_m—NHCOOR⁷, —(CH₂)_m—NR⁸R⁹, —(CH₂)_m—NHCOR⁷, —(CH₂)_m—NHCO—CH=CHR⁷, —NHCO—CHR⁷R⁷, —(CH₂)_m—NHCO—CH=CHR⁷, —NHSO₂R¹⁰ where R is as defined above, NHSO₂R⁷, —SO₂R¹⁰, —COR¹¹,

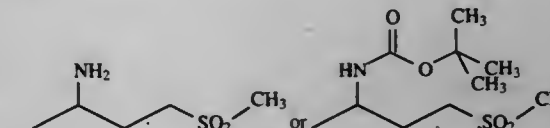


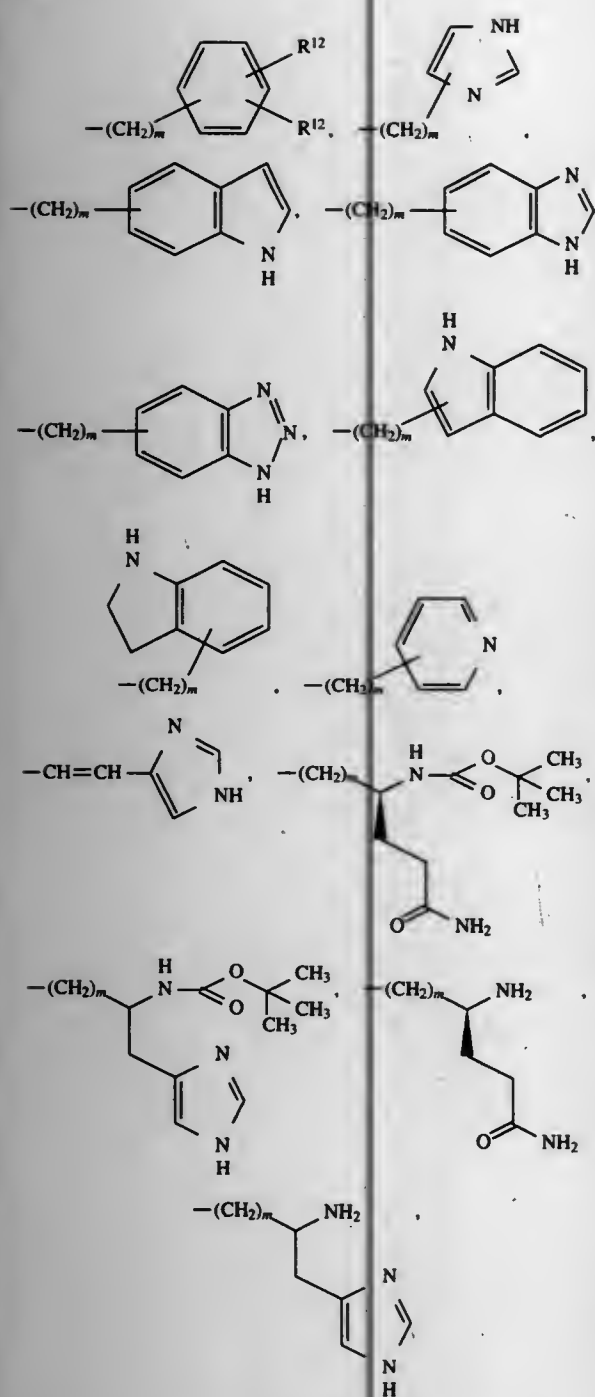
R³ is hydrogen, or hydroxyl;

R⁴ is hydrogen, C₁₋₅ alkyl, or C₆₋₁₀ cycloalkyl;

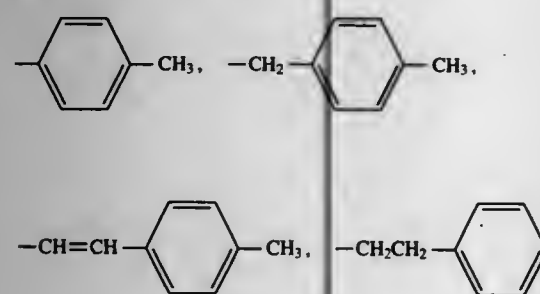
R⁵ is hydrogen or acetyl;

R⁶ is

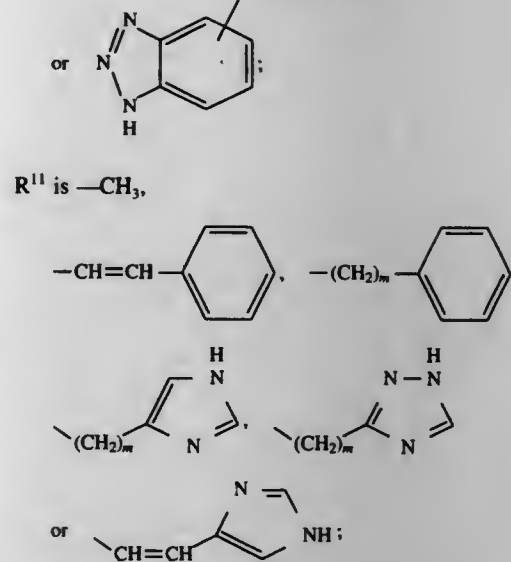


R⁷ is

hydrogen, C₁₋₄ alkyl, NSO₂R¹² or NHO—C₁₋₄ alkyl;
 R⁸ is hydrogen or C₁₋₅ alkyl;
 R⁹ is hydrogen or C₁₋₅ alkyl;
 R¹⁰ is —CH₃.



-continued



R¹² is hydrogen, C₁₋₅ alkyl or C₁₋₅ alkoxy; and
 m is an integer of from 0 to 5.

5,670,510

PYRIDYL SUBSTITUTED SPIRODIENES FOR THE TREATMENT OF INFLAMMATION

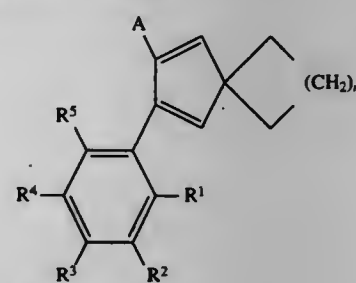
Horng-Chih Huang, and David R. Reitz, both of Chesterfield,
 Mo., assignors to G. D. Searle & Co., Skokie, Ill.
 Division of Ser. No. 237,739, May 4, 1994, abandoned. This
 application Jul. 9, 1996, Ser. No. 679,410

Int. Cl.⁶ A61K 31/44; C07D 213/00; 213/57; 213/62

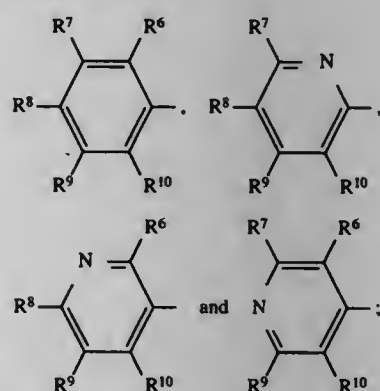
U.S. Cl. 514—278

22 Claims

1. A compound of Formula I



wherein A is selected from



wherein each of R¹, R², R⁴ and R⁵ is hydrido; wherein R³ is
 methylsulfonyl or sulfamyl; wherein each of R⁶ through R¹⁰ is
 independently selected from hydrido, halo, alkyl, alkoxy, alkylthio,
 cyano, haloalkyl, haloalkoxy, hydroxyalkyl, alkoxyalkyl, hydroxyl,
 mercapto, alkylsulfonyl, haloalkylsulfonyl and sulfamyl; and

wherein n is a number selected from 0, 1, 2 and 3; or a
 pharmaceutically-acceptable salt thereof.

5,670,511

INDOLEPIPERIDINE DERIVATIVES

Joachim Marz, Mainz; Hartmut Greiner, Weiterstadt; Chris-
 toph Seyfried, Seeheim, and Gerd Bartoszyk, Weiterstadt, all
 of Germany, assignors to Merck Patent Gesellschaft Mit
 Beschränkter Haftung, Darmstadt, Germany

Filed Jan. 16, 1996, Ser. No. 586,273

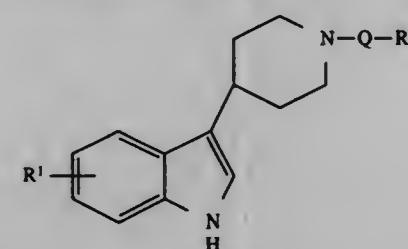
Claims priority, application Germany, Jan. 12, 1995,
 19500689.5

Int. Cl.⁶ C07D 513/04; A61K 31/395

U.S. Cl. 514—290

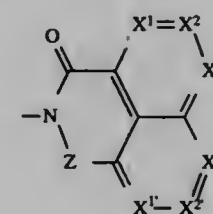
17 Claims

1. An indolepiperidine compound of the formula I



in which

R¹ is H, A, OH, OA, F, Cl, Br, I, CF₃, OCF₃, CN, COOH,
 CONH₂, CONHA, CONA₂, or COOA,
 R² is —NH—CO—Ar, —NH—SO₂—Ar or D,
 Q is —C_mH_{2m}— or —O—C_mH_{2m}—
 D is



X¹, X² and X³
 and also

X¹, X² and X³ are in each case independently of one another N
 or CH, where the respective H atoms can also be replaced by
 a substituent selected from the group consisting of A, OA, F,
 Cl, Br, I, CF₃, OCF₃, CN, COOH and COOA,
 Z is CO, SO₂ or SO,
 A is alkyl having 1 to 6 C atoms,
 Ar is 1-naphthyl which is unsubstituted or mono- or disubsti-
 tuted by A, OA, F, Cl, Br, I, CF₃, CN, COOH or COOA,
 where one, two, three or four CH groups in the ring are
 optionally replaced by N
 m is 1, 2, 3 or 4 and
 n is 1, 2 or 3,

and physiologically acceptable salts thereof.

2. The compound of claim 1, which is

- 2-[2-(4-(5-fluoro-3-indolyl)piperidino)ethyl]-2,3-dihydro-1H-benz[de]isoquinoline-1,3-dione;
 - 2-[2-(4-(6-fluoro-3-indolyl)piperidino)ethyl]-2,3-dihydro-1H-benz[de]isoquinoline-1,3-dione;
 - 2-[2-(4-(4-fluoro-3-indolyl)piperidino)ethyl]-2,3-dihydro-1H-benz[de]isoquinoline-1,3-dione;
 - N-[2-(4-(5-fluoro-3-indolyl)piperidino)ethyl]-8-quinolinesulfonamide;
 - N-[2-(4-(6-fluoro-3-indolyl)piperidino)ethyl]-8-quinolinesulfonamide;
 - N-[3-(4-(6-fluoro-3-indolyl)piperidino)propyl]isoquinoline-1-carboxamide;
 - N-[3-(4-(6-fluoro-3-indolyl)piperidino)propyl]-6-methoxyquinoline-4-carboxamide,
- or physiologically acceptable salts thereof.

5,670,512

BENZO [F] QUINOLINONES

James E. Audia, Indianapolis, Ind.; Kenneth S. Hirsch, Clarks-
 ville, Md.; Charles D. Jones, Indianapolis, Ind.; David E.
 Lawhorn, Greenfield, Ind.; Loretta A. McQuaid, and Leland
 O. Weigel, both of Indianapolis, Ind., assignors to Eli Lilly
 and Company, Indianapolis, Ind.

Continuation of Ser. No. 445,806, May 22, 1995, Pat. No.
 5,541,190, which is a division of Ser. No. 223,884, Apr. 6,
 1994, Pat. No. 5,495,021, which is a division of Ser. No.
 52,960, Apr. 23, 1993, Pat. No. 5,334,767, which is a division
 of Ser. No. 927,710, Aug. 10, 1992, Pat. No. 5,239,075, which
 is a continuation-in-part of Ser. No. 781,039, Oct. 21, 1991,
 abandoned, which is a continuation-in-part of Ser. No.

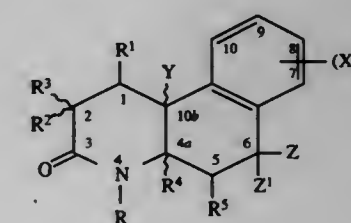
748,116, Aug. 21, 1991, abandoned. This application Apr. 17,
 1996, Ser. No. 633,990

Int. Cl.⁶ A61K 31/345

8 Claims

U.S. Cl. 514—290

1. A method of treating acne vulgaris in a mammal comprising
 administering to a mammal in need of treatment from ache vul-
 garis, an effective amount of a compound of the Formula



where:

- R is hydrogen, C₁₋₄ alkyl, unsubstituted or substituted
 phen(C₁₋₄) alkyl;
 Z and Z¹ are independently selected from hydrogen and C₁₋₄
 alkyl or one of Z and Z¹ combines with R² to form a
 carbon-carbon bond;
 Y is hydrogen or methyl or combines with R¹ to form a carbon-
 carbon bond;
 R¹ is hydrogen or combines with one of Y or R¹ to form a
 carbon-carbon bond;
 R² is hydrogen or C₁₋₄ alkyl;
 R³ is hydrogen or combines with R¹ to form a carbon-carbon
 bond;
 R⁴ is hydrogen or combines with R⁵ to form a carbon-carbon
 bond;
 R⁵ is hydrogen or combines with one of Z or Z¹ to form a
 carbon-carbon bond;
 n is 1 or 2;
 X is hydrogen, halogen, NO₂, cyano, CF₃, C₁₋₆ alkyl, C₁₋₆
 alkoxy, carboxy, C₁₋₆ alkoxy-carbonyl, amino, C₁₋₄ alky-
 lamino, C₁₋₄ dialkylamino, amido, C₁₋₄ alkylamido,
 C₁₋₄ dialkylamido, mercapto, C₁₋₆ alkylthio, C₁₋₆ alkyl-
 sulfonyl, C₁₋₆ alkylsulfonyl, or a group —A-R⁶ where A is
 C₁₋₆ alkylene, C₂₋₆ alkenylene or C₂₋₆ alkynylene; and
 R⁶ is halogen, hydroxy, CF₃, C₁₋₆ alkoxy, carboxy, C₁₋₆
 alkoxy-carbonyl, amino, C₁₋₄ alkylamino, C₁₋₄ dialkyl-
 lamino, amido, C₁₋₄ alkylamido, C₁₋₄ dialkylamido,
 C₁₋₄ alkylsulfonylamino, aminosulfonyl or C₁₋₄ alkylami-
 nosulfonyl, or a pharmaceutically acceptable salt thereof;
 provided that
 at least one of R¹ and R⁵ is hydrogen;
 (b) when R is hydrogen, methyl, ethyl or benzyl, X is other than
 hydrogen or methoxy; and
 (c) when R is methyl, R² is other than methyl.

5,670,513
MEDICINAL FEED FOR THE SYSTEMIC TREATMENT
OF ECTOPARASITIC AND ECTOACTERIAL DISEASES
OF FISH

Hartmut Schmidt, Georgsmarienhütte, and Günter Ritter, Bünde, both of Germany, assignors to Tetra Werke Dr. Rer. Nat. U. Baensch GmbH, Herrentsch, Germany
 Division of Ser. No. 287,754, Aug. 9, 1994, abandoned, which is a division of Ser. No. 949,324, Sep. 22, 1992, Pat. No. 5,618,847, which is a continuation of Ser. No. 709,867, Jun. 4, 1991, abandoned. This application Jul. 10, 1995, Ser. No. 499,985

Claims priority, application Germany, Jun. 5, 1990, 40 17 964.8

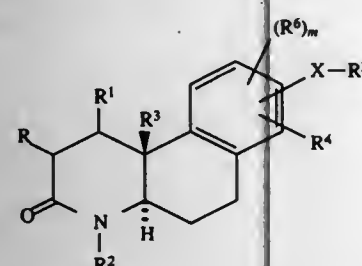
Int. Cl. 6 A61K 31/44; 31/15; 31/16; 31/17
 U.S. Cl. 514—297 3 Claims

1. A composition comprising an emeral solid medicinal food preparation for fish containing an active compound an acridine-derivative in a concentration of 0.005 to 10% by weight wherein the active compound is very strongly adsorptively bound by carriers and feed materials so no leaching out by water takes place.

5,670,514
COMPOSITIONS FOR INHIBITING BONE LOSS
 James E. Audia, and Blake L. Neubauer, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
 Division of Ser. No. 438,420, May 10, 1995, Pat. No. 5,550,134. This application Mar. 28, 1996, Ser. No. 625,567

Int. Cl. 6 A61K 31/44; 31/45; 31/40; 31/185
 U.S. Cl. 514—298 5 Claims

1. A pharmaceutical composition comprising a compound of formula I



wherein

R and R¹ both represent hydrogen or combine to form a bond; R² represents hydrogen or C₁-C₃ alkyl; R³ represents hydrogen, methyl or ethyl; either R⁴ and X—R⁵ have the following definitions, (R⁶)_n is absent, and R³ does not represent hydrogen; or (R⁶)_n has the following definition, R⁴ and X—R⁵ are absent, and R³ does not represent ethyl; R⁴ and X—R⁵ each occupies one of the 7-, 8- and 9-positions; R⁴ represents hydrogen, halo, methyl or ethyl; X represents C₁-C₄ alkyl, C₂-C₄ alkenyl, C₂-C₄ alkynyl, a bond —SO—, —SO₂—, —CO—Y—(CH₂)_n—, —Y—CO—(CH₂)_n—CO—, —Z—(CH₂)_n—, or —SO₃—; wherein X groups which are not symmetrical may be in either orientation;

Y represents —S—, —O—, or —NH—;

Z represents —O— or —S—;

n represents 0-3;

R⁵ represents phenyl, naphthalenyl, pyridinyl, pyrazinyl, pyridazinyl, pyrimidinyl, anthracenyl, acenaphthalenyl, thiazolyl, benzimidazolyl, indazolyl, thiophenyl, phenanthrenyl, quinolinyl, fluorenyl, isoquinolinyl, indanyl, benzopyranyl, indolyl, benzisoquinolinyl, benzindolyl, benzothiazolyl, benzothienyl, quinoxalinyl, benzoxazolyl, tetrazolyl, naphthothiazolyl, quinazolinyl, thiazolopyridinyl, pyridazinoquinazolinyl, benzisothiazolyl, benzodioxolyl, benzodioxinyl, diphenylmethyl or triphenylmethyl;

the above R³ groups are unsubstituted or substituted with 1-3 groups chosen from the group consisting of halo, trifluoromethyl, trifluoroethoxy, C₁-C₄ alkyl, trifluoromethoxy, hydroxy, C₁-C₃ alkoxy, nitro, C₁-C₃ alkylthio, C₁-C₆ alkanoyl, phenyl, oxo, phenoxy, phenylthio, C₁-C₃ alkylsulfonyl, C₁-C₃ alkylsulfonyl, cyano, amino, C₁-C₃ alkylamino, diphenylm-

ethylamino, triphenylmethylamino, benzyloxy, benzylthio, (mono-halo, nitro or CF₃)benzyl(oxy or thio), di(C₁-C₃ alkyl, C₃-C₆ cycloalkyl, or C₄-C₆ cycloalkylalkyl)amino, (mono-C₁-C₃ alkyl, C₁-C₃ alkoxy or halo)-(phenyl, phenoxy, phenylthio, phenylsulfonyl or phenoxy-sulfonyl), C₂-C₆ alkanoyl, amino, benzoylamino, diphenylmethylamino(C₁-C₃ alkyl), aminocarbonyl, C₁-C₃ alkylaminocarbonyl, di(C₁-C₃ alkyl)aminocarbonyl, halo-C₁-C₆ alkanoyl, aminosulfonyl, C₁-C₃ alkylaminosulfonyl, di(C₁-C₃ alkyl)aminosulfonyl, phenyl(oxy or thio) (C₁-C₃ alkyl), (halo, C₁-C₃ alkyl or C₁-C₃ alkoxy)phenyl(oxy or thio) (C₁-C₃ alkyl), benzoyl, or (amino, C₁-C₃ alkylamino or di(C₁-C₃ alkyl)amino) (C₁-C₃ alkyl); or an above R³ group is substituted with a morpholino(C₁-C₃ alkyl) group, a phenyl(C₁-C₃ alkyl)piperidinyl group, a phenyl(C₁-C₃ alkyl)piperidinylaminocarbonyl group, a C₂-C₆ alkanoyl-aminothiophenyl group, or a (amino, C₁-C₃ alkylamino or di(C₁-C₃ alkyl)amino)naphthalenylsulfonylamino group;

or R⁵ is a perhalophenyl group;

m represents 1-2;

R⁶ represents hydrogen, halogen, NO₂, cyano, CF₃, C₁-C₆ alkyl, C₁-C₆ alkoxy, carboxy, C₁-C₆ alkoxy-carbonyl, amino, C₁-C₄ alkylamino, C₁-C₄ dialkylamino, amido, C₁-C₄ alkylamido, C₁-C₄ dialkylamido, mercapto, C₁-C₆ alkylthio, C₁-C₆ alkylsulfinyl, C₁-C₆ alkylsulfonyl, or a group —A—R⁷ where A is C₁-C₆ alkylene, C₂-C₆ alkenylene or C₂-C₆ alkynylene; and R⁷ represents halogen, hydroxy, CF₃, C₁-C₆ alkoxy, carboxy, C₁-C₆ alkoxy-carbonyl, amino, C₁-C₄ alkylamino, C₁-C₄ dialkylamino, amido, C₁-C₄ alkylamido, C₁-C₄ dialkylamido, C₁-C₄ alkylsulfonylamino, aminosulfonyl or C₁-C₄ alkylaminosulfonyl;

or a pharmaceutically acceptable salt thereof, and an effective amount of a bone antiresorptive agent, in combination with a pharmaceutically acceptable carrier, diluent, or excipient.

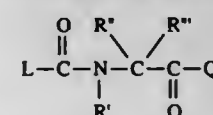
5,670,515

AMINO ACID DERIVATIVES

Leo Alig, Kaiseraugst; Paul Hadvary, Biel-Benken; Marianne Hürzeler, Däniken; Marcel Müller, Frenkendorf; Beat Steiner, Bättwil, and Thomas Weller, Basel, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.
 Continuation of Ser. No. 310,016, Sep. 21, 1994, which is a division of Ser. No. 854,135, Mar. 19, 1992, Pat. No. 5,378,712. This application May 25, 1995, Ser. No. 452,616
 Claims priority, application Switzerland, Mar. 26, 1991, 910/91; Jan. 22, 1992, 176/92

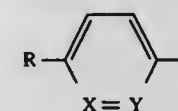
Int. Cl. 6 A61K 31/44; C07D 451/06; 451/10; 451/12
 U.S. Cl. 514—304 23 Claims

1. A compound of the formula

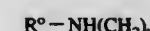


wherein

L is a group of the formula



or



R is amidino or guanidino, one of X and Y is CH, and the other is N;

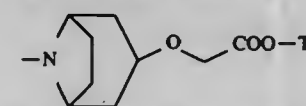
R⁰ is hydrogen or amidino;

t is an integer between 2 and 6;

R¹, R² and R³, in the α-aminocarboxylic acid residue of the formula —N(R¹)(R²)(R³)CO— are hydrogen or N-substituents R⁴ or sidechains R⁵ and R⁶ of open chain or cyclic, natural or synthetic α-aminocarboxylic acids, wherein a hydroxy or carboxy group present in the N-substituent R⁴ and sidechains R⁵ and R⁶ can be etherified or, respectively,

esterified or amidated, and amino groups can be C₁-C₄ alkanoylated or aroylated, and wherein R¹ and R² together with the N atom and C atom to which they are attached can form a 4- to 6-membered ring;

Q is a group of the formula



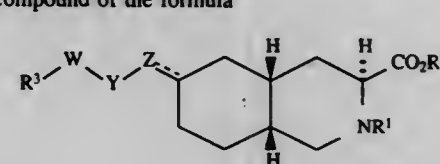
T is hydrogen or a lower-alkyl or phenyl-lower-alkyl group which is cleavable under physiological conditions, as well as hydrates or solvates and physiologically usable salts thereof.

5,670,516

EXCITATORY AMINO ACID RECEPTOR ANTAGONISTS
 M. Brian Arnold, Franklin; Nancy K. Augenstein, Indianapolis; William H. W. Lunn, Indianapolis; Paul L. Ornstein, Indianapolis, and Darryle D. Schoepf, Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
 Division of Ser. No. 343,079, Nov. 21, 1994, abandoned, which is a division of Ser. No. 111,747, Aug. 25, 1993, Pat. No. 5,399,696, which is a division of Ser. No. 939,780, Sep. 3, 1992, Pat. No. 5,284,957. This application Jun. 1, 1995, Ser. No. 456,439

Int. Cl. 6 C07D 215/14; A61K 31/47
 U.S. Cl. 514—307 42 Claims

1. A compound of the formula

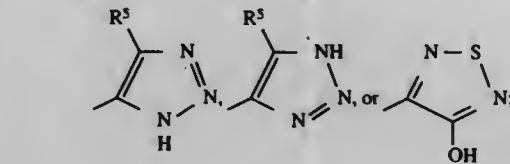
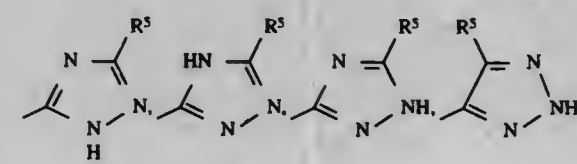
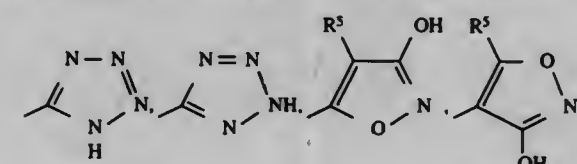


wherein:

R¹ is hydrogen, C₁-C₁₀ alkyl, arylalkyl, alkoxy-carbonyl or acyl;

R² is hydrogen, C₁-C₆ alkyl, substituted alkyl, cycloalkyl, or arylalkyl;

R³ is CO₂H, SO₃H, CONHSO₂R⁴, or a group of formula



W is (CH₂)_n, S, SO, SO₂;

Y is CHR⁷, NR⁸, O, S, SO, or SO₂;

Z is NR⁹, CHR⁷, or CH; or

W and Y together are HC=CH or C≡C, or Y and Z together are

HC=CH or C≡C;

R⁷ is hydrogen, C₁-C₄ alkyl, phenyl, or acyl;

R⁸ is hydrogen, C₁-C₄ alkyl, CF₃, phenyl, hydroxy, amino, bromo, iodo, or chloro;

R⁹ is acyl;

R⁷ is independently hydrogen, C₁-C₄ alkyl, phenyl, or substituted phenyl;

R⁸ is C₁-C₄ alkyl or tetrazole-5-yl; and

n is 0, 1, or 2;

provided that when Y is NR⁴, O, S, SO, or SO₂, W is (CH₂)_n and Z is CHR⁷ or CH;

further provided that when W is S, SO, or SO₂, Y is CHR⁷, Z is CHR⁷ or CH, or Y and Z together are HC=CH or C≡C;

further provided that when W and Z are CH₂, Y is not S;

further provided that when W and Y together are HC=CH or C≡C, Z is CHR⁷;

or a pharmaceutically acceptable salt thereof.

5,670,517

IRREVERSIBLE HIV PROTEASE INHIBITORS,
COMPOSITIONS CONTAINING SAME AND PROCESS
FOR THE PREPARATION THEREOF

Nakyeon Choy, Hoi Choi, Chi-Hyo Park, Young-Chan Son, Chang-Sun Lee, Heungsik Yoon, Sung-Chun Kim, Jong-Sung Koh, and Chung-Ryeol Kim, all of Daejeon, Rep. of Korea, assignors to LG Chemical Limited, Seoul, Rep. of Korea

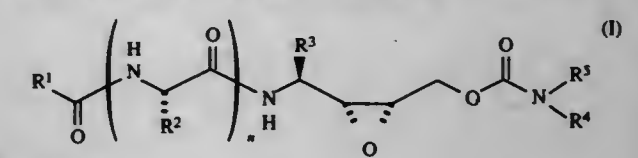
Continuation-in-part of Ser. No. 341,352, Nov. 17, 1994, which is a continuation-in-part of Ser. No. 159,382, Nov. 30, 1993, Pat. No. 5,587,388. This application Jun. 6, 1996, Ser. No. 659,791

Claims priority, application Rep. of Korea, Dec. 8, 1994, 92-33272

Int. Cl. 6 A61K 31/47; 31/335; C07D 217/15; 215/14

U.S. Cl. 514—307 8 Claims

1. A cis-epoxide compound of formula (I) and pharmaceutically acceptable salts, hydrates and solvates thereof:



wherein:

R¹ is an aromatic group, a nitrogen-containing aromatic group,

C₁-C₄ alkyl group optionally substituted with an aromatic group or a nitrogen-containing aromatic group, C₁-C₄ alkoxy group optionally substituted with an aromatic group or a nitrogen-containing aromatic group;

R² is an amino acid residue or a C₁-C₄ alkyl group substituted with a C₁-C₄ alkylsulfonyl group;

R³ is a C₁-C₄ alkyl group optionally substituted with an aromatic group;

R⁴ is hydrogen or a C₁-C₂ alkyl group;

R⁵ is a C₁-C₁₀ alkyl group optionally substituted with an aromatic group; and

n is 1 or 2.

5,670,518

AROMATIC NITRO AND NITROSO COMPOUNDS AND
THEIR METABOLITES USEFUL AS ANTI-VIRAL AND
ANTI-TUMOR AGENTS

Ernest Kun, 8 Helens Ln., Mill Valley, Calif. 94941; Jerome Mendeleyev, 1292 Stanyan St., San Francisco, Calif. 94117, and Eva Kirsten, 397 Imperial Way, #302, Daly City, Calif. 94015

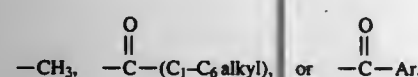
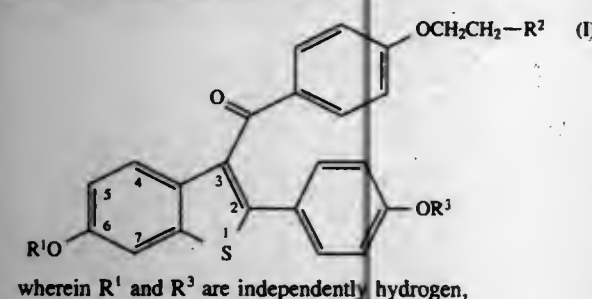
Division of Ser. No. 76,313, Jun. 11, 1993, Pat. No. 5,464,871, which is a continuation-in-part of Ser. No. 60,409, May 12, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 473,043

Int. Cl. 6 A61K 31/35; 31/47
 U.S. Cl. 514—309 11 Claims

1. A method of treating retroviral infections, said method comprising the step of administering to a subject a therapeutically effective amount of a compound selected from the group consisting of:

5,670,523
METHODS OF INHIBITING MUSCULOAPONEUROTIC FIBROMATOSSES (DESMOID TUMORS)
 Maria Luisa Brandi, and Francesco Tonelli, both of Florence, Italy, assignors to Eli Lilly and Company, Indianapolis, Ind.
 Filed Jan. 7, 1997, Ser. No. 780,656
 Int. Cl.⁶ A61K 31/445; 31/38

U.S. Cl. 514—324 4 Claims
 1. A method of inhibiting musculoaponeurotic fibromatoses comprising administering to a mammal in need thereof an effective amount of a compound having the formula



wherein Ar is optionally substituted phenyl;
 R² is selected from the group consisting of pyrrolidine, hexamethylenimine, and piperidine; or a pharmaceutically acceptable salt of solvate thereof.

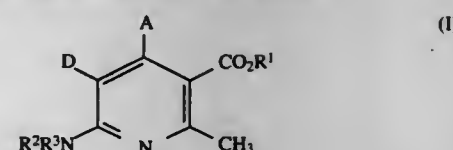
5,670,524
METHODS AND COMPOSITIONS FOR THE TREATMENT OF PAIN UTILIZING ROPIVACAINE
 Arne Torsten Eek, Trosa, Sweden, assignor to Astra AB, Sweden
 PCT No. PCT/SE94/00496, § 371 Date Jun. 28, 1994, § 102(e)
 Date Jun. 28, 1994, PCT Pub. No. WO95/00148, PCT Pub. Date Jan. 5, 1995
 PCT Filed May 26, 1994, Ser. No. 256,319
 Claims priority, application Sweden, Jun. 28, 1993, 9302218
 Int. Cl.⁶ A61K 31/445

U.S. Cl. 514—330 10 Claims
 1. A method for treating a human experiencing pain, said method comprising: administering to said human a composition comprising a pharmaceutically acceptable salt of ropivacaine, wherein said ropivacaine is present in said composition at a concentration of less than 0.25% by weight.

5,670,525
SUBSTITUTED 4-PHENYL-6-AMINO-NICOTINIC ACID COMPOUNDS USEFUL IN THE TREATMENT OF CNS DISORDERS
 Klaus Urbahns; Siegfried Goldmann, both of Wuppertal; Hans-Georg Heine, Krefeld; Bodo Junge; Rudolf Schohe-Loop, both of Wuppertal; Henning Sommermeier, Köln; Thomas Glaser, Overath; Reilinde Wittka, Köln, and Jean-Marie Viktor De Vry, Rösraht, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
 Filed Aug. 22, 1995, Ser. No. 517,873
 Claims priority, application Germany, Aug. 29, 1994, 44 30 638.5

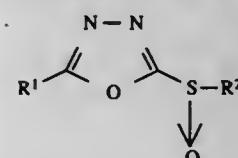
Int. Cl.⁶ C07D 213/80; 213/803; A61K 31/435; 31/455
 U.S. Cl. 514—334 13 Claims
 1. A method of treating diseases which are affected by modulating the calcium-dependent potassium channel which comprises administering to a patient in need thereof an effective amount of a

4-phenyl-6-amino-dihydropyridine of the formula

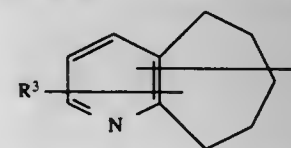


in which
 A represents aryl having 6 to 10 carbon atoms or pyridyl, each of which is optionally substituted up to 3 times by identical or different substituents selected from the group consisting of nitro, cyano, phenyl, halogen and trifluoromethyl or by straight-chain or branched alkylthio or alkoxy in each case having up to 6 carbon atoms,
 D represents cyano or nitro,
 R¹ represents hydrogen or straight-chain or branched alkyl having up to 8 carbon atoms,
 R² and R³ are identical or different and represent hydrogen or straight-chain or branched alkyl or acyl in each case having up to 6 carbon atoms,
 or a salt thereof.

5,670,526
1,3,4-OXADIAZOLES
 Dharmpal S. Dodd, Germantown, Md., and Takao Nishi, Tokushima, Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Osaka, Japan
 Filed Dec. 21, 1995, Ser. No. 576,404
 Int. Cl.⁶ C07D 271/13; A61K 31/41
 U.S. Cl. 514—340 13 Claims
 1. A 1,3,4-oxadiazole of the formula:



wherein R¹ is an alkyl group, a phenyl group optionally having a lower alkoxy group, a hydroxy group, a lower alkyl group, optionally having a halogen substituent, a halogen atom or an anilino group, optionally substituted on the phenyl ring with 1-3 lower alkyl groups optionally having a halogen substituent or a halogen atom, an adamantyl group, a naphthyl group, a phenyl(lower)alkyl group, optionally having a phenoxy group as a substituent on the phenyl ring, or an unsaturated 5-membered to 11-membered heteromonocyclic or heterobicyclic group having 1-4 heteroatoms selected from the group consisting of a nitrogen, an oxygen and a sulfur atom, said heterocyclic group being optionally substituted with a phenyl group, a phenoxy group or a lower alkyl group; R² is a phenyl group, optionally having 1-3 lower alkyl groups or hydroxyl groups, a phenyl(lower)alkyl group.



wherein R³ is a hydrogen atom, or a lower alkoxy group, a quinolyl group or a lower alkyl group substituted by an unsaturated 5-membered to 11-membered heteromonocyclic or heterobicyclic group having 1-4 heteroatoms selected from the group consisting of a nitrogen, an oxygen and a sulfur atom, said heterocyclic group being optionally substituted with a phenyl group having optionally a lower alkyl substituent on the phenyl ring, a phenyl(lower)alkyl group, a lower alkoxy group, an oxo group, a lower alkyl group or a phenoxy group and n is 0 or 1; with the provisos that R¹ is not a 4H-pyranyl group or a 1,4-dihydropyridyl group; when R¹ is a lower alkyl group or phenyl group, R² is not a pyrazyl-substituted lower alkyl group having a lower alkyl group, a lower alkoxy

group or an oxo group; and R² is not a 1,1,3-trioxo-1,2-benzisothiazolylmethyl group; or a salt thereof.

5,670,527
PYRIDYL IMIDAZOLE COMPOUNDS AND COMPOSITIONS
 Jerry Leroy Adams, Wayne; Ravi Shanker Garigipati, Wayne, and Jeffrey Charles Boehm, King of Prussia, all of Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.
 Continuation-in-part of Ser. No. 369,964, Jan. 9, 1995, abandoned, which is a continuation-in-part of Ser. No. 92,733, Jul. 16, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 473,058

Int. Cl.⁶ A61K 31/44; 31/535; C07D 401/04; 413/14
 U.S. Cl. 514—341 28 Claims
 1. A compound represented by the formula:

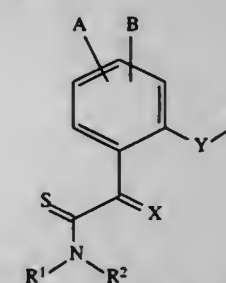


R₁ is 4-pyridyl ring, which ring is optionally substituted with one or two substituents each of which is independently selected from C₁₋₄ alkyl, halogen, hydroxyl, C₁₋₄ alkoxy, C₁₋₄ alkylthio, C₁₋₄ alkylsulfinyl, CH₂OR₁₂, amino, mono or di-C₁₋₆ alkyl substituted amino, N(R₁₀)C(O)R₉ or an N-heterocyclyl ring which ring has from 5 to 7 members and optionally contains an additional heteroatom selected from oxygen, sulfur or NR₁₅;
 R₂ is phenyl, naphth-1-yl or naphth-2-yl which is optionally substituted by one or two substituents, each of which is independently selected, and which, for a 4-phenyl, 4-naphth-1-yl, 5-naphth-2-yl or 6-naphth-2-yl substituent, is halogen, cyano, nitro, —C(Z)NR₁₇, —C(Z)OR₁₆, —(CR₁₀R₂₀)_nCOR₁₂, —SR₅, —SOR₅, —OR₁₂, halo-substituted C₁₋₄ alkyl, C₁₋₄ alkoxy, —ZC(Z)R₁₂, —NR₁₀C(Z)R₁₆, or —(CR₁₀R₂₀)_nNR₁₀R₂₀ and which, for other positions of substitution, is halogen, cyano, —C(Z)NR₁₃R₁₄, —C(Z)OR₃, —(CR₁₀R₂₀)_nCOR₃, —S(O)_mR₃, —OR₃, halo-substituted C₁₋₄ alkyl, —C₁₋₄ alkoxy, —(CR₁₀R₂₀)_mNR₁₀C(Z)R₃, —NR₁₀S(O)_mR₈, —NR₁₀S(O)_mNR₁₇, —ZC(Z)R₃ or —(CR₁₀R₂₀)_mNR₁₃R₁₄;
 v is 0, or an integer having a value of 1 or 2;
 m is 0, or the integer 1 or 2;
 m' is an integer having a value of 1 or 2;
 m'' is 0, or an integer having a value of 1 to 5;
 R₂ is heterocyclyl, heterocyclyl C₁₋₁₀ alkyl, C₃₋₇ cycloalkyl, C₃-cycloalkyl C₁₋₁₀ alkyl, C₅₋₇ cycloalkenyl, C₅₋₇-cycloalkenyl C₁₋₁₀ alkyl, aryl, aryl C₁₋₁₀ alkyl, heteroaryl, heteroaryl C₁₋₁₀ alkyl, (CR₁₀R₂₀)_nOR₁₁, (CR₁₀R₂₀)_nS(O)_mR₁₈, (CR₁₀R₂₀)_nNHS(O)₂R₁₈, (CR₁₀R₂₀)_nNR₁₃R₁₄, (CR₁₀R₂₀)_nC(Z)R₁₁, (CR₁₀R₂₀)_nN(OR₉)C(Z)R₁₁, wherein the cycloalkyl, cycloalkylalkyl, aryl, arylalkyl, heteroaryl, heteroaryl alkyl, heterocyclyl and heterocyclyl alkyl groups may be optionally substituted;
 n is an integer having a value of 1 to 10;
 Z is oxygen or sulfur;
 R₉ is hydrogen, C₁₋₆ alkyl, C₃₋₇ cycloalkyl, aryl, aryl C₁₋₄ alkyl, heteroaryl, heteroaryl C₁₋₄ alkyl, heterocyclyl, or heterocyclyl C₁₋₄ alkyl;
 R₃ is heterocyclyl, heterocyclyl C₁₋₁₀ alkyl or R₈;
 R₅ is hydrogen, C₁₋₄ alkyl, C₂₋₄ alkenyl, C₂₋₄ alkynyl or NR₁₇, excluding the moieties —SR₅ being —SNR₁₇ and —SOR₅ being —SOH;
 R₆ is hydrogen, a pharmaceutically acceptable cation, C₁₋₁₀ alkyl, C₃₋₇ cycloalkyl, aryl, aryl C₁₋₄ alkyl, heteroaryl, heteroarylalkyl, heterocyclyl, aryl, or C₁₋₁₀ alkanoyl;
 R₇ and R₁₇ is each independently selected from hydrogen or C₁₋₄ alkyl or R₁₇, together with the nitrogen to which they are attached form a heterocyclic ring of 5 to 7 members which

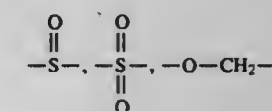
ring optionally contains an additional heteroatom selected from oxygen, sulfur or NR₁₅;
 R₈ is C₁₋₁₀ alkyl, halo-substituted C₁₋₁₀ alkyl, C₂₋₁₀ alkenyl, C₂₋₁₀ alkynyl, C₃₋₇ cycloalkyl, C₃₋₇ cycloalkenyl, aryl, aryl C₁₋₁₀ alkyl, heteroaryl, heteroaryl C₁₋₁₀ alkyl, (CR₁₀R₂₀)_nOR₁₁, (CR₁₀R₂₀)_nS(O)_mR₁₈, (CR₁₀R₂₀)_nNHS(O)₂R₁₈, (CR₁₀R₂₀)_nNR₁₃R₁₄; wherein the aryl, arylalkyl, heteroaryl, heteroaryl alkyl may be optionally substituted;
 R₉ is hydrogen, —C(Z)R₁₁ or optionally substituted C₁₋₁₀ alkyl, S(O)₂R₁₈, optionally substituted aryl or optionally substituted aryl C₁₋₄ alkyl;
 R₁₀ and R₂₀ is each independently selected from hydrogen or C₁₋₄ alkyl;
 R₁₁ is hydrogen, C₁₋₁₀ alkyl, C₃₋₇ cycloalkyl, heterocyclyl, heterocyclyl C₁₋₁₀ alkyl, aryl, aryl C₁₋₁₀ alkyl, heteroaryl or heteroaryl C₁₋₁₀ alkyl;
 R₁₂ is hydrogen or R₁₆;
 R₁₃ and R₁₄ is each independently selected from hydrogen or optionally substituted C₁₋₄ alkyl, optionally substituted aryl or optionally substituted aryl C₁₋₄ alkyl, or together with the nitrogen to which they are attached form a heterocyclic ring of 5 to 7 members which ring optionally contains an additional heteroatom selected from oxygen, sulfur or NR₁₅;
 R₁₅ is R₁₀ or C(Z)C₁₋₄ alkyl;
 R₁₆ is C₁₋₄ alkyl, halo-substituted C₁₋₄ alkyl, or C₃₋₇ cycloalkyl;
 R₁₈ is C₁₋₁₀ alkyl, C₃₋₇ cycloalkyl, heterocyclyl, aryl, arylalkyl, heterocyclyl, heterocyclyl C₁₋₁₀ alkyl, heteroaryl or heteroarylalkyl;
 or a pharmaceutically acceptable salt thereof.

5,670,528
THIOAMIDES AND THEIR USE AS CROP PROTECTION AGENTS
 Horst Wingert; Hubert Sauter; Herbert Bayer, all of Mannheim; Klaus Oberdorf, Heidelberg; Gisela Lorenz, Neustadt, and Eberhard Ammermann, Heppenheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany
 Division of Ser. No. 336,044, Nov. 4, 1994, Pat. No. 5,510,529, which is a division of Ser. No. 158,390, Nov. 29, 1993, Pat. No. 5,393,782. This application Nov. 22, 1995, Ser. No. 561,850
 Claims priority, application Germany, Dec. 14, 1992, 42 42 081.4

Int. Cl.⁶ A01N 43/40; C07D 213/02
 U.S. Cl. 514—357 10 Claims
 1. A thioamide of the formula I,



where A, B, R' are identical or different and each is hydrogen, cyano, C₁₋₆ alkyl, C₁₋₄ alkoxy or halogen,
 X is —CH=CH₂,
 R¹ and R² are hydrogen or C₁₋₄ alkyl,
 Y is —O—, —S—,



or —CH₂—O—, —S—CH₂—, —CH₂—S—, —CH₂—CH₂—, —CH=CH—, —C≡C— or —CH₂—O—N=C(R') and R is an unsubstituted or substituted pyridyl.

5,670,529
**AVOIDANCE OF PRECIPITATION IN
 3-ISOTHIAZOLONE FORMULATIONS**
 Philippa Clarke, Co. Durham, England, assignor to Rohm and
 Haas Company, Philadelphia, Pa.
 Filed Jun. 5, 1996, Ser. No. 658,789
 Int. Cl.⁶ C07D 231/04; 275/02

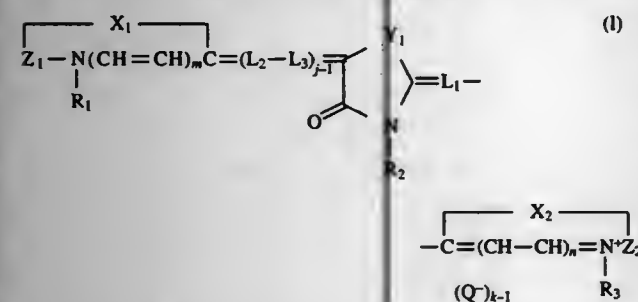
U.S. Cl. 514—360 16 Claims
 1. A composition comprising
 a) from 0.1 to 20 wt % of an optionally substituted
 3-isothiazolone;
 b) from 0.1 to 25 wt % of a metal nitrate;
 c) from 1.0 to 100 ppm of cupric (Cu²⁺) ion in the form of an
 inorganic copper salt; and
 d) water.

5,670,530
**ANTI-CANCER COMPOSITION COMPRISING
 RHODACYANINE COMPOUND AND CYCLODEXTRIN**
 Lan Bo Chen, Lexington, Mass., and Tadao Shishido,
 Kanagawa-ken, Japan, assignors to Fuji Photo Film Co.,
 Ltd., Kanagawa, Japan, and Dana Farber Cancer Institute,
 Boston, Mass.

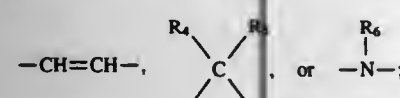
Continuation of Ser. No. 966,422, Oct. 26, 1992, abandoned.
 This application Jun. 7, 1995, Ser. No. 474,974
 Int. Cl.⁶ A61K 31/425

U.S. Cl. 514—366 19 Claims
 1. An anti-cancer composition for treating a cancer sensitive to a
 rhodacyanine compound represented by formula (I), wherein said
 anti-cancer composition comprises therapeutically effective
 amounts of

(a) a rhodacyanine compound and
 (b) a cyclodextrin, and
 wherein said rhodacyanine compound (a) is selected from the
 group consisting of compounds represented by the following For-
 mula (I), the cation moiety of which has a log P value of 4.5–12:



wherein
 X₁ and X₂, which may be the same or different, each represents
 O, S, Se,



Y₁ represents O, S, Se, or



R₁ and R₃, which may be the same or different, each represents
 an alkyl group;
 R₂ represents an alkyl group, an aryl group or a heterocyclic
 group;
 Z₁ and Z₂, which may be the same or different, each represents
 an atomic group necessary to form a saturated or unsaturated
 5- or 6-membered ring selected from the group consisting of a
 thiazole ring, a benzothiazole ring, a naphthothiazole ring, an
 oxazole ring, a benzoxazole ring, a naphthoxazole ring, a
 selenazole ring, a benzoselenazole ring, a thiazoline ring, a

2-pyridine ring, a 4-pyridine ring, a 2-quinoline ring, a
 4-quinoline ring, a 1-isoquinoline ring, a 3,3-
 dialkylindolenine ring, an imidazole ring, a benzimidazole
 ring and a naphthimidazole ring;

L₁, L₂ and L₃, which may be the same or different, each
 represents a methine group or a nitrogen atom and L₁ and R₃
 may combine and form a 5- or 6-membered ring;

R₄ and R₅, which may be the same or different, each represents
 an alkyl group;

R₆ and R₇, which may be the same or different, each represents
 an alkyl group or an aryl group;

Q represents a pharmaceutically acceptable anion;

j and k, which may be the same or different, each represents 1 or
 2; and

m and n, which may be the same or different, each represents 0
 or 1, wherein said amounts are effective to enhance the
 solubility of (a).

5,670,531

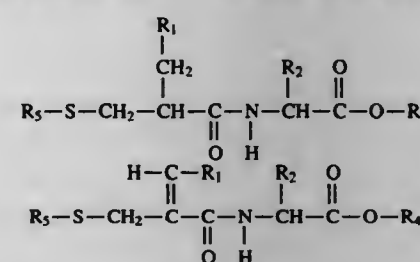
**AMINO ACID DERIVATIVES, THE PROCESS FOR
 THEIR PREPARATION AND THEIR APPLICATIONS TO
 THERAPY**

Jean-Christophe Plaquevent, Notre Dame De Bondeville; Denis
 Danvy, Mont Saint Aignan; Thierry Montell, Rouen; Hélène
 Greciet, Val De Reuil; Lucette Duhamel; Pierre Duhamel,
 both of Mont Saint Aignan; Claude Gros, Paris; Jean-
 Charles Schwartz, Paris, and Jeanne-Marie Lecomte, Paris,
 all of France, assignors to Societe Civile Bioproject, Paris,
 France

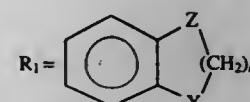
Division of Ser. No. 422,652, Apr. 14, 1995, Pat. No. 5,599,951,
 which is a continuation of Ser. No. 103,156, Aug. 9, 1993,
 abandoned, which is a continuation of Ser. No. 89,238, Jun.
 13, 1991, abandoned. This application Jun. 5, 1995, Ser. No.
 462,590

Claims priority, application France, Sep. 15, 1989, 8912142
 Int. Cl.⁶ A61K 31/40; 31/36; C07D 317/54; 405/06

U.S. Cl. 514—397 4 Claims
 1. Amino acid derivative corresponding to the general formulae

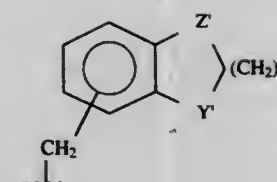


wherein



wherein Z and Y are O and n=1 or 2

R₂ represents a hydrogen atom, a lower alkyl group, a lower
 hydroxyalkylene group, a phenyl group, a lower phenylalky-
 lene group, a lower hydroxyphenylalkylene group, a lower
 aminoalkylene group, a lower guanidinoalkylene group, a
 lower mercaptoalkylene group, a lower alkylthio lower alky-
 lene group, a lower imidazolylalkylene group, a lower indoly-
 lalkylene group, a lower carbamylalkylene group, a lower
 carboxylalkylene group or one of the following groups:



wherein Z, Y and n have the meanings defined below:

Z	Y	n
0	0	1
0	0	2
0	CH ₂	1
CH ₂	CH ₂	1
CH ₂	CH ₂	2

wherein R₄ represents a linear or branched alkyl group, a
 phenyl group or a phenylalkyl group, and wherein R₅ repre-
 sents a linear or branched aliphatic acyl radical, or an aro-
 matic acyl radical.

2. Drug showing enkephalinase-inhibiting and ACE-inhibiting
 activities containing the compound of claim 1 as the active prin-
 ciple.

5,670,532

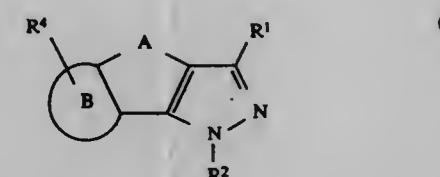
**PYRAZOLYL DERIVATIVES FOR THE TREATMENT OF
 INFLAMMATION**

John J. Talley; Stephen R. Bertenshaw, both of Brentwood;
 Matthew J. Graneto, St. Louis, and Donald J. Rogier, Ches-
 terfield, all of Mo., assignors to G. D. Searle & Co., Skokie,
 Ill.

Division of Ser. No. 309,291, Sep. 20, 1994, Pat. No. 5,547,975.
 This application Sep. 25, 1996, Ser. No. 719,501

Int. Cl.⁶ A61K 31/415; 31/435; C07D 487/04
 U.S. Cl. 514—403 11 Claims

1. A compound of Formula I



wherein A is $-(\text{CH}_2)_m - \text{X} - (\text{CH}_2)_n -$;

wherein X is NR³;

wherein m is 0 to 3, inclusive;

wherein n is 0 to 3, inclusive;

wherein p is 0 to 2, inclusive;

wherein B is selected from aryl and heteroaryl;

wherein R¹ is selected from hydrido, halo, haloalkyl, cyano,
 nitro, formyl, alkoxycarbonyl, carboxyl, carboxyalkyl,
 alkoxycarbonylalkyl, amidino, cyanoamidino, aminocarbonyl,
 alkoxy, alkoxyalkyl, aminocarbonylalkyl,
 N-alkylaminocarbonyl, N-arylaminocarbonyl, N,N-
 dialkylaminocarbonyl, N-alkyl-N-arylaminocarbonyl, alkyl-
 carbonyl, alkylcarbonylalkyl, hydroxyalkyl, alkylthio, alkyl-
 sulfinyl, alkylsulfonyl, alkylthioalkyl, alkylsulfinylalkyl,

alkylsulfonylalkyl, N-alkylsulfonyl, N-arylulfonyl, arylsul-
 fonyl, N,N-dialkylsulfonyl, N-alkyl-N-arylulfonyl and het-
 erocyclic;

wherein R² is selected from aryl and heteroaryl, wherein R² is
 optionally substituted at a substitutable position with one or
 more radicals selected from alkylsulfonyl, sulfonyl, halo,
 alkyl, alkoxy, hydroxyl and haloalkyl;

wherein R³ is selected from hydrido and alkyl; and

wherein R⁴ is one or more radicals selected from hydrido, halo,
 alkylthio, alkylsulfinyl, alkyl, alkylsulfonyl, cyano, carboxyl,
 alkoxycarbonyl, amido, N-alkylaminocarbonyl,
 N-arylaminocarbonyl, N,N-dialkylaminocarbonyl, N-alkyl-N-
 arylaminocarbonyl, haloalkyl, hydroxyl, alkoxy, hydroxy-
 alkyl, haloalkoxy, sulfonyl, N-alkylsulfonyl, amino,
 N-alkylamino, N,N-dialkylamino, heterocyclic, nitro and acy-
 lamino;

provided either R⁴ is sulfonyl or alkylsulfonyl, or R² is substi-
 tuted with sulfonyl or alkylsulfonyl;

or a pharmaceutically-acceptable salt thereof.

5,670,533

**PYRAZOLE DERIVATIVES, PROCESSES FOR
 PREPARATION THEREOF AND PHARMACEUTICAL
 COMPOSITION COMPRISING THE SAME**

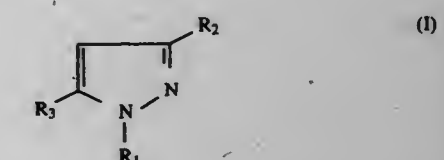
Masaaki Matsuo, Toyonaka; Kiyoshi Tsuji, Kishiwada;
 Takashi Ogino, Yamatokoriyama, and Nobukiyo Konishi,
 Nagaokakyo, all of Japan, assignors to Fujisawa Pharmaceu-
 tical Co., Ltd., Osaka, Japan

Continuation of Ser. No. 413,939, Mar. 30, 1995, Pat. No.
 5,550,147, which is a continuation of Ser. No. 000,297, Jan. 4,
 1993, abandoned. This application Dec. 28, 1995, Ser. No.
 579,974

Claims priority, application United Kingdom, Feb. 5, 1992,
 9202442; Sep. 28, 1992, 9220427

Int. Cl.⁶ A61K 31/495; C07D 231/10
 U.S. Cl. 514—106 4 Claims

1. A compound of the formula:



wherein

R¹ is aryl which is substituted with substituent(s) selected from
 the group consisting of hydroxy(lower)alkyl, lower alkylene-
 dioxy, carboxy, esterified carboxy, carbamoyl, lower alkanoyl-
 loxy, aryloxy and lower alkoxy substituted with acyl or lower
 alkoxy,
 R² is halogen, halo(lower)alkyl, cyano or acyl, and
 R³ is aryl substituted with lower alkylthio, lower alkylsulfinyl or
 lower alkylsulfonyl;

R¹ is phenyl substituted with methoxy,

R² is difluoromethyl and

R³ is phenyl substituted with methylsulfinyl; or

R¹ is phenyl which is substituted with lower alkylthio, lower
 alkylsulfinyl or lower alkylsulfonyl,

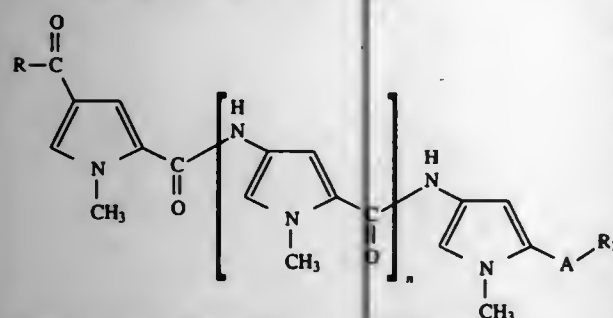
R² is difluoromethyl and

R³ is phenyl substituted with methoxy.

5,670,534
DISTAMYCIN A DERIVATIVES AS ANTI-MALARIAL AGENTS

Fabio Animati, Rome; Federico Arcamone, Nerviano; Paolo Lombardi, Cesate, and Cristina Rossi, Rome, all of Italy, assignors to A. Menarini Industrie Farmaceutiche Riunite S.R.L., and Bristol Myers Squibb S.P.A., both of Italy
PCT No. PCT/EP94/01235, § 371 Date Feb. 16, 1996, § 102(e)
Date Feb. 16, 1996, PCT Pub. No. WO94/25436, PCT Pub. Date Nov. 10, 1994
PCT Filed Apr. 21, 1994, Ser. No. 549,737
Claims priority, application Italy, Apr. 26, 1993, FI93A0083
Int. Cl.⁶ A61K 31/40; C07D 403/14
U.S. Cl. 514-422

7 Claims
1. Compounds of general formula (I)



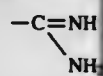
and pharmaceutically acceptable salts thereof wherein:

n is 0 or an integer comprised between 1 and 4;
R is selected from the group consisting of H, —OR₂, or —NR₂R₃ wherein:

R₂ is selected from the group consisting of H, methyl, ethyl, isopropyl, butyl, cyclopropyl, cyclopentyl, cyclohexyl, phenyl or benzyl;

R₃ and R₄, independently from each other, are selected from the group consisting of H, methyl, ethyl, isopropyl, butyl, cyclopentyl, cyclohexyl or a benzyl group, phenyl, pyrrol, 1-methylpyrrol, thiophene, furan, thiazole, pyridine or imidazole, optionally substituted by a formamido or carbamoyl-group or, when taken together, from a group selected from propylene, butylene, —(CH₂)₂—O—(CH₂)₂— or —(CH₂)₂—NH—(CH₂)₂—;

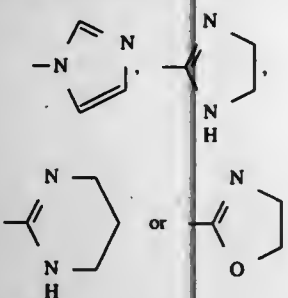
R₁ is selected from the group consisting of:



—COOR₅, wherein R₅ is selected from the group consisting of H, methyl, ethyl, isopropyl, butyl, cyclopropyl, cyclopentyl, cyclohexyl, benzyl, phenyl or a cholesterol type group;

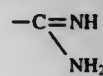
—B—NR₆R₇ wherein B is selected from the group consisting of a simple chemical bond and the group C=O and wherein R₆ and R₇, independently from each other, are selected from the group consisting of H, methyl, ethyl, isopropyl, butyl, cyclopropyl, cyclopentyl, cyclohexyl, benzyl or phenyl, or, taken together, form a group selected from propylene, butylene, —(CH₂)₂—O—(CH₂)₂— or —(CH₂)₂—NH—(CH₂)₂—;

a heterocyclic group selected from

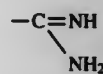


A is a simple chemical bond or the group CO—NH—Z wherein Z is a methylene-, ethylene-, propylene- or p-phenylene group with the proviso that:

when R₁ is —B—NR₆R₇ and B is a simple chemical bond, A is not a simple chemical bond;
when R₁ is one of the above indicated heterocyclic groups, A is not a simple chemical bond;
when R is NH₂, A is the group CO—NH—Z, wherein Z is —CH₂—CH₂ and R₁ is



then n is different from 1;
when R is the group NH₂, R₁ is —COOH and A is a simple chemical bond, then n is different from 0;
when R is OH, R₁ is

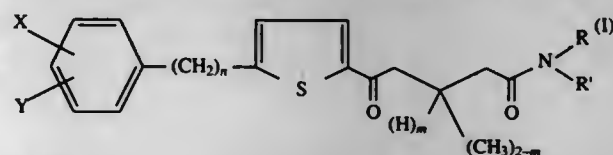


and A is the group —CO—NH—Z, then Z is different from —CH₂—CH₂.

5,670,535
THIOPHENE COMPOUNDS

Michel Wierzbicki, L'Etang La Ville; Marie-Françoise Bous-sard, Mareil Sur Mauldre; Jacqueline Bonnet, Paris; Massimo Sabatini, Garges, and Philippe Pastoureaux, Sevres, all of France, assignors to Adir et Compagnie, Courbevoie, France
Filed Mar. 20, 1996, Ser. No. 618,969
Claims priority, application France, Mar. 21, 1995, 95 03246
Int. Cl.⁶ A61K 31/38; C07D 333/22; 411/06
U.S. Cl. 514-448

9 Claims
1. A thiophene compound selected from those of formula I:



in which:

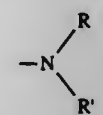
each of X and Y, which are the same or different, are selected from the group consisting of hydrogen, halogen, alkyl and alkoxy each having 1 to 5 carbon atoms inclusive in straight or branched chains, and dialkylamino in which each alkyl contains 1 to 5 carbon atoms inclusive in straight or branched chains;

n is selected from integers 2 to 5 inclusive;
m is selected from zero, one and two;

R is selected from the group consisting of hydrogen and alkyl having from 1 to 5 carbon atoms inclusive in straight or branched chains; and

R' is selected from the group consisting of alkyl having from 1 to 5 carbon atoms inclusive in straight or branched chains, or alternatively

R and R' together with the nitrogen to which they are bonded (viz the group



as a whole is selected from the group consisting of: unsubstituted pentagonal and hexagonal heterocycles each selected from those containing one nitrogen, one nitrogen and one oxygen, and two nitrogen, and these heterocycles substituted by a substituent selected from the group consisting of: straight or branched (C₁-C₅) alkyl and unsubstituted, mono- and poly-substituted arylalkyl in which the alkyl moiety contains 1 to 5 carbon atoms inclusive in straight or branched chains, and the substituent(s) on the aryl moiety is selected from the group

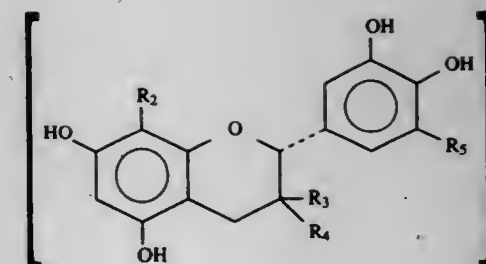
consisting of: halogen, straight and branched (C₁-C₅) alkyl, and straight and branched (C₁-C₅) alkoxy; and, the corresponding enantiomers, and their addition salts with physiologically-tolerable acids.

5,670,536
PHARMACEUTICAL COMPOSITION BASED ON TAXOIDS

Manfred Durr, Berghelm-Glessen; Jörg-Christian Hager, and Armin Wendel, both of Cologne, all of Germany, assignors to Rhone-Poulenc Rorer S.A., Antony, France
Filed Apr. 25, 1995, Ser. No. 428,261
Claims priority, application France, Apr. 25, 1994, 94 04951
Int. Cl.⁶ A61K 9/127

33 Claims
U.S. Cl. 514-449

1. Pharmaceutical composition comprising, as active principle, docetaxel or a taxoid derived from docetaxel, at least one unsaturated phospholipid and at least one negative phospholipid, said at least one negative phospholipid being different from said at least one unsaturated phospholipid.



in which:

R₁ and R₂ independently represent H or OH,

R₃ and R₄ are different and represent H or OH, p1 R₅ represents H or OH, and,

n is an integer from 2 to 40,

wherein at least one of the 2 to 40 units described above has R₃=H and R₄=OH, or R₃=OH and R₄=H, and R₅ represents OH.

5,670,537
METHOD FOR EFFECTING TUMOR REGRESSION WITH A LOW DOSE, SHORT INFUSION TAXOL REGIMEN

Renzo Mauro Canetta, Madison, Conn.; Elizabeth Eisenhauer, Kingston, Canada, and Marcel Rozencweig, Brandford, Conn., assignors to Bristol-Meyers Squibb Company, Princeton, N.J.
Continuation of Ser. No. 544,594, Oct. 18, 1995, Pat. No. 5,641,803, which is a continuation of Ser. No. 109,331, Jun. 24, 1993, abandoned, which is a division of Ser. No. 923,628, Aug. 3, 1992, abandoned. This application Sep. 19, 1996, Ser. No. 715,914
Int. Cl.⁶ A61K 31/335

10 Claims
U.S. Cl. 514-449

1. A method for treating a patient suffering from a taxol-sensitive tumor comprising

- premedicating said patient with a medicament that reduces or eliminates hypersensitivity reactions, and
- parenterally administering to said patient about 135-175 mg/m² taxol over about three hours.

5,670,538
USE OF PRODELPHINIDINS FOR OBTAINING MEDICAMENTS INTENDED FOR THE TREATMENT OF ARTHROSIS

Paul Franchimont, deceased, late of Modave, Belgium, by Marie-Claire Céline Berthe Roelands, administrator; Corine Bassleer, Liege, Belgium; Luc Angenot, Flemalle, Belgium, and Monique Tits, Vottem, Belgium, assignors to Laboratoires Dolis, Paris, France
PCT No. PCT/FR93/01312, § 371 Date Nov. 20, 1995, § 102(e)
Date Nov. 20, 1995, PCT Pub. No. WO94/14432, PCT Pub. Date Jul. 7, 1994
PCT Filed Dec. 28, 1993, Ser. No. 464,782
Claims priority, application France, Dec. 28, 1992, 92 15801
Int. Cl.⁶ A61K 31/35

7 Claims
U.S. Cl. 514-456

1. Method for treating articular pathologies associated with destruction of the cartilage, comprising administering to a patient in need of such treatment a medicament containing an effective amount of at least one prodelphinidin of the formula

5,670,539
TREATMENT OF MOVEMENT DISORDERS USING LARGE NEUTRAL AMINO ACIDS

Mary Ann Richardson, New York, N.Y., assignor to New York State Office of Mental Health, Albany, N.Y.
Continuation-in-part of Ser. No. 93,955, Jul. 21, 1993, Pat. No. 5,393,784. This application Jan. 11, 1995, Ser. No. 371,211
Int. Cl.⁶ A61K 31/195

25 Claims
U.S. Cl. 514-561

1. A method of treating an abnormal movement disorder which arises secondary to drug treatment, which method comprises administering to a patient having such movement disorder an amino acid selected from the group consisting of at least one branched chain amino acid, phenylalanine and tyrosine in an amount sufficient for treating said abnormal movement disorder.

5,670,540
TRIGLYCERIDES OF FATTY ACIDS

David F. Horrobin, Guildford; Philip Knowles, Carlisle; Mehar Singh Manku, Carlisle, and Austin McMordie, Carlisle, all of England, assignors to Scotia Holdings PLC, United Kingdom
Continuation of Ser. No. 187,044, Jan. 27, 1994, abandoned.
This application May 15, 1995, Ser. No. 440,987
Claims priority, application United Kingdom, Jan. 27, 1993, 9301582; Jan. 29, 1993, 9301801
Int. Cl.⁶ A61K 31/22

14 Claims
U.S. Cl. 514-549

1. A pharmaceutical or dietary composition comprising a triglyceride containing three residues of the same fatty acid selected from the group consisting of a 22:4 n-6 acid, a 22:5 n-6 acid, stearidonic acid, a 20:4 n-3 acid, and a 22:5 n-3 acid in the form of a triple ester with glycerol, wherein said triglyceride forms more than 10% by weight of the triglycerides present.

5,670,550

ION EXCHANGE POLYMERS FOR ANION SEPARATIONS

Gordon D. Jarvinen; S. Fredric Marsh, both of Los Alamos, N. Mex., and Richard A. Bartsch, Lubbock, Tex., assignors to The Regents of the University of California Office of Technology Transfer, Alameda, Calif.

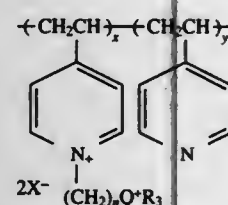
Filed Jun. 7, 1995, Ser. No. 476,964

Int. Cl.⁶ C08F 8/32; 8/40; B01J 41/06

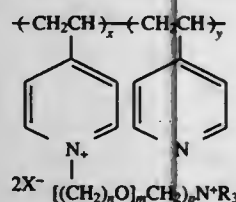
U.S. Cl. 521—32

10 Claims

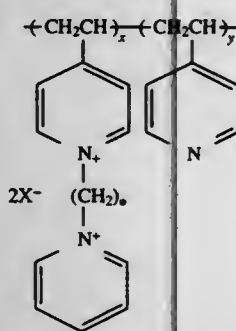
1. An anion exchange resin comprised of substantial identical repeating units, said units of a type selected from the group consisting of (a)



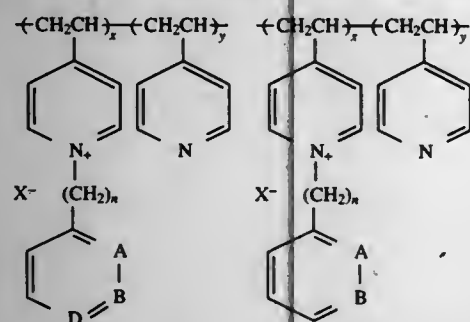
wherein Q is phosphorus, each R is the same and is an alkyl having from 1 to about 6 carbon atoms, n is an integer from 1 to 6, x+y=1 and x is from about 0.2 to about 1.0, and X⁻ is a counterion, (b)



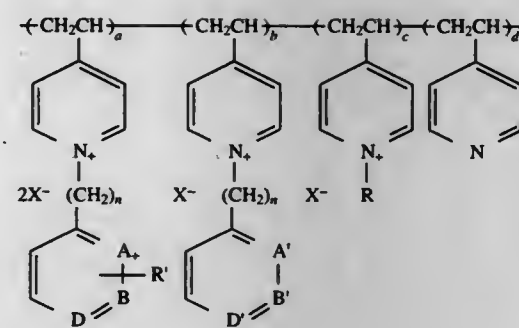
wherein each R is the same and is an alkyl having from 1 to about 6 carbon atoms, n is an integer from 1 to 6, m is an integer from 1 to 4, p is an integer from 1 to 6, x+y=1 and x is from about 0.2 to about 1.0, and X⁻ is a counterion, (c)



wherein n is an integer from 2 to 6, x+y=1 and x is from about 0.2 to about 1.0, and X⁻ is a counterion, (d)



wherein one of A and B is nitrogen, n is an integer from 1 to 6, x+y=1 and x is from about 0.2 to about 1.0, and X⁻ is a counterion, and (e)



wherein one of A, B and D is nitrogen and one of A', B' and D' is nitrogen, each R and R' is an alkyl having from 1 to about 6 carbon atoms, R' is attached to said A, B or D which is nitrogen, n is an integer from 2 to 6, a+b+c+d=1 and a+b is from about 0.2 to about 1.0, and X⁻ is a counterion.

5,670,551

CROSSLINKED FOAMED BODY AND A PROCESS FOR ITS PRODUCTION

Muneyuki Matsumoto; Keiji Okada; Yoshihisa Matsuo, and Akemi Uchimi, all of Ichihara, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

PCT No. PCT/JP94/02081, § 371 Date Aug. 11, 1995, § 102(e)

Date Aug. 11, 1995, PCT Pub. No. WO95/16732, PCT Pub. Date Jun. 22, 1995

PCT Filed Dec. 12, 1994, Ser. No. 501,063

Claims priority, application Japan, Dec. 16, 1993, 5-317098

Int. Cl.⁶ C08J 9/10

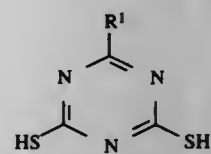
U.S. Cl. 521—90

6 Claims

1. A process for producing a crosslinked foamed body, which comprises vulcanizing and foaming in two stages a crosslinking and foaming composition at a vulcanization temperature of 120° to 140° C. for a vulcanization time of 5 to 10 minutes in a first step, and at a vulcanization temperature of 125° to 160° C. in a second step, the second step vulcanization temperature being higher than the first step vulcanization temperature by at least 5° C., for a second step vulcanization time of 5 to 20 minutes so that the expansion factor becomes 3 to 10 times, the crosslinking and foaming composition comprising

(A) a chlorinated ethylene/α-olefin copolymer rubber having a chlorine content of 20 to 40% by weight and a Mooney viscosity of [ML₁₊₄(121° C.)] of 10 to 190,

(B) a triazinethiol represented by the general formula (1)



wherein R¹ represents —NR²R³, —OR² or —SR² in which each of R² and R³ represents a hydrogen atom, an unsubstituted or substituted alkyl group or an unsubstituted or substituted aryl group,

(C) an alkyl ammonium halide and

(D) a hydrazide blowing agent.

5,670,552

FOAM AND PROCESS FOR PRODUCING FOAM USING A CARBON DIOXIDE BLOWING AGENT

Gerald G. Gusavage, Lancaster, Pa.; Henry G. Schirmer, Spartanburg, S.C., and Thomas A. Hessen, Ephrata, Pa., assignors to W. R. Grace & Co.-Conn., Duncan, S.C.

Filed Dec. 18, 1995, Ser. No. 573,812

Int. Cl.⁶ C08J 9/08

U.S. Cl. 521—91

16 Claims

1. A process for producing thermoplastic foam, comprising: (a) melting a thermoplastic olefin polymer to produce a polymer melt; (b) introducing a blowing agent comprising carbon dioxide into said polymer melt; (c) adding polysiloxane to said polymer melt; and (d) extruding and foaming said polymer melt, blowing agent, and polysiloxane to produce thermoplastic foam.

5,670,553

INTERNAL MOLD RELEASE COMPOSITIONS

Paul William Mackey, Sylvan Lake, Mich., assignor to Imperial Chemical Industries PLC, London, England

Division of Ser. No. 520,279, Aug. 25, 1995, Pat. No.

5,576,409. This application Aug. 28, 1996, Ser. No. 705,869

Int. Cl.⁶ C08G 18/00

U.S. Cl. 521—128

7 Claims

1. A molded foam article produced by a process comprising reacting (1) an organic polyisocyanate; (2) at least one compound containing a plurality of isocyanate-reactive groups; and (3) an internal mold release system comprising (a) a carboxylic acid and (b) a compound selected from the group consisting of a fatty polyester, a fatty acid ester and a fatty amide.

5,670,554

PRODUCTION OF CFC-FREE POLYURETHANE RIGID FOAMS HAVING A REDUCED THERMAL CONDUCTIVITY AND THEIR USE

Stefan Adams, Ludwigshafen, and Holger Seifert, Freltal, both of Germany, assignors to Elastogran GmbH, Lemförde, Germany

Filed Nov. 28, 1995, Ser. No. 563,470

Claims priority, application Germany, Jan. 10, 1995, 195 00 466.3

Int. Cl.⁶ C08G 18/10

U.S. Cl. 521—131

10 Claims

1. A process for producing CFC-free polyurethane rigid foams having improved thermal conductivity, said process comprising reacting

a) an organic polyisocyanate mixture modified with urethane groups, b) a relatively high molecular weight compound containing at least two reactive hydrogen atoms and, optionally, c) a low molecular weight chain extender and/or a crosslinker in the presence of d) a blowing agent, e) a catalyst and, optionally, f) additives,

wherein the polyisocyanate mixture comprises a polyester isocyanate semipolymer containing from 31 to 20% by weight of NCO and obtained by reacting an excess amount of an aromatic polyisocyanate with a polyester-polyol having a hydroxyl number of from 22 to 400 prepared from aromatic and/or aliphatic dicarboxylic acids and/or dicarboxylic acid derivatives, and wherein the blowing agent is selected from the group consisting of cyclopentane and mixtures comprising cyclopentane, cyclohexane or mixtures thereof and low boiling compounds homogeneously miscible with cyclopentane and/or cyclohexane.

5,670,555

FOAMABLE SILOXANE COMPOSITIONS AND SILICONE FOAMS PREPARED THEREFROM

Brian Paul Loisel, Midland, and Lawrence Joseph Rapson, Bay City, both of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Dec. 17, 1996, Ser. No. 768,879

Int. Cl.⁶ C07J 9/00

U.S. Cl. 521—134

23 Claims

1. A foamable organosiloxane composition, comprising: (A) a siloxane base polymer system comprising: (i) a high molecular weight polyorganosiloxane containing an average of at least two hydroxyl groups per molecule and having a viscosity at 25° C. (V_H); and (ii) a low molecular weight polyorganosiloxane containing an average of at least two hydroxyl groups per molecule and having a viscosity at 25° C. (V_L); wherein V_H ≤ V_L - 25,000 mPa.s; (B) a silicon-containing crosslinker for the siloxane base polymer system, wherein the crosslinker contains at least two —SiH groups per molecule; (C) a platinum group catalyst sufficient for curing the foamable organosiloxane composition; and (D) a silicone resin copolymer.

5,670,556

FOAMABLE SILOXANE COMPOSITIONS AND SILICONE FOAMS PREPARED THEREFROM

Brian Paul Loisel, Midland, and Lawrence Joseph Rapson, Bay City, both of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Dec. 16, 1996, Ser. No. 767,844

Int. Cl.⁶ C08J 9/00

U.S. Cl. 521—154

20 Claims

1. A foamable organosiloxane composition, comprising: (A) a siloxane base polymer system comprising: (i) a high molecular weight polyorganosiloxane containing an average of at least two hydroxyl groups per molecule and having a viscosity at 25° C. (V_H); and (ii) a low molecular weight polyorganosiloxane containing an average of at least two hydroxyl groups per molecule and having a viscosity at 25° C. (V_L); wherein V_H ≤ V_L - 25,000 mPa.s; (B) a silicon-containing crosslinker for the siloxane base polymer system, wherein the crosslinker contains at least two —SiH groups per molecule; and (C) a platinum group catalyst sufficient for curing the foamable organosiloxane composition.

5,670,557

POLYMERIZED MICROEMULSION PRESSURE SENSITIVE ADHESIVE COMPOSITIONS AND METHODS OF PREPARING AND USING SAME

Timothy M. Dietz, St. Paul; Ying-Yuh Lu, Woodbury; Rosa Uy, St. Paul, and Chung I. Young, Roseville, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

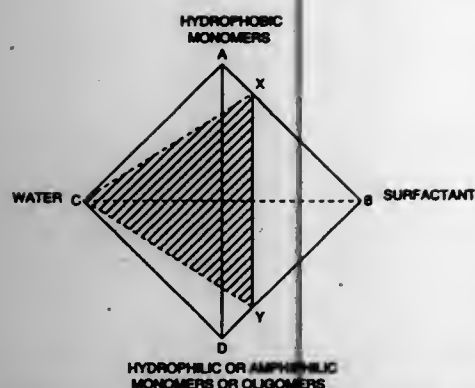
Continuation-in-part of Ser. No. 188,269, Jan. 28, 1994, abandoned. This application Jul. 25, 1995, Ser. No. 507,006

Int. Cl.⁶ C08F 2/46; 2/22; C08L 33/00

U.S. Cl. 522—184

17 Claims

1. A polymerized microemulsion pressure sensitive adhesive composition having peel adhesion of at least 3 Newtons/100 mm as measured according to a PSTC-1 Test on a clean glass test plate, wherein the composition has a continuous phase of a hydrophobic



pressure sensitive adhesive polymer and a continuous phase of a hydrophilic polymer.

5,670,558

MEDICAL INSTRUMENTS THAT EXHIBIT SURFACE LUBRICITY WHEN WETTED

Makoto Onishi, Kanagawa; Kenichi Shimura, Tokyo, and Naoki Ishii, Kanagawa, all of Japan, assignors to Terumo Kabushiki Kaisha, Shibuya-ku, Japan

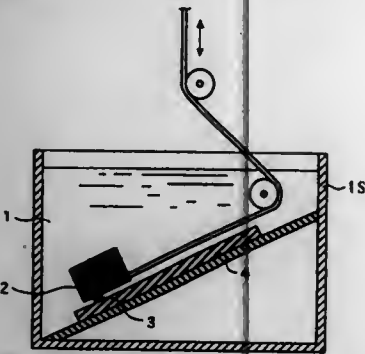
Filed Jul. 6, 1995, Ser. No. 498,796

Claims priority, application Japan, Jul. 7, 1994, 6-155860; Jul. 8, 1994, 6-157715; Jul. 15, 1994, 6-164254; Jul. 18, 1994, 6-165508; Jul. 22, 1994, 6-170529

Int. Cl.⁶ A01N 1/00; A61F 2/00; A61M 5/32

U.S. Cl. 523-112

7 Claims



1. A medical instrument exhibiting surface lubricity when wetted, comprising a surface coated with a surface lubricating layer, said surface lubricating layer comprising a block or graft copolymer having a hydrophilic domain and a reactive domain, said reactive domain having a reactive functional group selected from the group consisting of epoxy and isocyanate, and wherein said functional group is cross-linked with another functional group.

5,670,559

PRIMER SOLUTION COMPOSITION FOR DENTAL BONDING

Weiping Zeng; Masami Arata, and Tsuyoshi Banba, all of Moriyama, Japan, assignors to Sun Medical Co., Ltd., Moriyama, Japan

Filed May 23, 1995, Ser. No. 447,943

Claims priority, application Japan, May 26, 1994, 6-112448

Int. Cl.⁶ C08L 33/02; C08K 3/10; A61K 6/083

U.S. Cl. 523-118

17 Claims

1. A primer composition for the treatment of a tooth surface, which consists essentially of at least one metal compound selected from the group consisting of an iron compound, a copper compound and a cobalt compound, b) a polymerizable monomer having an acid group, and c) water or water and an organic solvent miscible with water, wherein said water or water in the water and

organic solvent is in an amount of at least 40 parts by weight per 100 parts by weight of the total amount of components a), b) and c).

5,670,560

METHOD OF MAKING A PUMPABLE, STABLE POLYDIORGANOSILOXANE-SILICA FOUNDATION MIXTURE AND ROOM TEMPERATURE CURING SEALANT

Loren Dale Lower, and Sherwood Spells, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Nov. 29, 1995, Ser. No. 564,840

Int. Cl.⁶ C08K 9/06; C08L 83/00

U.S. Cl. 523-212

21 Claims

1. A process for making a pumpable, stable, polydiorganosiloxane-silica foundation mixture comprising

(i) mixing a polydiorganosiloxane having a viscosity measured at 25° C. of from 0.1 to 400 Pa.s, a diol surface modifying agent of the formula R'(O(R₂SiO)_x)_n wherein R is methyl, ethyl, vinyl, or 3,3,3-trifluoropropyl; each R' is selected from the group consisting of hydrogen atom, methyl radical, and ethyl radical; up to 30 percent of R' groups are methyl radical or ethyl radical, and x is a value of from 2 to 18 inclusive and the diol surface modifying agent has at least 3 weight percent silicon-bonded hydroxyl group, and reinforcing silica filler having a surface area of 90 to 500 m²/g and making a Mixture 1 where the amount of the polydiorganosiloxane is from 50 to 100 weight percent of the amount necessary to provide from 80 to 95 weight percent in the foundation mixture, diol in an amount to provide from 20 to 100 weight percent of the amount necessary to provide from 0.05 to 0.5 part of diol per one part of silica filler in the foundation mixture, and silica filler in an amount to provide from 0 to 100 weight percent of the amount necessary to provide from 5 to 19.5 weight percent of silica filler in the foundation mixture based on the weight of the polydiorganosiloxane, the silica filler, and the diol being 100 weight percent, where the silica filler is dispersed throughout the polydiorganosiloxane

(ii) mixing with Mixture 1, one or more increments, where an increment is at least 5 weight percent of the amount to be added, of diol and silica filler to make Mixture 2, where the amount of the diol is from 0 to 80 weight percent of the amount necessary to provide from 0.05 to 0.5 part of diol per one part of silica filler in the foundation mixture and the amount of the silica filler is up to 100 weight percent of the amount necessary to provide from 5 to 19.5 weight percent silica filler in the foundation mixture based on the weight of the polydiorganosiloxane, the silica filler, and the diol being 100 weight percent,

(iii) mixing with Mixture 2, one or more increments, where an increment is at least 5 weight percent of the amount to be added, of polydiorganosiloxane as defined in (i) to make Mixture 3 and in an amount of 0 to 50 weight percent of the amount necessary to provide from 80 to 95 weight percent of the polydiorganosiloxane in the foundation mixture,

(iv) mixing and heating Mixture 3 for at least 15 minutes at a temperature of from 50° C. to 180° C. while removing volatiles from Mixture 3, and obtaining a foundation mixture having from 5 to 19.5 weight percent silica filler and from 80 to 95 weight percent polydiorganosiloxane based on the weight of the polydiorganosiloxane, the silica filler, and the diol being 100 weight percent, where the foundation mixture has a plateau stress of >700 dynes/cm² and a shear-thinned viscosity of no more than 1,000 Pa.s at a shear stress of 50,000 dynes/cm² and the plateau stress and the shear-thinned viscosity are measured at 25° C.

5,670,561

COLOR CONCENTRATES AND POLYMER COMPOSITIONS CONTAINING THE SAME, AND METHODS OF MAKING THE SAME

Anthony S. Scheibelhoffer, Norton; Richard L. Abrams, North Royalton; Dianna B. Dusek, Oakwood Village; Dennis L. Hammond, Richfield; Robert J. Opalko, Middleburg Heights, and Ronald E. Thompson, Parma, all of Ohio, assignors to Ferro Corporation, Cleveland, Ohio

Continuation of Ser. No. 332,816, Oct. 31, 1994, abandoned.

This application Jun. 13, 1996, Ser. No. 662,488

Int. Cl.⁶ C08J 3/22; C08K 5/00

U.S. Cl. 523-351

20 Claims

1. A color concentrate comprising (a) at least one resin selected from the group consisting of a homopolymer of a diene, a rosin material, a coumarone-indene resin, a polymer of a vinyl aromatic monomer having an Mn of from about 500 to about 4000, and a mixture of two or more thereof, (b) at least one resin selected from the group consisting of a copolymer of an olefin and an acrylate or a methacrylate, a polymer of a vinyl aromatic monomer having an Mn of at least about 10,000 and a mixture of two or more thereof, and (c) from about 25% up to about 95% by weight at least one organic colorant.

5,670,562

ADHESION ENHANCERS FOR ANIONIC BITUMINOUS EMULSIONS

Peter Schilling, Charleston, S.C., assignor to Westvaco Corporation, New York, N.Y.

Filed Oct. 15, 1996, Ser. No. 731,323

Int. Cl.⁶ C08L 95/00

U.S. Cl. 524-61

8 Claims

1. An improved method for enhancing adhesion between asphalt and aggregate in anionic bituminous emulsions wherein the improvement comprises the addition to the emulsion of a composition which comprises the polyamidoamine condensation reaction products of:

- A) 50-80 wt. % of a mixture comprising
 - 1) 50-95 wt. % of a blend consisting essentially of
 - a) 50-70 wt. % C-36 dimer acid and
 - b) 50-30 wt. % of a member selected from the group consisting of C-54 trimer, higher molecular weight polycarboxylic homologues, and combinations thereof, and
 - 2) 50-5 wt. % of the styrene-acrylic acid copolymer reaction product formed by reacting in a radical polymerization reaction
 - a) 1-99 wt. % of a member selected from the group consisting of α-methyl styrene, styrene, and combinations thereof,
 - b) 99-1 wt. % of a member selected from the group consisting of acrylic acid, methacrylic acid, alkyl esters of acrylic acid, alkylesters of methacrylic acid, and combinations thereof, and
- c) a catalytic amount of a radical polymerization initiator; with
- B) 50-20 wt. % of polyalkylene polyamine.

5,670,563

STABILISED CHLORINE-CONTAINING POLYMER COMPOSITIONS

Horst Zinke, Reichelsheim/Odw., and Johannes Kaufhold, Lindensfeld, both of Germany, assignors to Ciba-Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Jul. 17, 1995, Ser. No. 503,445

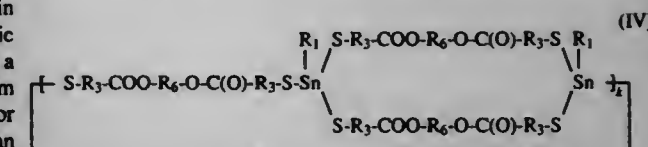
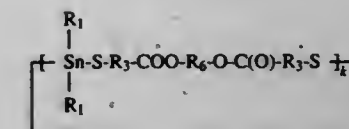
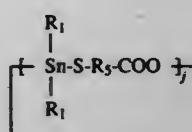
Int. Cl.⁶ C08K 5/58

U.S. Cl. 524-182

14 Claims

1. A composition comprising
a) a chlorine-containing polymer

b) at least one organotin compound of formula I to IV



wherein

R₁ is C₁-C₁₂alkyl or C₁-C₈alkoxycarbonylalkyl;

Q is -S- or -O-CO-, and,

if Q is -S-,

R₂ is C₈-C₁₈alkyl, a radical -R₃-COO-R₄ or -(CH₂)₂-O-CO-R₄, or,

if Q is -O-CO-,

R₂ is phenyl which is unsubstituted or substituted by C₁-C₄alkyl;

R₃ is methylene, ethylene or o-phenylene,

R₄ is C₅-C₁₈alkyl,

R₅ is methylene, ethylene or o-phenylene,

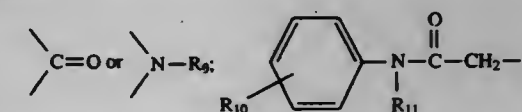
R₆ is C₂-C₄alkylene or C₄-C₈alkylene which is interrupted by oxygen;

i is 1 or 2,

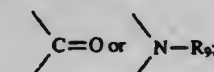
j is a number in the range from 1 to 6,

k is a number in the range from 1 to 3, and

c) at least one phosphorus compound of formula V wherein R₇ is C₄-C₁₈alkyl, phenyl which is unsubstituted or substituted by C₁-C₁₂alkyl or -CO₂R₈; C₄-C₂₁alkanoyloxyalkyl, C₃-C₂₄alkoxycarbonylalkyl; C₃-C₂₄alkoxycarbonylalkyl in which the alkoxycarbonyl moiety is interrupted by oxygen, sulfur,



C₉-C₂₄phenylalkoxycarbonylalkyl which is unsubstituted or substituted in the phenyl ring by C₁-C₁₂alkyl; C₉-C₂₄phenylalkoxycarbonylalkyl which is unsubstituted or substituted in the phenyl ring by C₁-C₁₂alkyl, the bond between the phenyl ring and the alkoxycarbonylalkyl radical being interrupted by oxygen, sulfur,



5,670,564

MACROMONOMERS HAVING REACTIVE END GROUPS

Robert R. Gagné, Pasadena; Matthew Louis Marrocco, III, Santa Ana; Mark Steven Trimmer, Pasadena, and Neil H. Hendricks, Brea, all of Calif., assignors to Maxdem Incorporated, San Dimas, Calif.

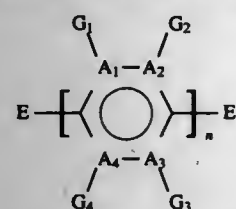
Division of Ser. No. 331,144, Oct. 27, 1994, abandoned, which is a continuation of Ser. No. 746,917, Aug. 19, 1991, abandoned. This application Jun. 1, 1995, Ser. No. 457,092

Int. Cl.⁶ C08L 65/02

U.S. Cl. 524—99

65 Claims

1. A method of producing reinforced polymers, comprising: copolymerizing, with one or more complementary condensation monomers, a rigid-rod macromonomer of the formula:



wherein each A₁, A₂, A₃, and A₄, on each monomer unit, independently, is C or N; each G₁, G₂, G₃, and G₄, on each monomer unit, independently, is H or a solubilizing side group, provided that at least one monomer unit has at least one solubilizing side group, and provided that when any of A₁, A₂, A₃, and A₄ is N, the corresponding G₁, G₂, G₃, or G₄ is nil; E is an end group reactive with such a complementary condensation monomer; the macromonomer has an average degree of polymerization, DP_n, greater than 15; and adjacent monomer units are oriented head-to-head, head-to-tail, or randomly.

5,670,565

Patent Not Issued For This Number

5,670,566

COOL-APPLIED HOT MELT ADHESIVE COMPOSITION
Ingrid Liederemooy, Somerville; Daniel C. Stauffer, Flemington, and Paul P. Puletti, Pittstown, all of N.J., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Filed Jan. 6, 1995, Ser. No. 369,244

Int. Cl.⁶ C08L 91/06

U.S. Cl. 524—271

12 Claims

1. A carton, case or tray formed utilizing a hot melt adhesive composition said adhesive consisting essentially of:

- 10 to 60% by weight of at least one ethylene n-butyl acrylate copolymer containing 25 to 45% by weight n-butyl acrylate and having a melt index of at least about 850;
- 20 to 60% of a rosin ester tackifying resin selected from the group consisting of gum rosin, wood rosin, tall-oil rosin, distilled rosin, hydrogenated rosin, dimerized rosin, polymerized rosin, the glycerol ester of pale wood rosin, the glycerol ester of hydrogenated rosin, the glycerol ester of polymerized rosin, the pentaerythritol ester of hydrogenated rosin and the phenolic-modified pentaerythritol ester of rosin;
- 10 to 50% by weight of a microcrystalline or paraffin wax having a melting point of 150° to 200° F.; and
- 0 to 20% by weight of a polymeric additive selected from the group consisting of ethylene vinyl acetate containing 10 to 40% by weight vinyl acetate, ethylene methyl acrylate polymers containing 10 to 28% methyl acrylate, ethylene acrylic acid copolymers having an acid number of 25 to 150, polyethylene, polypropylene, poly(butene-1-co-ethylene), and lower melt index ethylene n-butyl acrylate copolymers;
- 0 to 1.5% stabilizer;

said adhesive having a viscosity at 250° F. less than 2000 cps.

5,670,567

METHOD AND COMPOSITION FOR STABILIZING SOIL AND PROCESS FOR MAKING THE SAME

Shawqui M. Lahalih, Dhahran, Saudi Arabia, assignor to King Fahd University of Petroleum and Minerals, Research Institute, Dhahran, Saudi Arabia

Filed Apr. 3, 1995, Ser. No. 415,634

Int. Cl.⁶ C08K 3/38

U.S. Cl. 524—404

7 Claims

1. A water soluble chemical composition for use as a soil stabilizer, conditioner and structuring agent comprising sulfonated urea-melamine formaldehyde condensate, a urea-formaldehyde condensate having a weight average molecular weight (M_w) ranging from about 4400 to about 10,000 and polydispersity (M_w/M_n) of 2.5 to 10, and an inorganic salt selected from the group consisting of di-sodium tetraborate, sodium carbonate, sodium sulfite, sodium chloride, sodium nitrate, sodium sulfate, potassium nitrate, potassium chloride, phosphoric acid, and potassium di-hydrogen orthophosphate, and mixtures thereof, and wherein the ratio of urea-formaldehyde to sulfonated urea-melamine-formaldehyde is between 0.2:1 to 2.0:1 and said composition having a solids content of between 1-15%.

5,670,568

COMPOSITIONS OF MIXED ALUMINUM ALKALINE-EARTH METAL HYDROXIDE TYPE AS ANTICHLORINE AND ANTIACID AGENTS FOR THE STABILIZATION OF THERMOPLASTIC RESINS

Dominique Plee, Bizanos, and Ludovic Hardouin DuParc, Nev-ers, both of France, assignors to Elf Atochem S.A., Paris-La-Defense, France

Filed Jul. 19, 1995, Ser. No. 504,386

Claims priority, application France, Jul. 21, 1994, 94 09025

Int. Cl.⁶ C08K 3/22

U.S. Cl. 524—436

11 Claims

1. A composition for the reduction of chlorine or acidic products in polymeric materials comprising the solid product of a reaction between an aluminum hydroxide and a divalent metal hydroxide selected from the group consisting of calcium hydroxide and strontium hydroxide, wherein the reaction occurs in an aqueous phase and in the presence of a sufficient amount of a hydroxide of an alkali metal to maintain the pH of the aqueous phase at about 13, and wherein the aluminum hydroxide and the divalent metal hydroxide are reacted at a temperature between about 50° C. and about 90° C., and wherein the molar ratio of the divalent metal to the aluminum is between about 2 and 10.

4. A thermoplastic resin containing a halogen comprising a composition for the reduction of chlorine or acidic products in the resin comprising the solid product of a reaction between an aluminum hydroxide and a divalent metal hydroxide selected from the group consisting of calcium hydroxide and strontium hydroxide, wherein the reaction occurs in an aqueous phase and in the presence of a sufficient amount of a hydroxide of an alkali metal to maintain the pH of the aqueous phase at about 13, and wherein the aluminum hydroxide and the divalent metal hydroxide are reacted at a temperature between about 50° C. and about 90° C., and wherein the molar ratio of the divalent metal to the aluminum is between about 2 and 10.

5,670,569

CROSSLINKED MOLDING COMPOSITIONS COMPRISING POLYARYLENE SULFIDES AND POLYARYLENE SULFOXIDES, PROCESS FOR THEIR PREPARATION AND THEIR USE

Helmuth Scheckenbach, Langen, and Andreas Schleicher, Beselich, both of Germany, assignors to Hoechst Aktiengesellschaft, Germany

Filed Dec. 22, 1995, Ser. No. 577,234

Claims priority, application Germany, Dec. 23, 1994, 44 46 495.9

Int. Cl.⁶ C08K 3/20; C08F 283/00

U.S. Cl. 524—500

18 Claims

1. A polymer mixture comprising
(A) from 1 to 99% by weight of at least one polyarylene sulfide consisting essentially of (—S—A—) as repeating units in said polyarylene sulfide, and
(B) from 1 to 99% by weight of at least one polyarylene sulfoxide consisting essentially of (—SO—A—) as repeating units in said polyarylene sulfoxide, both calculated on total weight of the polymer mixture and wherein A is an arylene radical.

5,670,570

CASTING RESIN BASED ON OLEFINICALLY UNSATURATED SILANES AND METAL ACID ESTERS
Hermann Peeters, Farnweg 60, D-53721 Siegburg; Birgit Bastin, Vulkanstrasse 12, D-53842 Troisdorf, and Reinhard Matthes, Froschpfad 8 a, D-51427 Bergisch Gladbach, all of Germany

Filed Jan. 22, 1996, Ser. No. 589,369

Claims priority, application Germany, Feb. 4, 1995, 195 03 713.8

Int. Cl.⁶ C08L 41/00

U.S. Cl. 524—547

14 Claims

1. A casting resin composition comprising:
(a) a curable acrylic or a methacrylic ester or both;
(b) a finely divided inorganic filler;
(c) an organosilicon compound;
(d) 0.05–1% by weight, based on the weight of said filler, of zirconium acetylacetonate; and
(e) 30–75% by weight, based on the weight of zirconium acetylacetonate, of water.

5,670,571

PROCESS FOR PRODUCING A DISPERSED NOVOLAC RESIN AND USE IN A BINDER SYSTEM FOR THERMAL INSULATION

Kurt D. Gabrielson, Puyallup, and Rodney R. Conner, Fox Island, both of Wash., assignors to Georgia-Pacific Resins, Inc., Atlanta, Ga.

Filed Nov. 3, 1995, Ser. No. 552,563

Int. Cl.⁶ C08L 61/06

U.S. Cl. 524—604

11 Claims

1. A process for producing a dispersed particulate novolac resin comprising the steps in the following order of:

- reacting a phenol with an aldehyde in the presence of a catalyst under acidic conditions to produce a novolac resin;
- heating the novolac resin to remove water, unreacted phenol, and other volatile organic materials from the resulting novolac and to produce a molten novolac resin;
- cooling the molten novolac resin to a point where water can be added;
- adding about 10–30 wt % of water based on the total novolac resin solids and, optionally, a surfactant, to the molten resin, the water being added in an amount sufficient to produce a water-in-oil emulsion;
- adding a protective colloid to the emulsion in an amount sufficient to stabilize the dispersed particulate novolac resin; and

(f) adding additional water and agitating to produce the dispersed particulate novolac resin, wherein the particulate novolac resin has a particle size of 0.1μ to 20μ.

5,670,572

IMPREGNATING RESINS FOR FILMS AND EDGINGS

Jürgen Ott, Bad Vilbel; Manfred Schön, Rodgau; Wilhelm Adam, Neu-Isenburg; Frank Scholl, Neuberg, and Alfons Wolf, Seligenstadt, all of Germany, assignors to Hoechst Aktiengesellschaft, Germany

Filed Nov. 3, 1995, Ser. No. 552,726

Claims priority, application Germany, Nov. 4, 1994, 44 39 156.0

Int. Cl.⁶ C08K 5/05; C09J 161/32

U.S. Cl. 524—720

12 Claims

1. Modified aqueous melamine-formaldehyde resins selected from the group consisting of

- melamine-formaldehyde resins which contain at least one guanamine in co-condensed form;
- mixtures of at least two resins of group (a);
- mixtures of at least one melamine-formaldehyde resin with at least one guanamine;
- mixtures of at least one resin of group (a) and a mixture of group (c);
- mixtures of at least one resin of group (a) and at least one guanamine;

wherein the guanamine is selected from 1-alkyl-3,5-diaminotriazines with 5 to 17 carbon atoms in the alkyl group, and wherein the modified melamine-formaldehyde resins are aqueous melamine-formaldehyde impregnating solutions which are at least partially etherified with a C₁–C₄ alcohol, the molar ratio of alcohol to melamine in the alkoxyethyl melamine being from 0.8:1 to 6:1 and the resin has a solids content of about 60 to about 85% by weight and the molar ratio of melamine:guanamine:formaldehyde is about 1:(about 0.001 to about 0.5):(about 1.3 to about 6).

5,670,573

COATINGS CONTAINING FLUORINATED ESTERS

Jack Robert Kirchner, Wilmington, Del., and William Wesley Bennett, Jr., Carney's Point, N.J., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

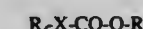
Filed Aug. 7, 1996, Ser. No. 695,159

Int. Cl.⁶ C08L 67/06; 67/08; 75/14

U.S. Cl. 525—7

7 Claims

1. A coating composition comprising
A. an ester of an unsaturated alcohol and a fluorinated acid of the formula



wherein

R_f is a C₂–C₂₀ perfluoroalkyl radical or a C₅–C₃₈ perfluoroalkyl radical having at least one ether oxygen atom;

R is a C₃ to C₂₁ unsaturated aliphatic hydrocarbon radical, optionally aryl substituted, or a mixture thereof;

X is —(CH₂)_m—, —C₆H₄—, —CON(R₁)R₂—, —SO₂N(R₁)R₂—, —(CH₂)_sSO₂(CH₂)_t—, —(CH₂)_sSO₂CH(CH₃)CH₂— or —(CH₂)_sSO₂CH₂CH(CH₃)—wherein m is 2 to about 20; s is 1 to about 12; t is 1 to about 17; y is 0, 1 or 2; R₁ is hydrogen or alkyl of 1 to about 12 carbon atoms; and R₂ is alkylene having 1 to about 12 carbon atoms; and

B. an alkylid, urethane or unsaturated polyester resin; wherein a cured coating resulting from said coating composition has an advancing hexadecane contact angle of at least about 40 degrees.

5,670,574

SALT-RESIN PLASTIC PRODUCTS AND PROCESS

Joe C. Hill, P.O. Box 9024, Hickory, N.C. 28603

Filed Jan. 25, 1995, Ser. No. 378,382

Int. Cl.⁶ C08K 3/26; 3/24; C08L 29/04

U.S. Cl. 525—61

17 Claims

1. A process for the production of plastic resin-salt reaction products which comprises contacting, while agitating in a reaction zone, a resin having bonding sites and being capable of accepting other ions or electrons with a salt in the presence of ammonia and an acid in a reaction medium under conditions of temperature, pressure and an amount of salt of at least 2.3 weight per cent up to 800% by weight of the resin which cause the resin to solubilize in the reaction medium and react with the salt to form the plastic resin-salt reaction product, and

separating the plastic resin-salt reaction product from the reaction medium leaving a mother liquor of 15-25% solids.

5,670,575

LOW TEMPERATURE TOUGHENED POLYAMIDES

Edmund Arthur Flexman, Jr., Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 197,088, Feb. 16, 1994, abandoned.

This application Nov. 1, 1995, Ser. No. 551,362

Int. Cl.⁶ C08L 77/00

U.S. Cl. 525—66

7 Claims

1. A polymer blend comprising components (A) and (B):

(A) about 60 to 90 weight percent, based on the total weight of (A) and (B), of a polyamide matrix resin selected from the group consisting of nylon 6, nylon 6,6; nylon 6,10 and nylon 6,12; and

(B) about 10 to about 40 weight percent, based on the total weight of (A) and (B), of a rubber component comprising:

(1) a functionalized rubber selected from the group consisting of ethylene/propylene copolymers and ethylene/propylene/diene terpolymers; said copolymers and terpolymers containing 0.1 to 4 weight percent of groups capable of reacting with the amine moieties of the polyamide, and

(2) an ethylene copolymer of the formula E/X/Y wherein E is a radical formed from ethylene and forms about 40 to about 90 weight percent of the ethylene copolymer, X is a radical formed from an acrylate ester of an alcohol having 1 to 6 carbon atoms and forms about 10 to about 80 weight percent of the

Y is a radical selected from the group consisting of a radical formed from glycidyl methacrylate and a radical formed from glycidyl acrylate and forms about 0.5 to about 10 weight percent of the ethylene copolymer.

5,670,576

POLYAMIDE RESIN COMPOSITION

Takayuki Takatani, Ishibashi-machi, and Hiromi Ishida, Moka, both of Japan, assignors to General Electric Co., Pittsfield, Mass.

Filed Mar. 11, 1996, Ser. No. 616,329

Claims priority, application Japan, Mar. 10, 1995, 7-078435

Int. Cl.⁶ C08F 8/00

U.S. Cl. 525—132

15 Claims

1. A polyamide resin composition comprising:

(A) 20-80 parts by weight of polyamide resin;

(B) 80-20 parts by weight of polyphenylene ether resin or a mixture of said polyphenylene ether resin and polystyrene resin; and further comprising, with respect to a total of 100 parts by weight of (A) and (B),

(C) 0.01-10 parts by weight of a compatibilizer;

(D) 1-50 parts by weight of uncured phenol novolak resin wherein the uncured phenol novolak resin is at least partly modified by boric acid; and

(E) 0-80 parts by weight of rubber components.

5,670,577

WATERPROOF HOT MELT COMPOSITION FOR STITCHED SEAMS

Glen E. Dawson, Jr., Arden Hills, Minn., assignor to H. B. Fuller Licensing & Financing, Inc., St. Paul, Minn.

Continuation of Ser. No. 534,056, Sep. 29, 1995, abandoned.

This application Nov. 27, 1996, Ser. No. 768,965

Int. Cl.⁶ C08L 93/00; B32B 7/12

U.S. Cl. 525—95

20 Claims

1. A hot melt adhesive composition comprising:

(a) from about 5 to about 40 percent by weight of an A-B-A block copolymer wherein A is polystyrene and B is a substantially saturated rubbery midblock;

(b) an amount up to about 15 percent by weight of a substantially A-B diblock copolymer wherein A is polystyrene and B is a rubbery block and said diblock copolymer is a liquid at ambient temperature;

(c) an amount up to about 20 percent by weight of a waxy material;

(d) an amount up to about 20 percent by weight of a tackifying resin; and

(e) from about 10 to about 90 percent by weight of a plasticizer; wherein said adhesive composition forms a waterproof coating.

8. A waterproof stitched seam comprising a stitched seam having a plurality of water permeable stitch holes and a hot melt adhesive composition applied molten directly to said seam, said hot melt adhesive comprising:

(a) from about 5 to about 40 percent by weight of an A-B-A block copolymer wherein A is polystyrene and B is a substantially saturated rubbery midblock;

(b) an amount up to about 15 percent by weight of a substantially A-B diblock copolymer wherein A is polystyrene and B is a rubbery block;

(c) an amount up to about 20 percent by weight of a waxy material;

(d) an amount up to about 20 percent by weight of a tackifying resin; and

(e) from about 10 to about 90 percent by weight of a plasticizer; wherein said seam exceeds 20,000 flexes before leakage.

5,670,578

CEMENT ADDITIVES

Edward T. Shawl, Wallingford, Pa., assignor to ARCO Chemical Technology, L.P., Greenville, Del.

Filed Dec. 10, 1996, Ser. No. 762,581

Int. Cl.⁶ C08L 71/02

U.S. Cl. 525—187

21 Claims

1. A cement additive containing carboxylic acid groups produced by reaction of (a) a carboxylic acid polymer prepared by polymerizing a polymerizable acid monomer containing at least one ethylenically unsaturated group in conjugation with a carboxyl group selected from the group consisting of carboxylic acid, carboxylic anhydride and carboxylic ester groups and (b) a polyether mixture comprising (i) a monofunctional polyether prepared by polymerizing a first epoxide selected from the group consisting of C₂-C₄ epoxides and mixtures thereof onto a monofunctional initiator and (ii) a difunctional polyether prepared by polymerizing a second epoxide selected from the group consisting of C₂-C₄ epoxides and mixtures thereof, which may be the same as or different from the first epoxide, onto a difunctional initiator, wherein (a) and (b) are reacted under conditions effective to achieve partial cleavage of the polyether mixture and esterification of the polyether mixture and cleavage products thereof by the carboxylic acid polymer.

5,670,579

GOLF BALL COVER

Barbara Stefani, New Bedford, Mass., assignor to Acushnet Company, Fairhaven, Mass.

Continuation of Ser. No. 56,046, Apr. 30, 1993, Pat. No.

5,492,972, which is a continuation-in-part of Ser. No. 625,225, Dec. 10, 1990, abandoned. This application Feb. 20, 1996, Ser. No. 603,796

Int. Cl.⁶ A63B 37/12; C08K 3/14

U.S. Cl. 525—196

8 Claims

1. In a two-piece golf ball comprising a cover and a core, the improvement which comprises forming said cover from a blend of ionomer resins, said blend comprising

from about 20 to about 45 phr of a first sodium ionomer having a first flexural modulus between about 1,000 and 20,000 psi, said first sodium ionomer being a terpolymer comprising about 5-50 weight percent of n- or iso-butyl acrylate, about 4-30 weight percent of acrylic or methacrylic acid in which 5-95 percent of the acid groups are neutralized by sodium and the remainder of ethylene;

up to about 10 phr of a second sodium ionomer having a second flexural modulus wherein said second sodium ionomer is a copolymer comprising about 95 to 80 parts by weight of ethylene and about 5 to 20 parts by weight of acrylic or methacrylic acid in which about 10 to 90% of the acid groups are neutralized by sodium; and

from about 50 to about 75 phr of a lithium ionomer having a third flexural modulus of between about 60,000 and about 80,000 psi, wherein said lithium ionomer is a copolymer comprising about 95 to about 80 parts by weight of ethylene and about 5 to about 20 parts by weight of acrylic or methacrylic acid based upon 100 parts by weight copolymer, and further wherein about 10 to about 90% of the acid groups are neutralized by lithium.

5,670,580

PROPYLENE BLOCK COPOLYMER, PROCESS FOR PREPARING SAME, AND MODIFIED COPOLYMER USING PROPYLENE BLOCK COPOLYMER

Toshinori Tazaki, and Shuji Machida, both of Sodegaura, Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

PCT No. PCT/JP94/00291, § 371 Date Aug. 23, 1995, § 102(e) Date Aug. 23, 1995, PCT Pub. No. WO94/19382, PCT Pub. Date Sep. 1, 1994

PCT Filed Feb. 24, 1994, Ser. No. 507,233

Claims priority, application Japan, Feb. 24, 1993, 5-035764

Int. Cl.⁶ C08F 210/06; 297/08

U.S. Cl. 525—240

20 Claims

1. A propylene block copolymer comprising: (A) 50 to 95 wt % of a propylene polymer block which contains units derived from propylene or units derived from propylene and 4 wt % or less of an olefin having 2 to 8 carbon atoms and in which the peak area of a peak observed between 21.0 and 22.0 ppm is 75 wt % or more of the peak area of peaks observed between 19.5 and 22.5 ppm attributable to a methyl group present on a side chain of a propylene chain by the use of tetramethylsilane as an internal standard in 1,2,4-trichlorobenzene in ¹³C-NMR measurement, and (B) 50 to 50 wt % of an ethylene/propylene copolymer block containing 20 to 90 wt % of units derived from ethylene, a unit derived from a hydrocarbon compound having two unsaturated bonds being contained in a ratio of 0.001 to 15.0 wt % of said copolymer in at least one of (A) and (B), a reduced viscosity of said copolymer at a concentration of 0.05 g/dl measured in decahydronaphthalene at a temperature of 135° C. being in the range of 0.01 to 30 dl/g.

5,670,581

METALATION AND FUNCTIONALIZATION OF POLYMERS AND COPOLYMERS

Jean M. J. Fréchet, Ithaca, N.Y.; Shah A. Haque, Houston, Tex.; Joachim Hans Georg Steinke, Cambridge, United Kingdom, and Hsien-Chang Wang, Bellaire, Tex., assignors to Exxon Chemical Patents Inc., Houston, Tex., and Cornell Research Foundation, Inc., Ithaca, N.Y.

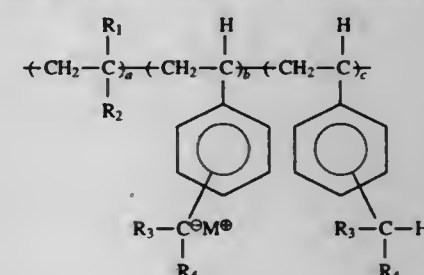
Continuation-in-part of Ser. No. 447,131, May 22, 1995, abandoned, which is a continuation-in-part of Ser. No. 444,951, May 19, 1995, abandoned. This application Jun. 7, 1995, Ser. No. 476,753

Int. Cl.⁶ C08F 8/42

U.S. Cl. 525—333.3

8 Claims

1. A random copolymer represented by the formula:



wherein "a" is in the range of 1 to 70,000, "b" in the range of 1 to 7,000 and "c" in the range of 0 to 7,000, R₁ and R₂ are each independently a C₁-C₅ alkyl or hydrogen, provided that at least one of R₁ and R₂ is alkyl and R₁+R₂≤5 carbon atoms; R₃ and R₄ are each independently one of hydrogen, a C₁-C₄ alkyl group, and M is an alkali metal other than lithium.

5,670,582

PROCESS FOR HALOGENATION OF ISOMONOOLEFIN/PARA-ALKYLSTYRENE COPOLYMERS

David Yen-Lung Chung, Bellaire, and Neil Frederick Newman, Kingwood, both of Tex., assignors to Exxon Chemical Patents Inc., Houston, Tex.

Filed Jul. 24, 1996, Ser. No. 686,194

Int. Cl.⁶ C08F 8/22

U.S. Cl. 525—356

27 Claims

1. A process for halogenating a copolymer of a C₄ to C₇ isomonolefin and a para-alkylstyrene comprising: contacting said copolymer under free radical halogenation conditions with a halogenating agent and hydrogen peroxide, and recovering the halogenated copolymer containing at least about 0.05 mole % of haloalkyl groups.

5,670,583

METAL OXIDE-POLYMER COMPOSITES

Stephen T. Wellinghoff, San Antonio, Tex., assignor to Southwest Research Institute, San Antonio, Tex.

Division of Ser. No. 47,750, Apr. 13, 1993, Pat. No. 5,372,796.

This application Aug. 31, 1994, Ser. No. 298,836

Int. Cl.⁶ C08F 8/42

U.S. Cl. 525—389

6 Claims

1. A method of making a ceramer comprising first forming a metal oxide cluster in a single stage comprising reacting a metal alkoxide with a substoichiometric amount of an acid in the presence of an oxide particle growth terminator and solubilizer and in the absence of water at a temperature and for a time sufficient to form a metal oxide cluster gel, forming said gel into a powder, and reacting said powder with a functionalized polymer in an alcohol that is a solvent for both, said acid being selected from acids whose esters resulting from the reaction with said metal oxide have a vapor pressure such that they will evaporate at a temperature below about 200° C.

5,670,584

POLYESTER COMPOSITIONS SUITABLE FOR THE MANUFACTURE OF FIBRES AND FILMS WITH HIGH ELASTIC MODULUS

Hussain Ali Kashif Al Ghatta, Fugate, Tonino Severini, Colferro, and Sandro Cobror, Napoli, all of Italy, assignors to Sincro Engineering S.p.A., Italy

PCT No. PCT/EP94/01370, § 371 Date Oct. 4, 1995, § 102(e) Date Oct. 4, 1995, PCT Pub. No. WO94/26821, PCT Pub. Date Nov. 24, 1994

PCT Filed Apr. 29, 1994, Ser. No. 532,628

Claims priority, application Italy, May 7, 1993, MI93A0916; Jun. 18, 1993, MI93A1317

Int. Cl.⁶ C08L 67/02

U.S. Cl. 525—444

5 Claims

1. A polyester resin mixed in the melt with a dianhydride of a tetracarboxylic acid and containing, dispersed in the polyester resin, a polymeric liquid crystal in a quantity of up to about 5% by weight of the resin.

5,670,585

USE OF POLYACRYLIC ACID AND OTHER POLYMERS AS ADDITIVES IN FIBERGLASS FORMALDEHYDE BASED BINDERS

Thomas J. Taylor, Englewood, Colo., and Paul Nedwick, Lansdale, Pa., assignors to Schuller International, Inc., Denver, Colo.

Filed Jun. 13, 1995, Ser. No. 489,903

Int. Cl.⁶ C08L 61/10; 61/28; 33/08

U.S. Cl. 525—508

30 Claims

1. A low total emission process for preparation of a binder-coated fiberglass product, comprising:

- selecting as one component of said binder, an aqueous phenol/formaldehyde resin which has been extended with a nitrogenous compound to form an extended phenol/formaldehyde resin;
- adding to said extended phenol/formaldehyde resin an amount of a non-curable acidic polyacrylate effective to reduce ammonia emissions during cure of the combination (a) and (b) below that produced during the cure of (a) alone;
- applying an aqueous mixture comprising (a) and (b) to fiberglass in need of binder-coating to form a binder-containing fiberglass;
- curing said binder-containing fiberglass at elevated temperature to form a binder-coated fiberglass product.

5,670,586

POLYKETONES WITH ENHANCED TRIBOLOGICAL PROPERTIES

Carl Edwin Ash, Sugar Land, and Narayana Mysore, Houston, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Dec. 11, 1995, Ser. No. 570,019

Int. Cl.⁶ C08J 3/28; 3/24; C08G 67/02

U.S. Cl. 525—539

28 Claims

1. An article of manufacture comprising a high energy radiation cured alternating aliphatic polyketone wherein said polyketone has a number average molecular weight of at least about 20,000 and said cured polyketone does not exhibit a substantial increase in light emitted at 490 nm upon exposure to light of 400 nm relative to the polyketone polymer from which said article was cured.

5,670,587

CATALYST FOR PRODUCING AROMATIC VINYL COMPOUND-BASED POLYMER COMPOSITION AND PROCESS FOR PRODUCING AROMATIC VINYL COMPOUND-BASED POLYMER COMPOSITION USING SAME

Mizutomo Takeuchi; Hajime Shouzaki; Norio Tomotsu, and Masahiko Kuramoto, all of Ichihara, Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

PCT No. PCT/JP94/01192, § 371 Date Jan. 23, 1996, § 102(e) Date Jan. 23, 1996, PCT Pub. No. WO95/03339, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 20, 1994, Ser. No. 537,868

Claims priority, application Japan, Jul. 23, 1993, 5-182388

Int. Cl.⁶ C08F 4/64; 12/04

U.S. Cl. 526—119

11 Claims

1. A catalyst for producing an aromatic vinyl compound-based polymer composition which catalyst comprises

(A) at least two different transition metal compounds each having one π -ligand; said compound being represented by the formula (I)



wherein

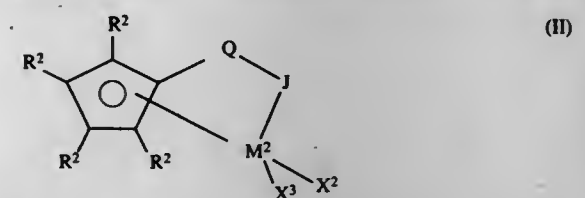
R^1 is a π -ligand selected from the group consisting of a cyclopentadienyl group, a methylcyclopentadienyl group, a 1,2-dimethylcyclopentadienyl group, a 1,3-dimethylcyclopentadienyl group, a 1,3-di(tert-butyl)cyclopentadienyl group, a 1,3-(trimethylsilyl)cyclopentadienyl group, a 1,2,3-trimethylcyclopentadienyl group, a 1,2,4-trimethylcyclopentadienyl group, a 1,2,3,4-tetramethylcyclopentadienyl group, a pentamethylcyclopentadienyl group, a 1-ethyl-2,3,4,5-tetramethylcyclopentadienyl group, a 1-benzyl-2,3,4,5-tetramethylcyclopentadienyl group, a 1-phenyl-2,3,4,5-tetramethylcyclopentadienyl group, a 1-trimethylsilyl-2,3,4,5-tetramethylcyclopentadienyl group, a 1-trifluoromethyl-2,3,4,5-tetramethylcyclopentadienyl group, a 1,2,3-trimethylindenyl group, a heptamethylindenyl group and a 1,2,4,5,6,7-hexamethylindenyl group;

M^1 is a transition metal in the groups 3 to 6 of the Periodic table; X^1 is a σ -ligand and a plurality of X^1 may be the same or different;

L is a Lewis base;

a is the valency of M^1 ;

b is 0, 1 or 2; and when L is plural, each L may be the same or different, and comprises a transition metal compound having one π -ligand, said compound being represented by the formula (II)



wherein

R^2 is a hydrogen atom, a hydrocarbon group having 1 to 20 carbon atoms or an aromatic hydrocarbon group having 6 to 20 carbon atoms and a plurality of R^2 may be the same or different and may form a ring;

M^2 is a transition metal in the groups 3 to 6 of the Periodic table; X^2 and X^3 are each a σ -ligand and may be the same or different; Q is a hydrocarbon group having 1 to 6 carbon atoms, an aromatic hydrocarbon group having 6 to 20 carbon atoms, a silylene group having 1 to 5 silicon atoms or a germylene group having 1 to 5 germanium group; and

J is an amide group, a phosphide group, an oxygen atom, a sulfur atom or an alkylidene group; and

(B) an ionic compound comprising a noncoordinate anion and a cation.

11. A process for producing an aromatic vinyl compound-based polymer composition having a high degree of syndiotactic configuration in its aromatic vinyl chains which process comprises polymerizing an (a) aromatic vinyl compound and (b) at least one member selected from olefinic compounds and diolefinic compounds in the presence of the catalyst as set forth in claim 1.

5,670,588

PROCESS FOR THE POLYMERIZATION OF OLEFINIC HYDROCARBONS

Yoshio Tajima; Naoki Kataoka; Yosuke Numao; Takashi Seki, and Kazuo Matsuura, all of Yokohama, Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 334,284, Nov. 4, 1994, abandoned, which is a division of Ser. No. 904,803, Jun. 26, 1992, Pat. No. 5,387,567. This application Dec. 1, 1995, Ser. No. 566,447

Claims priority, application Japan, Jun. 27, 1991, 3-183271; Sep. 27, 1991, 3-276672

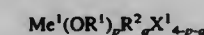
Int. Cl.⁶ C08F 4/64; 10/02

U.S. Cl. 526—128

20 Claims

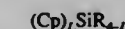
1. A process for the polymerization of olefinic hydrocarbons which comprises polymerizing an olefinic hydrocarbon in the presence of a catalyst composition comprising:

a catalyst component comprised of a compound (A) of the formula



wherein R^1 and R^2 each are hydrocarbon moieties independently selected from the group consisting of alkyl, alkenyl, aryl and aralkyl groups of 1–24 carbon atoms; X^1 is a halogen atom; Me^1 is Ti, Zr or Hf; $0 \leq p \leq 4$; $0 \leq q \leq 4$; and $0 \leq p+q \leq 4$;

an organocyclic compound (B) selected from the group consisting of an organocyclic hydrocarbon compound having two or more conjugated double bonds and an organosilicon compound of the formula



wherein Cp is a cyclic hydrocarbon group having two or more conjugated double bonds and a total carbon number of 4–24; R is a hydrocarbon moiety of 1–24 carbon atoms or hydrogen; and $1 \leq L \leq 4$; and

a modified organoaluminum compound having 1–100 Al—O—Al bonds in the molecule derived from reacting an organoaluminum compound with water.

5,670,589

ORGANOALUMINOXY PRODUCT, CATALYST SYSTEMS, PREPARATION, AND USE

Rolf L. Geerts; M. Bruce Welch; Syriac J. Palackal, all of Bartlesville, Okla.; Helmut G. Alt; Bernd Peifer, both of Bayreuth, Germany, and Harold R. Deck, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

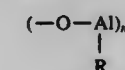
Filed Feb. 8, 1995, Ser. No. 385,515

Int. Cl.⁶ C08F 4/642; C07F 5/06

U.S. Cl. 526—160

33 Claims

1. A process for preparing a solid catalyst system comprising reacting an organoaluminum compound and an ene-ol compound wherein said organoaluminum compound is represented by the formula



wherein each R is a hydrocarbyl group containing 1 to 12 carbon atoms and n is a number in the range of from 2 to 50; and

wherein said ene-ol compound contains at least one hydroxy group, at least one carbon-carbon double bond, and contains from 3 to 24 carbon atoms,

(b) combining the product of step (a) with at least one transition metal-containing catalyst to form a catalyst system,

(c) prepolymerizing said catalyst system in a liquid in the presence of at least one olefin containing 2 to 18 carbon atoms,

(d) separating the resulting solid catalyst from the liquid and the components contained in the liquid to yield said solid catalyst system,

wherein said at least one transition metal-containing catalyst is represented by the formula



wherein M is a Group IVB or VB transition metal, x is the valence of the transition metal, and each L is individually selected and is a hydrocarbyl group containing 1 to 12 carbon atoms, alkoxy group containing 1 to 12 carbon atoms, aryloxy group containing 6 to 12 carbon atoms, halogen, hydrogen, amido, or a ligand containing at least one cyclopentadienyl-type group, and

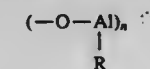
wherein said cyclopentadienyl-type group is unsubstituted cyclopentadienyl, substituted cyclopentadienyl, unsubstituted indenyl, substituted indenyl, unsubstituted fluorenyl, or substituted fluorenyl, wherein the substituents are hydrocarbyl groups containing 1 to 12 carbon atoms, alkoxy groups containing 1 to 12 carbon atoms, silyl groups, alkyl halide groups where the alkyl contains 1 to 12 carbon atoms, or halogen.

23. An olefin polymerization catalyst system comprising the solid catalyst system produced by the process of claim 1.

28. A polymerization process comprising contacting at least one olefin under polymerization conditions with the catalyst system of claim 23, wherein said olefin contains from 2 to 24 carbon atoms.

33. An organoaluminum compound useful as a polymerization cocatalyst, said organoaluminum compound comprising the reaction product of an organoaluminum compound and an ene-ol compound:

wherein said organoaluminum compound is represented by the formula



wherein each R is a hydrocarbyl group containing 1 to 8 carbon atoms and n is a number in the range of from 2 to 50; and

wherein said ene-ol compound contains at least one hydroxy group, at least one carbon-carbon double bond, and contains from 2 to 24 carbon atoms.

5,670,590

ENERGY POLYMERIZABLE COMPOSITIONS, HOMOPOLYMERS AND COPOLYMERS OF OXAZOLINES

Stephen A. Ezzell, Woodbury, and Diana J. Gerbi, Mendota Heights, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 6, 1994, Ser. No. 238,912

Int. Cl.⁶ C08F 4/80; 26/06; 2/46

U.S. Cl. 526—171

12 Claims

1. An energy polymerizable composition comprising:

- at least one cationically curable 1,3-oxazyl heterocyclic monomer or compound; and
- a catalytically effective amount of an initiator comprising an organometallic compound.

5,670,591

ANIONICALLY COPOLYMERIZED LIVING RANDOM (METH)ACRYLIC COPOLYMERS AND COPOLYMERS PREPARED THEREFROM

Jin-shan Wang, Pittsburgh, Pa.; Philippe Bayard, Stavelot; Philippe Teyssie, Neuville en Condroz, both of Belgium; Bruno Vuillemin, and Philippe Heins, both of Pau, France, assignors to Elf Atochem S.A., Puteaux, France

Division of Ser. No. 389,640, Feb. 16, 1995, Pat. No. 5,561,207. This application Jun. 27, 1996, Ser. No. 672,118 Claims priority, application France, Feb. 16, 1994, 94 01767 Int. Cl.⁶ C08F 4/46; 2/00; 22/40; 22/10; 22/40; 23/28; 22/54, 22/44

U.S. Cl. 526—173

24 Claims

1. A process for the preparation of a living random (meth) acrylic copolymer having one of the formulae (Ia) or (Ib):



in which "P" and "co" represent the copolymerize of at least two base comonomers A and B selected from among methacrylic and acrylic monomers and maleimides, at least one of said comonomers A and B comprising an acrylic or methacrylic monomer; M is an alkali or alkaline earth metal emanating from a monofunctional or difunctional polymerization initiator, depending on whether said living random copolymer has the formula (Ia) or (Ib), respectively; "Ligand" is (a) a non-nitrogenous macrocyclic complexant or (b) an alkali metal alcoholate of the formulae (II) or (III):



in which M¹ is an alkali metal; R¹ is a linear or branched alkyl radical having from 1 to 6 carbon atoms or an arylalkyl radical in which the alkyl moiety is C₁-C₆, or an alkylaryl radical in which the alkyl moiety has from 1 to 6 carbon atoms; R² is a linear or branched alkylene radical having from 2 to 4 carbon atoms; m is the integer 1, 2, or 3; and n is an integer ranging from 1 to 50, said process comprising anionically polymerizing said comonomers A and B in the presence of (i) at least one alkali or alkaline earth metal, mono- or difunctional initiator thereof and (ii) at least one Ligand which comprises (a) said non-nitrogenous macrocyclic complexant or (b) said alkali metal alcoholate.

5,670,592

SYSTEM FOR PRIMING THE ANIONIC POLYMERIZATION OF ALKYL METHACRYLATE

Philippe Teyssie, Neuville en Condroz, Belgium; Bruno Vuillemin, Pau, France, and Jin-shan Wang, Naperville, Ill., assignors to Elf Atochem S.A., Puteaux, France

Filed Aug. 25, 1995, Ser. No. 519,398

Claims priority, application France, Aug. 24, 1995, 94 10288 Int. Cl.⁶ C08F 4/52

U.S. Cl. 526—177

13 Claims

1. An initiator composition for the anionic polymerization of an alkyl methacrylate, comprising (a) an organolithium compound, (b) pyridine, and (c) an organoaluminum compound.

5,670,593

FLUORINE-CONTAINING OLEFIN, FLUORINE-CONTAINING POLYMER AND THERMOPLASTIC RESIN COMPOSITION PREPARED BY USING SAID POLYMER

Takayuki Araki; Tetsuo Shimizu; Takafumi Yamato; Masahiro Kumegawa, and Yoshihisa Yamamoto, all of Settsu, Japan, assignors to Dalkin Industries, Ltd., Osaka, Japan

PCT No. PCT/JP95/01103, § 371 Date Feb. 9, 1996, § 102(e) Date Feb. 9, 1996, PCT Pub. No. WO95/33782, PCT Pub. Date Dec. 14, 1995

PCT Filed Jun. 5, 1995, Ser. No. 596,315

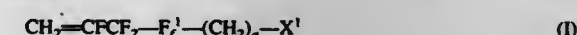
Claims priority, application Japan, Jun. 9, 1994, 6-153020 Int. Cl.⁶ C08F 18/20; 16/24

U.S. Cl. 526—245

19 Claims

1. A fluorine-containing polymer which is a copolymer having a number average molecular weight of 2,000 to 20,000,000 and comprising 0.01 to 80% by mole of (A) mentioned below and 20 to 99.99% by mole of (B) mentioned below,

wherein (A) comprises one or more monomers represented by the formula (I):



and (B) comprises one or more monomers selected from the group consisting of monomers represented by the formula (II):



and the formula (III):



5,670,594

LOW WATER-ABSORPTIVE OCULAR LENS MATERIAL, LOW WATER-ABSORPTIVE OCULAR LENS SHAPED PRODUCT MADE THEREOF, LOW WATER-ABSORPTIVE OCULAR LENS MADE THEREOF AND PROCESS FOR ITS PRODUCTION

Kazuhiko Nakada; Noriko Yoshimatsu, both of Kasugai; Shoji Ichinohe, and Toshio Yamazaki, both of Gunma-ken, all of Japan, assignors to Menicon Co., Ltd., Nagoya, Japan

Filed Oct. 23, 1996, Ser. No. 731,982

Claims priority, application Japan, Oct. 24, 1995, 7-275774 Int. Cl.⁶ C08F 30/08

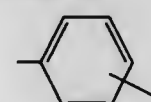
U.S. Cl. 526—279

9 Claims

1. A process for producing a low water-absorptive ocular lens, which comprises polymerizing polymerizable components comprising a methoxysilane compound (A) of the formula (I):

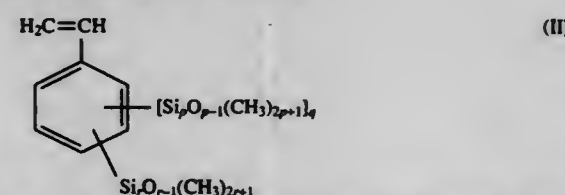


wherein X is a (meth)acryloyloxy group, a vinyl group, a group of the formula H₂C=C



or an allyl group, Z is a direct bond or a C₁₋₃ alkylene group, R¹ is a C₁₋₆ alkyl group, and n is an integer of from 1 to 3, and a hydrophobic silicon-containing monomer (B) selected from the group consisting of an organopolysiloxane-containing alkyl(meth)acrylate, an alkylvinyl silane, an organopolysiloxane-

containing styrene of the formula (II):



wherein p is an integer from 1 to 15, q is 0 or 1, and r is an integer from 1 to 15, and a mixture thereof which is copolymerizable with the methoxysilane compound (A) and which undergoes no crosslinking reaction, to obtain a substantially non-crosslinked low water-absorptive ocular lens material, shaping the low water-absorptive ocular lens material into a shape of desired ocular lens, to obtain a low water-absorptive ocular lens shaped product, and contacting the low water-absorptive ocular lens shaped product with water to crosslink the low water-absorptive ocular lens shaped product.

5,670,595

DIENE MODIFIED POLYMERS

Prasadaro Meka, Seabrook, Tex.; Kunihiko Imanishi, Iruma-gun, Japan; Gary Frederick Licciardi, Humble, and Avinash Chandrakant Gadkari, Houston, both of Tex., assignors to Exxon Chemical Patents Inc., Houston, Tex.

Filed Aug. 28, 1995, Ser. No. 520,010

Int. Cl.⁶ C08F 236/20; 232/06

U.S. Cl. 526—336

29 Claims

6. A diene modified isotactic propylene polymer comprising propylene units, from about 0.00005 to about 5 mole percent α-ω-diene units and wherein the polymer is essentially gel-free and is prepared using a metallocene catalyst system.

12. A method for producing diene-modified polymer, said method comprising the steps of: (1) combining in a reaction zone under suitable polymerization conditions one or more α-olefin monomers having from 3 to 8 carbon atoms, one or more dienes, and a metallocene catalyst system; and (2) irradiating the resulting copolymer.

5,670,596

PRODUCTION OF LOW MOLECULAR WEIGHT LINEAR HYDROGEN SILOXANES

John S. Razzano, Cohoes, N.Y.; Patricia P. Anderson, Williamstown, Mass., and Robert J. Perry, Niskayuna, N.Y., assignors to General Electric Company, Pittsfield, Mass.

Continuation-in-part of Ser. No. 294,808, Aug. 25, 1994, Pat. No. 5,510,441. This application Mar. 27, 1996, Ser. No. 623,340

Int. Cl.⁶ C08G 77/08

U.S. Cl. 528—16

20 Claims

1. A process for the production of hydrogen containing siloxanes of the formula:



where M=R_{3-x}¹H_{3-x}SiO_{2/2} with R¹ being independently selected from the group of one to forty carbon atom monovalent hydrocarbon radicals and the subscript i ranges from 0 to 3; D¹=R²HSiO_{2/2} with R² being independently selected from the group consisting of hydrogen and one to forty carbon atom monovalent hydrocarbon radicals; and D=R_{2-x}³SiO_{2/2} where each R³ is independently selected from the group of one to forty carbon atom monovalent hydrocarbon radicals; and the subscript x ranges from 1 to 20 and the subscript y ranges from 0 to 20; comprising: (a) mixing a hydrogen containing siloxane selected from the group consisting of:

i) D_z^y where D^y is as previously defined and z varies from 3 to 8; and

ii) MD_z^yD_{yy}M^x where M^x, D^y, and D are as previously defined and xx is greater than 20 and yy is either 0 or greater than 20; with

(b) an M^x rich silicone compound comprising M^x where M^x is as previously defined, wherein when said M^x rich compound additionally comprises D, T, or Q groups, D is as previously defined,

T=R⁴SiO_{3/2} with R⁴ being independently selected from the group of one to forty carbon atom monovalent hydrocarbon radicals, and Q=SiO_{4/2} where the molar ratio of silicon atoms in the M^x groups in said M^x rich silicone compound to the sum of the silicon atoms in the M^x, D, T, and Q groups in said M^x rich silicone compound is 0.04 or greater; in the presence of a catalyst selected from the group consisting of acid washed clays, zeolites, ion exchange resins and linear phosphonitric halides and

(c) heating the mixture of said hydrogen containing siloxane and said M^x rich silicone compound to a temperature ranging from 20° C. to 200° C.

5,670,597

PROCESS FOR THE PREPARATION OF ORGANOPOLYSILOXANES CONTAINING ORGANYLOXY GROUPS

Michael Stepp, and Stefan Oberneder, both of Burghausen, Germany, assignors to Wacker-Chemie GmbH, Munich, Germany

Filed Jan. 31, 1995, Ser. No. 381,576

Int. Cl.⁶ C08G 77/08

U.S. Cl. 528—21

4 Claims

1. A process for the preparation of a storage stable, condensable, non-gelled organopolysiloxane which contains at least one unit of the formula:



in which R is identical or different and is a hydrogen atom or monovalent, optionally substituted hydrocarbon radical,

R¹ is identical or different and is a monovalent, optionally substituted hydrocarbon radical having 1 to 8 carbon atoms and

m is 0, 1 or 2, said process comprising, in a 1st step, reacting an organosilicon compound (1) which contains at least one Si-bonded hydroxyl group with at least one silane (2) of the formula



and/or a partial hydrolysate thereof, in which R, R¹ and m have the above mentioned meaning, in the presence of 0.1 to 1000 ppm by weight calculated as elemental fluorine and based on the weight of (1) of a fluoride salt (3), and optionally, in a 2nd step, when said reacting has ended, adding a component (4) which can bond fluoride ions wherein said fluoride salt is one having the formula:



or an adduct of (III) with a carbonyl compound, wherein

R² is identical or different and is a hydrogen atom or a monovalent, optionally substituted hydrocarbon radical having 1 to 8 carbon atoms.

5,670,598
**DIBLOCK AND TRIBLOCK
 POLYDIORGANOSILOXANE-POLYUREA BLOCK
 COPOLYMERS**

Charles M. Leir, Falcon Heights; William R. Bronn, Maplewood, and Patricia J. A. Brandt, Woodbury, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 410,363, Mar. 24, 1995, abandoned. This application Apr. 25, 1995, Ser. No. 428,643
 Int. Cl.⁶ C08G 77/04

U.S. Cl. 528—28 12 Claims
 1. A block copolymer having the structure B-A-X wherein B comprises a non-functional polydiorganosiloxane endblock derived from a monoamine-functional polydiorganosiloxane, A comprises a polyurea block, and X is selected from the group consisting of hydrogen, a non-functional polydiorganosiloxane endblock, or an isocyanate radical.

5,670,599
ULTRA LOW VOC POLYURETHANE COATINGS
 Sherri Lynn Bassner, Bethlehem, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.
 Filed Mar. 8, 1995, Ser. No. 400,910
 Int. Cl.⁶ C08G 18/10

U.S. Cl. 528—59 7 Claims
 1. An isocyanate mixture suited for producing polyurethane coatings which comprises:

- (a) from about 10 to 90 weight parts of a prepolymer comprising the reaction product of a diisocyanate component and a long chain polyol component having an average hydroxyl functionality greater than 2.0, said prepolymer having an equivalent weight from about 250 to 2000 grams per equivalent, an unreacted diisocyanate monomer content of less than about 1% by weight, and a molar concentration of oligomers of less than 15%; and,
 (b) from about 10 to 90 weight parts of a polyisocyanate crosslinker selected from the group consisting of an adduct of an aliphatic or aromatic diisocyanate and an aliphatic polyol, an isocyanurate of an aliphatic or aromatic diisocyanate, a biuret of an aliphatic or aromatic diisocyanate, a uretidione of an aliphatic or aromatic diisocyanate, an allophanate of an aliphatic or aromatic diisocyanate or mixture of the same, the isocyanate mixture totaling 100 weight parts.

5,670,600
**AQUEOUS TWO-COMPONENT POLYURETHANE
 COATING COMPOSITION, PROCESS FOR ITS
 PREPARATION, AND ITS USE IN PROCESSES FOR THE
 PRODUCTION OF A MULTICOAT FINISH**
 Egbert Nienhaus, Ascheberg; Bernd Mayer, Münster, and Uwe Melsenburg, Duisburg, all of Germany, assignors to BASF Lacke + Farben, AG, Muenster-Hiltrup, Germany
 PCT No. PCT/EP94/01991, § 371 Date Dec. 20, 1995, § 102(e)
 Date Dec. 20, 1995, PCT Pub. No. WO95/02005, PCT Pub. Date Jan. 19, 1995

PCT Filed Jun. 18, 1994, Ser. No. 564,145
 Claims priority, application Germany, Jul. 3, 1993, 43 22 242.0

Int. Cl.⁶ C08G 18/67 20 Claims
 1. An aqueous two-component polyurethane coating composition, comprising
 an aqueous dispersion of a polyacrylate resin having an OH number of from 40 to 200 mg of KOH/g, an acid number of from 20 to 100 mg of KOH/g, and a glass transition temperature of from -40° C. to +60° C.; and
 a polyisocyanate component as crosslinking agent;
 wherein the polyacrylate resin comprises, as polymerized monomer units,

- a1) one or more esters selected from the group consisting of esters of acrylic acid, esters of methacrylic acid, and mixtures thereof;
 a2) one or more ethylenically unsaturated monomers having at least one hydroxyl group per molecule;
 a3) optionally one or more vinyl esters of α -branched monocarboxylic acids having 5 to 18 carbon atoms per molecule, a4) optionally at least one compound selected from the group consisting of reaction products of acrylic acid, methacrylic acid, and mixtures thereof with glycidyl esters of α -branched monocarboxylic acids having 5 to 18 carbon atoms per molecule, wherein said reaction products may be formed prior to, during, or after polymerization of the polyacrylate resin;
 a5) one or more ethylenically unsaturated monomers having at least one carboxyl group per molecule; and
 a6) optionally one or more additional ethylenically unsaturated monomers;
 and further wherein at least one of (a3) and (a4) is included in the polyacrylate resin; and yet further wherein the monomers of (a1), (a2), (a3), (a4), (a5), and (a6) are all different and copolymerizable with one another, and the monomers of (a1), (a2), and (a6) are substantially free of carboxyl groups.

5,670,601
**POLYURETHANE ELASTOMERS HAVING IMPROVED
 GREEN STRENGTH AND DEMOLD TIME AND
 POLYOXYALKYLENE POLYOLS SUITABLE FOR THEIR
 PREPARATION**

Gary L. Allen, Winfield; Nigel Barksby, Dunbar; Stephen D. Seneker, Sissonville, all of W. Va., and Usama E. Younes, West Chester, Pa., assignors to Arco Chemical Technology, L.P., Greenville, Del.

Filed Jun. 15, 1995, Ser. No. 491,007
 Int. Cl.⁶ C08G 18/48; C08L 75/08

U.S. Cl. 528—76 19 Claims
 1. A method for the improvement of green strength and demold time of polyurethane elastomers prepared by the reaction of an isocyanate component with a polyoxyalkylene polyol and one or more chain extenders, comprising:

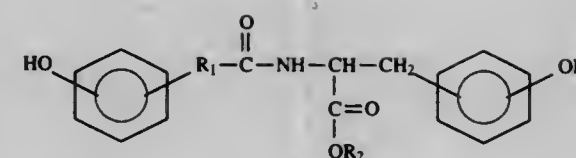
- selecting as said polyoxyalkylene polyol a polyoxyalkylene polyol component having an unsaturation of less than 0.010 meq/g, a polydispersity of 1.4 or greater, and comprising a polyoxypropylene polyol component having an unsaturation of less than 0.010 meq/g, said polyoxyalkylene polyol component having an average equivalent weight of from 1000 Da to about 8000 Da;
 wherein when said polyoxypropylene polyol component comprises a blend of individual polyoxypropylene polyols, each of said individual polyoxypropylene polyols is an essentially monodisperse polyoxypropylene polyol with an unsaturation of less than 0.015 meq/g.

5,670,602
**SYNTHESIS OF TYROSINE-DERIVED DIPHENOL
 MONOMERS**

Joachim B. Kohn; Stephen J. Brocchini, both of Highland Park, and Arthur L. Schwartz, East Windsor, all of N.J., assignors to Rutgers, The State University, New Brunswick, N.J.

Division of Ser. No. 414,339, Mar. 31, 1995, Pat. No. 5,587,507. This application Mar. 29, 1996, Ser. No. 625,763
 Int. Cl.⁶ C08G 63/00; C07C 229/00

U.S. Cl. 528—176 7 Claims
 1. An L-tyrosine derived diphenol compound having the structure:



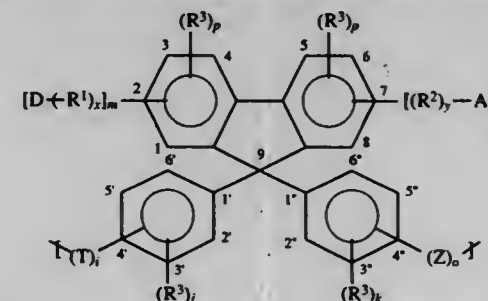
wherein R_1 is selected from the group consisting of $-\text{CH}=\text{CH}-$, $-\text{CH}_2-$, and $(-\text{CH}_2-)_n$, in which n is zero, one, or an integer from three to eight; and R_2 is selected from the group consisting of straight and branched and alkyl alkylaryl groups containing up to 18 carbon atoms.

5,670,603
**POLYMERS EXHIBITING NONLINEAR OPTICAL
 PROPERTIES**

Chengliu Wu, Morristown; Jianhui Shan, Highbridge, and Ajay Nahata, Chatham, all of N.J., assignors to AlliedSignal Inc., Morris Township, N.J.

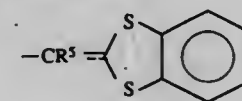
Filed Mar. 8, 1993, Ser. No. 28,921
 Int. Cl.⁶ C08G 63/13; 63/133; 18/28; 18/70; 59/00; 69/26; 64/04
 U.S. Cl. 528—190 22 Claims

1. A polymer comprising recurring units of the formula:



wherein:

- A is an electron withdrawing substituent selected from the group consisting of $-\text{NO}_2$, CO_2R^{12} , $-\text{SO}_2\text{R}^{12}$, $-\text{CN}$, $-\text{C}(\text{O})\text{R}^{12}$, $-\text{C}(\text{CN})=\text{C}(\text{CN})_2$, $-\text{CH}=\text{C}(\text{CN})_2$ and perfluoroalkyl, where R^{12} is hydrogen, deuterium, alkyl, or perfluoroalkyl;
 D is an electron donating substituent selected from the group consisting of $-\text{NR}^{13}\text{R}^{14}$, $-\text{OR}^{13}$, $-\text{SR}^{13}$ and



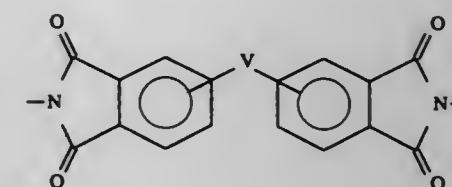
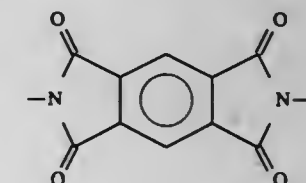
wherein R^{13} and R^{14} are the same or different and are hydrogen, deuterium, alkyl or aryl;

- R^1 and R^2 are the same or different and are divalent conjugated organic or inorganic moiety;
 m , n and p are the same or different at each occurrence and are integers from 1 to 3 wherein the sum of p and n , as well as the sum of p and m , is equal to 4;
 k and o are the same or different at each occurrence and are integers from 1 to 4 wherein the sum of k and o is equal to 5;
 l and j are the same or different and are 0 or an integer from 1 to 5 wherein the sum of i and j is equal to 5;
 R^3 is the same or different at each occurrence and is a monovalent moiety;
 x and y are the same or different and are 0 or an integer from 1 to about 10;
 Z is the same or different at each occurrence and is a moiety of the formula:

$-\text{OR}^4$ or $-\text{O}-$;

Q and T are the same or different and are selected from the group consisting of divalent moieties of the formula:

$-\text{O}-$, $-\text{OC}(\text{O})-$, $-\text{C}(\text{O})\text{O}-$, $-\text{C}(\text{O})-$, $-\text{SiR}^5\text{R}^6-$, $-\text{NR}^5\text{R}^6-$, $-\text{S}-$, $-\text{NR}^5\text{C}(\text{O})-$, $-\text{C}(\text{O})\text{NR}^5-$, $-\text{N}=\text{N}-$, $-\text{CH}=\text{N}-$, $-\text{SO}-$, $-\text{SO}_2-$, $-\text{N}(\text{R}^5)\text{C}(\text{O})\text{N}(\text{R}^5)-$, $-\text{OCH}_2\text{CH}(\text{OH})\text{CH}_2-$, $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}-$,



$-\text{OC}(\text{O})\text{N}(\text{R}^5)-$, $-\text{N}(\text{R}^5)\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}-$, $-\text{OCH}_2\text{CH}(\text{OH})\text{CH}_2(\text{R}^5)-$, $-\text{OC}(\text{O})\text{O}-$ wherein V is $-\text{O}-$, $-\text{OC}(\text{O})-$, $-\text{C}(\text{O})\text{CO}-$, $-\text{C}(\text{O})-$, CR^5R^6 , $-\text{SiR}^5\text{R}^6-$, $-\text{NR}^5-$, $-\text{S}-$, $-\text{NR}^5\text{C}(\text{O})-$, $-\text{SO}-$ or $-\text{SO}_2-$;
 R^4 is a divalent hydrocarbon radical;
 R^5 and R^6 are monovalent moieties and are the same or different at each occurrence.

5,670,604
**PREPARATION OF A POLYCARBONATE BY MELT-
 POLYCONDENSATION OF A DIHYDRIC PHENOL AND A
 CARBONIC DIESTER**

Tatsuya Kanno, and Yutaka Fukuda, both of Hyogo, Japan, assignors to Daicel Chemical Industries, Ltd., Tokyo, Japan
 Continuation of Ser. No. 353,432, Dec. 9, 1994, Pat. No. 5,488,094, which is a division of Ser. No. 209,820, Mar. 11, 1994, Pat. No. 5,466,775, which is a division of Ser. No. 132,132, Oct. 5, 1993, abandoned. This application Nov. 16, 1995, Ser. No. 558,787

Claims priority, application Japan, Oct. 14, 1992, 4-275720; Dec. 24, 1992, 4-344054; Apr. 16, 1993, 5-89916; Apr. 16, 1993, 5-89918; Jul. 7, 1993, 5-167658; Jul. 7, 1993, 5-167659; Jul. 7, 1993, 5-167660

The portion of the term of this patent subsequent to Jan. 1, 2015, has been disclaimed.

Int. Cl.⁶ C08G 64/00

U.S. Cl. 528—196 17 Claims

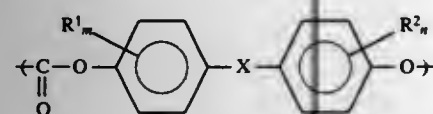
1. A process for the preparation of a thermally stable polycarbonate by melt-polycondensing a dihydric phenol with a carbonic diester, which comprises using a compound selected from the group consisting of alkali metal and alkaline earth metal borates as a catalyst, wherein said catalyst is introduced into the process in the form of a single compound.

5,670,605
COPOLYCARBONATE, A COPOLYCARBONATE
COMPOSITION, AND A METHOD FOR THEIR
MANUFACTURE

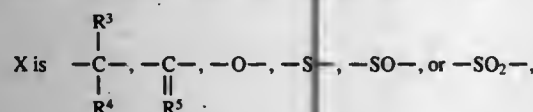
Takeshi Sakashita, Utsunomiya; Tomoaki Shimoda, Moka; Takashi Nagai, and Tetsuji Kodaira, both of Utsunomiya, all of Japan, assignors to General Electric Company, Pittsfield, Mass.

Filed Dec. 20, 1995, Ser. No. 575,566
Claims priority, application Japan, Dec. 28, 1994, 6-327762;
Dec. 28, 1994, 6-327764; Dec. 28, 1994, 6-327766
Int. Cl.⁶ C08G 64/00

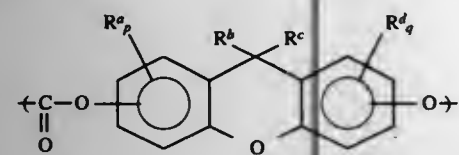
U.S. Cl. 528—196 18 Claims
1. A copolycarbonate comprising a first component of the formula



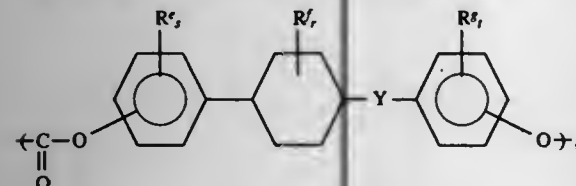
wherein R¹ and R² are halogen atoms or univalent hydrocarbon groups which may be halogen-substituted and may be the same or different, m and n are integers from 0-4 and



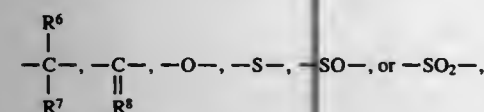
R³ and R⁴ are hydrogen atoms or monovalent hydrocarbon groups, and R⁵ is a bivalent hydrocarbon group and a second component selected from the group consisting of a component having the formula



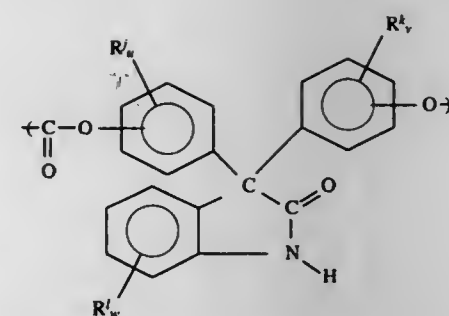
wherein R^a, R^b, R^c, and R^d are halogen atoms, hydrocarbon groups having 1-10 carbon atoms, or hydrocarbon groups having 1-10 carbon atoms which are at least partially halogen-substituted, R^a, R^b, R^c, and R^d may be the same or different, and R^b and R^c may be hydrogen atoms and p and q are integers from 0-3, a component of the formula



wherein R^e, R^f, and R^g are halogen atoms, hydrocarbon groups having 1-10 carbon atoms, or hydrocarbon groups having 1-10 carbon atoms which are at least partially halogen-substituted, and R^e, R^f, and R^g may be the same or different, r is an integer of from 1 to 10, s and t are integers from 0 to 4 and Y is



R⁶ and R⁷ are hydrogen atoms or monovalent hydrocarbon groups, and R⁸ is a bivalent hydrocarbon group, and a component of the formula

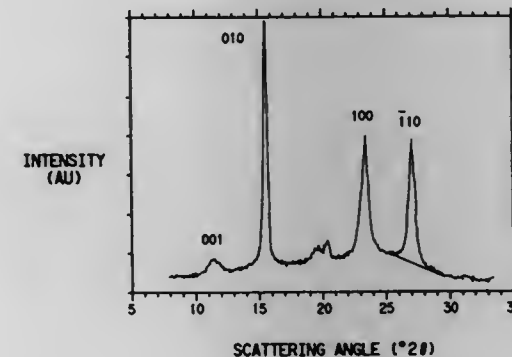


wherein R¹, R² and R³ are halogen atoms, hydrocarbon groups having 1-10 carbon atoms, or hydrocarbon groups having 1-10 carbon atoms which are at least partially halogen-substituted, and R⁴, R⁵, and R⁶ may be the same or different and u, v and w are integers from 0-4.

5,670,606
CRYSTALLINE FORM OF POLY(ETHYLENE 2,6-
NAPHTHALATE) AND A METHOD FOR ITS
PRODUCTION

Jan M. Stouffer, Hockessin; Elwood Neal Blanchard, Wilmington, both of Del., and Kenneth Wayne Leffew, Kennett Square, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 5, 1996, Ser. No. 583,365
Int. Cl.⁶ C08G 63/02 26 Claims

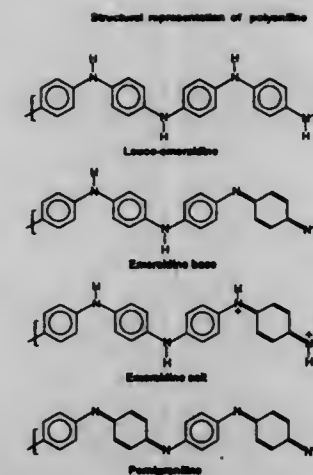


1. A composition, comprising poly(ethylene 2,6-naphthalate) having an average apparent crystallite size of 10.0 nm or more, determined from 110 reflection.

5,670,607
MISCIBLE FORMS OF ELECTRICALLY CONDUCTIVE
POLYANILINE

ChenChang Chen, East Brunswick, N.J., assignor to Gumbs Associates, Inc., East Brunswick, N.J.
Filed Jun. 7, 1996, Ser. No. 659,250
Int. Cl.⁶ C08G 63/68; 75/00

U.S. Cl. 528—290 18 Claims
1. Process for the preparation of polyanilinedioctyl sulfosuccinate (PaniDos) which comprises the sequential steps of
a) preparing a solution of aniline in excess of an aqueous solution of a strong acid to form an aqueous solution of the corresponding aniline (strong acid) addition salt,
b) adding to said solution, a solution of a strong oxidizing agent in the same aqueous acid,



c) adding to the mixture produced by steps a) and b) an aqueous solution of dioctyl sulfosuccinate salt whereby PaniDos is precipitated.

5,670,608
POLYAMIDE AND POLYAMIDE COMPOSITION
Hideaki Oka; Tsugunori Kashiwara; Shinichi Yokota, and Hiroshi Hayashihara, all of Kurashiki, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed Dec. 22, 1994, Ser. No. 361,371
Claims priority, application Japan, Dec. 24, 1993, 5-328109;
Feb. 16, 1994, 6-019584; Feb. 16, 1994, 6-019585
Int. Cl.⁶ C08G 69/26; C08K 3/00; C08L 77/00

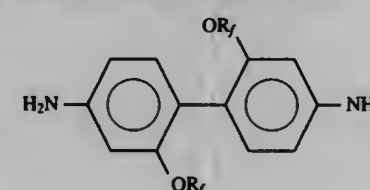
U.S. Cl. 528—322 13 Claims
1. A polyamide comprising (a) a dicarboxylic acid component comprising 60 to 100 mole % of terephthalic acid and (b) a diamine component comprising 60 to 100 mole % of 1,9-nonanediamine, said polyamide having an intrinsic viscosity [η] as determined by measurement in concentrated sulfuric acid at 30° C. of 0.6 to 2.0 dl/g and having at least 10% of terminal groups thereof blocked.

5,670,609
POLYIMIDE FILMS FROM PYROMELLITIC
DIANHYDRIDE AND 2,2'-
BIS(PERFLUOROALKOXY)BENZIDINES AS
ALIGNMENT LAYERS FOR LIQUID CRYSTAL
DISPLAYS

Brian Carl Auman, Newark, Del., and Edgar Bohm, Griesheim, Germany, assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 8, 1995, Ser. No. 512,607
Int. Cl.⁶ C08G 69/26; 73/10

U.S. Cl. 528—353 10 Claims
1. A polyimide alignment film for aligning a liquid crystal layer of a liquid crystal display device comprising an aromatic tetracarboxylic acid component containing from 60 to 100 mole %, based on the total molar amount of aromatic tetracarboxylic acid component, of pyromellitic acid or a functional derivative thereof and an aromatic diamine component containing from 40 to 100 mole %, based on the total molar amount of aromatic diamine component, of a fluorinated aromatic diamine of formula (I)



wherein R_f is a linear or branched perfluorinated alkyl group containing from 1 to 4 carbon atoms and wherein said polyimide alignment film provides said liquid crystal layer with a tilt angle of from 3 to 25 degrees.

5,670,610
CATALYTIC SYSTEM AND PROCESS FOR THE
COPOLYMERIZATION OF OLEFINS WITH CARBON
MONOXIDE

Anna Somazzi, S. Margherita; Gabriele Lugli, S. Donato, and Fabio Garbassi, Novara, all of Italy, assignors to Enichem S.p.A., Milan, Italy

Division of Ser. No. 348,126, Nov. 28, 1994, Pat. No. 5,556,823. This application Jun. 1, 1995, Ser. No. 457,816
Claims priority, application Italy, Dec. 3, 1993, 002538 A/93
Int. Cl.⁶ C08G 67/02; B01J 31/18

U.S. Cl. 528—392 20 Claims
1. A process, comprising copolymerizing ethylene and/or other olefinic monomers, alone or mixed with two or more monomers, with carbon monoxide to produce alternating olefin/carbon monoxide copolymers, wherein said copolymerizing is conducted in the presence of a catalytic system consisting of:
a) a Cu, Ag or Au salt,
b) a bidentate chelating base containing two phosphorous or nitrogen atoms,
c) a Lewis acid, and
d) optionally an oxidizing agent.

5,670,611
PROCESS FOR THE COPOLYMERIZATION OF CARBON
MONOXIDE WITH AN OLEFINICALLY UNSATURATED
COMPOUND

Frank Baardman; Arleen Marie Bradford; Jayne Jubb; Pieter Scheerman; Rudolf Jacobus Wijngaarden; Erwin Paulus Petrus Bleeker, and Johannes Adrianus Maria Van Broekhoven, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Mar. 13, 1996, Ser. No. 615,648
Claims priority, application European Pat. Off., Mar. 22, 1995, 95200719

Int. Cl.⁶ C08G 67/02 10 Claims
1. A process for the copolymerization of carbon monoxide with an olefinically unsaturated compound comprising (a) suspending a solid particulate material in a liquid diluent in which the polymer to be produced forms a suspension, and (b) contacting the monomers in the liquid diluent containing the suspended solid particulate material with a catalyst composition comprising a source of a Group VIII metal and a boron hydrocarbyl compound, wherein the solid particulate material comprises between 0.1 and 20% wt of diluent, a bulk density of between 50 and 1000 kg/m³, an average particle size of between 10⁻⁶ and 10⁻³ m and stabilizes said process.

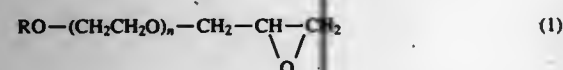
5,670,612
POLYAMINE/EPOXY-CONTAINING
POLYOXYETHYLENE/HYDROPHOBIC EPOXY ADDUCT
CURING AGENT

Shuta Kihara; Shinichi Yonehama, and Kichiro Seki, all of Hiratsuka, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Oct. 10, 1995, Ser. No. 541,500
Claims priority, application Japan, Oct. 28, 1994, 6-265171
Int. Cl.⁶ C08G 59/14; 65/26

U.S. Cl. 528—419 6 Claims
1. An aqueous self-emulsifiable epoxy resin curing agent which is produced by reacting, with each other, an (A) polyamine, a (B) epoxy group-containing alkoxypolyethylene polyether compound having an average molecular weight of 500 to 5000 and at least one (C) hydrophobic epoxy compound having at least one epoxy

group in the molecule in molar quantities of the epoxy group in (B) and that in (C) of 0.001 to 0.1 mol and 0.2 to 0.5 mol, respectively each based on 1 mol of a hydrogen atom bonded to a nitrogen atom in (A) which is capable of reacting with an epoxy group, said compound (B) being represented by the general formula (1)



wherein R is an alkyl group having 1 to 28 carbon atoms, and n is a real number from 10 to 110.

5,670,613

N-VINYL-CONTAINING GLYCOLURIL DERIVATIVES AND THEIR USE AS LIGHT STABILIZERS AND STABILIZERS FOR ORGANIC MATERIAL

Alfred Krause, Schwetzingen; Alexander Aumüller, Rieslingweg; Eckhard Korona, Neustadt, and Hubert Trauth, Dudenhofen, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/00182, § 371 Date Aug. 7, 1995, § 102(e) Date Aug. 7, 1995, PCT Pub. No. WO94/18202, PCT Pub. Date Aug. 18, 1994

PCT Filed Jan. 25, 1994, Ser. No. 495,574

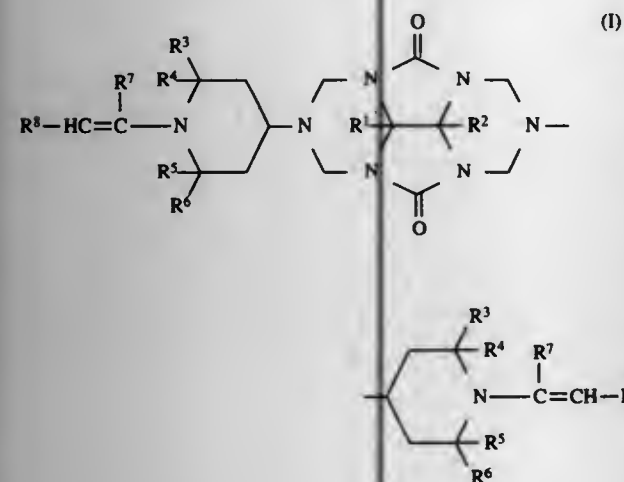
Claims priority, application Germany, Feb. 6, 1993, 43 03 522.1

Int. Cl.⁶ C08G 73/06

U.S. Cl. 528—423

11 Claims

1. An N-vinyl-containing glycoluril derivative of the formula I



where

R¹ and R² independently of one another are each hydrogen, C₁-C₁₂-alkyl, C₅-C₈-cycloalkyl, phenyl, tolyl or C₇-C₁₂-phenylalkyl or
R¹ and R² together form a tri-, tetra- or pentamethylene group,
R³ to R⁶ are each C₁-C₄-alkyl,
R⁷ is hydrogen, C₁-C₈-alkyl, cyano or a radical of the formula COOR⁹,
R⁸ is cyano or a radical of the formula COOR⁹ and
R⁹ is C₁-C₁₂-alkyl, C₅-C₈-cycloalkyl, phenol, tolyl or C₇-C₁₂-phenylalkyl.

5,670,614

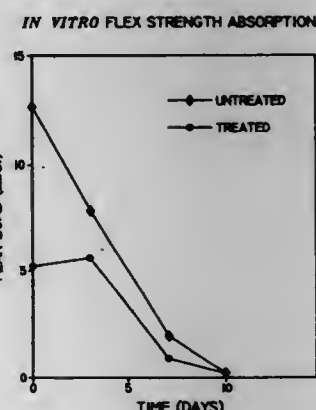
METHOD OF INCREASING THE PLASTICITY AND/OR ELASTICITY OF POLYMERS VIA SUPERCRITICAL FLUID EXTRACTION AND MEDICAL DEVICES FABRICATED THEREFROM

Mark S. Roby, Killingworth; Nagabhushanam Totakura, North Haven, and Christopher T. Christoforou, Hamden, all of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Continuation-in-part of Ser. No. 295,977, Aug. 25, 1994, Pat. No. 5,478,921. This application Jan. 7, 1995, Ser. No. 478,329 Int. Cl.⁶ C08G 63/08; C08F 6/00

U.S. Cl. 528—480

3 Claims



1. A medical device comprising a biocompatible polymer containing a plasticizer, said plasticizer being incorporated in the polymer as a supercritical fluid under conditions of temperature and pressure.

5,670,615

QUATERNIZED TERTIARY AMINOMETHYL ACRYLAMIDE POLYMER MICROEMULSIONS WITH IMPROVED PERFORMANCE

Sun Yi Huang, Stamford; Andrea Leone-Bay; Joseph Michael Schmitt, both of Ridgefield, and Paul S. Waterman, Shelton, all of Conn., assignors to Cytec Technology Corp., Wilmington, Del.

Continuation of Ser. No. 18,858, Feb. 12, 1993, Pat. No. 5,627,260. This application May 23, 1995, Ser. No. 448,163 Int. Cl.⁶ C08F 120/60; C02F 1/56

U.S. Cl. 528—486

30 Claims

1. A method for treating a quaternized amino methylated acrylamide polymer microemulsion which comprises:
(a) adding to said quaternized amino methylated acrylamide polymer microemulsion:
(i) organic carboxylic acid in an amount sufficient to provide a pH of from about 3.6 to about 4.8 in the microemulsion;
(ii) from about 0.01 to about 30 mole percent of a formaldehyde scavenger compound, based on the total moles of quaternized amino methylated acrylamide polymer microemulsion; and
(iii) water in an amount such that the aqueous phase of the resulting microemulsion comprises from about 10 to about 45 weight percent of quaternized amino methylated acrylamide polymer; and
(b) heating the microemulsion obtained in step (a) to a temperature of from about 40° to about 80° C. for from about 3 to about 20 hours.

5,670,616

COLLAGEN-LIKE POLYPEPTIDES AND BIOPOLYMERS AND NUCLEIC ACIDS ENCODING SAME

Shane Crawford Weber, Woodbridge, Conn., and John Alan McElver, Des Moines, Iowa, assignors to Eastman Kodak Company, Rochester, N.Y.

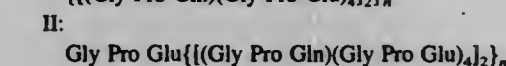
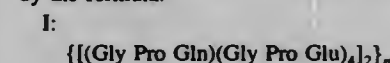
Filed Feb. 3, 1995, Ser. No. 383,804

Int. Cl.⁶ C07K 7/00; 14/00

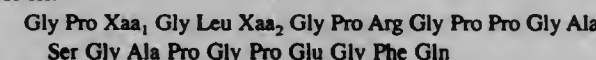
U.S. Cl. 530—300

18 Claims

1. A polypeptide comprising the peptide sequence represented by the formula:



or III:



wherein

Xaa₁ and Xaa₂ are independently the amino acids identified as Met, Ile, His, Lys, Asn, Tyr or Gln, and n is 1 to 25.

5,670,619

BRADYKININ-ANTAGONISTS FOR THE TREATMENT OF ACUTE PANCREATITIS

Thomas Griesbacher, Hitzendorf, and Fred Lembeck, Graz, both of Austria, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Continuation of Ser. No. 992,096, Dec. 17, 1992, abandoned.

This application Apr. 22, 1994, Ser. No. 232,338

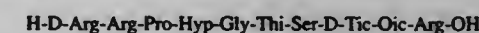
Claims priority, application European Pat. Off., Dec. 21, 1991, 91 122 055

Int. Cl.⁶ A61K 38/08; C07K 7/18

U.S. Cl. 530—314

5 Claims

1. A method of treating acute pancreatitis in a mammal in need of said treatment, said method comprising administering to said mammal a peptide, wherein said peptide is



or a physiologically tolerated salt thereof.

5,670,620

Patent Not Issued For This Number

5,670,617

NUCLEIC ACID CONJUGATES OF TAT-DERIVED TRANSPORT POLYPEPTIDES

Alan Frankel, 21 Marinero Cir. #206, Tiburon, Calif. 94920; Carl Pabo, 18 Weldon Rd., Newton, Mass. 02158; James G. Barsom, 9 Marlboro Rd., Lexington, Mass. 02173; Stephen E. Fawell, One Black Horse Ter., Winchester, Mass. 01890, and R. Blake Pepinsky, 30 Falmouth Rd., Arlington, Mass. 02174

Division of Ser. No. 235,403, Apr. 28, 1994, which is a continuation-in-part of Ser. No. 158,015, Nov. 24, 1993, abandoned, which is a continuation of Ser. No. 636,662, Jan. 2, 1991, abandoned, which is a continuation-in-part of Ser. No. 454,450, Dec. 21, 1989, abandoned, said Ser. No. 235,403 is a continuation-in-part of Ser. No. 934,375, Aug. 21, 1992, abandoned. This application May 25, 1995, Ser. No. 450,246 Int. Cl.⁶ C07H 21/00; C07K 7/00; 14/00; 14/155

U.S. Cl. 530—300

4 Claims

1. A covalently linked chemical conjugate comprising a transport polypeptide moiety having at least amino acids 49-57 of HIV tat protein, but not amino acids 22-36 and 73-86 of HIV tat protein, and a cargo moiety consisting of a single-stranded nucleic acid or a double-stranded nucleic acid.

5,670,621

DNA STRUCTURE SPECIFIC RECOGNITION PROTEIN COMPLEXES

Brian A. Donahue, Menlo Park, Calif.; Jeffrey H. Toney, Westfield, N.J.; John M. Essigmann, Brookline, Mass.; Stephen J. Lippard, Cambridge, Mass.; Pieter M. Pil, Cambridge, Mass.; Suzanne L. Bruhn, Cambridge, Mass.; Steven J. Brown, Cambridge, Mass., and Patti J. Kellett, Cincinnati, Ohio, assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 814,964, Dec. 26, 1991, Pat. No. 5,359,047, which is a continuation-in-part of Ser. No. 539,906, Jun. 18, 1990, abandoned, which is a continuation-in-part of Ser. No. 410,981, Sep. 22, 1989, abandoned, which is a continuation-in-part of Ser. No. 247,774, Sep. 22, 1988, abandoned. This application Jun. 9, 1994, Ser. No. 258,442 Int. Cl.⁶ C07K 14/435; C12N 15/11

U.S. Cl. 530—350

19 Claims

1. A (damaged DNA fragment):(protein) complex comprising a DNA structure specific recognition protein bound selectively to a double-stranded DNA fragment having at least one region of DNA damage comprising a 1,2-intrastrand d(ApG) or d(GpG) dinucleotide adduct, said complex having a retarded electrophoretic mobility relative to the mobility of the damaged DNA fragment alone.

5,670,618

INSULIN-LIKE PEPTIDE

Maureen A. McKenzie, Far Hills, N.J., assignor to The State University of New Jersey, Piscataway, N.J.

Continuation of Ser. No. 956,342, Oct. 5, 1992, abandoned.

This application Aug. 18, 1995, Ser. No. 507,124

Int. Cl.⁶ A61K 38/28; C07K 14/00

U.S. Cl. 530—303

11 Claims

1. A purified protein which comprises a polypeptide that binds specifically to a yeast insulin-like protein receptor and which is isolated from a yeast culture, wherein said protein has a molecular weight of 6400±200 daltons, as determined by gel filtration chromatography.

5,670,622

CONOTOXIN PEPTIDE PHLA

Ki-Joon Shon; Doju Yoshikami; Maren Marsh; Lourdes J. Cruz; David R. Hillyard, and Baldomero M. Olivera, all of Salt Lake City, Utah, assignors to University of Utah Research Foundation, Salt Lake City, Utah

Filed Feb. 15, 1996, Ser. No. 599,556

Int. Cl.⁶ C07K 14/00

U.S. Cl. 530—324

6 Claims

1. An isolated, or purified μ -conotoxin consisting of the amino acid sequence Xaa₁-Arg-Leu-Cys-Cys-Gly-Phe-Xaa₂-Lys-Ser-Cys-Arg-Ser-Arg-Gln-Cys-Lys-Xaa₃-His-Arg-Cys-Cys (SEQ ID NO: 1) where Xaa₁ is pyroglutamate or glutamine and Xaa₂ is 4-trans-hydroxyproline or proline.

5,670,623
METHODS OF USE OF CELLULOSE BINDING DOMAIN
PROTEINS

Oded Shoseyov, Karmey Yosef, Itai Shplegi, Rehovot, both of Israel; Marc A. Goldstein, and Roy H. Dol, both of Davis, Calif., assignors to Yissum Research Development Company of the Hebrew University of Jerusalem, Israel, and The University of California, Calif.
Division of Ser. No. 48,164, Apr. 14, 1994, Pat. No. 5,496,934.
This application Jun. 2, 1995, Ser. No. 460,462
Int. Cl.⁶ C07K 14/00; 14/195

U.S. Cl. 530—350

19 Claims

1. A method of purifying a cellulose binding domain (CBD) fusion product comprising:

- contacting a mixture comprising a recombinant CBD fusion product comprising a CBD and a second protein, the amino acid sequence of said CBD which comprises the amino acid sequence of SEQ ID NO:2, with an effective amount of cellulose under conditions suitable for the formation of an insoluble binding complex comprising cellulose and said recombinant CBD fusion product;
- isolating said insoluble cellulose-CBD fusion product binding complex; and
- recovering said CBD fusion product from said insoluble cellulose-CBD fusion product binding complex.

5,670,624
TWO-DIMENSIONAL AGGREGATION AND FIXATION
OF PROTEIN BY INJECTION INTO A SUBSTRATE
SOLUTION HAVING HIGHER SURFACE TENSION AND
SPECIFIC GRAVITY

Hideyuki Yoshimura, Ibaraki, and Kuniaki Nagayama, Tokyo, both of Japan, assignors to Research Development Corporation of Japan, Saitama, Japan
Continuation-in-part of Ser. No. 321,232, Oct. 11, 1994, abandoned. This application Sep. 20, 1995, Ser. No. 531,272
Claims priority, application Japan, Oct. 12, 1993, 5-253880
Int. Cl.⁶ C07K 3/00; C12Q 1/00; C12N 11/00; 11/02

U.S. Cl. 530—350

12 Claims

1. A method of two-dimensionally aggregating and fixing a protein comprising:

- forming a denatured film of a first protein on the surface of a substrate solution selected from the group consisting of an aqueous sugar solution, an aqueous salt solution and a mixture thereof;
- injecting a solution containing a second protein by means of an injector syringe sufficiently below the surface of the substrate solution so as to avoid disturbance of the surface thereof, which substrate solution has a higher surface tension and a higher specific gravity than said second protein solution;
- causing at least a portion of said second protein to float on the substrate solution between the substrate solution and said denatured protein film; and
- causing said denatured protein film to adsorb said second protein and form said two-dimensionally aggregated and fixed protein on said denatured protein film.

8. A method of two-dimensionally aggregating and fixing a protein comprising:

- forming a lipid monolayer on the surface of a substrate solution selected from the group consisting of an aqueous sugar solution, an aqueous salt solution and a mixture thereof;
- injecting a solution containing said protein by means of an injector syringe sufficiently below the surface of the substrate solution so as to avoid disturbance of the surface thereof, which substrate solution has a higher surface tension and a higher specific gravity than said protein solution;
- causing at least a portion of the protein to float on the substrate solution between the substrate solution and the lipid monolayer; and
- causing the lipid monolayer to adsorb the protein and form said two-dimensionally aggregated and fixed protein on the lipid monolayer.

5,670,625

ELK-LIGAND FUSION PROTEINS

Stewart Lyman, Seattle; M. Patricia Beckmann, Poulsbo, and Peter R. Baum, Seattle, all of Wash., assignors to Immunex Corporation, Seattle, Wash.

Division of Ser. No. 213,403, Mar. 15, 1994, Pat. No. 5,512,457, which is a continuation-in-part of Ser. No. 977,693, Nov. 13, 1992, abandoned. This application Jun. 2, 1995, Ser. No. 460,741
Int. Cl.⁶ C07K 14/52; 19/00

U.S. Cl. 530—387.3

12 Claims

4. An elk-L/Fc fusion protein comprising a soluble elk-L polypeptide fused to an Fc polypeptide, wherein the amino acid sequence of said elk-L polypeptide is selected from the group consisting of the extracellular domain of human elk-L (amino acids 1-213 of SEQ ID NO:2), and a fragment of said extracellular domain, wherein said fragment binds elk.

5,670,626

ALLERGEN-SPECIFIC HUMAN IGA MONOCLONAL
ANTIBODIES FOR MUCOSAL ADMINISTRATION

Tse Wen Chang, Houston, Tex., assignor to Tanox Biosystems, Inc., Houston, Tex.
Continuation-in-part of Ser. No. 994,126, Dec. 21, 1992, abandoned. This application Jun. 21, 1994, Ser. No. 263,258
Int. Cl.⁶ C07K 16/14; 16/16; 16/18

U.S. Cl. 530—388.5

2 Claims

- Allergen-specific human IgA monoclonal antibodies specific for allergens associated with IgE-mediated allergic reactions.
- A monoclonal antibody of claim 1, in which the allergen is Amb a 1, Der p 1, Der f 1, Can f 1, or Fel d 1.

5,670,627

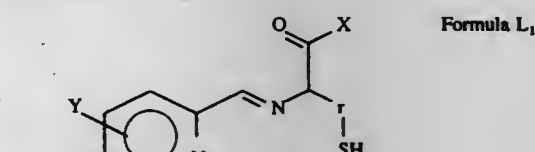
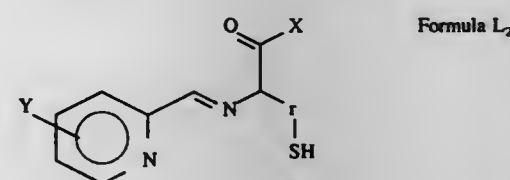
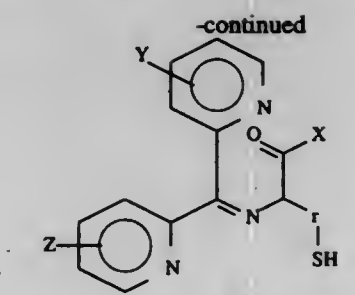
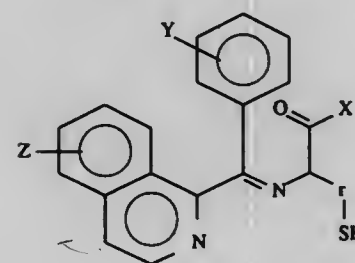
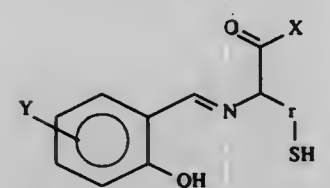
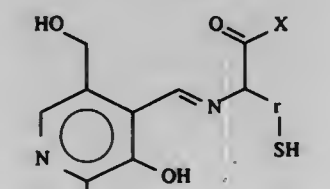
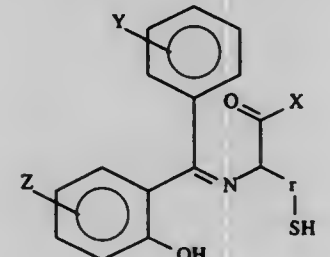
METAL ION-LIGAND COORDINATION COMPLEXES,
ANTIBODIES DIRECTED THERETO, AND ASSAYS
USING SUCH ANTIBODIES

David K. Johnson, Vernon Hills, Ill., assignor to Abbott Laboratories, Abbott Park, Ill.

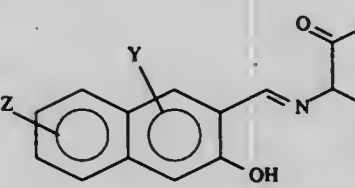
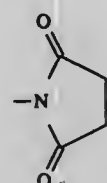
Division of Ser. No. 176,360, Dec. 30, 1993, Pat. No. 5,476,939. This application May 5, 1995, Ser. No. 435,680
Int. Cl.⁶ C07K 16/00; C12D 21/08; G01N 33/53; C07D 401/12
U.S. Cl. 530—388.9

10 Claims

10. An assay kit comprising:
- a container containing a ligand selected from the group consisting of

Formula L₁Formula L₂Formula L₃Formula L₄Formula L₅Formula L₆Formula L₇

and

Formula L₈Formula L₉

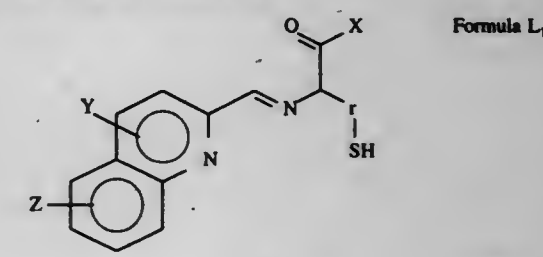
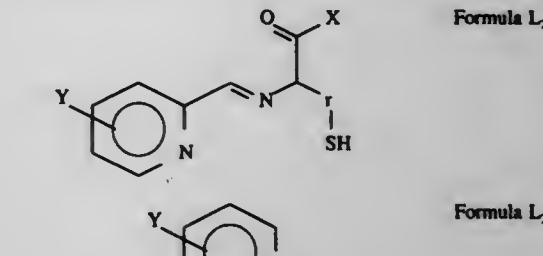
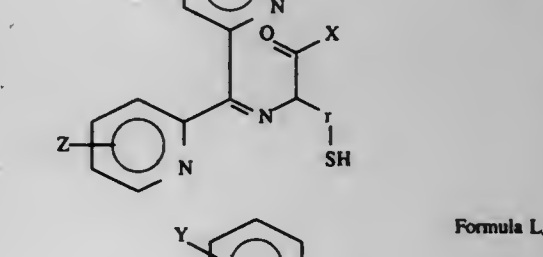
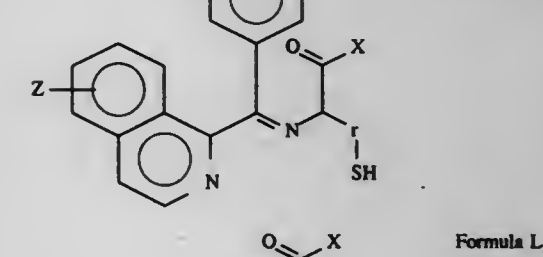
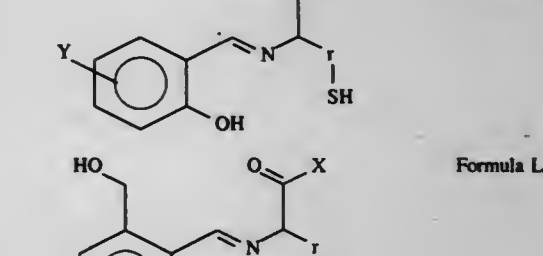
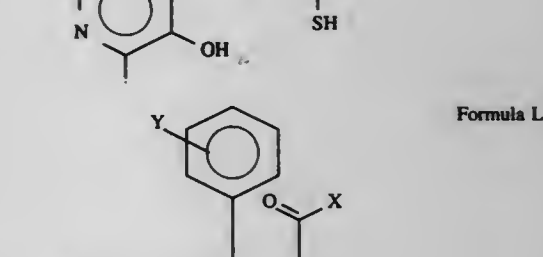
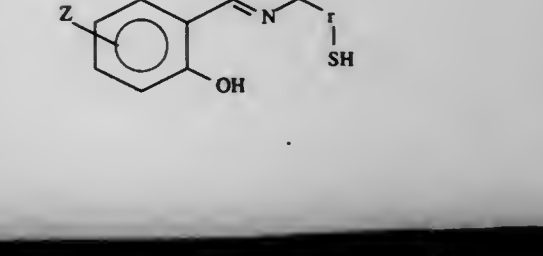
Where r is selected from the group consisting of —CH₂—, —(CH₂)₂— and —C(CH₃)₂—

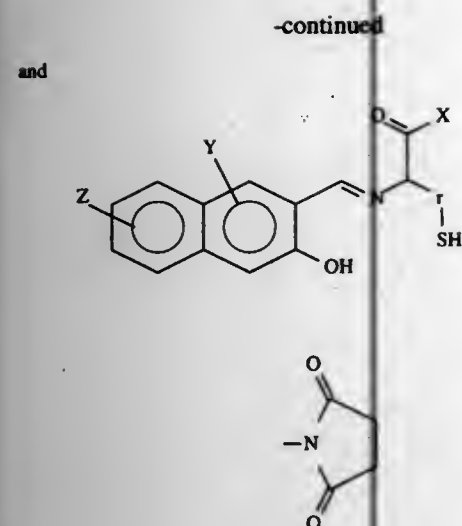
Y and Z can be the same or different and are selected from the group consisting of —H, —CO₂H and —SO₃H

Y is selected from the group consisting of —OH, —OR₁, —NHR₂ and —NHR₃, provided that Y cannot be H and X cannot be OH when r is (CH₂)₂ in Formula L₂, further

provided that r cannot be CH₂ or (CH₂)₂ in Formula L₅, further provided that r cannot be CH₂ when X is OH in Formula L₆, and further provided that r cannot be CH₂ in Formula L₉; and

(b) a container containing an antibody specific for an MLC comprising a metal ion bound to at least two ligands selected from the group consisting of

Formula L₁Formula L₂Formula L₃Formula L₄Formula L₅Formula L₆Formula L₇



Where r is selected from the group consisting of —CH₂—, —(CH₂)₂— and —(C(CH₃)₂)—

Y and Z can be the same or different and are selected from the group consisting of —H—CO₂H and —SO₃H
X is selected from the group consisting of —OH—OR₁, —NHR₂ and —NHR₃, provided that Y cannot be H and X cannot be OH when r is (CH₂)₂ in Formula L₂, further provided that r cannot be CH₂ or (CH₂)₂ in Formula L₅, further provided that r cannot be CH₂ when X is OH in Formula L₆, and further provided that r cannot be CH₂ in Formula L₄, wherein the antibody recognizes an epitope comprising at least two of the ligands in the MLC.

5,670,624

RADIO-LABELLING OF PROTEINS

Brian Maurice John Foxwell, Hounslow; Peter Parker, Ashstead, and Andrew Malcolm Creighton, London, all of United Kingdom, assignors to British Technology Group Ltd., London, United Kingdom
Division of Ser. No. 308,451, Sep. 19, 1994, Pat. No. 5,583,212, which is a continuation of Ser. No. 77,962, Jun. 18, 1993, abandoned, which is a continuation of Ser. No. 768,572, Sep. 23, 1991, abandoned. This application May 31, 1995, Ser. No. 455,893

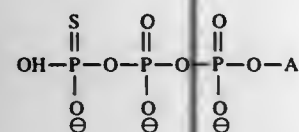
Claims priority, application United Kingdom, Mar. 23, 1989, 8906708

Int. Cl.⁶ C07K 16/30; A61K 51/00

U.S. Cl. 530—391.3

10 Claims

1. A ³²P thiophosphorylated antibody or antigen binding fragment thereof that will bind with a tumor-associated structure wherein said antibody or antigen binding fragment thereof has been thiophosphorylated with compound of the formula



in which A represents a nucleoside residue and the phosphorus in the gamma-thiophosphate group is ³²P.

5,670,629

OVOGLYCOPROTEIN AND AGENTS FOR CHROMATOGRAPHIC SEPARATION CONTAINING SAME

Jun Haginaka; Hiroo Wada, and Hiroya Fujima, all of Kyoto, Japan, assignors to Shinwa Chemical Industries, Ltd., Kyoto, Japan

Filed Mar. 2, 1995, Ser. No. 397,861

Claims priority, application Japan, Nov. 1, 1994, 6-269073

Int. Cl.⁶ C07K 1/00; A23J 1/00

U.S. Cl. 530—395

10 Claims

1. An ovoglycoprotein having a molecular weight of about 30,000 daltons as determined by a matrix-assisted laser desorption ionization time-of-flight type mass spectrometer, an amino acid sequence of 15 residues from the N-terminal represented by Thr-Glu-Ser-Pro-Xaa-Ser-Ala-Pro-Leu-Val-Pro-Ala-Asp-Met-Asp, (SEQ ID NO:1) wherein Xaa represents a cysteine residue or an amino acid residue having a sugar chain linked thereto, and a sugar content of about 15% hexosamine, about 7% hexose and about 3% sialic acid by weight and free of trypsin-inhibitory activity.

5,670,630

EXPRESSION OF HEPATITIS B S AND PRE₂ PROTEINS IN METHYLOTROPHIC

Gregory P. Thill, San Diego, Calif., assignor to Research Corporation Technologies, Inc., Tucson, Ariz.

Division of Ser. No. 193,714, May 13, 1988, abandoned. This

application Jun. 6, 1995, Ser. No. 467,345

Int. Cl.⁶ C07K 14/10; C12N 15/81

U.S. Cl. 530—403

3 Claims

1. Antigenic Hepatitis B virus (HBV) particles comprising HBV S and preS₂ proteins made by a process which comprises:

- transforming a *Pichia pastoris* strain with a first expression cassette comprising a structural gene for a hepatitis B virus S protein operably linked to a 5' regulatory region and a 3' termination sequence obtainable from *Pichia pastoris*; and
- transforming said *Pichia pastoris* strain with a second expression cassette comprising a structural gene for the hepatitis B virus preS₂ protein operably linked to a 5' regulatory region and a 3' termination sequence obtainable from *Pichia pastoris*; and
- culturing the resulting transformed *Pichia pastoris* strain under suitable conditions to obtain the production of said HBV particles.

5,670,631

PROCEDURE OF SEPARATION OF PROTEINS BY COLUMN CHROMATOGRAPHY USING SILICA GELS COATED BY A LIPID BILAYER

Thomas Bayerl, and Sybille Bayerl, both of Waldstr. 15, D-85757 Karlsfeld, Germany, assignors to Thomas Bayerl, and Sybille Bayerl, both of Karlsfeld, Germany

Filed Nov. 30, 1994, Ser. No. 351,172

Int. Cl.⁶ C07K 1/14; I/16; I/18; I/34

U.S. Cl. 530—412

17 Claims

1. A process for separating proteins according to their molecular weight or their electrical charge state while protecting the proteins against denaturation comprising:

- coating a silica or silicon-based solid substrate with a lipid layer, contacting a sample containing proteins with the lipid layer coated silica or silicon-based solid substrate, and
- eluting at least some of the proteins from the lipid layer coated silica or silicon-based solid substrate, wherein individual proteins are separated based upon their interaction with the lipid layer coated solid silica or silicon-based substrate.



4. In a chromatography process for separating proteins according to their molecular weight or their electrical charge state while protecting the proteins against denaturation comprising contacting a sample containing proteins with a silica or silicon-based solid substrate, and eluting the proteins from the silica or silicon-based solid substrate, wherein individual proteins are separated based upon their interaction with the silica or silicon-based solid substrate, the improvement comprising coating the silica or silicon-based solid substrate with a lipid bilayer before contacting a sample containing proteins with the coated silica or silicon-based solid substrate.

5,670,632

PROCESS FOR OBTAINING AN ISOFLAVONE CONCENTRATE FROM A SOYBEAN EXTRACT

Abas Chalhorsky, Sparks, Nev., assignor to ACDS Technologies, Ltd., Sparks, Nev.

Filed Jan. 18, 1996, Ser. No. 588,199

Int. Cl.⁶ C07H 17/07

U.S. Cl. 536—8

4 Claims

1. A process for recovering isoflavones from a soy extract which comprises the following steps:

- obtaining a defatted, deproteinized soy product which is a soy molasses or soy solubles alcohol-soluble product which contains the desired isoflavones, principally in the form of their 7-glycosides as well as undesired proteins and glycosides other than the desired 7-glycosyl-isoflavones;
- dissolving the soy extract containing the 7-glycosyl-isoflavones and undesired proteins and glycosides other than the desired 7-glycosyl-isoflavones in an aqueous solvent;
- dripping the soy extract dissolved in the aqueous solvent through a chromatographic column from top to bottom packed with a ground highly polar cationic exchange resin containing sulfonic acid functional groups of the formula:



wherein MH is the particular adsorbent resin on which the sulfonic acid functional groups are immobilized and wherein the resin is charged with sodium ions which replace the hydrogen ions of sulfonic acid, to selectively adsorb the 7-glycosyl-isoflavones directly on the sulfonate sulfur atom while the undesired proteins and glycosides other than the 7-glycosyl-isoflavones are eluted through the chromatographic column and are removed; and

- desorbing the 7-glycosyl-isoflavones from the chromatographic column packed with a ground highly polar cationic exchange resin containing sulfonic acid functional groups by eluting the chromatographic column with an acidic aqueous alkanol containing 1 to 3 carbon atoms to replace the 7-glycosyl-isoflavones bonded to the sulfonic acid functional groups with hydrogen ions.

5,670,633

SUGAR MODIFIED OLIGONUCLEOTIDES THAT DETECT AND MODULATE GENE EXPRESSION

Phillip Dan Cook, Carlsbad, and Andrew Mamoro Kawasaki, Oceanside, both of Calif., assignors to ISIS Pharmaceuticals, Inc., Carlsbad, Calif.

PCT No. PCT/US91/05720, § 371 Date Mar. 5, 1992, § 102(e) Date Mar. 5, 1992, PCT Pub. No. WO92/03568, PCT Pub. Date Mar. 5, 1992

Continuation-in-part of Ser. No. 566,977, Aug. 13, 1990, abandoned, and Ser. No. 463,358, Jan. 11, 1990, abandoned. This PCT application Aug. 12, 1991, Ser. No. 835,932

Int. Cl.⁶ C07H 21/00; 21/02; 21/03; A01N 43/04

U.S. Cl. 536—23.1

3 Claims

1. An oligonucleotide that hybridizes with RNA or DNA, having 5 to 50 covalently-bound nucleosides that individually include a ribose or deoxyribose sugar portion and a base portion, wherein: said sugar portions of said nucleosides are joined together by 3'-5' internucleoside linkages such that the base portions of said nucleosides form a mixed base sequence that is complementary to an RNA base sequence or to a DNA base sequence; and

at least two of said nucleosides include a modified deoxyfuranosyl moiety bearing a 2'-fluoro substituent; and wherein a duplex formed between said oligonucleotide and its complement exhibits greater thermal stability than does a duplex formed between said complement and an oligonucleotide that does not include 2'-fluoro substituents.

5,670,634

REVERSAL OF βA4 AMYLOID PEPTIDE INDUCED MORPHOLOGICAL CHANGES IN NEURONAL CELLS BY ANTISENSE OLIGONUCLEOTIDES

Charles A. Marotta, Cambridge; Ronald E. Majocha, Needham, and Sudhir Agrawal, Shrewsbury, all of Mass., assignors to The General Hospital Corporation, Boston, Mass.

Continuation of Ser. No. 128,035, Sep. 28, 1993, abandoned.

This application Jun. 1, 1995, Ser. No. 456,420

Int. Cl.⁶ C07H 21/00; C12N 15/11

U.S. Cl. 536—23.1

10 Claims

1. An oligonucleotide that is capable of reversing morphological changes induced upon cells by beta/A4 peptide, the oligonucleotide having from about 8 to about 100 nucleotides and being complementary to a nucleotide sequence of an RNA encoding beta/A4 peptide, such sequence comprising the initiation codon for APP, wherein the oligonucleotide has at least one internucleotide linkage selected from the group consisting of phosphorothioate, phosphorodithioate, alkylphosphonate, alkylphosphonothioate, phosphotriester, phosphoramidate, siloxane, carbonate, carboxymethyl ester, acetamidate, carbamate, thioether, bridged phosphoramidate, bridged methylene phosphonate, bridged phosphorothioate and sulfone internucleotide linkages.

5,670,635

SEED STORAGE PROTEIN WITH NUTRITIONALLY BALANCED AMINO ACID COMPOSITION

Asis Datta, 104 Uttarakhand, Jawaharlal Nehru, University New Campus, New Delhi, India, 110067; Anjana Raina, c/o Mr. N. L. Raina, A 10 Yojna Vihar, New Delhi, India, 110092, and Subhra Biswas, C/50 Qutub Enclave, Phase-I, New Delhi, India, 110016

Filed Nov. 29, 1993, Ser. No. 158,270

Int. Cl.⁶ C12N 15/29; 5/14; 15/82

U.S. Cl. 536—23.6

6 Claims

1. An isolated DNA fragment encoding AmA1 protein.

5,670,636
FRACTIONATED AGAROID COMPOSITIONS, THEIR PREPARATION AND USE

Richard B. Provonchee, Camden, Me., assignor to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 537,555, Jun. 13, 1990, abandoned. This application Apr. 8, 1993, Ser. No. 44,845

Int. Cl. C08B 37/12

U.S. Cl. 536—123.1

19 Claims

1. A process for converting an extraordinarily soluble agaroid, precipitated from a glycol solution and which is soluble in water at temperatures below the gelling temperature of an aqueous gel made from said extraordinarily soluble agaroid, to a converted agaroid of the same physical shape and form which has a minimum dissolution temperature in water higher than the melting temperature of an aqueous gel made from said extraordinarily soluble agaroid comprising exposing the extraordinarily soluble agaroid to water under conditions which inhibit the dissolution of the extraordinarily soluble agaroid.

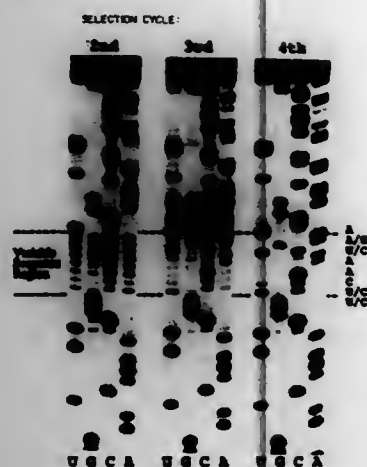
5,670,637
NUCLEIC ACID LIGANDS

Larry Gold, and Craig Tuerk, both of Boulder, Colo., assignors to NeXstar Pharmaceuticals, Inc., Boulder, Colo.

Continuation of Ser. No. 714,131, Jun. 10, 1991, Pat. No. 5,475,096, which is a continuation-in-part of Ser. No. 536,428, Jun. 11, 1990, abandoned. This application Mar. 27, 1995, Ser. No. 412,110

Int. Cl. C07H 21/02; 21/04; C12Q 1/68; C12P 19/34
 U.S. Cl. 536—22.1

8 Claims



1. A non-naturally occurring nucleic acid ligand having a specific binding affinity for a target molecule, said target molecule being a protein, wherein said nucleic acid ligand is not a nucleic acid having the known physiological function of being bound by the target molecule.

5,670,638
2-BROMO- AND 2-NITROXY DERIVATIVES OF 3-BROMO- AND 3,3-DIBROMO-4-OXO-AZETIDINES, AND PREPARATION

Irena Lukić, Zagreb, Croatia, assignor to PLIVA farmaceutska, Zagreb, Croatia

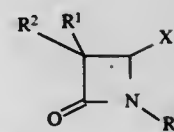
Filed Jul. 8, 1994, Ser. No. 272,206

Claims priority, application Croatia, Jul. 9, 1993, P931047A
 Int. Cl. C07D 205/08; A61K 31/395

U.S. Cl. 540—354

13 Claims

1. 2-nitroxy derivatives of 3-bromo- and 3,3-dibromo-4-oxo-azetidines of the formula I



wherein

R¹ is hydrogen or bromine,
 R² is hydrogen or bromine, wherein at least one of R¹ or R² is bromine,
 R³ is hydrogen; Me—C=C—COOR⁴ wherein R⁴ is hydrogen, methyl, benzyl or some other carboxy-protective group, and
 X is nitroxy group (—ONO₂).

5,670,639
PREPARATION OF N-VINYLLACTAMS

Martin Schmidt-Radde, Belndersheim; Marc Heider, Neustadt; Albrecht Dams, Wachenheim, and Harald Rust, Neustadt, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Mar. 13, 1996, Ser. No. 614,682

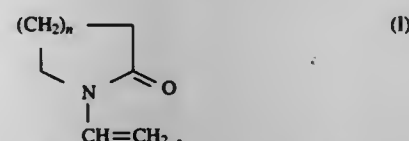
Claims priority, application Germany, Mar. 15, 1995, 19509362.3

Int. Cl. C07D 207/26; 211/76; 223/10

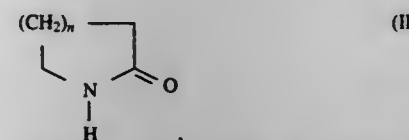
U.S. Cl. 540—485

9 Claims

1. A process for the preparation of an N-vinyllactam of the formula I



where n is from 1 to 3, which comprises reacting a lactam of the formula II



where n is from 1 to 3, with from 10 to 90 percent by weight of an aqueous alkali metal hydroxide solution with distillation at from 50° to 250° C. and from 1 to 100 mbar and with a residence time of from 0.1 to 5 hours and subsequent reaction with acetylene at from 60° to 250° C. and from 1 to 100 bar.

5,670,640
PROCESS FOR THE MANUFACTURE OF IMIDAZODIAZEPINE DERIVATIVES

Mark Rogers-Evans, Ettingen, and Paul Spurr, Riehen, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Dec. 9, 1996, Ser. No. 762,632

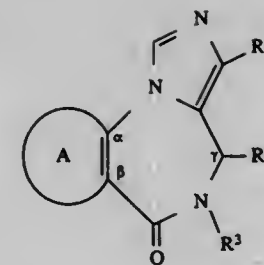
Claims priority, application European Pat. Off., Feb. 2, 1996, 96101494

Int. Cl. C07D 243/14

U.S. Cl. 540—498

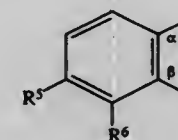
13 Claims

1. A process for the manufacture of a compound of formula I



wherein

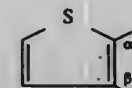
A together with the two carbon atoms denoted as α and β is one of the groups



(a)

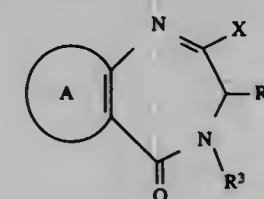


(b)

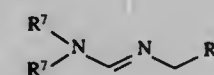


(c)

R¹ is cyano or a group of the formula —COOR⁴,
 R² is hydrogen,
 R³ is lower alkyl, or
 R² and R³ together are a di- or trimethylene group,
 R⁴ is lower alkyl or benzyl; and
 R⁵, R⁶ each independently are hydrogen, halogen, trifluoromethyl, lower alkoxy or nitro
 and the carbon atom denoted by γ has the S-configuration when R² is different from hydrogen, which process comprises reacting a compound of the formula



wherein X is a halogen atom, in the presence of a base with a compound of the formula



III

wherein R⁷ is lower alkyl or cycloalkyl and R⁸ is as described above.

5,670,641
3-(3-ARYLOXYPHENYL)-1-(SUBSTITUTED METHYL)-S-TRIAZINE-2,4,6-OXO OR THIOTRIONE HERBICIDAL AGENTS

Alvin Donald Crews, Jr., Voorhees; Philip Mark Harrington, Cranbury; Gary Mitchell Karp, Princeton Jct., all of N.J.; Simon David Gill, Fareham; Petra Dieterich, Locks Heath, both of England

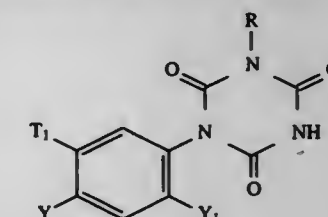
Filed Jun. 2, 1995, Ser. No. 459,562

Int. Cl. C07D 251/34

U.S. Cl. 544—221

1 Claim

1. A compound having the structural formula



wherein

T₁ is OH or OCH₃;
 Y₁ is hydrogen, halogen,
 and R is hydrogen, C₁–C₄ alkyl, C₂–C₆ alkoxyalkyl, C₃–C₁₂ alkylcarbonylalkyl, C₃–C₁₂ haloalkylcarbonylalkyl, C₃–C₁₂ alkoxyalkylcarbonylalkyl, C₃–C₁₂ haloalkoxyalkylcarbonylalkyl, C₃–C₆ alkenyl or C₃–C₆ alkynyl nitro, cyano or C₁–C₄-halo alkyl; and
 Y is hydrogen or halogen.

5,670,642
HALS PHOSPHORAMIDES AS STABILISERS

Rita Pitteloud, Praroman, Switzerland, assignor to Ciba-Geigy Corporation, Tarrytown, N.Y.

Filed Dec. 15, 1995, Ser. No. 572,990

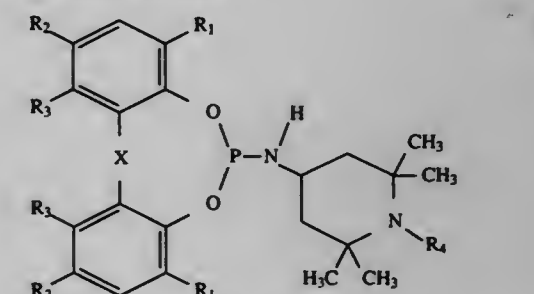
Claims priority, application Switzerland, Dec. 22, 1994, 3898/94

Int. Cl. C07F 9/32

U.S. Cl. 546—22

18 Claims

1. A compound of formula I



wherein

X is a direct bond, sulfur or —CHR₃—,
 R₁ is hydrogen, C₁–C₂₅alkyl, unsubstituted or C₁–C₄alkyl-substituted C₅–C₆cycloalkyl; unsubstituted or C₁–C₄alkyl-substituted C₅–C₆cycloalkenyl; unsubstituted or C₁–C₄alkyl-substituted phenyl; C₇–C₉phenylalkyl or —CH₂—S—R₆,
 R₂ is hydrogen, C₁–C₂₅alkyl, C₂–C₂₄alkenyl, unsubstituted or C₁–C₄alkyl-substituted C₅–C₆cycloalkyl; unsubstituted or C₁–C₄alkyl-substituted C₅–C₆cycloalkenyl; unsubstituted or C₁–C₄alkyl-substituted phenyl; C₇–C₉phenylalkyl or —CH₂—S—R₆,
 R₃ is hydrogen or methyl,
 R₄ is C₁–C₈alkyl, O⁺, OH, NO, —CH₂CN, C₁–C₁₈alkoxy, C₃–C₁₂cycloalkoxy, C₃–C₆-alkenyl, C₃–C₆alkynyl, C₁–C₈acyl, C₇–C₉phenylalkyl which is unsubstituted or substituted at the phenyl ring by C₁–C₄alkyl,

R_5 is hydrogen or C_1 - C_8 alkyl, and
 R_6 is C_1 - C_{20} alkyl.

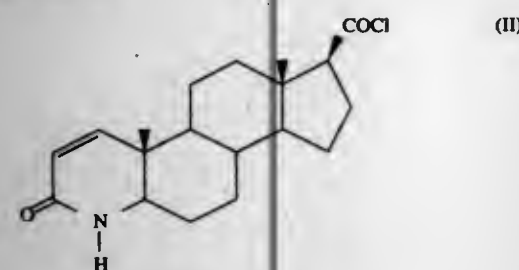
5,670,643
METHOD FOR PREPARING FINASTERIDE
 Roman Davis, Durham, and Alan Miller, Holly Springs, both of N.C., assignors to Glaxo Wellcome Inc., Research Triangle Park, N.C.

Filed Mar. 16, 1995, Ser. No. 405,559
 Int. Cl.⁶ C07D 221/18

U.S. Cl. 546—77

5 Claims

1. A process for preparing finasteride comprising reacting a compound of formula (II) with tertiary butylamine, wherein the acid chloride of Formula II is prepared by treating the parent acid with thionyl chloride



5,670,644
ACRIDAN COMPOUNDS
 Hashem Akhavan-Tafti; Zahra Arghavani, both of Brighton, and Renuka DeSilva, Northville, all of Mich., assignors to Lumigen, Inc., Southfield, Mich.

Continuation-in-part of Ser. No. 309,462, Sep. 2, 1994, which is a continuation-in-part of Ser. No. 205,093, Mar. 2, 1994, which is a continuation-in-part of Ser. No. 228,290, Apr. 15, 1994, Pat. No. 5,523,212, which is a continuation-in-part of Ser. No. 61,810, May 17, 1993, Pat. No. 5,491,072. This application May 9, 1996, Ser. No. 647,383

Int. Cl.⁶ C07D 285/38; 295/00; G01N 33/533; 33/532
 U.S. Cl. 546—103

12 Claims

1. A compound which is 2',3',6'-trifluorophenyl 1,6-dimethoxy-10-methylacridan-9-carboxylate.

5,670,645
METAL ION-LIGAND COORDINATION COMPLEXES, ANTIBODIES DIRECTED THERETO, AND ASSAYS USING SUCH ANTIBODIES

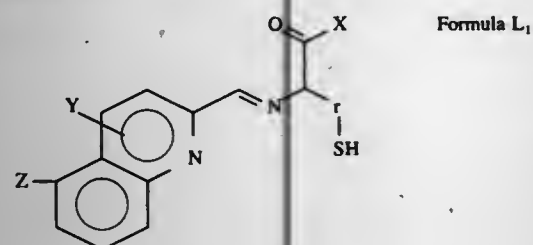
David K. Johnson, Vernon Hills, Ill., assignor to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 176,360, Dec. 30, 1993, Pat. No. 5,476,939. This application May 23, 1995, Ser. No. 449,606
 Int. Cl.⁶ C07D 401/12; 217/16; 213/71; 213/78

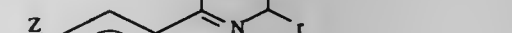
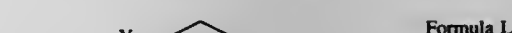
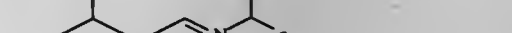
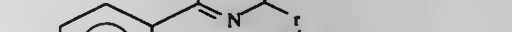
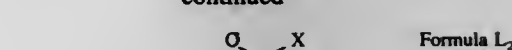
U.S. Cl. 546—141

1 Claim

1. A compound having a structure selected from the group consisting of



-continued

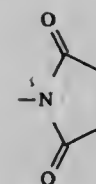


Where r is selected from the group consisting of $-\text{CH}_2-(\text{CH}_2)_2-$ and $-(\text{C}(\text{CH}_3)_2)-$

Y and Z can be the same or different and are selected from the group consisting of $-\text{H}$, $-\text{CO}_2\text{H}$, $-\text{SO}_3\text{H}$

X is selected from the group consisting of $-\text{OH}$, OR_1 , $-\text{NHR}_2$, $-\text{NHR}_3$

R_1 is C_1 - C_4 alkyl or



R_2 is C_1 - C_4 alkyl

R_3 is C_1 - C_{10} alkyl contributed by a conjugate molecule provided that r cannot be CH_2 or $(\text{CH}_2)_2$ in L_5 , further provided that r cannot be CH_2 when X is OH in L_6 , and further provided that r cannot be CH_2 in L_8 .

5,670,646
MONOMERIC AND POLYMERIC CYCLIC AMINE AND-HALAMINE COMPOUNDS

Shelby D. Worley; Gang Sun, both of Auburn, Ala.; Wanying Sun, Lodi, N.J., and Tay-Yuan Chen, Auburn, Ala., assignors to Auburn University, Auburn, Ala.

Division of Ser. No. 310,657, Sep. 22, 1994, which is a continuation-in-part of Ser. No. 282,154, Jul. 28, 1994, which is a continuation of Ser. No. 31,228, Mar. 12, 1993. This application Jun. 7, 1995, Ser. No. 474,302

Int. Cl.⁶ C07D 235/02

U.S. Cl. 548—301.1

4 Claims

1. A method of preparing a 4-vinylphenyl hydantoin or 4-vinylphenyl triazine-2,4-dione monomer, comprising the steps of a) heating a poly-4-vinylacetophenone under vacuum to crack it into the corresponding monomer; and

b) converting the aceto moiety on the monomer to a hydantoin or triazine-2,4-dione moiety to form a 4-vinylphenyl hydantoin or 4-vinylphenyl triazine-2,4-dione monomer.

5,670,647
METHOD FOR RECOVERING OPTICALLY PURE AMINO ACID DERIVATIVES

Kiyoshi Nohkura, Kyoto, Japan, and Michael Kiffe, Brunswick, Germany, assignors to Shimadzu Corporation, Kyoto, Japan

Filed Mar. 1, 1996, Ser. No. 609,400

Claims priority, application Japan, Mar. 2, 1995, 7-070787

Int. Cl.⁶ C07D 233/40; 233/72; C07K 1/00; C07C 229/00

U.S. Cl. 548—316.1

8 Claims

1. A method for recovering amino acid or peptide derivatives having at least one chiral carbon atom with an activated carboxyl group as an active ester from a liquor, comprising the steps of:

(a) adding into the liquor a compound selected from the group consisting of 1-hydroxybenzotriazole (HOBt), 1-hydroxy-7-azabenzotriazole (HOAt), 3-hydroxy-4-oxo-3,4-dihydro-1,2,3-benzotriazine (HOOBt) and N-hydroxy-5-norbornene-2,3-dicarboxylic acid imide (HONB);

(b) concentrating the liquor obtained in step (a);

(c) treating concentrated liquor obtained in step (b) with an acidic buffer solution containing a tertiary amine wherein the active ester is hydrolyzed to a free carboxyl group and retains its optical configuration without racemization; and

(d) extracting and purifying the amino acid or the peptide derivatives under acidic conditions.

5,670,648
INTERMEDIATES FOR PYRAZOLYL ACETIC ACID DERIVATIVES

Erwin Waldvogel, Aesch, and Eugen Eichenberger, Anwil, both of Switzerland, assignors to Sandoz Ltd., Basel, Switzerland
 Continuation of Ser. No. 523,729, Sep. 5, 1995, abandoned.
 This application Nov. 1, 1996, Ser. No. 742,549

Int. Cl.⁶ C07D 231/18

U.S. Cl. 548—370.4

1 Claim

1. Process for the preparation of a 4-hydroxypyrazole of formula III



wherein R_1 is C_{1-3} alkyl and R_2 is hydrogen or C_{1-3} alkyl, comprising an intramolecular cyclization reaction of a compound of formula V



wherein R_1 and R_2 are as defined for formula III, and A is a leaving group, at a temperature between $+50^\circ\text{C}$. and $+200^\circ\text{C}$.

5,670,649
DERIVATIVES OF 2-AZABICYCLO[2.2.1]HEPTANE, THEIR PREPARATION AND THEIR APPLICATION

Denis Largeau, Taluyers, and Patrick Leon, Tassin la Demi Lune, both of France, assignors to Rhone-Poulenc Rorer S.A., Antony, France

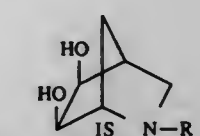
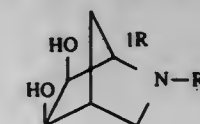
Continuation-in-part of Ser. No. 476,156, Jun. 7, 1995. This application May 30, 1996, Ser. No. 655,395

Claims priority, application France, May 30, 1995, 95 06353
 Int. Cl.⁶ C07D 31/40; 31/41

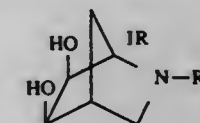
U.S. Cl. 548—431

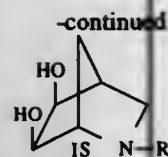
9 Claims

1. A method for the preparation of a compound of formula

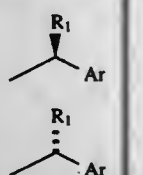


wherein R represents a hydrogen atom, comprising hydrogenating a compound of formula





wherein R represents respectively a group of formula



wherein R_1 represents an alkyl group containing 1-4 carbon atoms and Ar represents a phenyl or α - or β -naphthyl group, optionally substituted by one or more atoms or groups, which may be identical or different, selected from halogen atoms and alkyl groups containing 1-4 carbon atoms, alkoxy groups containing 1 to 4 carbon atoms, or nitro groups, with hydrogen in the presence of a catalyst in an organic solvent selected from aliphatic alcohols containing 1-3 carbon atoms.

5,670,654

FATTY ACID ANALOGS AND PRODRUGS

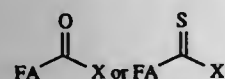
Sean T. Nugent, Grayslake, and Richard A. Mueller, Glencoe, both of Ill., assignors to G. D. Searle & Co., Skokie, Ill.
Continuation of Ser. No. 410,454, Mar. 24, 1995, Pat. No. 5,599,947, which is a continuation-in-part of Ser. No. 4,370, Jan. 14, 1993, abandoned. This application Nov. 4, 1996, Ser. No. 743,543

Int. Cl.⁶ C07C 54/124;69/02;229/06;233/31

U.S. Cl. 548—491

15 Claims

1. A compound of the formula



wherein:

FA is a heteroatom-containing fatty acid moiety selected from the group consisting of $\text{CH}_3\text{O}(\text{CH}_2)_{11}$ - and $\text{CH}_3(\text{CH}_2)_9\text{O}(\text{CH}_2)_2$ -;
X is selected from the group consisting of amido, monoalkyl-amido, dialkyl-amido, monoaryl-amido, monoaryl-amido substituted with OH or halogen, diaryl-amido, and diaryl-amido substituted with OH or halogen;
and in which the number of carbon atoms in alkyl are from one to eight and the number of carbon atoms in aryl is six.

5,670,651

THERMOSETTING RESINS DERIVED FROM 4-HYDROXY- AND 4-TRIMETHYLSILOXY-BENZOCYCLOBUTENE

Loon-Seng Tan, Centerville, and Narayanan Venkatasubramanian, Fairborn, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

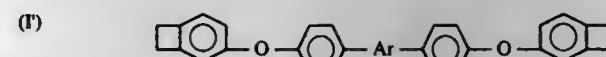
Filed Feb. 12, 1996, Ser. No. 605,343

Int. Cl.⁶ C07D 263/62

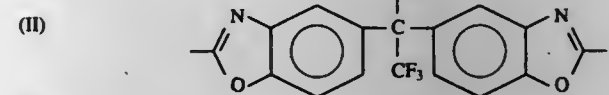
U.S. Cl. 548—219

3 Claims

1. A method for making a bis(benzocyclobutene)-terminated monomer of the formula

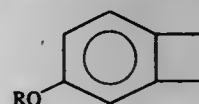


wherein Ar is $-\text{SO}_2-$, $-\text{CO}-$, or

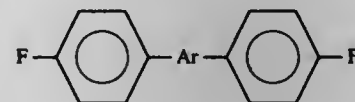


(II')

which comprises reacting a benzocyclobutene of the formula



wherein R is $-\text{H}$ or $-\text{SiMe}_3$, with a difluorophenyl compound of the formula



wherein Ar is as described previously, in the presence of cesium fluoride as a promoter.

5,670,652

METHOD OF PRODUCING OPTICALLY ACTIVE, 4-SUBSTITUTED (S)-2-OXAZOLIDINONES

Karlheinz Drauz, Freigericht, and Michael Schwarm, Alzenau, both of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Germany

Filed Jul. 17, 1995, Ser. No. 503,225

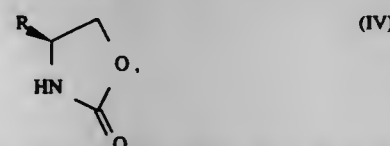
Claims priority, application Germany, Jul. 15, 1994, 44 25 067.3

Int. Cl.⁶ C07D 263/22

U.S. Cl. 548—228

6 Claims

1. A method of producing optically active, 4-substituted (S)-2-oxazolidinones of general formula IV



in which R stands for a space-filling branched alkyl group with 5-10 C atoms which contains at least one tertiary C atom, characterized in that an optically active (S)-amino alcohol of general formula III



in which R stands for a space-filling, branched alkyl group with 5-10 C atoms which contains at least one tertiary C atom, is acylated with a chloroformic acid ethyl-or-methyl ester on the nitrogen and that the intermediate is cyclized with a catalytically active amount of a base to the corresponding (S)-2-Oxazolidinone of formula IV.

5,670,653

PROCESS FOR THE MANUFACTURE OF (4,5)-TRANS-OXAZOLIDINES

Hans Hilpert, Reinach, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Oct. 30, 1996, Ser. No. 739,565

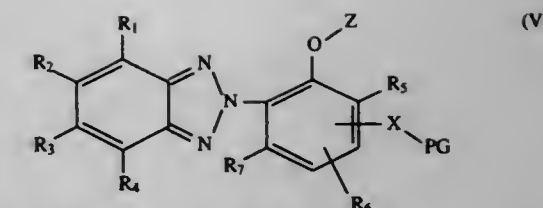
Claims priority, application Switzerland, Nov. 6, 1995, 03131/95

Int. Cl.⁶ C07D 263/20

U.S. Cl. 548—229

14 Claims

1. A process for isomerizing a compound containing a (4,5)-cis-2-oxo-oxazolidine ring to the corresponding compound containing a (4,5)-trans-2-oxo-oxazolidine ring, comprising treating the (4,5)-cis compound with a strong base to give the (4,5)-trans compound.



wherein Z is H or a protecting group;
deprotecting the compound of formula (VI) to form the compound of formula (VII) by replacing PG with H and, when Z is not H, also replacing Z with H.

5,670,654

METHOD OF SYNTHESIZING 2-(2'-HYDROXYPHENYL)BENZOTRIAZOLE COMPOUNDS

Lal Chand Vishwakarma, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

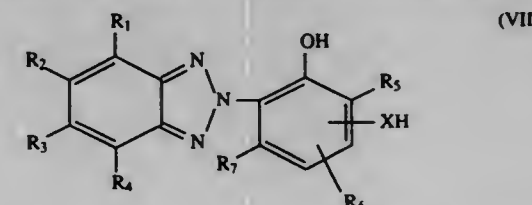
Filed Feb. 16, 1996, Ser. No. 602,946

Int. Cl.⁶ C07D 249/20

U.S. Cl. 548—260

28 Claims

1. A method for preparing a compound of formula (VII):

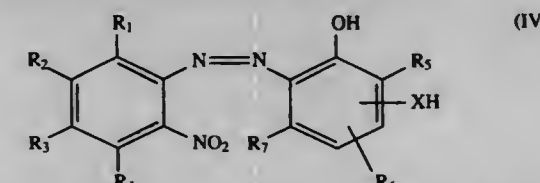


wherein:

$R_1, R_2, R_3, R_4, R_5, R_6$ and R_7 are, independently: H; halogen; cyano; $-\text{CO}_2\text{Y}$ where Y is H or a 1 to 12 carbon alkyl or a 6 to 12 carbon aryl group; 1 to 12 carbon atom carbamoyl group; 0 to 12 carbon atom sulfoxido group; 0 to 12 carbon atom sulfonyl group; 0 to 12 carbon atom sulfonato group; 0 to 12 carbon atom sulfonamido group; 1 to 18 carbon atom alkyl group; 1 to 18 carbon atom alkoxy group; 6 to 20 carbon atom aryl group; 5 to 20 atom heteroaryl group having 1 to 4 heteroatoms selected from O, N or S; 6 to 20 carbon atom aryloxy group; or any two or more of adjacent ones of R_1 through R_4 , or R_6 and R_7 together, or R_6 and R_5 together when they are adjacent one another, may together form a 1 to 10 carbon atom alicyclic group, or complete, together with the carbon atoms of the benzene ring to which they are attached, a 6 to 20 carbon atom aromatic group or a 5 to 20 atom heteroaryl group having 1 to 4 heteroatoms selected from O, N or S; or R_7 is OH;
X is O, S, or NR_8 where R_8 is H, 1 to 12 carbon alkyl or aryl group, or 5 to 20 atom heteroaryl group having 1 to 4 heteroatoms selected from O, N or S;

the method comprising:

protecting at least $-\text{XH}$ on a compound of formula (IV) below to form a protected formula (IV) compound, by forming $-\text{X}(\text{PG})$ where PG is a group other than H which is not removed during a subsequent ring closure step:



wherein R_1 to R_7 and X are as defined above for formula (VII); performing a ring closure by reacting the protected formula (IV) compound with a reducing agent to form a compound of formula (VI):

5,670,655

METHOD FOR ANALYZING ISOMERS OF ENALAPRIL AND ENALAPRILAT

Xue-Zhi Qin, Lansdale, Pa.; Gluseppina Visentini, Quebec, Canada, and Qingxi Wang, Lansdale, Pa., assignors to Merck & Co. Inc., Rahway, N.J.

Filed Sep. 10, 1996, Ser. No. 711,575

Int. Cl.⁶ C07D 207/04

U.S. Cl. 548—533

4 Claims

1. A method for analyzing the degradates of enalapril comprising:

- stressing a composition containing enalapril;
- chromatographing the stressed composition of enalapril;
- comparing the chromatogram of stressed enalapril with all known enalapril degradates;
- analyzing the stressed composition by liquid chromatography-mass spectrometry to detect a molecular ion and fragmentation pattern for the unknown degradates;
- reacting a sample of enalaprilat with t-butyl lithium to form a mixture of diastereomers of enalaprilat;
- chromatographing the diastereomers of enalaprilat;
- comparing the chromatogram of stressed enalapril with the chromatogram for the mixture of diastereomers of enalaprilat;
- identifying the unknown enalapril degradate as a diastereomer of enalapril;
- synthesizing standards of enalaprilat SRS and SSR diastereomers;
- chromatographing the SRS and SSR diastereomers of enalapril; and
- comparing the chromatograms of the SRS and SSR diastereomers with the chromatogram of the stressed enalapril to identify which diastereomer of enalaprilat corresponds with the unknown degradate.

5,670,656

PROCESS FOR PREPARING PYRROLIDINONES

John Michael Cox, Wokingham; Kevin James Gillen, Maidenhead; Russell Martin Ellis, Bracknell; Shaheen Khatoun Vohra, Wokingham; Stephen Christopher Smith, Netherthong, and Ian Richard Matthews, Wokingham, all of United Kingdom, assignors to Zeneca Limited, London, England

Filed May 24, 1996, Ser. No. 651,181

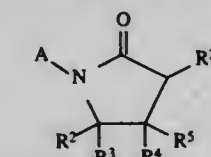
Claims priority, application United Kingdom, May 26, 1995, 9510744

Int. Cl.⁶ C07D 207/28

U.S. Cl. 548—543

16 Claims

1. A process for the preparation of a compound of formula II:



wherein

R^1 is hydrogen or C_1 - C_{10} hydrocarbyl or heterocyclyl having 3 to 8 ring atoms, either of which may optionally be substituted

with halogen, hydroxy, $\text{SO}_2\text{NR}^a\text{R}^b$ where R^a and R^b are independently H or $\text{C}_1\text{--C}_6$ alkyl, SiR_3^c where each R^c is independently $\text{C}_1\text{--C}_4$ alkyl or phenyl, cyano, nitro, amino, mono- and dialkylamino, acylamino, $\text{C}_1\text{--C}_6$ alkoxy, $\text{C}_1\text{--C}_6$ haloalkoxy, $\text{C}_1\text{--C}_6$ alkylthio, $\text{C}_1\text{--C}_6$ alkylsulphonyl, $\text{C}_1\text{--C}_6$ alkylsulphonyl, carboxy, carbonyl, carboxamide in which the groups attached to the N atom may be hydrogen or optionally substituted lower hydrocarbyl, alkoxy carbonyl, or aryl; each R^2 , R^3 , R^4 and R^5 is independently hydrogen or $\text{C}_1\text{--C}_4$ alkyl;

A is an aromatic or heteroaromatic ring system optionally substituted with one or more substituents selected from: halogen, $\text{C}_1\text{--C}_{10}$ hydrocarbyl, $-\text{O}(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$, $-\text{S}(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$, $-\text{SO}(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$ or $-\text{SO}_2(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$, cyano, nitro, SCN , SiR_3^c , COR^7 , CR^8NOR^9 , NHOH , ONR^8 , SF_5 , COOR^7 , SO_2NR^8 , OR^9 and $\text{NR}^{10}\text{R}^{11}$; and in which any ring nitrogen atom may be quaternised or oxidised; or any two substituents of the group A may combine to form a fused 5- or 6-membered saturated or partially saturated carbocyclic or heterocyclic ring in which any carbon or quaternised nitrogen atom may be substituted with any of the substituents mentioned above for A or in which a ring carbon atom may be oxidised;

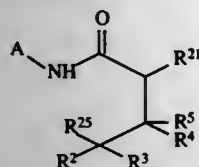
R^7 and R^8 are each independently hydrogen or $\text{C}_1\text{--C}_{10}$ hydrocarbyl;

R^9 is hydrogen, $\text{C}_1\text{--C}_{10}$ hydrocarbyl, $\text{SO}_2(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$, CHO , $\text{CO}(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$, $\text{COO}(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$ or CONR^7R^8 ;

R^{10} and R^{11} are each independently hydrogen, $\text{C}_1\text{--C}_{10}$ hydrocarbyl, $\text{O}(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$, $\text{SO}_2(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$, CHO , $\text{CO}(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$, $\text{COO}(\text{C}_1\text{--C}_{10}\text{ hydrocarbyl})$ or CONR^7R^8 ;

any of the hydrocarbyl groups within the group A may optionally be substituted with halogen, hydroxy, $\text{SO}_2\text{NR}^a\text{R}^b$, cyano, nitro, amino, mono- or dialkylamino, acylamino, $\text{C}_1\text{--C}_6$ alkoxy, $\text{C}_1\text{--C}_6$ haloalkoxy, $\text{C}_1\text{--C}_6$ alkylthio, $\text{C}_1\text{--C}_6$ alkylsulphonyl, $\text{C}_1\text{--C}_6$ alkylsulphonyl, carboxy, carboxamide in which the groups attached to the N atom may be hydrogen or lower hydrocarbyl optionally substituted with halogen, alkoxy carbonyl, or aryl;

R^{21} is hydrogen, halogen, OH, or OCONHR^1 , wherein R^1 is as defined above; the process comprising cyclising a compound of formula III:



wherein A, R^2 , R^3 , R^4 , R^5 and R^{21} are as defined in formula II and R^{25} is a leaving group; under basic conditions.

5,670,657

(METH) ACRYLIC ESTER DERIVATIVES

Katsunori Kojima, Higashiyama, Yoshinori Kadoma, Meguro, and Kunio Ikemura, Jojo, all of Japan, assignors to Kabushiki Kaisha Shofu, Kyoto, Japan

Division of Ser. No. 378,245, Jan. 24, 1995, abandoned. This application Jan. 23, 1996, Ser. No. 590,174

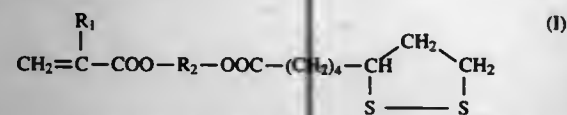
Claims priority, application Japan, Feb. 4, 1994, 6-012523; Jun. 29, 1994, 6-147576

Int. Cl. C07D 339/02

U.S. Cl. 549-39

5 Claims

1. A (meth)acrylic ester having a disulfide cyclic group represented by formula (I):



in which R_1 represents a hydrogen atom or methyl group, and R_2 represents a $\text{C}_3\text{--C}_{14}$ alkylene group unsubstituted or substituted by

a member selected from the group consisting of an unsaturated group, an alkyl group, and an alkylene group bonded with phenoxy group.

5,670,658

PROCESS FOR PREPARING 7-TRIALKYSILYL BACCATIN III

Jean-Pierre Bastart, Lesigny, and Jean-Pierre Leconte, Brunoy, both of France, assignors to Rhone-Poulenc Rorer S.A., Antony, France

PCT No. PCT/FR95/00419, § 371 Date Oct. 3, 1996, § 102(e) Date Oct. 3, 1996, PCT Pub. No. WO95/26967, PCT Pub. Date Oct. 12, 1995

PCT Filed Apr. 3, 1995, Ser. No. 722,103

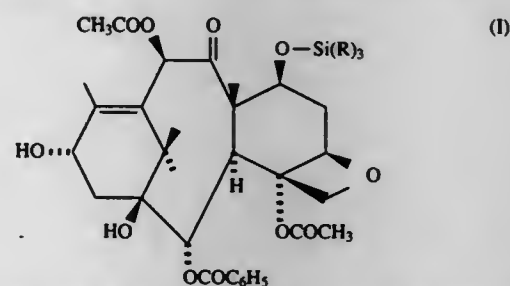
Claims priority, application France, Apr. 5, 1994, 94 03979

Int. Cl. C07D 305/14

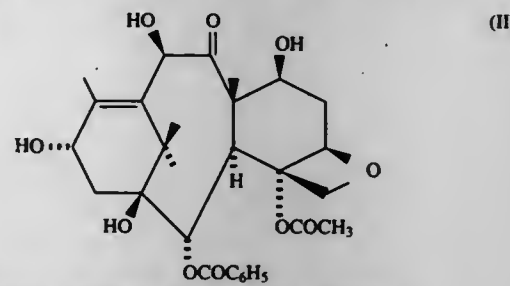
U.S. Cl. 549-214

10 Claims

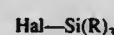
1. Process for the preparation of 7-trialkylsilylbaccatin III of general formula:



in which the symbols R, which may be identical or different, represent straight or branched alkyl radicals containing 1 to 4 carbon atoms which are optionally substituted with a phenyl radical, characterized in that 10-deacetylbaccatin III of formula:



is treated with a silylating agent of general formula:



in which R is defined as above, then with acetic anhydride without isolating the intermediate 7-trialkylsilyl-10-deacetylbaccatin III.

5,670,659

PREPARATION OF CITRACONIC ANHYDRIDE

Michel Alas, Melle; Alain Sigismundi, Lyons, and Philippe-Jean Tirel, Communay, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie Cedex, France

Filed Jan. 30, 1995, Ser. No. 380,722

Claims priority, application France, Jan. 28, 1994, 94 00938

Int. Cl. C07D 307/60

U.S. Cl. 549-261

19 Claims

1. A process for the preparation of citraconic anhydride, comprising heating itaconic acid in the presence of a catalytically effective amount of a catalyst compound, which is a product of an acid with a base with at least one of the two being an organic compound, having a pKa ranging from 4 to 10.

5,670,660

PROCESS FOR COLLECTING AIRBORNE ANHYDRIDES

Ronald H. Horn, and Lee W. Barwick, both of West Bend, Wis., assignors to Cook Composites and Polymers Co., Kansas City, Mo.

Filed Dec. 6, 1994, Ser. No. 349,824

Int. Cl. C07D 307/36

U.S. Cl. 549-262

19 Claims

1. A process for the collection of phthalic and maleic anhydride vapors wherein said process is carried out in an apparatus having a first zone in fluid communication with a second zone, the process comprising the steps of

- introducing phthalic anhydride vapor into the first zone;
- contacting phthalic anhydride vapor in the first zone with heated glycol to form a solution of phthalic half-esters and glycol;
- introducing maleic anhydride vapor into the second zone;
- contacting the maleic anhydride vapor with the heated glycol solution from the first zone to form a solution of phthalic half-esters, maleic half-esters and glycol.

5,670,662

PYRANONES

John Crosby, Bowden; Andrew Blacker, Leeds, and John Albert Leslie Herbert, Bury, all of England, assignors to Zeneca Limited, London, England

Division of Ser. No. 211,043, Aug. 1, 1994, Pat. No. 5,527,916, and Ser. No. 946,194, Sep. 17, 1992, Pat. No. 5,443,971. This application Mar. 28, 1996, Ser. No. 623,927

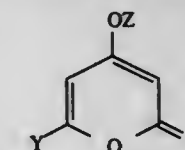
Claims priority, application United Kingdom, Sep. 20, 1991, 9120110; Sep. 20, 1991, 9120134; Sep. 20, 1991, 9120138; Sep. 20, 1991, 9120152; Sep. 20, 1991, 9120153; Sep. 20, 1991, 9120157; Sep. 20, 1991, 9120173; Jun. 4, 1992, 9211795

Int. Cl. C07D 309/30

U.S. Cl. 549-291

6 Claims

1. A pyran-2-one of the Formula (3):



Formula (3)

wherein:

Z is —H or a protecting group; and
Y is formyl or protected formyl.

5,670,661

PROCESS FOR PRODUCING LACTONES AND LACTONES OBTAINED WITH THIS PROCESS

Livius Cotarca, Cervignano Del Friuli, and Roberto Bianchini, Udine, both of Italy, assignors to Industrie Chimiche Caffaro S.p.A., Milan, Italy

PCT No. PCT/EP94/01866, § 371 Date Apr. 16, 1996, § 102(e) Date Apr. 16, 1996, PCT Pub. No. WO94/29294, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 8, 1994, Ser. No. 556,990

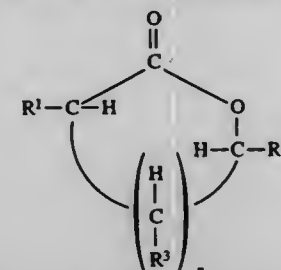
Claims priority, application Italy, Jun. 15, 1993, MI93A1272

Int. Cl. C07D 313/00; 307/02

U.S. Cl. 549-266

14 Claims

1. A process for preparing a compound according to formula (I):

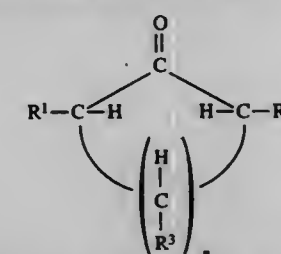


wherein each one of R^1 and R^3 is hydrogen, alkyl, alkyl-aryl, halogen, cyano-alkyl, carboxyl-alkyl, carbalkoxy-alkyl or hydroxy; and

R^2 is hydrogen, alkyl, alkyl-aryl, halogen, cyano-alkyl, carboxy-alkyl, carbalkoxyalkyl, hydroxyl, or $\text{CH}_2\text{CH}_2\text{—R}^4$;

R^4 is Y or a chemical precursor of Y;
Y is COOH , CN , CONH_2 , or COOR^5 ;

R^5 is alkyl, aryl or substituted alkyl or aryl; and
n is between 1 and 9, said process comprising the oxidation of a compound according to formula (2):



wherein each of R^1 , R^2 , R^3 and n have the same meaning as set forth above, said oxidation being conducted in the presence of an organic peracid selected from a cycloaliphatic peracid or substituted cycloaliphatic peracid, said peracid being substantially immiscible with water and being prepared by reoxidation of an organic acid coproduced in said oxidation.

5,670,664

PHOTOSENSITIVE ORGANIC COMPOUNDS THAT RELEASE CARBON MONOXIDE UPON ILLUMINATION

Joseph P. Y. Kao, Silver Spring, and Paul F. Keitz, Baltimore, both of Md., assignors to University Of Maryland Biotechnology Institute, Baltimore, Md.

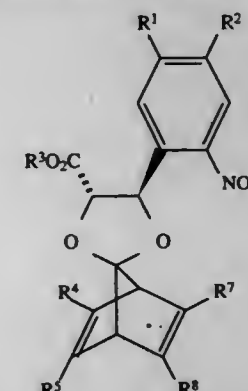
Filed Sep. 8, 1995, Ser. No. 525,173

Int. Cl. C07D 317/72

U.S. Cl. 549-336

16 Claims

1. A compound represented by Formula (I):



wherein R^1 and R^2 , which may be the same or different, are each selected from the group consisting of hydrogen, hydroxy, alkanoyloxymethoxy, wherein the alkanoyloxy moiety has from 1 to 5 carbon atoms, alkyl having from 1 to 5 carbon atoms, and alkoxy having from 1 to 5 carbon atoms; with the

proviso that R¹ and R² may be combined to form a methylenedioxy (O—(CH₂)_n—O) linkage, wherein n represents an integer of from 1 to 4;
wherein R³ is selected from the group consisting of hydrogen; alkyl having from 1 to 5 carbon atoms; alkanoyloxymethyl, wherein the alkanoyloxy moiety has from 1 to 5 carbon atoms; alkali metal ion; alkaline earth metal ion; and NR₄, wherein each R, which may be the same or different, is selected from the group consisting of hydrogen, alkyl having from 1 to 5 carbon atoms, phenyl, tolyl and benzyl; and wherein R⁴, R⁵, R⁶, R⁷, which may be the same or different, are each selected from the group consisting of hydrogen, cyano, CONHR¹, CONR², SO₂NHR¹, SO₂NR², CH₂R¹, CH₂CONHR¹, CH₂CONR², CO₂R³ and SO₃R³, wherein R¹ and R² are as defined above.

5,670,665

PROCESS FOR THE PREPARATION OF FLUORINE-SUBSTITUTED AMINOBENZODIOXOLES AND -BENZODIOXANES AND NEW INTERMEDIATES

Peter Andres, Leichlingen, and Albrecht Marhold, Leverkusen, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 569,341, Dec. 4, 1995, Pat. No. 5,559,253, which is a division of Ser. No. 384,933, Jan. 31, 1995, abandoned, which is a continuation of Ser. No. 89,966, Jul. 9, 1993, abandoned, which is a division of Ser. No. 952,019, Sep. 28, 1992, Pat. No. 5,260,460. This application Jun. 17, 1996, Ser. No. 672,509

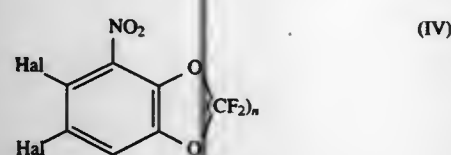
Claims priority, application Germany, Oct. 7, 1991, 41 33 156.7

Int. Cl.⁶ C07D 319/20; 317/62

U.S. Cl. 549—362

2 Claims

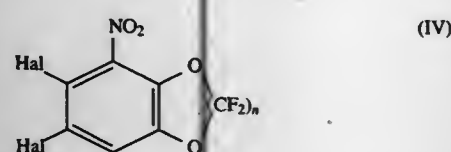
1. Fluorine-substituted nitro-benzodioxoles and -benzodioxanes of the formula (IV)



in which

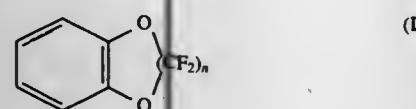
Hal represents halogen and n represents an integer 1 or 2.

2. Process for the preparation of fluorine-substituted nitro-benzodioxoles and -benzodioxanes of the formula (IV)



in which

Hal represents a halogen atom and n represents an integer 1 or 2, characterised in that fluorine-substituted benzodioxoles or benzodioxanes of the formula (II)



in which

n has the abovementioned meaning, are halogenated in the 1st step with elemental halogen and nitrated in the 2nd step.

5,670,666

PROCESS FOR PREPARING INTERMEDIATES FOR THE SYNTHESIS OF D1 ANTAGONISTS

Donald Hou, Verona; Richard W. Draper, North Caldwell; Gary M. Lee, Murray Hill, and Janet L. Mas, Scotch Plains, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Division of Ser. No. 127,862, Sep. 27, 1993, Pat. No. 5,463,051.

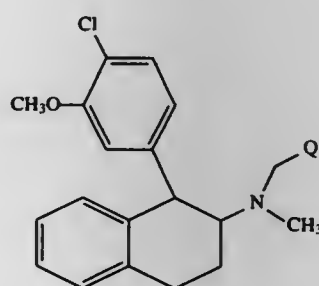
This application May 19, 1995, Ser. No. 445,404

Int. Cl.⁶ C07D 317/28; 319/06

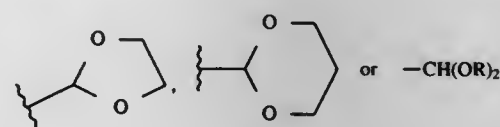
U.S. Cl. 549—373

3 Claims

1. A compound of the formula

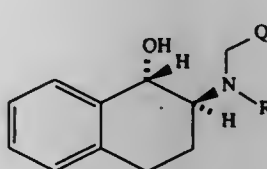
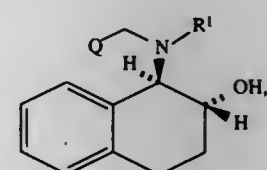


wherein Q is a group of the formula

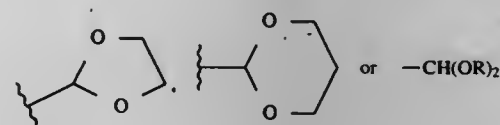


wherein R is C₁—C₆ alkyl.

3. A chiral compound of the formula



wherein R¹ is H or CH₃; and Q is a group of the formula



wherein R is C₁—C₆ alkyl.

5,670,667

CHROMAN-2-YLMETHYLAMINO DERIVATIVES

Richard E. Mewshaw, South Brunswick, N.J., assignor to American Home Products Corporation, Madison, N.J.

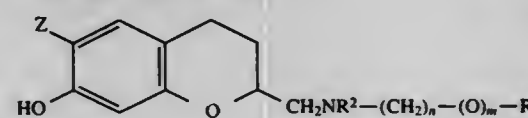
Filed Apr. 10, 1996, Ser. No. 630,794

Int. Cl.⁶ C07D 311/04

U.S. Cl. 549—407

20 Claims

1. A compound of the formula:



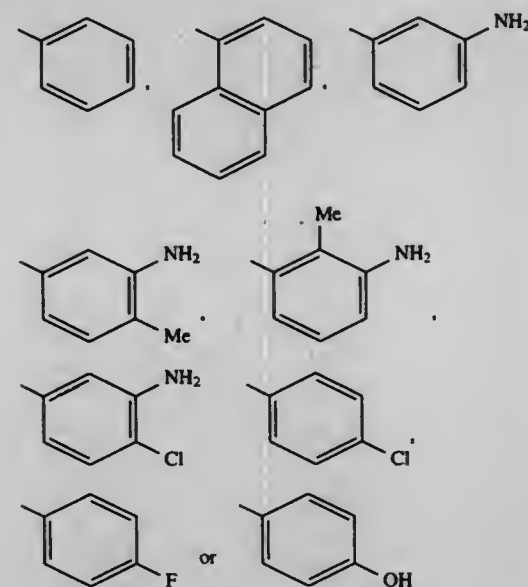
in which

Z is hydrogen or a halogen;

n is one of the integers 1, 2, 3, or 4;

m is one of the integers 0 or 1;

R is



R² is hydrogen or alkyl of 1 to 3 carbon atoms; or a pharmaceutically acceptable salt thereof.

5,670,668

CRYSTALLINE TOCOTRIENOL ESTERS

John Anthony Hyatt, Kingsport, Tenn., assignor to Eastman Chemical Company, Kingsport, Tenn.

Filed Jul. 3, 1996, Ser. No. 674,949

Int. Cl.⁶ C07D 311/72

U.S. Cl. 549—410

4 Claims

1. A crystalline ester of D-γ-tocotrienol selected from the group consisting of D-γ-tocotrienyl stearate, D-γ-tocotrienyl palmitate and D-γ-tocotrienyl 4-phenylbenzoate.

5,670,669

RECOVERY OF TOCOPHEROLS

Tracy K. Hunt, Kankakee, Ill., assignor to Henkel Corporation, Plymouth Meeting, Pa.

Division of Ser. No. 531,366, Sep. 20, 1995, Pat. No. 5,616,735, which is a continuation of Ser. No. 180,592, Jan. 13, 1994, abandoned, which is a continuation of Ser. No. 103,628, Aug. 6, 1993, abandoned. This application May 28, 1996, Ser. No. 654,441

Int. Cl.⁶ C07D 311/72

U.S. Cl. 549—413

8 Claims

1. A method of separating one or more tocopherol compounds from one or more sterol compounds comprising:

dispersing a mixture of one or more tocopherol compounds and one or more sterol compounds, said mixture being essentially free of higher fatty acid compounds, in a solvent mixture comprised of a major amount of a low polarity solvent, said low polarity organic solvent being selected from the group consisting of organic hydrocarbon solvents and oxygenated organic hydrocarbon solvents, and a minor amount of a high polarity organic solvent,
maintaining the resulting dispersion at a reduced temperature to produce a liquid phase enriched in tocopherol compounds and a solid phase enriched in sterol compounds, and
separating said liquid phase enriched in tocopherol compounds from said solid phase enriched in said sterol compounds.

5,670,670

PROCESS FOR THE PRODUCTION OF 8α, 12-OXIDO-13,14,15,16-TETRANORLABDANE

Georg Knuebel; Andreas Bomhard, both of Duesseldorf; Ulf-Armin Schaper, Krefeld; Theo Stalberg, Monheim, and Thomas Markert, Duesseldorf, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP94/03889, § 371 Date May 31, 1996, § 102(e) Date May 31, 1996, PCT Pub. No. WO95/15320, PCT Pub. Date Jun. 8, 1995

PCT Filed Nov. 24, 1994, Ser. No. 647,929

Claims priority, application Germany, Dec. 3, 1993, 43 41 275.0

Int. Cl.⁶ C07D 307/92

U.S. Cl. 549—458

17 Claims

1. In a process for the production of 8α,12-oxido-13,14,15,16-tetranorlabdane by dehydration of 8α,12-dihydroxy-13,14,15,16-tetranorlabdane (diol), the improvement wherein said diol is subjected to cyclizing dehydration in the presence of from about 5 to 80% weight, based on the diol, of a catalyst consisting of at least one alumino layer silicate selected from the group consisting of K catalysts which have an acid charge of less than 100 mval/100 g.

5,670,671

PROCESS FOR THE PRODUCTION OF AN IMPROVED FORM OF FORM 1 RANITIDINE

Keshava Murthy, Brantford, Canada, assignor to Brantford Chemicals Inc., Brantford, Canada

Filed Apr. 7, 1995, Ser. No. 418,401

Claims priority, application Canada, Apr. 8, 1994, 2120874

Int. Cl.⁶ C07D 307/52

U.S. Cl. 549—495

22 Claims

1. Process for the production of an improved form of Form 1 Ranitidine Hydrochloride having improved filtration and drying characteristics and having:

(i) a bulk density of not less than about 0.23 gm/ml; and,

a tap density of not less than about 0.28 gm/ml,

said process comprising in a substantially anhydrous hydroxylic solvent, comprising at least one alkanol solvent having 3–4 carbon atoms, adding anhydrous hydrogen chloride gas to Ranitidine free base wherein said substantially anhydrous hydroxylic solvent has the characteristics that it solubilizes the Ranitidine free base and hydrogen chloride gas, and subsequently recovering the improved form of Form 1 Ranitidine Hydrochloride.

5,670,672

PROCESS FOR THE PREPARATION OF 2,3-DIHYDROFURANS

John R. Monnier, and Cris S. Moorehouse, both of Kingsport, Tenn., assignors to Eastman Chemical Company, Kingsport, Tenn.

Filed Jan. 31, 1995, Ser. No. 381,594

Int. Cl.⁶ C07D 307/02

U.S. Cl. 549—507

9 Claims

1. Process for the preparation of a 2,3-dihydrofuran compound which comprises contacting at an elevated temperature a 2,5-dihydrofuran with a supported, palladium catalyst in the presence of a selectivity-increasing amount of carbon monoxide and in the substantial absence of hydrogen.

5,670,673

METHOD FOR THE ISOLATION AND PURIFICATION OF TAXOL AND ITS NATURAL ANALOGUES

Koppaka V. Rao, Gainesville, Fla., assignor to University of Florida, Gainesville, Fla.

Division of Ser. No. 333,382, Nov. 2, 1994, Pat. No. 5,475,120, which is a continuation-in-part of Ser. No. 915,736, Jul. 1, 1992, Pat. No. 5,380,916, which is a continuation-in-part of Ser. No. 611,109, Nov. 2, 1990, abandoned. This application May 5, 1995, Ser. No. 435,928

Int. Cl.⁶ C07D 305/14, C07C 69/76

U.S. Cl. 549—510

3 Claims

1. A method for bleaching a crude mixture comprising colored impurities, taxol and natural analogues of taxol selected from the group consisting of taxel C, 10-deacetyl taxol C, 10-deacetyltaxol C-7-xyloside, taxol-7-xyloside, 10-deacetyltaxol-7-xyloside, cephalomannine, cephalomannine-7-xyloside, 10-deacetylcephalomannine-7-xyloside, baccatin III, 10-deacetylcephalomannine-7-xyloside, baccatin VI, brevitanine A, and taxiflorine, said method comprising

- (a) treating an extract comprising taxol and the natural analogues of taxol and colored impurities by reverse phase liquid chromatography on a single preparative column having a silica gel-based reverse phase particle adsorbent, causing said taxol and said analogues of taxol to be adsorbed on the adsorbent;
- (b) eluting, with a water-miscible organic eluant selected from the group consisting of a lower alcohol, lower aliphatic ketone, lower aliphatic ester, cyclic ester, dimethyl formamide, dimethyl sulfoxide, acetic acid, and acetonitrile, taxol and the natural analogues of taxol from the adsorbent;
- (c) recovering taxol and the natural analogues of taxol in separate fractions of eluate; and
- (d) treating said fractions from step (c) with ozone to produce colorless fractions.

5,670,674

PRODUCTION OF OXIRANE COMPOUNDS

Roger A. Grey, West Chester, Pa., assignor to Arco Chemical Technology, L.P., Greenville, Del.

Filed Jun. 14, 1996, Ser. No. 663,770

Int. Cl.⁶ C07D 101/04

U.S. Cl. 549—533

6 Claims

1. A process for the production of propylene oxide which comprises reacting propylene with molecular oxygen in the presence of platinum (II) dihalide catalyst.

5,670,675

RETROVIRAL PROTEASE INHIBITING COMPOUNDS

Dale J. Kempf, Lake Villa, and Daniel W. Norbeck, Lindenhurst, both of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

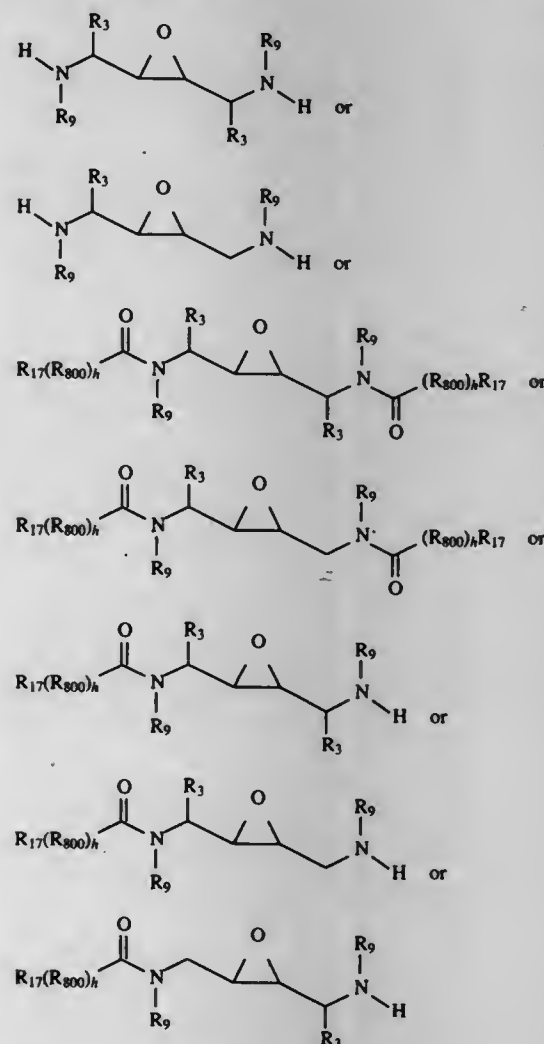
Division of Ser. No. 358,648, Dec. 19, 1994, which is a continuation of Ser. No. 164,979, Feb. 7, 1993, abandoned, which is a continuation of Ser. No. 880,729, May 8, 1992, abandoned, which is a division of Ser. No. 518,730, May 9, 1990, Pat. No. 5,142,056, which is a continuation-in-part of Ser. No. 456,124, Dec. 22, 1989, abandoned, which is a continuation-in-part of Ser. No. 405,604, Sep. 8, 1989, abandoned, which is a continuation-in-part of Ser. No. 355,945, May 23, 1989, abandoned. This application Mar. 23, 1995, Ser. No. 409,365

Int. Cl.⁶ C07D 303/36

U.S. Cl. 549—552

4 Claims

1. A compound of the formula:



wherein at each occurrence R₃ is independently selected from the group consisting of

- (i) C₁-to-C₆-loweralkyl,
- (ii) aryl,
- (iii) (aryl)-C₁-to-C₆-alkyl,
- (iv) C₃-to-C₇-cycloalkyl and
- (v) C₃-to-C₇-cycloalkyl-C₁-to-C₆-alkyl

R₉ is independently selected at each occurrence from the group consisting of hydrogen and aryl-C₁-to-C₆-alkyl;

R₁₇ at each occurrence is independently selected from the group consisting of C₁-to-C₆-loweralkyl, aryl and aryl-C₁-to-C₆-alkyl;

R₈₀₀ is —O—;

and at each occurrence h is independently selected from the group consisting of 0 and 1;

wherein at each occurrence aryl is independently selected from phenyl, naphthyl, tetrahydronaphthyl, indanyl, tetrafluorophenyl and pentafluorophenyl and wherein the phenyl, naphthyl, tetrahydronaphthyl and indanyl rings are unsubstituted or substituted with one, two or three substituents independently selected from the group consisting of C₁-to-C₆-loweralkyl, halo-C₁-to-C₆-alkyl, C₁-to-C₆-alkoxy, C₁-to-C₆-thioalkoxy, amino, C₁-to-C₆-alkylamino, di-C₁-to-C₆-alkylamino, hydroxy, halo, mercapto, nitro, carboxaldehyde, carboxy, carbo-C₁-to-C₆-alkoxy and carboxamide; or a pharmaceutically acceptable salt thereof.

5,670,676

PROCESS FOR PREPARATION OF 9α-CHLORO-11β-FORMYLOXY-PREGNA-3,20-DIONES

Richard W. Draper, North Caldwell, and Eugene J. Vater, Lyndhurst, both of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Continuation of Ser. No. 405,472, Mar. 16, 1995, abandoned.

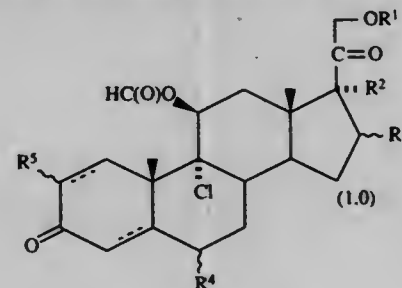
This application May 31, 1995, Ser. No. 455,967

Int. Cl.⁶ C07J 5/00; 7/00; 43/00; 33/00

U.S. Cl. 552—574

22 Claims

1. A process for producing a compound of the formula:



wherein:

the broken lines represent optional bonds;

R¹ represents an acyl radical of: (1) a hydrocarbon carboxylic acid having 2 to 12 carbon atoms; or (2) benzoic acid substituted by a halogen or methoxy group;

R² is selected from hydroxy or —OR⁶;

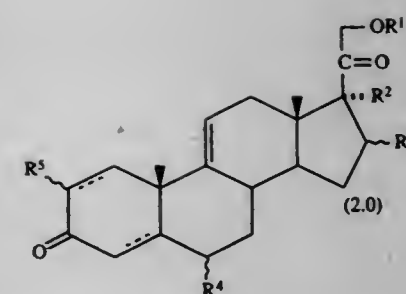
R³ is selected from hydrogen, lower alkyl, or α—OR⁷; or R² and R³ taken together represent a 16α, 17α-lower alkylidenedioxy having up to 13 carbon atoms;

R⁴ is selected from hydrogen, α-methyl, α-bromo, α-chloro, α-fluoro, β-fluoro and α-fluoromethyl;

R⁵ is selected from hydrogen, methyl, fluorine, chlorine and bromine;

R⁶ is an acyl radical of: (1) a hydrocarbon carboxylic acid having from 2 to 12 carbon atoms; (2) an aromatic carboxylic acid wherein said aromatic group contains from 6 to 12 carbon atoms; (3) an arylhydrocarbon carboxylic acid wherein said aryl group contains from 6 to 12 carbon atoms, and said hydrocarbon carboxylic acid group represents a straight or branched chain carboxylic acid having from 2 to 12 carbon atoms; (4) a heteroaromatic carboxylic acid having at least one oxygen atom in the heteroaryl ring and wherein oxygen is the only heteroatom in the heteroaryl ring, and wherein the aromatic heterocyclic group contains from 2 to 14 carbon atoms; or (5) a heteroaryl-hydrocarbon carboxylic acid having at least one oxygen atom in the heteroaryl ring and wherein oxygen is the only heteroatom in the heteroaryl ring, and wherein the aromatic heterocyclic group contains from 2 to 14 carbon atoms, and said hydrocarbon carboxylic acid group represents a straight or branched chain carboxylic acid having from 2 to 12 carbon atoms; said acyl radical having from 2 to 12 carbon atoms; and

R⁷ is an acyl radical of a hydrocarbon carboxylic acid having from 2 to 12 carbon atoms; said process comprising reacting, under anhydrous conditions and under an inert atmosphere, a compound of the formula:



wherein R¹, R², R³, R⁴, and R⁵ are as defined above, with: (1) a chlorinating reagent selected from an N-chloroimide or an N-chloroamide; (2) an anhydrous strong acid selected from orthophosphoric acid, alkylsulfonic acids, fluoroalkylsulfonic acids or arylsulfonic acids; and (3) anhydrous dimethyl formamide; said reaction being conducted at a temperature within the range of about -78° to about 0° C.

5,670,677

PROCESS FOR THE PRODUCTION OF COLOR- AND ODOR-STABLE QUATERNIZED FATTY ACID TRIETHANOLAMINE ESTER SALTS

Oriol Ponsati Obiols, Barcelona, and Joaquim Bigorra Lloas, Sabadell, both of Spain, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP94/00716, § 371 Date Sep. 18, 1995, § 102(e) Date Sep. 18, 1995, PCT Pub. No. WO94/21596, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 9, 1994, Ser. No. 522,371

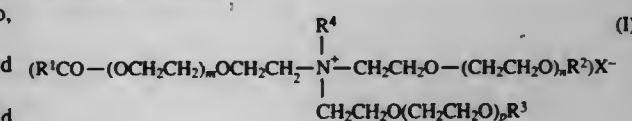
Claims priority, application Germany, Mar. 18, 1993, 43 08 792.2

Int. Cl.⁶ C07C 101/00

U.S. Cl. 554—114

20 Claims

1. A process for the production of at least one color- and odor-stable quaternized fatty acid triethanolamine ester salt corresponding to formula (I):



wherein

R¹CO is an acyl radical containing 6 to 22 carbon atoms, R² and R³ independently of one another represent hydrogen or have the same meaning as R¹CO,

R⁴ is an alkyl radical containing 1 to 4 carbon atoms or a (CH₂CH₂O)_qH group, in which q is a number from 1 to 12, m, n and p together=0 or a number of 1 to 10 and

X is a halide, alkyl sulfate or alkyl phosphate, comprising the steps of

A) partially or fully esterifying triethanolamine with at least one fatty acid of the formula R¹COOH wherein R¹CO is as defined above in the presence of hypophosphorous acid;

B) adding a peroxide compound and an alkali metal boranate to the esterification product from step A); and

C) quaternizing the esterification product with an alkyl halide, a (di)alkyl sulfate or an alkylene oxide in the presence of a phenol derivative and a hydroxycarboxylic acid, wherein where an alkylene oxide is used as the quaternizing agent, a (di)alkyl phosphate is also present.

5,670,678
METHOD FOR RECOVERING EDIBLE OIL FROM ADSORBENT MATERIALS
 Michael A. Rothbart, Fullerton, Calif., assignor to Hunt-Wesson, Inc., Fullerton, Calif.
 Filed Apr. 21, 1995, Ser. No. 426,281
 Int. Cl. C11B 3/10

U.S. Cl. 554—191

16 Claims

1. A process for selectively recovering soybean oil free from color bodies and/or other adsorbed impurities from acid activated clay containing soybean oil, color bodies and/or other adsorbed impurities comprising the steps of:

selectively extracting soybean oil from a feed of acid activated clay containing soybean oil, color bodies and/or other adsorbed impurities by contacting the activated clay with propane, where the ratio of the feed to propane is from about 1:1.5 to about 1:2, while maintaining the solvent at a pressure of from about 650 to about 850 psi and at a temperature of from about 110° to about 150° F. for a time sufficient to selectively extract a substantial portion of the soybean oil from the activated clay and color bodies and/or other adsorbed impurities, before the soybean oil degrades to an appreciable extent,

separating the soybean oil-containing propane from the activated clay and the color bodies and/or other adsorbed impurities, to recover the oil-reduced activated clay, and then

separating the soybean oil from the propane to recover substantially undergraded soybean oil free from color bodies and other adsorbed impurities.

5,670,679
PROCESS FOR THE MANUFACTURING OF SELECTED HALOGENATED HYDROCARBONS CONTAINING FLUORINE AND HYDROGEN AND COMPOSITIONS PROVIDED THEREIN

Ralph Thomas Baker, Wilmington; Richard Paul Beatty, Newark; William Brown Farnham, Hockessin, all of Del., and Robert Lewis Wallace, Jr., Aston, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
 Division of Ser. No. 315,025, Sep. 29, 1994, Pat. No. 5,545,769.
 This application Jun. 2, 1996, Ser. No. 458,784
 Int. Cl. C07F 15/04; 9/02

U.S. Cl. 556—18

12 Claims

1. A compound of the formula $L_2Ni(1.4-CR^1_2CR^2_2CR^3_2CR^4_2)$ wherein each R^1 is independently selected from the group consisting of H, F, Cl, CN, R, OR, CO₂R, C(O)R, OC(O)R, R', OR', CO₂R', C(O)R', OC(O)R', where R is a hydrocarbyl group and R' is a C₁ to C₁₀ polyfluoroalkyl group, provided that at least one R^1 is F, wherein each R^2 is independently selected from the group consisting of group H, F, Cl, CN, R, OR, CO₂R, C(O)R, OC(O)R, R', OR', CO₂R', C(O)R', OC(O)R' and difunctional linkages where an R^2 on each of two adjacent carbon atoms together form a link selected from the group consisting of $-CH_2CH_2CH_2-$, $-CH_2CH_2CH_2CH_2-$, $-CH_2CH_2CH(CH_3)-$, $-CH_2CH(CH_3)CH_2-$, $-C(O)OC(O)-$, and norborndiyl, and wherein each L is a ligand selected from the group consisting of (1) Group 14 ligands selected from the group consisting of CO, η^2 olefinic ligands, η^2 alkyne ligands, $\eta^5-C_5R_5$ ligands where R is hydrocarbyl or hydrogen, and $\eta^3-C_3R_3$ ligands (2) Group 15 ligands selected from the group consisting of pyridine, picoline, 2,2'-bipyridine, ethylene diamine, hydrocarbyl nitriles, mono-, bi-, and polydentate anionic ligands, mono- and bidentate ligands of the formula $E^1(R^3)_3$ or $(R^3)_2E^1R^4(R^5)_2$ wherein E^1 is selected from the group consisting of N, P, As, Sb, and Bi, R^3 is selected from the group consisting of H, OR, OH, NH₂, NHR and NR₂ where each R is a hydrocarbyl group and R' is an ether, alkylene, or arylene link between E^1 atoms, said R^1 optionally incorporating a pendant functional group selected from OR, OH, NH₂, NHR and NR₂, and two or more of said R, R^3 or R and R^3 groups optionally being cojoined and (3) Group 16 ligands, provided that when each L is a Group 15 ligand, and each R^1 and R^2 is F, then L is not trimethylphosphite, tri-o-tolylphosphite, triethylphosphine, tribu-

tylphosphine, methylphenyl phosphine, triphenylphosphine, dimethylphenyl arsine, 4-methylpyridine, dimethylarsine, 2,2-bipyridyl, or 1,2-bis(diphenyl phosphino)ethane, and provided that when three R^1 groups and three R^2 groups are F and the remaining R^1 group and R^2 group are H, then L is not triphenylphosphine or methyldiphenylphosphine.

5,670,680
METHOD FOR PRODUCING OCTAHYDROFLUORENYL METAL COMPLEXES

Thomas H. Newman; Jerzy Klosin, and Peter N. Nickias, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 26, 1996, Ser. No. 638,256

Int. Cl. C07F 17/00; 7/28

U.S. Cl. 556—53

18 Claims

1. A process for producing octahydrofluorenyl metal complexes corresponding to the formula:



wherein:

E is an octahydrofluorenyl group or an octahydrofluorenyl group substituted with from 1 to 15 hydrocarbyl groups, each such hydrocarbyl group having 1 to 10 carbon atoms; n is 1 or 2;

M is titanium, zirconium or hafnium in the +2, +3 or +4 formal oxidation state;

X is independently in each occurrence an anionic ligand group having up to 40 atoms;

p is 0, 1, 2 or 3, and n+p equals the formal oxidation state of M;

X' is an inert, neutral donor ligand; and

q is 0, 1, or 2;

the process comprising the step of contacting a fluorenyl metal complex with hydrogen gas, the fluorenyl metal complex corresponding to the formula:



wherein A is a tetrahydrofluorenyl group, a tetrahydrofluorenyl group substituted with from 1 to 13 hydrocarbyl groups, a hexahydrofluorenyl group, or a hexahydrofluorenyl group substituted with from 1 to 15 hydrocarbyl groups, each such hydrocarbyl group having 1 to 10 carbon atoms.

5,670,681
PROCESS FOR PREPARING A CARBON-BRIDGED BISCYCLOPENTADIENE COMPOUND

Frank Küber, Oberursel, and Michael Riedel, Frankfurt, both of Germany, assignors to Hoechst Aktiengesellschaft, Germany

Filed Jun. 28, 1996, Ser. No. 671,956

Claims priority, application Germany, Jun. 30, 1995, 195 23 595,9

Int. Cl. C07F 17/00

U.S. Cl. 556—53

18 Claims

1. A process for preparing a carbon-bridged biscyclopentadiene compound which comprises reacting one or two cyclopentadiene compounds, of which at least one cyclopentadiene compound is a substituted cyclopentadiene compound, with a carbonyl compound in the presence of at least one base and at least one phase transfer catalyst.

5,670,682
LIQUID CLATHRATE ALUMINOXANE COMPOSITIONS
 Samuel A. Sangokoya, Baton Rouge, La., assignor to Albemarle Corporation, Richmond, Va.
 Filed Oct. 19, 1995, Ser. No. 546,285
 Int. Cl. C07F 5/06

U.S. Cl. 556—181

7 Claims

1. A liquid clathrate composition which comprises the reaction product, in an aromatic solvent, of an aluminosilicate and an organic, inorganic or organometallic compound which is effective to form a stable, liquid clathrate composition with said aluminosilicate.

3. An aluminosilicate clathrate composition which comprises methylaluminosilicate, M-X species derived from an organic, inorganic or organometallic compound which is effective to form a stable clathrate with said methylaluminosilicate, and an aromatic inclusion solvent.

7. A process for preparing a methylaluminosilicate composition which is substantially free of trimethylaluminum comprising (a) reacting a solution of trimethylaluminum and methylaluminosilicate in an aromatic solvent with an organic, inorganic or organometallic compound which is effective to form a stable, liquid clathrate with said methylaluminosilicate so as to form a lower, liquid methylaluminosilicate containing clathrate layer and an upper, aromatic solvent layer which contains said trimethylaluminum, and (b) separating said clathrate layer from said aromatic solvent layer.

5,670,683
RACEMIC METALLOCENE COMPLEXES AND THEIR PREPARATION

Franz Langhauser, Bad Dürkheim; Jürgen Kerth, Carlsberg; Günther Schwelger, Friedelsheim, all of Germany; Hans-Herbert Brintzinger, Taegerswil, Switzerland, and Stefan Mansel, Konstanz, Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Division of Ser. No. 328,777, Oct. 28, 1994, Pat. No. 5,554,776.
 This application Mar. 22, 1996, Ser. No. 620,318

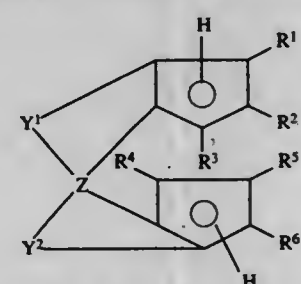
Claims priority, application Germany, Oct. 30, 1993, 43 37 232,5

Int. Cl. C07F 17/00; 7/08

U.S. Cl. 556—406

4 Claims

1. A cyclopentadienyl compound of the formula II

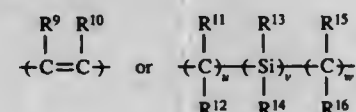


R^1 to R^6 are each hydrogen, C₁-C₁₀-alkyl, 5-membered to 7-membered cycloalkyl which in turn may carry C₁-C₁₀-alkyl radicals as substituents, C₆-C₁₅-aryl or arylalkyl, where two adjacent radicals together may furthermore be a cyclic group of 4 to 15 carbon atoms, or Si(R⁸)₃

R^8 is C₁-C₁₀-alkyl, C₆-C₁₅-aryl or C₃-C₁₀-cycloalkyl.

Z is silicon, germanium, tin or carbon,

Y¹ and Y² are each



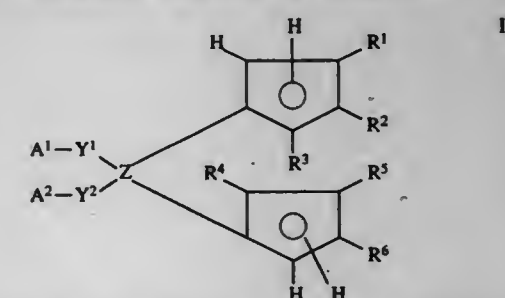
R^9 to R^{16} are each hydrogen, C₁-C₁₀-alkyl, 5-membered to 7-membered cycloalkyl which in turn may carry C₁-C₁₀-alkyl radicals as substituents, C₆-C₁₅-aryl or arylalkyl, where two adjacent radicals together may furthermore be a cyclic group of 4 to 15 carbon atoms, or Si(R¹⁷)₃

R^{17} is C₁-C₁₀-alkyl, C₆-C₁₅-aryl or C₃-C₁₀-cycloalkyl

and

u, v and w are each an integer from 0 to 7, with the proviso that the sum u+v+w is ≥ 2 .

2. A cyclopentadienyl compound of the formula III

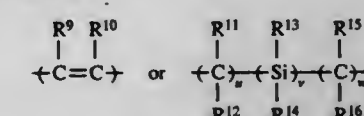


R^1 to R^6 are each hydrogen, C₁-C₁₀-alkyl, 5-membered to 7-membered cycloalkyl which in turn may carry C₁-C₁₀-alkyl radicals as substituents, C₆-C₁₅-aryl or arylalkyl, where two adjacent radicals together may furthermore be a cyclic group of 4 to 15 carbon atoms, or Si(R⁸)₃

R^8 is C₁-C₁₀-alkyl, C₆-C₁₅-aryl or C₃-C₁₀-cycloalkyl.

Z is silicon, germanium, tin or carbon,

Y¹ and Y² are each



R^9 to R^{16} are each hydrogen, C₁-C₁₀-alkyl, 5-membered to 7-membered cycloalkyl which in turn may carry C₁-C₁₀-alkyl radicals as substituents, C₆-C₁₅-aryl or arylalkyl, where two adjacent radicals together may furthermore be a cyclic group of 4 to 15 carbon atoms, or Si(R¹⁷)₃

R^{17} is C₁-C₁₀-alkyl, C₆-C₁₅-aryl or C₃-C₁₀-cycloalkyl.

u, v and w are each an integer from 0 to 7, with the proviso that the sum u+v+w is ≥ 2 .

A¹ and A² are each fluorine, chlorine, bromine, iodine or $-R^{18}OSO_3$

and

R^{18} is C₁-C₁₀-alkyl, C₆-C₁₅-aryl or C₃-C₁₀-cycloalkyl.

5,670,684
PROCESS AND INTERMEDIATES FOR THE PREPARATION OF EXCITATORY AMINO ACID RECEPTOR ANTAGONISTS

Anita Melikian-Badalian, and Paul L. Ornstein, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

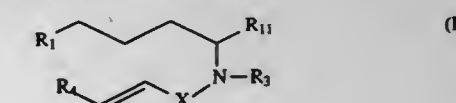
Division of Ser. No. 977,940, Nov. 18, 1992, Pat. No. 5,470,978. This application May 19, 1995, Ser. No. 444,662

Int. Cl. C07F 7/04; 7/10

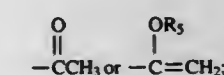
U.S. Cl. 556—419

9 Claims

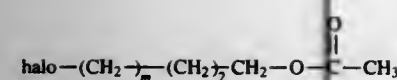
1. A compound of the formula (I)



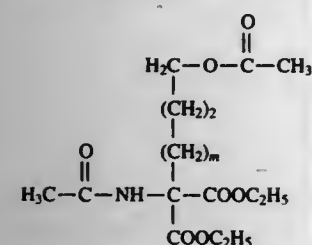
Wherein
 R_1 is



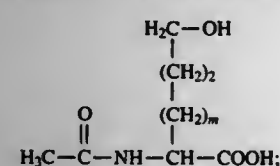
R_{11} is CO₂R₂, CON(R₂)₂, CN, CH₂OH, or protected hydroxymethyl;



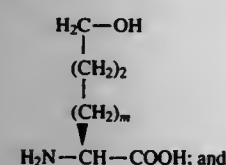
wherein halo is Br, I, or Cl to give



b) treating the product of part (a) with sodium hydroxide and heat and then acid and heat to give



c) treating the product of part (b) with a hydrolyzing enzyme to give



d) treating the product of part (c) to introduce the R_3 group and give the desired product.

5,670,700

HYDROFORMYLATION PROCESS

Patrick Michael Burke, Wilmington, Del.; Onko Jan Gelling, Geleen, Netherlands; Henk Oevering, Stein, Netherlands, and Imre Toth, Geleen, Netherlands, assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del., and DSM, N.V., The Geleen, Netherlands

Filed Aug. 25, 1995, Ser. No. 519,835

Int. Cl.⁶ C07C 67/36; 5/14; 255/00

U.S. Cl. 560—175

7 Claims

1. A process for the preparation of 5-formylvaleric acid, 5-formylvaleric acid ester or 5-formylvaleronitrile which comprises contacting a compound selected from the group consisting of 2-, or 3-pentenoic acid, 2-, or 3-pentenoic acid ester and 2-, or 3-pentenitrile, with hydrogen and carbon monoxide in an organic solvent for said compound containing a dissolved catalyst comprising (a) a platinum compound free of anionic halide, (b) a bidentate diaryl phosphine ligand having the formula $\text{Ar}_2\text{P}-\text{Q}-\text{PAr}_2$ where Q is a bivalent bridging group containing 3–5 carbon atoms in which 2 or 3 carbon atoms of the bridge may be part of a cycloalkyl ring containing 3 to 6 carbon atoms or is a ferrocenyl group and each Ar group contains 6 to 15 carbon atoms and (c) an acid promoter selected from (1) sulfonic acids having a pKa in water of less than -2, (2) tetrafluoroboric acid, (3) a fluorine substituted aryl boronic acid of the formula: $[\text{HZ}][\text{B}(\text{Ph})_4]$ where Z is an oxygen containing Lewis base and Ph is a fluorine or trifluoromethyl substituted phenyl group, and (4) hexafluorophosphoric acid and where the ratio (c) to (a) is in the range 0.5/1 to 5/1, and where the ratio of (b) to (a) is in the range 0.6/1 to 1.5/1.

5,670,701

PREPARATION OF ALKYL ADIPATES

Philippe Denis, Decines; Jean-Michel Grosselin, Francheville; Jean Jenck, Chassieu; Francois Metz, Vernaison, and Paul Rouyer, Lyons, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie Cedex, France

Continuation of Ser. No. 980,237, Nov. 23, 1992, abandoned.

This application Feb. 18, 1994, Ser. No. 199,544

Claims priority, application France, Nov. 21, 1991, 91 14605 Int. Cl.⁶ C07C 67/36

U.S. Cl. 560—204

2 Claims

1. A process for the preparation of an alkyl adipate comprising (i) enriching an alkyl 3-pentenoate containing raw material to at least 5% alkyl 2-pentenoate by addition of alkyl 2-pentenoate to form an admixture, and (ii) reacting said admixture with carbon monoxide and an alcohol, at elevated temperature, under superatmospheric pressure and in the presence of a catalytically effective amount of cobalt or a cobalt compound and a nitrogenous heterocyclic base.

5,670,702

LIQUID PHASE PREPARATION OF (METH)-ACRYLATE FROM ALPHA-OLEFIN

Barrie W. Jackson, Perth, and Thomas J. Harris, Amherstview, both of Canada, assignors to Queen's University at Kingston, Kingston, Canada

Continuation of Ser. No. 238,401, May 5, 1994, abandoned.

This application Oct. 18, 1995, Ser. No. 544,494

Int. Cl.⁶ C07C 67/00

U.S. Cl. 560—208

15 Claims

1. A process for producing an (meth)-acrylate which comprises reacting, in the liquid phase, a C_3 to C_6 alpha-olefin with oxygen and a lower alcohol in the presence of (a) water and (b) a heterogeneous bi-functional catalyst having both of acidic functionality and catalytic metal functionality, wherein said metallic catalyst consists essentially of a metal selected from the Group VIII metals of the Periodic Table.

5,670,703

PROCESS AND INSTALLATION FOR PRODUCING LIQUID FUELS AND RAW CHEMICALS

Simon Barendregt, Rhoon, and Jean Lucien Monfils, Noordwijk, both of Netherlands, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Germany

PCT No. PCT/DE91/00851, § 371 Date May 10, 1993, § 102(e) Date May 10, 1993, PCT Pub. No. WO92/07921, PCT Pub. Date May 14, 1992

PCT Filed Oct. 30, 1991, Ser. No. 50,169

Claims priority, application Germany, Nov. 14, 1991, 40 35 274.9

Int. Cl.⁶ C07C 5/03

U.S. Cl. 585—324

11 Claims

1. A process for refining crude petroleum, comprising the steps of: (a) generating refinery gas and liquid gas (LPG) and gasolines (C_3^*) by distilling the crude petroleum; (b) splitting the refinery gas, the liquid gas (LPG) and gasolines by fractionation into a gas flow and flows of higher hydrocarbons (C_3 , C_4 , C_5^*), the higher hydrocarbon flow containing C_4 components comprising n-butane, isobutane and isobutylene; (c) subjecting at least a portion of the higher hydrocarbon flow containing C_4 components together with a flow of one of methanol and ethanol to a catalytic reaction for producing one of tert-butyl methyl ether (MTBE) and tert-butyl ethyl ether (ETBE); (d) separating an unconverted portion of the n-butane containing C_4 components from the catalytic reaction; (e) subjecting said unconverted portion to isomerization for converting a part of the n-butane into isobutane;

(f) subjecting at least a part of the isobutane to thermal cracking for forming isobutylene and propylene; and (g) guiding at least a part of a product flow from the thermal cracking back to the splitting step.

5,670,704

SELECTIVE PRODUCTION OF 2,6-DIMETHYLNAPHTHALENE

Gary P. Hagen, West Chicago, Ill., and Deborah T. Hung, Cambridge, Mass., assignors to Amoco Corporation, Chicago, Ill.

Filed Jun. 26, 1990, Ser. No. 544,275

Int. Cl.⁶ C07C 15/12

U.S. Cl. 585—471

15 Claims

1. A method for producing 2,6-dimethylnaphthalene, comprising: reacting at least one of naphthalene or 2-methylnaphthalene as the feed in the liquid phase with a methylating agent selected from the group consisting of at least one, pentamethylbenzene or hexamethylbenzene at a level of from about 1 to about 10 moles of the methylating agent per mole of the feed, in the presence of a catalyst comprising a Lewis acid or Bronsted acid alkylation catalyst or mixture thereof that is more acidic than ferric chloride and at least as acidic as ferric bromide, at a level of from about 0.01 to about 1 mole of the catalyst (for red oil, based on the aluminum chloride content of the red oil) per mole of the feed and at a temperature in the range of from about -40° C. to about 80° C.

and all mutants, variants and derivatives thereof that produce mature ray florets having incurving such that the petal of the florets initially extend radially outwards from the center of the inflorescence and the distal ends of the petals then curve upwards and inwards towards the center of the inflorescence.

5,670,706

FUNGAL RESISTANT PLANTS, PROCESS FOR OBTAINING FUNGAL RESISTANT PLANTS AND RECOMBINANT POLYNUCLEOTIDES FOR USE THEREIN

Bernardus J. C. Cornelissen, Warmond; Leo Sjoerd Melchers, Leiden; Elisabeth J. S. Meulenhoff; Jeroen S. C. van Roekel, both of Amsterdam; Marianne Beatrix Sela-Buurlage, Amersfoort; Alexandra Aleida Vloemans, Leiden, all of Netherlands; Charles Peter Woloshuk, Lafayette, Ind.; John Ferdinand Bol, Oegstgeest, and Hubertus J. M. Linthorst, Leiden, both of Netherlands, assignors to MOGEN International, n.v., and Rijksuniversiteit te Leiden, both of Leiden, Netherlands

Division of Ser. No. 647,831, Jan. 29, 1991, abandoned. This

application Apr. 19, 1993, Ser. No. 47,413

Int. Cl.⁶ A01H 4/00; C12N 15/82

U.S. Cl. 800—200

9 Claims

1. Strains of *Gerbera jamesonii* resulting from the crossing of *Gerbera jamesonii* varieties Nobleflora subvar 'Royal Lady' as the female parent and Nobleflora subvar 'Venture' as the male parent

U.S. Cl. 800—205

30 Claims

1. A transgenic plant that has been transformed with and expresses an intracellular plant chitinase gene and a plant β -1,3-glucanase gene in at least one of the plant tissues.

ELECTRICAL

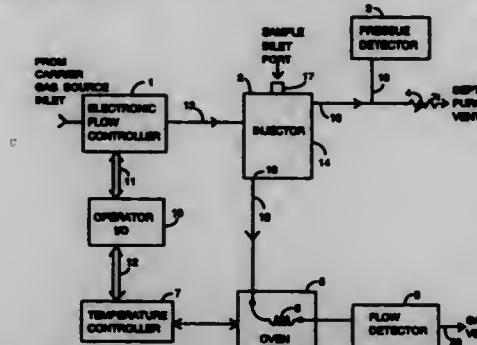
5,670,707 CALIBRATION METHOD FOR A CHROMATOGRAPHY COLUMN

Martin John Fennell, Fairfield, and Craig Clark Hodges, Walnut Creek, both of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.

Filed Nov. 1, 1996, Ser. No. 743,450
Int. Cl. G01N 30/10

U.S. Cl. 73-1 G

8 Claims



1. A method for performing chromatography, said method comprising:

- installing a chromatography column to be calibrated into a computer controlled chromatography system, said computer controlled chromatography system including an injector and memory and temperature controller and flow controller means to establish and maintain both selected column temperature and selected fluid flow rate in said column and further including a pressure detector for providing a reading of the pressure at the head of said column, and a flow controller meter for providing said injector with fluid flow rate adjustments;
- determining the ratio

$$\frac{d^4}{L}$$

of said column, said step of determining the ratio including

- establishing a first stable temperature TC1 in said column, and establishing a first column head pressure P1 and recording the first column flow Q1;
- carrying out said step (i) n times;
- computing an average

$$\frac{d^4}{L}$$

for said column at said first temperature TC1 by solving for

$$\frac{d^4}{L}$$

the column flow equation and inserting said values P1, Q1 and Pn, Qn into said equation as follows

$$\left[\frac{d^4}{L} \right]_1 = \frac{Q_1}{\frac{\pi}{256} \rho_s \frac{T_s}{T_{c1}} \frac{[(P_1)^2 - (P_0)^2]}{P_s} \frac{1}{U_{Tc1}}}$$

and

$$\left[\frac{d^4}{L} \right]_n = \frac{Q_n}{\frac{\pi}{256} \rho_s \frac{T_s}{T_{c1}} \frac{[(P_n)^2 - (P_0)^2]}{P_s} \frac{1}{U_{Tc1}}}$$

where n is a positive, real integer greater than zero,
(iv) determining the average

$$\left[\frac{d^4}{L} \right]_{avr} = \frac{\left(\frac{d^4}{L} \right)_1 + \dots + \left(\frac{d^4}{L} \right)_n}{(n)}$$

(c) installing said

$$\left(\frac{d^4}{L} \right)_{avr}$$

into said memory of said computer controlled chromatography system where

- Q=column mass flow rate
- UTC=gas viscosity at specified column temperature
- Tc=column temperature (Kelvin)
- Ts=standard temperature (Kelvin)
- ps=density of carrier gas at standard temperature and pressure
- d=column internal diameter
- L=column length
- Pi=inlet pressure (PSIA)
- Po=outlet pressure (PSIA)
- Ps=standard ambient pressure(PSIA)
- $\pi=3.141592654$
- Tc1=column temperature in step i
- P1=column inlet head pressure in step i
- Tc2=second column temperature
- P2&Pn=column inlet head pressure in steps (ii) and (iii) respectively; and

(d) carrying out chromatography runs by injected sample into said column and employing said calibrated

$$\left(\frac{d^4}{L} \right)_{avr}$$

in providing column inlet set point pressures.

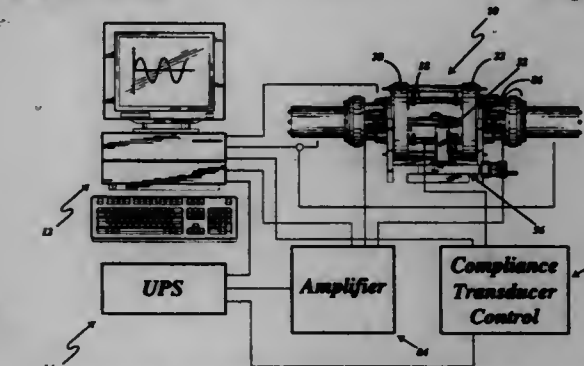
5,670,708 HIGH FREQUENCY INTRAVASCULAR PROSTHESIS FATIGUE TESTER

Kent Vilendrer, Eden Prairie, Minn., assignor to Endura-Tec Systems Corporation, Eden Prairie, Minn.

Filed Apr. 2, 1996, Ser. No. 626,486
Int. Cl. G01M 19/00

U.S. Cl. 73-37

11 Claims



1. A device for measuring compliance conditions of a prosthesis under simulated physiologic loading conditions, comprising:

- a fluid conduit having a channel extending therethrough between a first and second end, wherein the channel is adapted for containing at least one prosthesis therein;
- a first linear driven pump attached to the first end of said conduit and a second linear driven pump attached to the second end of said conduit, wherein said first and second linear driven pumps displace a fluid contained within said conduit;
- a plurality of transducers coupled to said fluid conduit to thereby measure a plurality of predetermined conditions within said fluid conduit; and
- a microprocessor-based controller interconnected with said first and second linear driven pumps and said plurality of transducers, whereby the microprocessor-based controller adjusts a pulse frequency of the first and second linear driven pumps to thereby servo simulate physiologic loading conditions on the prosthesis within the fluid conduit.

5,670,709

TRANSDUCER FOR THE MEASUREMENT OF ATTRIBUTES OF FLOWABLE MEDIA

John G. Gallagher, 77 Town Street, Malton, North Yorkshire, England, YO17 9HB
PCT No. PCT/GB93/02453, § 371 Date Jul. 20, 1995, § 102(e)
Date Jul. 20, 1995, PCT Pub. No. WO94/14047, PCT Pub. Date Jun. 23, 1994

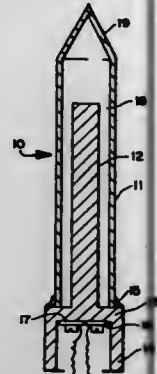
PCT Filed Nov. 29, 1993, Ser. No. 448,362

Claims priority, application United Kingdom, Dec. 12, 1992, 9225983

Int. Cl.⁶ G01N 11/10

U.S. Cl. 73—54.24

20 Claims



1. Apparatus for the measurement of attributes of flowable media including a resonator comprising a first and a second vibratile cantilever beam element, each extending from a common root and forming a vibrating system with a natural frequency dependent on the mass and stiffness of said first and second vibratile cantilever beam elements; the torque moments of said first and second vibratile cantilever beam elements on said common root being practically equal; said first vibratile cantilever beam element including a tube defining a chamber; and said second vibratile cantilever beam element being disposed within said chamber.

5,670,710

FLUID QUANTITY GAUGING SYSTEMS

Harry Atkinson, Wokingham, England, assignor to Smiths Industries PLC, London, England

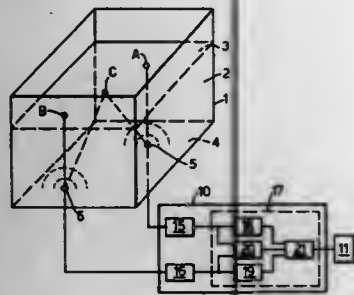
Filed Sep. 19, 1996, Ser. No. 716,622

Claims priority, application United Kingdom, Oct. 4, 1995, 9520235.4

Int. Cl.⁶ G01N 13/20

U.S. Cl. 73—61.45

13 Claims



1. A fluid gauging system for gauging the height of an interface of variable height and attitude between two fluids of differing acoustic properties in a container, the system comprising: a first acoustic transducer arranged to propagate diverging acoustic energy towards the interface and to receive acoustic energy from said first transducer reflected from a first region of the interface; a second acoustic transducer spaced from said first transducer and arranged to propagate diverging acoustic energy towards said inter-

face and to receive acoustic energy from said second transducer reflected from a second region of the interface spaced from said first region, said first transducer being arranged to receive acoustic energy from said second transducer reflected from a third region of said interface spaced from the first and second regions, and said system including means for calculating the height of each of said first, second and third regions from the acoustic energy received by said first and second transducers and for calculating the quantity of a fluid in said container between said transducers and said interface utilizing the calculated heights of each of said first, second and third regions.

5,670,711

PORTABLE ROCK STRENGTH EVALUATION DEVICE

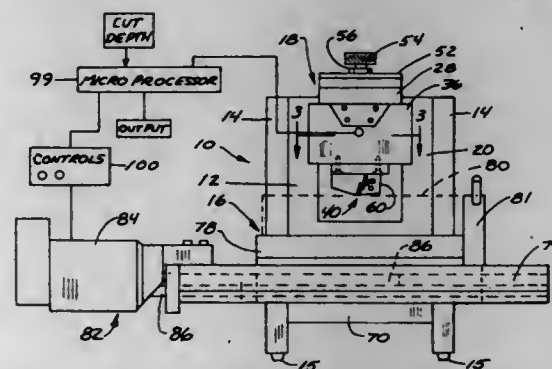
Emmanuel Detournay, Roseville; Andrew Drescher, New Brighton, and David A. Hultman, Cambridge, all of Minn., assignors to Regents of the University of Minnesota, Minneapolis, Minn.

Filed Mar. 8, 1996, Ser. No. 613,016

Int. Cl.⁶ G01N 3/00

U.S. Cl. 73—84

9 Claims



1. A rock strength evaluation device including a frame, a cutter support on the frame, having a cutter thereon, a rock sample support on the frame, at least one of the cutter support and rock sample support being movable in a displacement direction relative to the other with the cutter engaging a rock sample on the rock sample support, the cutter having a flat face trailing an edge defined by a surface of the cutter first engaging a rock sample as relative movement occurs and the flat face, the flat face forming a shallow angle inclined upwardly toward the edge to cause rock from the rock sample to form a boundary layer of powdered rock as relative displacement occurs.

5,670,712

METHOD AND APPARATUS FOR MAGNETIC FORCE CONTROL OF A SCANNING PROBE

Jason Cleveland; Paul Hansma, both of Santa Barbara, Calif., and William Ducker, Dunedin, New Zealand, assignors to The Regents of the University of California, Alameda, Calif.

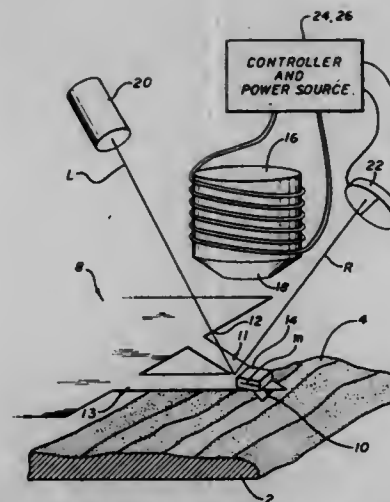
Filed Aug. 15, 1994, Ser. No. 290,091

Int. Cl.⁶ G01B 5/28

U.S. Cl. 73—105

49 Claims

1. A method of magnetic force control for a scanning probe, comprising the steps of:
disposing a first magnetic source on said scanning probe, said first magnetic source having a magnetic moment along a first predetermined direction;
disposing a second magnetic source external to said scanning probe to apply a magnetic field from said second magnetic source to said first magnetic source in a direction substantially perpendicular to said first direction so as to produce a torque



acting on said scanning probe related to the amplitude of the applied magnetic field.

5,670,713

APPARATUS AND METHOD FOR RECOGNIZING MISFIRE OCCURRENCE IN MULTI-CYLINDER INTERNAL COMBUSTION ENGINE

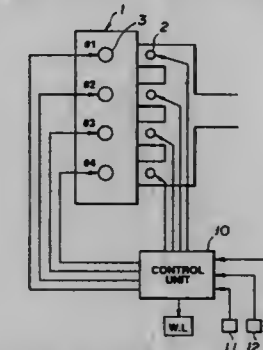
Kenichi Machida, Isesaki, Japan, and Klaus Ries-Muller, Bad Rappenau, Germany, assignors to Unisia Jecs Corporation, Atsugi, Japan, and Robert Bosch GmbH, Stuttgart, Germany

Filed Mar. 22, 1996, Ser. No. 620,334

Claims priority, application Japan, Mar. 22, 1995, 7-063048
Int. Cl.⁶ F02P 17/00; G01M 15/00

U.S. Cl. 73—116

13 Claims



1. A misfire recognizing apparatus for a multi-cylinder internal combustion engine, comprising:
a) a reference signal generating sensor for generating and outputting a reference signal (REF) for each predetermined crank angle rotation of an engine crankshaft, which angle rotation is expressed by $720^\circ/n$, where n denotes a number of engine cylinders within the engine, and said reference signal including a cylinder number identifying signal indicative of one of the engine cylinders;
b) a second sensor for detecting an engine driving condition other than an engine revolution speed; and
c) a control unit including:
d) period measuring means for measuring a period of the reference signal for each predetermined crank angle rotation, the reference signal period corresponding to a combustion state of a corresponding one of the engine cylinders;
e) misfire occurrence determining means for determining a presence or absence of misfire in each cylinder based on the measured period of the reference signal for the corresponding one of the engine cylinders;
f) first determining means for determining whether a fuel supply to the engine is cut off or carried out based on the detected engine driving condition;

g) first correction coefficient setting means for setting a first correction coefficient (K_{T_i} , where $i=1$ to n in increments of 1) for each measured period of the reference signals so that stepwise variations (ΔT) in the periods of the reference signals consecutively measured for all of the cylinders are mutually equal to one another when said first determining means determines that the fuel supply to the engine is cut off;
h) second determining means for determining whether the misfire occurrence determining means has determined the absence of misfire in any of the engine cylinders; and
i) second correction coefficient determining means for setting a second correction coefficient ($K_{K_{T_i}}$, where $i=1$ to n in increments of 1) for each measured period of the reference signals so that the respective periods of the reference signals for all of the engine cylinders, which are corrected according to the first correction coefficients set by the first correction coefficient setting means, are equal to an average value (T_{AVE}) of the respective periods of the reference signals when the first determining means determines that the fuel supply to the engine is carried out and when said second determining means determines that the misfire occurrence determining means has determined the absence of misfire in any of the engine cylinders,
wherein said misfire occurrence determining means comprises:
j) correction means for correcting the periods of the respective reference signals continuously measured for all of the engine cylinders according to either or both of the first and second correction coefficients set by said first and second correction coefficient setting means and said misfire occurrence determining means determines the absence or presence of misfire in any engine cylinder based on the corrected periods of the reference signals by said correction means.

5,670,714

AIR-POLLUTION REDUCTION METHOD AND SYSTEM FOR THE INTERIOR OF AN AUTOMOBILE

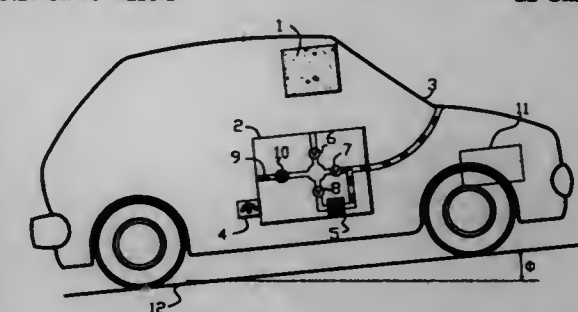
Jens O. Sorensen, P.O. Box 221, North Side, Water Cay, Cayman KAI, Grand Cayman, Cayman Islands

Filed Mar. 27, 1996, Ser. No. 625,408

Int. Cl.⁶ B60H 1/00

U.S. Cl. 73—118.1

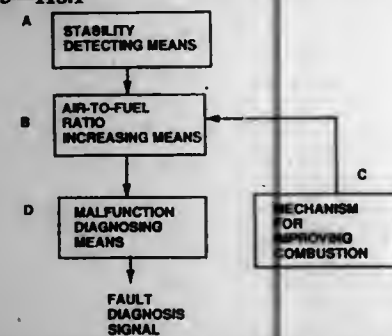
22 Claims



1. A method of reducing the level of air pollution in the interior of a vehicle, the vehicle having a detection system for detecting one or more conditions and an air intake system leading to the interior, the air intake system having means for controlling the air intake based on the detection of the one or more conditions, the method comprising the steps of:
(a) detecting said one or more conditions; and
(b) automatically controlling air intake to said interior of the vehicle in response to such detection;
characterized by said one or more detected conditions including:
i) when there is an object in front of the vehicle, a representation of the distance to such object; and
ii) when there is no object in front of the vehicle, a representation of such fact.

5,670,715
METHOD OF DIAGNOSING A MECHANISM FOR IMPROVING COMBUSTION IN AN INTERNAL COMBUSTION ENGINE AND APPARATUS THEREFOR
 Naoki Tomisawa, Atsugi, Japan, assignor to Unisia Jecs Corporation, Kanagawa-ken, Japan

Filed Jul. 19, 1996, Ser. No. 684,361
 Claims priority, application Japan, Jul. 28, 1995, 7-193297
 Int. Cl.⁶ F02D 41/34; F02M 29/06; G01M 15/00
 U.S. Cl. 73—118.1 18 Claims



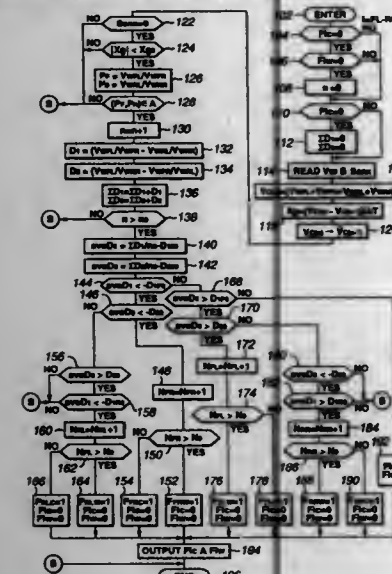
1. A method of diagnosing a mixture leaning mechanism in an internal combustion engine, said mixture leaning mechanism including an operation unit operated by an actuator and controlling supply of a combustion component to the internal combustion engine by means of said operation unit to achieve combustibility improvement, comprising the steps of:
 gradually increasing an air-to-fuel ratio of the combustion mixture gas under a condition where the combustibility is to be improved by said mixture leaning mechanism, until stability of the engine reaches a previously set allowable limit, and, outputting a fault diagnosis signal indicating the occurrence of malfunctioning in said mixture leaning mechanism when said air-to-fuel ratio is equal to or smaller than a reference air-to-fuel ratio at a moment when the allowable limit is reached.

5,670,716
TIRE AIR PRESSURE DROP DETECTING SYSTEM
 Tadashi Tamasho; Shuji Torii, both of Yokohama, and Mitsuhiro Makita, Yokosuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Feb. 8, 1996, Ser. No. 598,270
 Claims priority, application Japan, Feb. 17, 1995, 7-029735
 Int. Cl.⁶ B60C 23/02 33 Claims

U.S. Cl. 73—146.2 33 Claims

1. A system for use with an automotive vehicle supported on



heating said pair of electrodes to minimize the effects of temperature variations;
producing a charging current of constant magnitude and charging the capacitor to a predetermined voltage; and
detecting the time of start of said constant current and the time at which the capacitor has been charged to said predetermined voltage and producing a pulse width modulated signal, the magnitude of said pulse width modulated signal being indicative of a charging time, said charging time defined as the time between the start of said constant current and the time at which the capacitor has been charged to said predetermined voltage and being indicative of the pressure of the liquid flowing through the container, a magnitude of said charging current chosen to minimize the effects of other parameters on said charging time.

5,670,722
MOUNTING ASSEMBLY FOR A PRESSURE TRANSMITTER

Thomas M. Moser, Minneapolis; Charles R. Dolezalek, Blaine; Michael B. Jost, Savage, and Mark H. Olson, Minneapolis, all of Minn., assignors to Rosemount Inc., Eden Prairie, Minn.

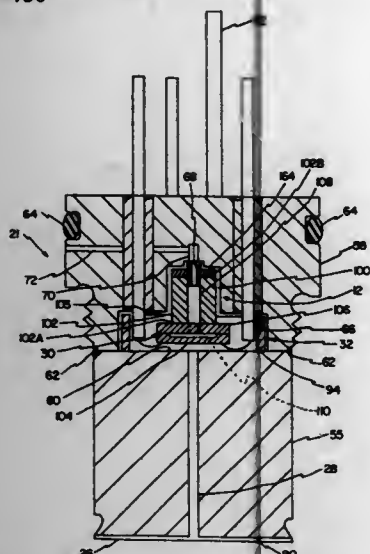
Continuation of Ser. No. 430,743, Apr. 28, 1995, abandoned.

This application Oct. 9, 1996, Ser. No. 727,280

Int. Cl.⁶ G01L 7/00; 9/12

U.S. Cl. 73—756

4 Claims



1. A mounting assembly for a pressure sensor in a pressure transmitter, the mounting assembly comprising:

- a header having a cavity opening to a first surface and a first recess formed in the header above the first surface, wherein the first recess has a width greater than that of the cavity, the cavity being defined by an inner surface and an inner sidewall, the header further having a second recess opening to the inner surface;
- a support formed from a first material having a first support end, a second support end and a center section having a surface spaced apart from and facing the inner surface, the center section having a width greater than that of the first support end or the second support end, wherein the first support end is received in the second recess and joined to surfaces forming the second recess and wherein an outer surface of the center section is spaced apart from and conforms to corresponding portions of the inner sidewall of the cavity facing the outer surface of the center section;
- a pedestal formed from a second material having a first pedestal end disposed in the first recess for supporting the pressure sensor and a second pedestal end joined to the second support end, the second pedestal end having an aperture for receiving the second support end, wherein the second pedestal end has a

width matching the width of the center section, wherein an outer surface of the pedestal is spaced apart from and conforms to corresponding portions of the inner sidewall of the cavity facing the outer surface of the pedestal and wherein the pedestal and the support substantially fill the cavity; and
a spacer disposed in the first recess.

5,670,723
ISOLATED LINER FOR AN ELECTROMAGNETIC FLOWMETER

Henning Max Hansen, Sønderborg; Hans Jørgen Pedersen, Nordborg; Frands Wulff Voss, and Niels Gade, both of Sønderborg, all of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

PCT No. PCT/DK94/00308, § 371 Date Feb. 27, 1996, § 102(e) Date Feb. 27, 1996, PCT Pub. No. WO95/05579, PCT Pub. Date Feb. 23, 1995

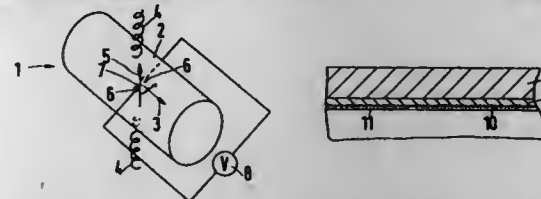
PCT Filed Aug. 17, 1994, Ser. No. 601,008

Claims priority, application Germany, Aug. 19, 1993, 43 27 876.0

Int. Cl.⁶ G01F 1/58

U.S. Cl. 73—861.12

15 Claims



1. An isolated liner for an electromagnetic flowmeter having a metallic measuring tube made of a non-magnetic material, a set of magnetic coils for generating a magnetic field in a direction substantially at right angles to the direction of flow, an electrode arrangement which is arranged substantially at right angles to the direction of the magnetic field and substantially at right angles to the direction of flow, and an electrical insulator located on an inner surface of the measuring tube, said insulator being constituted by a surface layer of metal oxide or metal nitride having a thickness of more than 10 μm on the inner surface of the measuring tube.

5,670,724
APPARATUS FOR SENSING LIQUID FLOW AND PRESSURE IN A CONDUIT AND ASSOCIATED METHODS

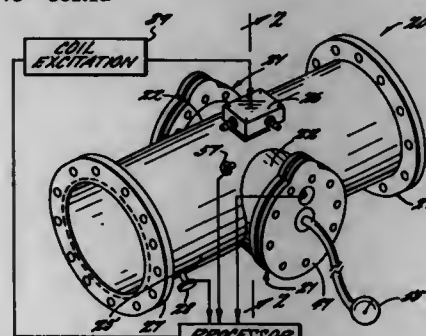
Robert H. Batey, Apollo Beach, Fla., assignor to AMJ Equipment Corporation, Lakeland, Fla.

Filed May 1, 1996, Ser. No. 641,614

Int. Cl.⁶ G01F 1/58

U.S. Cl. 73—861.12

45 Claims



1. A liquid sensing apparatus comprising:
a conduit for carrying a liquid flow, said conduit having an opening in a wall portion thereof; and
liquid sensor means positioned in the opening in said conduit for sensing liquid flow rate and liquid pressure within said conduit, said liquid sensor means comprising

a housing comprising a liquid contacting portion extending generally parallel to an axis of said conduit and being positioned to extend into an interior of said conduit, said liquid contacting portion comprising a pressure responsive diaphragm.

liquid pressure sensing means operatively connected to said pressure responsive diaphragm for sensing liquid pressure, an electromagnetic coil positioned in said housing for generating a magnetic field within the liquid flow, and
a pair of spaced apart electrodes being exposed on the liquid contacting portion for generating a signal related to the liquid flow rate.

5,670,725

APPARATUS FOR DIVIDING WIRE COILS

Yoshio Kato, and Hirozi Itoh, both of Aichi-ken, Japan, assignors to Daido Steel Co., Ltd., Nagoya, Japan

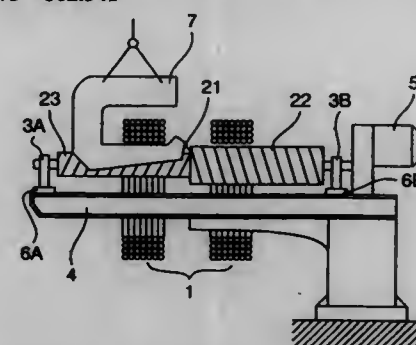
Division of Ser. No. 546,039, Oct. 20, 1995, Pat. No. 5,582,097.

This application Sep. 18, 1996, Ser. No. 718,742

Int. Cl.⁶ G01L 1/00

U.S. Cl. 73—862.541

7 Claims



1. An apparatus for dividing wire coils comprising:

- a double screw rod on which two screws of reverse directions of thread are facing in opposite directions at the central turning point of the rod;
- bearings to rotatably support the screw rod at both the ends thereof;
- a bearing support of such a shape that is fixed to a bed frame at one end thereof and allows coming in and out of wire coils at the other end; and
- means for rotating the screw.

5,670,726

CERMET AND METHOD OF PRODUCING IT

Hans Kolaska, Bottrop, and Klaus Dreyer, Essen, both of Germany, assignors to Widia GmbH, Essen, Germany

PCT No. PCT/DE94/00048, § 371 Date Sep. 1, 1995, § 102(e)

Date Sep. 1, 1995, PCT Pub. No. WO94/21835, PCT Pub. Date Sep. 29, 1994

PCT Filed Jan. 22, 1994, Ser. No. 507,442

Claims priority, application Germany, Mar. 23, 1993, 43 09 261.6; Dec. 24, 1993, 43 44 576.4

Int. Cl.⁶ C22C 29/02; B22F 3/12

U.S. Cl. 75—237

15 Claims

1. Cermet with a hard material phase containing (Ti,W,Ta/Nb)C and (Ti,W,Ta/Nb)CN, the balance a binder phase with a proportion of

>5% by mass of Co and/or Ni, characterized by a gross composition of 30 to 60% by mass Ti, 5 to 20% by mass W, 5 to 11% by mass Ta which can be replaced up to 70% by Nb, 5 to 25% by mass Ni and/or Co, with more than 80% mole—relative to the abovementioned Ti, W, Ta, and/or Nb, of carbon and nitrogen, which has been prepared from a solid powdery starting mixture with 15 to 45% by mass (Ti,W,Ta)C and/or (Ti,W,Ta,Nb)C, 3 to 15% by mass WC, 5 to 25% by

mass Co and/or Ni, the balance Ti(C,N), each with a particle size <1.5 μ through grinding, pressing and sintering and which has at least 40% of hard material particles in the structure with a core-margin structure with cores of Ti(C,N), N>C and homogeneous marginal zones of (Ti,W,Ta/Nb)C, whereby the proportion of the hard material phase amounts to 95 to 75% by mass.

5,670,727

STRINGED INSTRUMENT PRACTICE BOW GUIDE

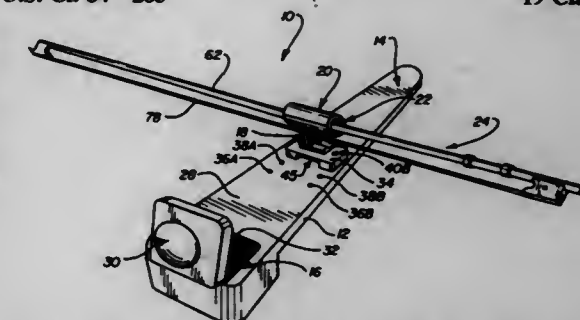
Xiaoda Xiao, 135 Belchertown Rd., Amherst, Mass. 01002

Filed May 14, 1996, Ser. No. 647,709

Int. Cl.⁶ G01D 1/02

U.S. Cl. 84—283

19 Claims



1. A stringed instrument practice bow guide for assisting students of stringed instruments in learning proper bow movement of a bow of a stringed instrument, comprising:

- a. a board having a finger end and an opposed brace end;
- b. a frame secured to the board;
- c. a bow track means secured to the frame defining a bow passage for slidably securing the bow of the stringed instrument within the bow passage, the bow track means being pivotally secured to the frame so that the bow passage is in a fixed, right-angle relationship with respect to a longitudinal axis of the board and the bow passage adjustably pivots with respect to a transverse axis of the board; and
- d. a pivot arm extending between the bow track and the frame, the pivot arm defining a plurality of positioning notches within a notch cavity through which a frame, strut of the frame passes so that whenever the frame strut engages a first positioning notch a longitudinal axis of the bow passage is adjustably secured within a first guide contact plane and whenever the frame strut engages a second positioning notch, the longitudinal axis of the bow passage is adjustably secured within a second guide contact plane.

5,670,728

MUSICAL TONE CREATING APPARATUS FOR ELECTRONIC MUSICAL INSTRUMENT

Yoichiro Ogai, and Masahiro Shimizu, both of Hamamatsu, Japan, assignors to Yamaha Corporation, Japan

Filed May 9, 1995, Ser. No. 437,619

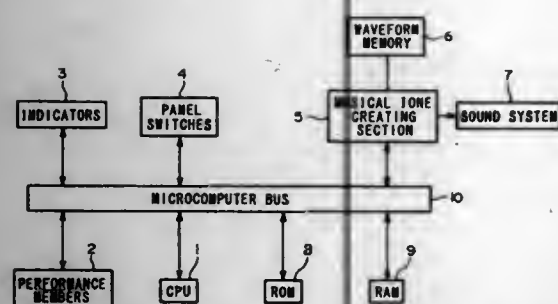
Claims priority, application Japan, May 10, 1994, 6-119677

Int. Cl.⁶ G10H 7/00

U.S. Cl. 84—607

18 Claims

1. A musical tone creating apparatus comprising:
a plurality of musical tone generation channels;
a waveform memory for storing waveform samples;
a program memory containing read programs for reading waveform samples from the waveform memory and corresponding creation programs for utilizing the read waveform samples to create musical tone signals; and
computation means for reading waveform samples for each designated tone generation channel from the waveform memory in accordance with a designated read program and creating a musical tone signal in association with the desig-



nated tone generation channel utilizing the read waveform samples in accordance with a corresponding creation program, wherein the computation means executes a designated read program in accordance with first timings and a corresponding creation program in accordance with second timings that are independent of the first timings with regard to the designated tone generation channels, and executes the designated read program prior to executing the corresponding creation program.

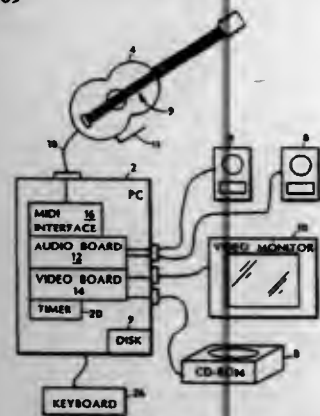
5,670,729 VIRTUAL MUSIC INSTRUMENT WITH A NOVEL INPUT DEVICE

Allan A. Miller, Hollis, and Vernon A. Miller, Mount Vernon, both of N.H., assignors to Virtual Music Entertainment, Inc., Andover, Mass.

Continuation-in-part of Ser. No. 177,741, Jan. 5, 1994, Pat. No. 5,491,297, which is a continuation-in-part of Ser. No. 73,128, Jun. 7, 1993, Pat. No. 5,393,926. This application May 11, 1995, Ser. No. 439,435
Int. Cl.⁶ G10H 1/26; 3/06

U.S. Cl. 84—609

16 Claims



1. A virtual musical instrument comprising:
 - a hand-held accessory of a type that is intended to be brought into contact with a musical instrument so as to play that instrument, said hand-held accessory including a switch which, in response to said hand-held accessory being caused to strike another object by a person holding said hand-held accessory, generates an activation signal;
 - an audio synthesizer;
 - a memory storing a sequence of notes data structures for a musical score, each of said notes data structures representing a note or notes within said musical score and having an identified location in time relative to the other notes in said sequence of notes data structures;
 - a timer; and
 - a digital processor receiving said activation signal from said hand-held accessory and generating a control signal therefrom, said digital processor programmed to use said timer to measure a time at which said activation signal is generated,

said digital processor programmed to use said measured time to select one of the notes data structures within said sequence of notes data structures, and
said digital processor programmed to generate said control signal, wherein said control signal causes said synthesizer to generate the note(s) represented by said selected notes data structure.

5,670,730 DATA PROTOCOL AND METHOD FOR SEGMENTING MEMORY FOR A MUSIC CHIP

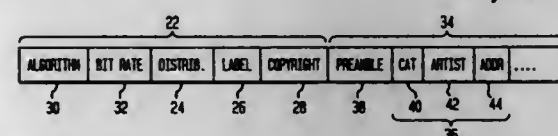
Anthony James Grewe, Holmdel, and Kevin Alan Shelby, Red Bank, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 22, 1995, Ser. No. 447,321

Int. Cl.⁶ G10H 1/26

U.S. Cl. 84—609

35 Claims



31. A method of segmenting memory in an integrated circuit chip, said integrated circuit chip adapted for use in an audio player and said memory having pre-recorded audio stored therein, said method comprising the steps of:
 - storing in a global header parameters corresponding to encoding techniques used in storing said pre-recorded audio in memory; and
 - coding in at least one individual header data fields indicative of general description information for individual tracks of said pre-recorded audio.

5,670,731 AUTOMATIC PERFORMANCE DEVICE CAPABLE OF MAKING CUSTOM PERFORMANCE DATA BY COMBINING PARTS OF PLURAL AUTOMATIC PERFORMANCE DATA

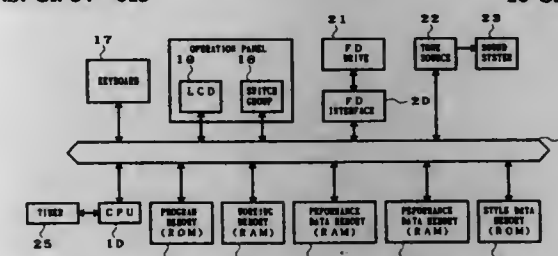
Tsutomu Imaizumi, Hamamatsu, Japan, assignor to Yamaha Corporation, Japan

Filed May 31, 1995, Ser. No. 455,511

Claims priority, application Japan, May 31, 1994, 6-118273
Int. Cl.⁶ G10H 1/38

U.S. Cl. 84—613

16 Claims



1. An automatic performance device comprising:
 - performance data storage means for storing a plurality of different kinds of automatic performance data;
 - custom performance information storage means for storing designation information for designating a plurality of selected portions of said automatic performance data, said custom performance information storage means storing a plurality of said designation information in combination in a desired order;
 - first readout means for sequentially reading out the designation information from said custom performance information storage means for a reproductive performance; and
 - second readout means for reading out said plurality of selected portions of the automatic performance data designated by the

designation information read out from said first readout means, whereby an automatic performance of said plurality of selected portions of the automatic performance data is provided in sequential combination.

5,670,732 MIDI DATA TRANSMITTER, RECEIVER, TRANSMITTER/RECEIVER, AND MIDI DATA PROCESSOR, INCLUDING CONTROL BLOCKS FOR VARIOUS OPERATING CONDITIONS

Naoto Utsumi; Kuninori Ohuchi; Kikuro Yamauchi, and Haruhiko Matsui, all of Shizuoka-ken, Japan, assignors to Kabushiki Kaisha Kawai Gakki Seisakusho, Shizuoka-ken, Japan

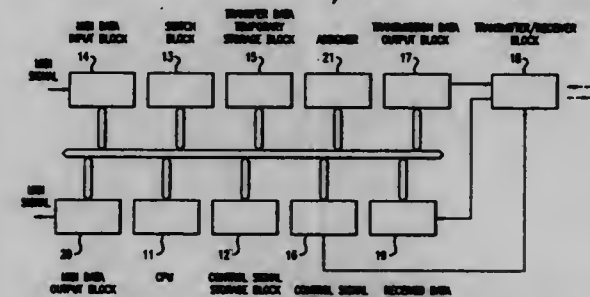
Filed May 26, 1995, Ser. No. 452,173

Claims priority, application Japan, May 26, 1994, 6-138278; May 26, 1994, 6-138279; May 26, 1994, 6-138280; Jun. 14, 1994, 6-155267; Jun. 16, 1994, 6-158108; Jan. 13, 1995, 7-021233; Jan. 13, 1995, 7-021234

Int. Cl.⁶ G10H 1/00

U.S. Cl. 84—645

19 Claims



1. In a MIDI data transmitter/receiver for a MIDI instrument which delivers MIDI data for transmitting performance information, including:
 - radio means connected to the MIDI instrument for transmitting and/or receiving a radio signal modulated by the MIDI data, an unlock-type switch for setting operating conditions of said radio means, operating conditions-setting means for setting said operating conditions based on a switch signal of said unlock-type switch, and a control block for controlling said radio means according to said set operating conditions, the improvement comprising a lock-type setting switch for setting initial operating conditions of said radio means, wherein said control block controls said radio means based on said initial operating conditions set by said lock-type setting switch, when the power is turned on.

5,670,733 MUSICAL INSTRUMENT TRANSDUCER

Lawrence R. Fishman, 76 Grove St., West Medford, Mass. 02155

Continuation-in-part of Ser. No. 227,074, Apr. 13, 1994, Pat. No. 5,463,185, which is a division of Ser. No. 887,175, May 21, 1992, Pat. No. 5,319,153, which is a division of Ser. No. 642,398, Jan. 17, 1991, Pat. No. 5,155,285, which is a continuation-in-part of Ser. No. 552,984, Jul. 16, 1990, Pat. No. 5,029,375, which is a continuation-in-part of Ser. No. 251,570, Sep. 30, 1988, Pat. No. 4,944,209, which is a continuation-in-part of Ser. No. 876,238, Jun. 19, 1986, Pat. No. 4,774,867, which is a continuation-in-part of Ser. No. 856,189, Apr. 28, 1986, abandoned. This application Jun. 7, 1995, Ser. No. 485,868
Int. Cl.⁶ G10H 3/18

U.S. Cl. 84—731

16 Claims

1. A transducer assembly for a stringed musical instrument comprising:
 - an elongated transducer;



- a flexible conductive member conductively contacting a first surface on the elongated transducer, the flexible conductive member extending beyond the elongated transducer in a direction perpendicular to the first surface to form a conductive lead portion;
- a flexible conductive ground member encircling the flexible conductive member and elongated transducer, the ground member being electrically insulated from the conductive member and a portion of the ground member encircling the conductive lead portion forming a ground lead portion.

5,670,734 MODULAR ARMOR MOUNTING SYSTEM

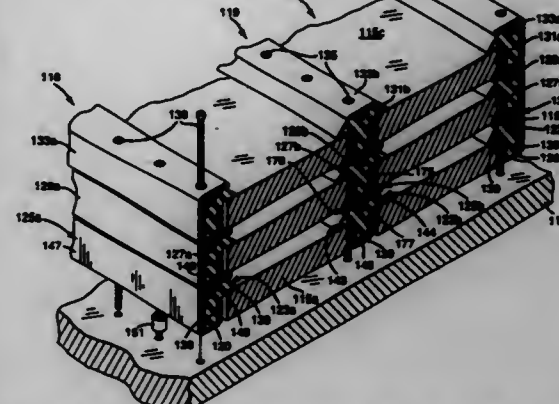
Mark Albert Middleton, Scotts Valley; Ron Eugene Musante, Los Altos, and James Robert Turner, Campbell, all of Calif., assignors to United Defense, L.P., Arlington, Va.

Filed Oct. 5, 1994, Ser. No. 321,001

Int. Cl.⁶ F41H 5/00

U.S. Cl. 89—36.08

3 Claims



1. An apparatus for mounting armor panels on a hull, comprising:
 - a first elastomeric clamp along a first side of an armor panel, wherein the first elastomeric clamp, comprises:
 - a base;
 - a first wing on one side of the base and adjacent to the first side of the armor panel, wherein the wing is a wedge shape; and
 - a second wing on a second side of the base and along a first side of a second armor panel, wherein the second wing is wedge shape;
 - a first cap strip with a top part, wherein the first elastomeric clamp is between the hull and the first cap strip; means mechanically connecting the first cap strip to the hull and for providing a force on the first cap strip towards the hull and compressing the first elastomeric clamp;

a second elastomeric clamp along a second side of the armor panel, wherein the second elastomeric clamp, comprises:

a base; and
a wing on one side of the base and adjacent to the second side of the armor panel, wherein the wing is wedge shape;

a second cap strip with a top part, wherein the second elastomeric clamp is between the hull and the second cap strip, wherein the top of the first wing of the first elastomeric clamp is curved, and wherein the part of the first cap adjacent to the top of the first wing of the first elastomeric clamp is curved with a radius of curvature greater than the radius of curvature of the top of the first wing of the first elastomeric clamp, and wherein the top of the second wing of the first elastomeric clamp is curved, and wherein the part of the first cap adjacent to the top of the second wing of the first elastomeric clamp is curved with a radius of curvature greater than the radius of curvature of the top of the second wing of the first elastomeric clamp with the first cap forming a T-shape, and wherein the top of the wing of the second elastomeric clamp is curved, and wherein the part of the second cap adjacent to the top of the wing of the second elastomeric clamp is curved with a radius of curvature greater than the radius of curvature of the top of the wing of the second elastomeric clamp;

means mechanically connecting the second cap strip to the hull and for providing a force on the second cap strip towards the hull and compressing the second elastomeric clamp;

a third elastomeric clamp along a second side of the second armor panel, wherein the third elastomeric clamp, comprises:

a base; and
a wing on one side of the base and adjacent to the second side of the second armor panel, wherein the wing is wedge shape;

a third cap strip with a top part, wherein the third elastomeric clamp is between the hull and the third cap strip;

means mechanically connecting the third cap strip to the hull and for providing a force on the third cap strip towards the hull and compressing the third elastomeric clamp;

a fourth elastomeric clamp along a first side of a third armor panel and a first side of a fourth armor panel, wherein the first elastomeric clamp, comprises:

a base;
a first wing on a first side of the base and adjacent to the first side of the third armor panel, wherein the first wing is wedge shape; and
a second wing on a second side of the base and adjacent to the first side of the fourth armor panel, wherein the second wing is wedge shape;

a fourth cap strip with a top part, wherein the fourth elastomeric clamp is between the first cap strip and the fourth cap strip;

means mechanically connecting the fourth cap strip to the first cap strip and for providing a force on the fourth cap strip towards the first cap strip and compressing the fourth elastomeric clamp;

a fifth elastomeric clamp along a second side of the third armor panel, wherein the fifth elastomeric clamp, comprises:

a base; and
a wing on one side of the base and adjacent to the second side of the third armor panel, wherein the wing is wedge shape;

a fifth cap strip with a top part, wherein the fifth elastomeric clamp is between the fifth cap strip and the second cap strip;

means mechanically connecting the fifth cap strip to the second cap strip and for providing a force on the fifth cap strip towards the second cap strip and compressing the fifth elastomeric clamp;

a sixth elastomeric clamp along a second side of the fourth armor panel, wherein the sixth elastomeric clamp, comprises:

a base; and
a wing on one side of the base and adjacent to the second side of the fourth armor panel, wherein the wing is wedge shape;

a sixth cap strip with a top part, wherein the sixth elastomeric clamp is between the sixth cap strip and the third cap strip;

and

means mechanically connecting the sixth cap strip to the third cap strip and for providing a force on the sixth cap strip towards the third cap strip and compressing the sixth elastomeric clamp.

5,670,735

PROPELLANT IGNITING SYSTEM AND METHOD OF MAKING THE SAME

Helmut Ortmann, Duisburg; Günter Frye, Erkrath; Rainer Böhm, Fassberg, and Manfred Lübken, Celle, all of Germany, assignors to Rheinmetall Industrie GmbH, Ratingen, Germany

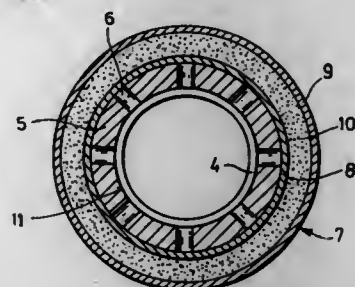
Filed Dec. 22, 1995, Ser. No. 577,393

Claims priority, application Germany, Dec. 22, 1994, 44 45 991.2

Int. Cl.⁶ F42C 19/085

U.S. Cl. 102—202

26 Claims



1. An igniting system for a projectile propellant, comprising:
 - (a) a combustible support tube having an outer surface and an inner surface;
 - (b) a plurality of throughgoing apertures provided in said support tube;
 - (c) a free igniting channel coaxially surrounded by said support tube; and
 - (d) an ignition transfer charge formed of a pyrotechnical hard foam layer having a thickness between 1 and 3 mm and being carried on said outer surface of said support tube; said hard foam layer including a large-pore inner layer sandwiched between surface layers of densely closed structure.

5,670,736

PRIMING SYSTEM FOR THE EXPLOSIVE CHARGE OF A SUBMUNITION ON BOARD A CARRIER

Patrice Chemiere, La Chapelle Saint Ursin, and Jean-Paul Dupuy, Bourges, both of France, assignors to Giat Industries, Versailles, France

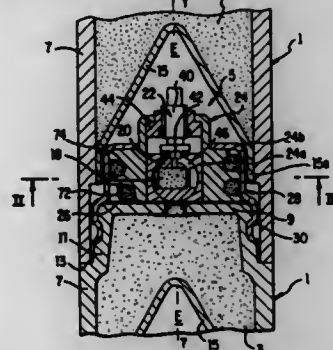
Filed Jul. 19, 1996, Ser. No. 684,092

Claims priority, application France, Jul. 27, 1995, 95.09140

Int. Cl.⁶ F42C 9/04

U.S. Cl. 102—254

9 Claims



1. A priming system for an explosive charge of a sub-munition carried on board a carrier of a plurality of sub-munitions, comprising:

a main firing pin operative for translating;

a movable primer tube driven by a motor element from a safety position in which a primer is not aligned with the firing pin and the explosive charge to an armed position in which the primer is aligned with the firing pin and the explosive charge; at least two locking devices for locking the primer tube in a safety position before the sub-munition is ejected from the carrier; and

a self-destruct mechanism to destruct the sub-munition after a pre-determined delay whereby a first one of the locking devices is formed of a pivotally movable cam driven by a cam motor element from a cam safety position in which the first locking device forms a limit stop preventing the primer tube from moving into the armed position, to a retracted position allowing the primer tube to move into the armed position, the first locking device comprising means to immobilize the cam in the cam safety position, said means operative to release after the sub-munition is ejected from the carrier, the cam including an auxiliary firing pin which ignites a delay cord of the self-destruct mechanism when the cam is in the retracted position after the sub-munition has been ejected.

5,670,737

BREAKING UP OF ROCK AND THE LIKE

Johann Mey, Parow, South Africa, assignor to Denel (Proprietary) Limited, Cape Town, South Africa

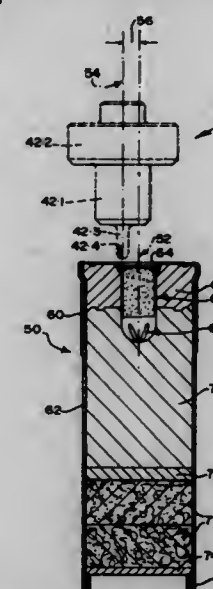
Filed Dec. 12, 1994, Ser. No. 353,885

Claims priority, application South Africa, Dec. 14, 1993, 93/9372

Int. Cl.⁶ F42D 3/00; F42B 5/32; B25C 1/08

U.S. Cl. 102—302

2 Claims



1. A combination of an impulse generating tool for use in breaking up rock, boulders, concrete in mining and general construction and a gas discharge cartridge loaded with a gas producing propellant which can be fired by the impulse generating tool,

said impulse generating tool comprising barrel means defining an opening for an unobstructed flow of gases discharged from the cartridge and for conveyance of said discharged gases unobstructed to fluid contained in said rock, boulders or concrete for creating shock waves in the fluid, said barrel means including a barrel which is unobstructed freely to pass the discharged gases, a breech body defining a cartridge chamber for holding the gas discharge cartridge loaded with the gas producing propellant, and a firing mechanism having a firing pin for firing the cartridge, said cartridge chamber of the impulse generating tool being adapted to accommodate a cartridge having a shape and dimensions corresponding to those of a conventional shotgun cartridge, said cartridge

chamber having a diameter which is greater than a diameter of the opening defined by the barrel means;

said cartridge being of the gas discharge type including a casing which is shaped and dimensioned similarly to a conventional shotgun cartridge, said combination of the impulse generating tool and the cartridge having a safety feature which renders the impulse generating tool incapable of firing a conventional shotgun cartridge which is receivable in the cartridge chamber, and which renders the cartridge incapable of being fired by means of a conventional shotgun having a conventional cartridge chamber in which said cartridge forming part of said combination is receivable, said safety feature comprising having said firing pin arranged offset relative to a center line of said cartridge chamber by a predetermined amount calculated to be misaligned with a central position which a conventional center fire percussion cap of a conventional shotgun cartridge would assume in use, and providing said cartridge forming part of the combination with a rim fire percussion cap arranged to be struck and detonated by said firing pin at a position offset from the center line of said cartridge by said predetermined amount.

5,670,738

HYBRID INFLATOR WITH POP-OUT DIFFUSER

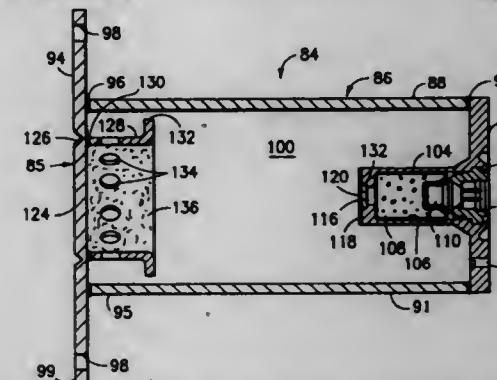
J. Kirk Storey, Farmington, and Brent K. Olson, Clearfield, both of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Aug. 8, 1996, Ser. No. 694,202

Int. Cl.⁶ C06D 5/00; B60R 21/26

U.S. Cl. 102—530

16 Claims



1. An inflator housing for use as part of a hybrid inflator, the housing comprising:

A) an outer wall defining a compressed gas reservoir;
B) a pop-out diffuser including:
1) a diffuser plate forming a unitary part of the outer wall,
2) a rupturable seam dividing the diffuser plate from the outer wall, and
3) a diffuser sleeve extending from the diffuser plate into the compressed gas reservoir to a diffuser flange extending radially outwardly from the diffuser sleeve, the diffuser flange having an outer diameter greater than an outer diameter of the diffuser plate, the diffuser sleeve defining a plurality of gas exhaust ports.

5,670,739

TWO PHASE EMULSION USEFUL IN EXPLOSIVE COMPOSITIONS

William P. Patterson, Mentone, and David N. Self, Oakman, both of Ala., assignors to Nelson Brothers, Inc., Birmingham, Ala.

Filed Feb. 22, 1996, Ser. No. 604,834

Int. Cl.⁶ C06B 45/00

U.S. Cl. 149—2

6 Claims

1. An emulsion comprised of a continuous phase comprised of an oil,

a first discontinuous phase comprised of an aqueous ammonium nitrate solution, and
a second discontinuous phase, different from the first discontinuous phase, comprised of water, with the emulsion being stable and both discontinuous phases remaining separate.

5,670,740

HETEROGENEOUS GAS GENERANT CHARGES

Michael W. Barnes, Brigham City; Robert D. Taylor, Hyrum; Christopher Hock, Uintah; Michael P. Jordan, South Weber; Matthew A. Cox, Bountiful, and Alan J. Ward, North Ogden, all of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Oct. 6, 1995, Ser. No. 540,379

Int. Cl.⁶ C06B 21/12

U.S. Cl. 149—62

8 Claims

1. A gas generant charge comprising a heterogeneous mixture of between about 80 and about 95 wt % of a first gas generant composition 1) and between about 5 and about 20 wt % of a second gas generant composition 2), based on the total weight of 1) plus 2),

said first gas generant composition 1) comprising between about 20 and about 40 wt % of fuel A) and between about 60 and about 80 wt % of oxidizer B),
between about 50 and about 85 wt % of said fuel A) being a triazole or tetrazole compound A¹) between about 15 and about 50 wt % of said fuel being a water-soluble fuel A²) at least about 20 wt % of said oxidizer B), up to 100%, being a transition metal oxide B¹); balance of said oxidizer being selected from the group B²) consisting of alkali and/or alkaline earth metal nitrates, chlorates or perchlorates,

said second gas generant composition 2) comprising between about 30 and about 65 wt % of a fuel C) which is an organic compound having carboxylic acid functionality and containing only the elements carbon, hydrogen, and oxygen, the oxygen content being between about 35 and about 65 wt % of said organic compound, and between about 35 and about 70 wt % of an oxidizer D) which is selected from the group consisting of alkali metal chlorates, alkali metal perchlorates, and mixtures thereof.

5,670,741

METHOD OF PREPARING A CAST SOLID EXPLOSIVE PRODUCT

Donald M. Stromquist, Salt Lake City, and Boyd J. Wathen, Lehi, both of Utah, assignors to Dyno Nobel Inc., Salt Lake City, Utah

Division of Ser. No. 790,340, Nov. 12, 1991, abandoned. This application Feb. 22, 1994, Ser. No. 201,341

Int. Cl.⁶ C06B 21/00

U.S. Cl. 149—109.6

23 Claims

1. A method of preparing a cast solid explosive product for use as a primer and a small diameter explosive, consisting essentially of the steps of:

- obtaining a liquid matrix consisting essentially of at least one liquid, water-soluble polyhydric alcohol of low volatility;
- mixing at ambient temperature the liquid matrix with dry sodium perchlorate oxidizer salt in proportions to form an initially pourable matrix-salt mixture which is not sensitive to a No. 8 blasting cap but which will cure with time and increase in sensitivity during curing to form a solid that can be detonated with a No. 8 blasting cap, said curing taking place without deliberate crosslinking of the matrix-salt mixture; and
- allowing the matrix-salt mixture to cure to form a solid explosive product that can be detonated with a No. 8 blasting cap.

5,670,742

EMI PROTECTED AIRCRAFT

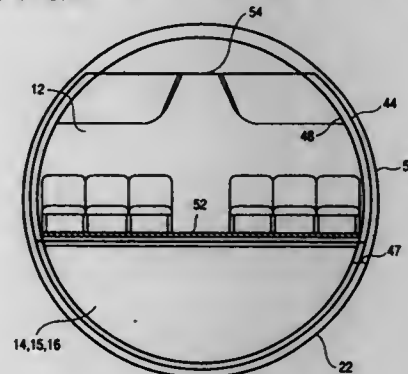
Scott A. Jones, Prides Crossing, Mass., assignor to Threshold Technologies, Inc., Carmel, Ind.

Filed Feb. 4, 1994, Ser. No. 191,096

Int. Cl.⁶ H05K 9/00

U.S. Cl. 174—35 R

30 Claims



1. A device, comprising:

a conductive shield positioned surrounding a compartment of an aircraft, aircraft avionics and other aircraft electronic equipment being located outside the compartment, and the shield protecting the avionics and the other electronic equipment from electromagnetic interference generated within the compartment.

5,670,743

STRIP ELECTRICAL SYSTEM

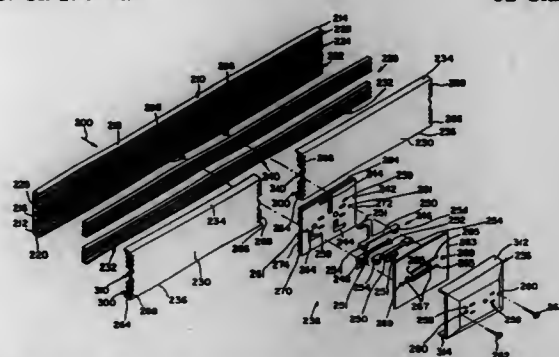
Richard Welch, Fort Wayne, Ind., and Rick E. Zemen, Jr., Austin, Tex., assignors to Group Dekko International, LaOtto, Ind.

Continuation-in-part of Ser. No. 975,603, Nov. 12, 1992, Pat. No. 5,396,027. This application Nov. 2, 1994, Ser. No. 333,368

Int. Cl.⁶ H02G 3/10

U.S. Cl. 174—49

32 Claims



1. A wiring assembly for mounting on an exposed surface of a wall or wall panel to supply electrical power to the wall or wall panel, the assembly comprising:

- a plurality of conductive bus bars;
- an insulating support having a base;
- said base having a plurality of generally parallel first dividers that define a plurality of spaces in the base of said support which each receive one of the conductive bus bars;
- means for coupling the support to the exposed surface;
- a first cover coupled to the support so that first portions of the conductive bus bars lie between the support and the first cover, the first cover having a first end; and
- an outlet coupled to selected ones of said bus bars so that second portions of the conductive bus bars lie between the support and the outlet and a first end of the outlet lies adjacent the first end of the first cover.

5,670,744

ENTRY PORT SYSTEMS FOR CONNECTING CO-AXIAL CABLES TO PRINTED CIRCUIT BOARDS

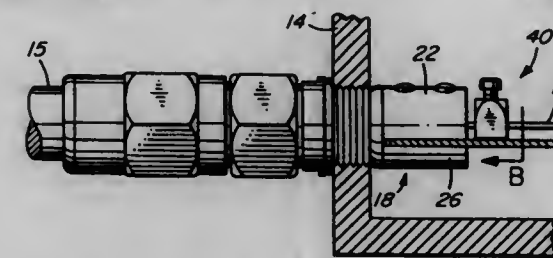
Carey Ritchey, 29 Bedard Crescent, Port Moody, B.C., Canada, V3H 1P4

Filed Aug. 30, 1994, Ser. No. 298,162

Int. Cl.⁶ H05K 5/02

U.S. Cl. 174—51

9 Claims



1. An entry port system for a co-axial cable having a first central conductor and an outer shield, said entry port system comprising:

- a housing;
- said housing having a wall and an entry port formed in said wall;
- a terminating connector provided at the exterior of said housing at one end of said co-axial cable;
- said terminating connector having a second central conductor connected to said first central conductor;
- a further connector;
- said further connector comprising a connector member located within said housing and a first fastener securing said connector member to said wall at said entry port;
- a printed circuit board located within said housing;
- a second fastener securing said printed circuit board to said connector member;
- said further connector and said terminating connector forming an electrical connection between said printed circuit board and said outer shield of said cable so that said printed circuit board is grounded through said connector member;
- said connector member being formed with a passage through which said second central conductor projects into the interior of said housing; and
- a terminal provided within said housing and electrically connecting said second central conductor to said printed circuit board.

5,670,745

HERMETICALLY SEALED CASE SEALED BY PACKING

Hideo Yajima, and Toshikazu Ogino, both of Atsugi, Japan, assignors to Mitsumi Electric Co., Ltd., Tokyo, Japan

Filed Dec. 23, 1994, Ser. No. 363,715

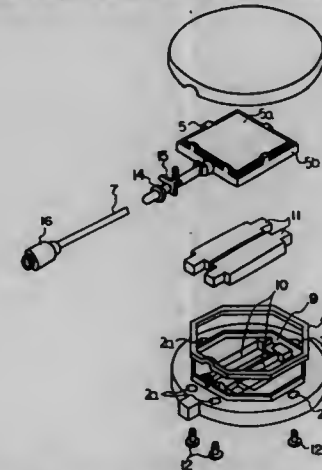
Claims priority, application Japan, Dec. 27, 1993, 5-070194 U; Dec. 28, 1993, 5-070719 U

Int. Cl.⁶ H05K 5/06

U.S. Cl. 174—65 R

10 Claims

1. A hermetically sealed case for accommodating a device



requiring water tightness, said hermetically sealed case comprising:

a first case having an annular projection formed at a periphery thereof;
a second case including an annular groove and having a shape corresponding to that of the projection of the first case formed at a periphery of the second case; and
an elastic member mounted between the projection of the first case and the groove of said second case, wherein
a width of said projection is smaller than a width of said annular groove, and said annular projection is fitted within said annular groove in a transverse direction; and wherein
a width of the elastic member is greater than the width of the annular groove.

5,670,746

STRUCTURE OF ELECTRODE UNIT

Shigeharu Hashimoto, Okazaki, and Tadato Ito, Nagoya, both of Japan, assignors to NGK Insulators, Ltd., Japan

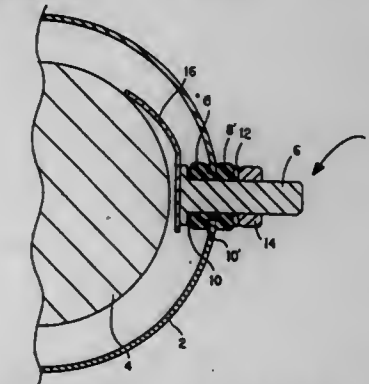
Filed Mar. 23, 1995, Ser. No. 408,776

Claims priority, application Japan, Jul. 29, 1994, 6-178587

Int. Cl.⁶ H05K 7/00

U.S. Cl. 174—65 R

16 Claims



1. An electrode unit structure for applying electricity to a conductive substance provided in a metallic housing, comprising:

- a metallic housing;
- a metallic electrode for connection to a portion of a conductive substance provided in the metallic housing;
- an insulating member provided between the electrode and the metallic housing;
- metallic seals respectively provided between the electrode and the insulating member and between the metallic housing and the insulating member;
- clamping means for providing a clamping force to secure the electrode to the metallic housing, said clamping means comprising a metallic member engaging the metallic electrode; and
- a spring member provided between the metallic member and the insulating member to absorb a difference in thermal expansion between the metallic member and the insulating member.

5,670,747

APPARATUS FOR TERMINATING AND INTERCONNECTING RIGID ELECTRICAL CABLE AND METHOD

C. B. Lawer, Barrington; David E. Dunfee, North Hampton, both of N.H.; Harold P. Hilberg, Boxborough, Mass., and Phillip S. Amato, Jr., South Berwick, Me., assignors to D.G. O'Brien, Inc., Seabrook, N.H.

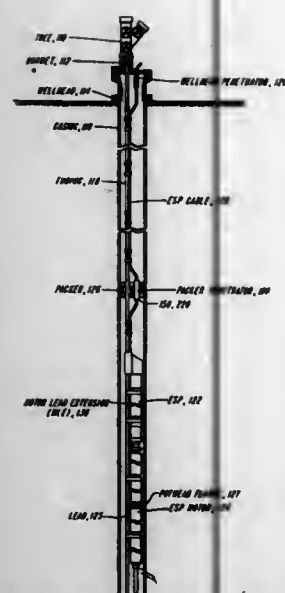
Continuation-in-part of Ser. No. 191,005, Feb. 3, 1994, Pat. No. 5,478,970. This application Feb. 1, 1995, Ser. No. 382,372

Int. Cl.⁶ H02G 15/06

U.S. Cl. 174—74 R

53 Claims

1. Apparatus for terminating an electrical cable having a cable end and having cable elements including a substantially rigid sheath element, a cable electrical conductor element disposed



within the sheath element and an electrical insulation element having a known thickness within the sheath element for insulating the conductor element therefrom, said apparatus comprising

A) electrically insulating retaining means for assembly with said cable elements at the cable end for blocking the extrusion of the cable insulation element from within the sheath element under a selected range of pressure and temperature conditions.

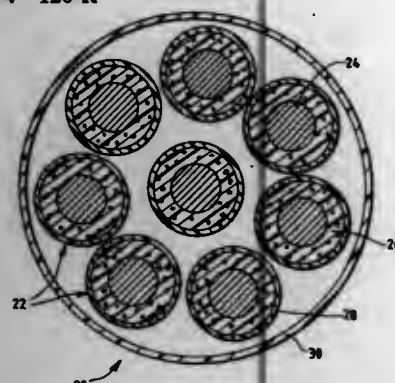
5,670,748 FLAME RETARDANT AND SMOKE SUPPRESSANT COMPOSITE ELECTRICAL INSULATION, INSULATED ELECTRICAL CONDUCTORS AND JACKETED PLENUM CABLE FORMED THEREFROM

Robert N. Gingue, Westminster; Charles A. Glew, Framingham; Anthony E. Sansone, Leominster, and Homaira K. Naseem, Boylston, all of Mass., assignors to AlphaGary Corporation, Leominster, Mass.

Filed Feb. 15, 1995, Ser. No. 389,214
Int. Cl.⁶ H01B 7/28

U.S. Cl. 174—120 R

3 Claims



3. A flame retardant and smoke suppressant jacketed electrical cable comprising:

- (a) a plurality of insulated electrical conductors, at least one of said insulated electrical conductors comprising:
 - (1) a length of electrically conductive material;
 - (2) a first layer comprising a foamed polymeric material selected from the group consisting of polyolefins and polyurethane, said first layer contacting and surrounding said length of electrically conductive materials; and
 - (3) a second layer comprising a first halogenated polymeric material and at least one second layer additive, said second layer contacting and surrounding said first layer, said at least one second layer additive rendering said second layer flame retardant and smoke suppressant; and

- (b) an outer jacket comprising a second halogenated polymeric material and at least one outer jacket additive, said outer jacket substantially surrounding said plurality of insulated electrical conductors; wherein said at least one second layer additive is antimony trioxide and at least one of decachlorodiphenyloxide, chlorinated dicyclopentadiene, and chlorinated diisocyanate.

5,670,749 MULTILAYER CIRCUIT BOARD HAVING A WINDOW EXPOSING AN ENHANCED CONDUCTIVE LAYER FOR USE AS AN INSULATED MOUNTING AREA

Christopher J. Wieloch, Brookfield; Thomas E. Babinski, Kenosha, both of Wis., and John C. Mather, Cedar Rapids, Iowa, assignors to Allen-Bradley Company, Inc., Milwaukee, Wis.

Filed Sep. 29, 1995, Ser. No. 536,839
Int. Cl.⁶ H05K 1/02

U.S. Cl. 174—260

18 Claims



1. A substrate, comprising:
 - a first circuit board layer having a mounting area for receiving an electrical device, the first circuit board layer including at least one conductive insert member at the mounting area, the conductive insert member including a thick solid conductive member throughout;
 - a second circuit board layer being attached to the first circuit board layer, the second circuit board layer being configured so that the mounting area is exposed, and wherein the first circuit board layer is comprised of an insulative frame member for holding the at least one conductive insert member, an insulative layer, and a conductive layer, the insulative layer being disposed between the insulative frame and the conductive layer.

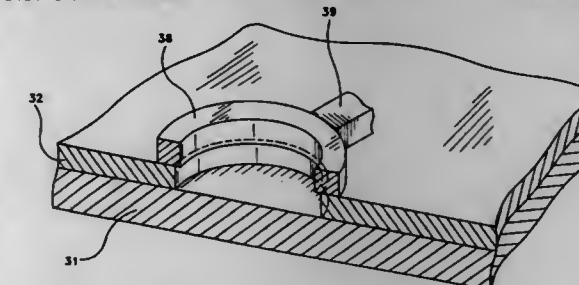
5,670,750 ELECTRIC CIRCUIT CARD HAVING A DONUT SHAPED LAND

John Matthew Laufer, Waverly; David John Russell, Apalachin, both of N.Y., and James Jens Hansen, Huntington, Ind., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 27, 1995, Ser. No. 429,612
Int. Cl.⁶ H05K 1/02

U.S. Cl. 174—262

10 Claims



1. A multi-layer electronic circuit package, comprising:
 - substrate means formed of a predetermined metal with high thermal conductivity properties;

a relatively thin, curable dielectric material formed as a layer on at least one surface of said substrate means to provide electrical insulation characteristics of a predetermined magnitude; an electrically conductive layer of a predetermined copper material in a predetermined circuit pattern formed on said dielectric material; at least one electrical interconnection by a donut configured land providing a via through which the dielectric material is dissolved to form a via opening; and electrical connections between predetermined layers of said multi-layer package formed of a preselected reflowed solder paste.

5,670,751 BULK MATERIAL WEIGHING CONTAINER WITH PRESSURE FEEDBACK

Hans Wilhelm Häfner, Alchach-Walchshofen, Germany, assignor to Pfister GmbH, Augsburg, Germany

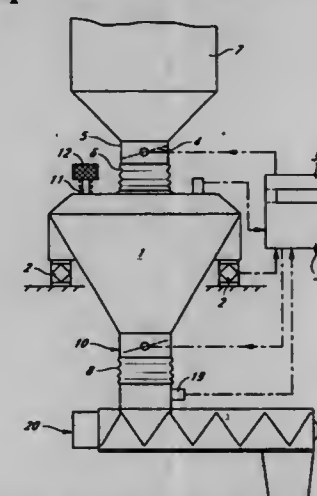
Filed Sep. 14, 1994, Ser. No. 305,830

Claims priority, application Germany, Sep. 21, 1993, 43 02 030.9

U.S. Cl. 177—1

Int. Cl.⁶ G01G 13/10

16 Claims



1. Apparatus for gravimetric metering of bulk material with a weighing container which is supported on at least one weighing cell connected to a weighing electronics and is connected by flexible connections to a bulk material feed line and a discharge line, wherein a pressure sensor is provided on the weighing container for detecting the pressure in the weighing container and the pressure sensor is connected to the weighing electronics for registering a weighing signal only when a limit pressure value is attained.

5,670,752 WEIGHING CONVEYOR

Masayoshi Nakajima, Shiga, Japan, assignor to Ishida Co., Ltd., Kyoto, Japan

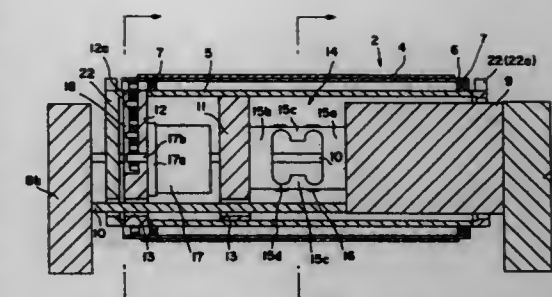
Filed Apr. 25, 1994, Ser. No. 231,736

Claims priority, application Japan, Apr. 28, 1993, 5-125480
Int. Cl.⁶ G01G 19/00

U.S. Cl. 177—145

9 Claims

1. A weighing conveyor, comprising:
 - conveying means for conveying an article under measurement, said conveying means including a plurality of rollers, an endless belt laid over said rollers, and an electric motor for driving one of said rollers; and
 - load detecting means for detecting a weight of said conveying means; wherein
 - at least one of said rollers is of double structure having an inner cylinder and an outer cylinder;



said load detecting means is accommodated in said inner cylinder in such a manner that one end of said load detecting means is coupled to a stationary member outside said one roller and the other end is coupled to said inner cylinder; said electric motor is fixedly secured inside said inner cylinder; said outer cylinder is rotatable supported on said inner cylinder; said weighing conveyor further comprising: rotation transmitting means for rotating said outer cylinder with said electric motor and provided between said inner cylinder and said outer cylinder; and a frame member provided between said roller of double structure and the remaining rollers is coupled to said inner cylinder.

5,670,753 DISC-SHAPED TRANSDUCER FOR A WEIGHING SYSTEM

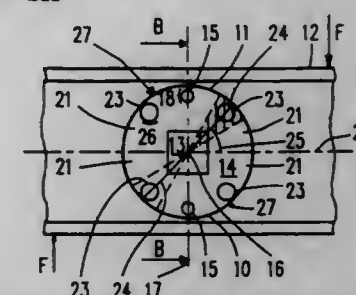
Matthias Krause, Hamburg, Germany, assignor to U.S. Phillips Corporation, New York, N.Y.

Continuation of Ser. No. 780,163, Oct. 21, 1991, abandoned.
This application Oct. 4, 1993, Ser. No. 131,274

Claims priority, application Germany, Oct. 31, 1990, 40 34 629.3

Int. Cl.⁶ G01G 3/14; G01L 1/04; 1/20
U.S. Cl. 177—211

10 Claims



1. A disc-shaped transducer for mounting in a load cell of a weighing system, comprising:
 - disc-shaped surfaces, each surface being surrounded by a respective periphery, which surfaces extend parallel to one another and parallel to the direction of application of a force to be measured, substantially at the center of at least one of said surfaces, a sensing element for converting a force-dependent deformation into a useful signal for measuring shearing stress, and
 - wherein at least one of the surfaces includes four sub-faces which are formed by a center line parallel to the direction of application of the force and a center line which is orthogonal thereto, at least two of said sub-faces which adjoin one another in only one point comprising a respective area of reduced cross-section in order to influence the hysteresis effect, said area of reduced cross-section being disposed within the respective periphery of said at least one surface.

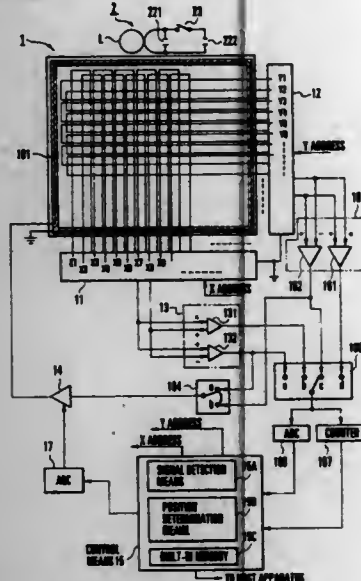
5,670,754 DIGITIZER AND POSITION DETERMINATION METHOD THEREFOR

Keiichi Matsushima, Kanagawa, Japan, assignor to Graphtec Corp., Japan

Filed Mar. 27, 1995, Ser. No. 411,110
Claims priority, application Japan, Mar. 31, 1994, 6-087871;
Aug. 15, 1994, 6-191490; Jan. 20, 1995, 6-007277
Int. Cl.⁶ G09C 21/00

U.S. Cl. 178—18

9 Claims



1. A digitizer comprising:
a position indicator having a coil;
a tablet having a loop coil group;
interaction means for causing the coil of said position indicator to interact with the loop coil group of said tablet;
signal detection means for sequentially selecting two loop coils as a loop coil pair from the loop coil group of said tablet and acquiring a sum of and a difference between signals generated in respective coils of a plurality of loop pairs of said loop coil group;
sum signal specifying means for specifying one of said loop coil pairs of said loop coil group which generates a sum signal of a maximum absolute value when the coil of said position indicator and the loop coil group of said tablet are brought into an interaction state; and
coordinate determination means for determining position coordinates on said tablet designated by said position indicator, on the basis of a difference signal of said specified loop coil pair.

5,670,755 INFORMATION INPUT APPARATUS HAVING FUNCTIONS OF BOTH TOUCH PANEL AND DIGITIZER, AND DRIVING METHOD THEREOF

Ki-duck Kwon, Seongnam, Rep. of Korea, assignor to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea
Filed Apr. 12, 1995, Ser. No. 420,603

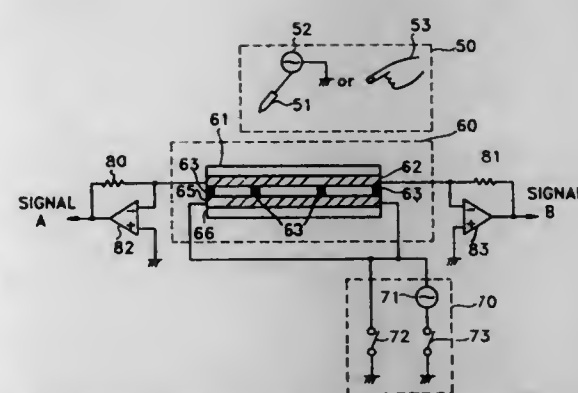
Claims priority, application Rep. of Korea, Apr. 21, 1994, 94-8443

Int. Cl.⁶ G08C 21/00

U.S. Cl. 178—19

8 Claims

1. An information input apparatus having both functions of a touch panel and a digitizer comprising:
a stylus pen for applying a power source and for touching;
a panel having upper and lower substrates, a first resistive layer formed on said upper substrate, a second resistive layer formed on said lower substrate, and a spacer for maintaining a predetermined distance and for providing insulation between said first and second resistive layers; and



mode selection means connected to said panel for selectively switching between ground and a power source for contact with said second resistive layer, to thereby select an operation mode for operating said panel as a touch panel or digitizer.

5,670,756 SILENCER

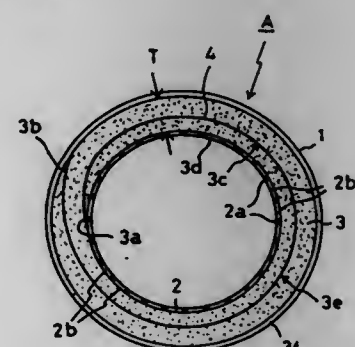
Akihiko Ohtaka; Nobuyuki Yoshitoshi; Shigeo Kimura, all of Hamamatsu; Taketoshi Houjou, and Kazuya Nimiya, both of Aichi-ken, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Saitama-ken, Japan

Filed Sep. 25, 1995, Ser. No. 533,178

Int. Cl.⁶ F01N 1/24

U.S. Cl. 181—256

7 Claims



1. A silencer comprising an outer sleeve, an inner sleeve having a number of pores, and a sound absorbing material including heat-resistant fibers packed between said outer sleeve and said inner sleeve, wherein said sound absorbing material is first wound directly around an outside of said inner sleeve with two or more turns so that wound sound absorbing material occupies a space greater than a space between said inner sleeve and outer sleeve, the wound sound absorbing material over the inner sleeve is then press-fitted into the outer sleeve.

5,670,757 EXHAUST SILENCER FOR ENGINES AND GENERATORS

Frank E. Harris, Portland, Oreg., assignor to Harco Manufacturing Company, Portland, Oreg.

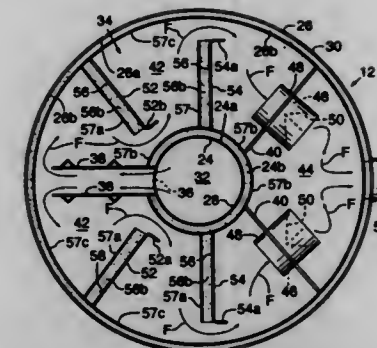
Filed Nov. 27, 1996, Ser. No. 760,655

Int. Cl.⁶ F01N 1/08

U.S. Cl. 181—264

7 Claims

1. In an exhaust silencer,
an outer cylinder of a predetermined diameter;
an inner cylinder of a diameter substantially less than the diameter of the outer cylinder and positioned concentrically within the outer cylinder;
exhaust gas inlet means communicating with the inner cylinder;



- top and bottom closure plates sealed to the inner and outer cylinders and forming a toroidal chamber therewith;
a pair of partitions dividing the toroidal chamber into an inlet chamber and an outlet chamber, each of the partitions comprising an opening to permit communication between the inlet chamber and the outlet chamber;
exhaust gas outlet means communicating with the outlet chamber;
a plurality of baffles disposed within the inlet chamber and extending alternately generally radially from the inner cylinder towards the outer cylinder and from the outer cylinder generally radially towards the inner cylinder, the baffles defining an undulating path for exhaust gasses as they travel within the inlet chamber, each of the baffles comprising an upstream surface against which sound impinges as the exhaust gasses travel within the inlet chamber;
sound insulating material attached to the upstream surfaces of each of the baffles;
sound insulating material attached to the outer surface of the inner cylinder;
sound insulating material attached to the inner surface of the outer cylinder; and
a protective covering on the sound insulating material attached to the baffles, to the inner cylinder and to the outer cylinder, the vertical edges of each of the partitions and the baffles being attached to the protective covering, whereby sound is not transmitted through the partitions and the baffles to the outer cylinder.

5,670,758 ACOUSTIC PROTECTION ON PAYLOAD FAIRINGS OF EXPENDABLE LAUNCH VEHICLES

Ingo U. Borchers, Uhlidigen; Stephan T. Laemmlein, Markdorf; Peter Bartels; Achim Rausch, both of Immenstaad; Markus Faust, Salem, all of Germany; Jan A. F. Coebergh, Uetikon A. See, Switzerland, and Klaus Koeble, Meckenbeuren, Germany, assignors to Oerlikon-Contraves AG, Zuerich, Switzerland, and Dornier GmbH, Friedrichshafen, Germany

Filed Jun. 21, 1995, Ser. No. 493,050

Claims priority, application Switzerland, Apr. 20, 1995, 01 129/95-9

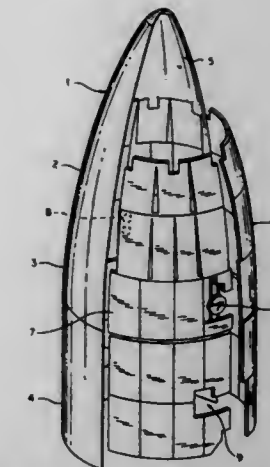
Int. Cl.⁶ E04B 1/82

U.S. Cl. 181—286

31 Claims

1. Acoustic protection (6) on payload fairings (1) of an expendable launch vehicle, the fairing having an inside (5); the protection comprising
a sound absorbing panel (7) disposed on the inside of the fairing (1) and;
an acoustic absorber (8) tuned to a defined frequency range disposed on the sound-absorbing panel (7); wherein the acoustic absorber (8) further comprises a cup-like lower part (12) and an upper part (13) having a horn (18); the horn (18) includes a wall which tapers in a curved-conical form from an opening of a large diameter (D_m) to an opening of smaller diameter (D_n); the horn (18) projects into the lower part (12) up to a defined distance (a) from a bottom (14) of the lower part (12); and

174-443 O.G.—97-19: QL3



slits (21) are included in the wall of the horn (18) adjacent an opening of the smaller diameter (D_n).

5,670,759 PUSH BUTTON SWITCH INCLUDING COMPLEMENTARY HOUSING AND ACTUATOR POLYGONAL SHAPES

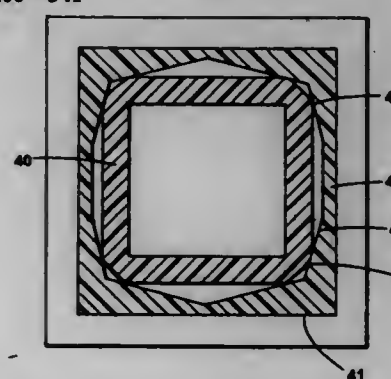
Chien-Shih Hsu, Taipei, Taiwan, assignor to Acer Peripherals, Inc., Taoyuan, Taiwan

Filed Jul. 14, 1995, Ser. No. 502,756

Int. Cl.⁶ H01H 13/70

U.S. Cl. 200—5 A

2 Claims

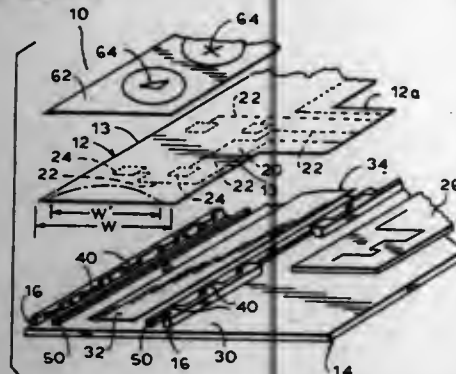


1. A push button switch, comprising:
a key cap having a bottom surface and a plunger extending vertically from the bottom surface, the plunger having a side surface and a bottom surface, a hook being provided near a bottom end of the side surface;
a housing having a vertical slot with an opening for the passage and reciprocal movement of the plunger guided by an inner surface of the housing, the inner surface defining a polygon shape with an internal obtuse angle at each of a plurality of intersecting corners thereof along a horizontal cross section; an elastically deformable actuation means received within the housing, the actuation means being deformed in response to the reciprocal movement of the plunger;
a membrane switch, in response to a status of the actuation means, for on-off control of an electric equipment;
said push button switch being characterized in that the side surface of the plunger defines a complementary polygon shape with an internal obtuse angle at each of a plurality of intersecting corners thereof along the horizontal cross section such that a plurality of line contacts between the side surface of the plunger and the inner surface of the housing are provided, thereby reducing operation resistance of the push button switch.

5,670,760
MULTI-SWITCH MEMBRANE SWITCH ASSEMBLY
 Scott Thomas Christy, Franklin, Wis., assignor to Golden Books Publishing Company, Inc., West Allis, Wis.
 Filed Oct. 24, 1995, Ser. No. 547,304
 Int. Cl.⁶ H01H 13/70

U.S. Cl. 200—5 A

15 Claims

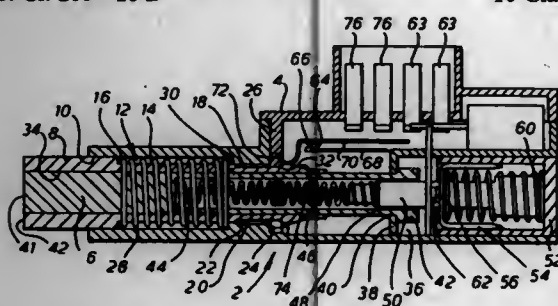


1. A multi-switch membrane-switch assembly comprising:
 - (A) a longitudinally extending, resiliently flexible, non-conductive membrane having a convexly bowed cross section defining on an undersurface thereof a plurality of interrupted circuits defining longitudinally aligned pairs of laterally spaced, conductive contacts;
 - (B) a rigid substrate defining on an oversurface thereof a plurality of longitudinally aligned, conductive shorting elements; and
 - (C) a laterally spaced pair of longitudinally extending, non-conductive positioning ribs on the oversurface of said rigid substrate, each positioning rib defining means for receiving and maintaining a longitudinally extending edge of said membrane, and said positioning ribs cooperating to maintain said membrane convexly bowed;
 said assembly being characterized by the absence of any horizontal spacer isolating one of a pair of said laterally spaced conductive contacts from the other of the pair or one of said conductive shorting elements from another, and by the absence of any vertical spacer isolating any pair of said laterally spaced conductive contacts from any one of said conductive shorting elements.

5,670,761
ELECTRICAL SWITCH
 Eric Thomas Ryan, Cheltenham, and Roger Louis Hambidge, Cheltenham, both of England, assignors to Delta Schoeller Ltd., United Kingdom
 Filed Feb. 9, 1995, Ser. No. 385,969
 Claims priority, application United Kingdom, Feb. 3, 1994, 9403481
 Int. Cl.⁶ H01H 13/70

U.S. Cl. 200—16 B

10 Claims



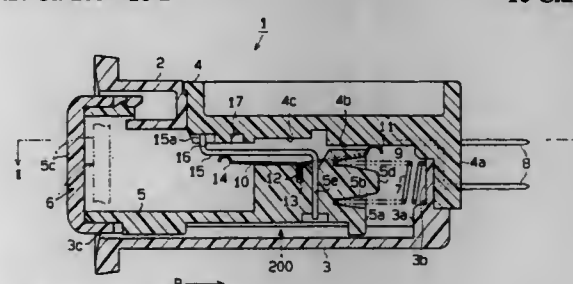
1. An electrical switch comprising a housing containing first and second sets of switch contacts, first and second plungers movable within said housing for operating said first and second contact sets, respectively, first and second biasing means connected between said housing and respective plungers for independently urging said

plungers outwardly of said housing and to respective extended positions relative to said housing, said first plunger being telescoped within said second plunger, and each of said plungers being movable independently of the other of said plungers from said respective extended position for operating said corresponding contact set.

5,670,762
PUSH LOCK SWITCH WITH DUAL FUNCTION SELF-BIASING SLIDER CONTACT
 Tatsuya Futamura, Aichi-ken, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan
 Filed Dec. 27, 1995, Ser. No. 579,146
 Claims priority, application Japan, Jan. 6, 1995, 7-000873
 Int. Cl.⁶ H01H 13/56; 15/02

U.S. Cl. 200—16 D

10 Claims



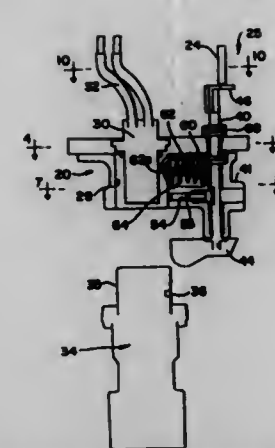
1. A push lock switch comprising:
 - a switch body comprising a wall, a plurality of terminals each having a fixed contact, a cam groove defined on said wall, and an engaging portion defined on said wall;
 - a slider, accommodated in said switch body, so as to be movable between a projecting position and a retracted position;
 - a lock pin having a first end inserted in said cam groove and a second end disposed in said slider, such that when said first end is engaged with said engaging portion, said slider is retained at said retracted position; and
 - a conductive resilient member mounted on said slider and comprising a pressing portion for pressing the first end of said lock pin against a bottom of said cam groove and a movable contact for electrically contacting said fixed contacts of said terminals in accordance with movement of said slider to perform a switch function, said resilient member having a mounting portion for fixing the resilient member to the slider wherein the pressing portion extends in one direction from the mounting portion, and said movable contact extends in a second direction from the mounting portion, and wherein the first direction is substantially opposite to the second direction and said pressing portion, and said moveable contact being integrally formed.

5,670,763
DEAD FRONT INTERLOCKED RECEPTACLE
 Charles Jeffrey Spencer, Chicago, Ill., assignor to S-B Power Tool Company, Chicago, Ill.
 Filed Jul. 15, 1996, Ser. No. 683,581
 Int. Cl.⁶ H01H 9/28

U.S. Cl. 200—43.16

4 Claims

1. An interlock mechanism for a disconnect switch of the type mounted within an enclosure having a dead front receptacle, wherein an operating lever is pivotally mounted by the enclosure for movement back and forth between open and closed positions, and wherein the dead front receptacle includes a cylindrical opening for receiving a plug including a cylindrical wall with an aperture therein, said interlock mechanism comprising:
 - (a) an interlock rod connected with said operating lever, said interlock rod being movable in a first axial direction when said operating lever is moved from the open position to the

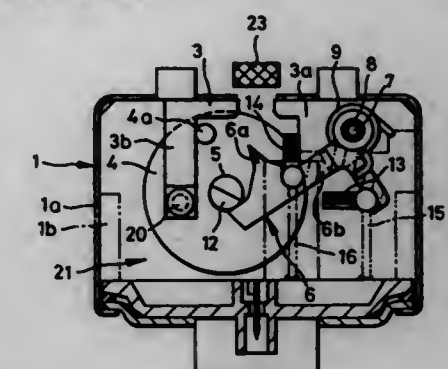


closed position and in a second opposite axial direction when said operating lever is moved from the closed position to the open position;

- (b) an actuator shaft adapted to be rotatably mounted by said enclosure in adjacent relationship with the dead front receptacle and in parallel spaced relationship with the central axis of said cylindrical opening, said shaft having a first end within the enclosure and a second end disposed exteriorly of the enclosure;
- (c) an actuator arm mounted on said first end of the actuator shaft;
- (d) a handle mounted on said second end of said actuator shaft for rotating the latter back and forth between first and second positions;
- (e) spring means mounted by the enclosure and connected with said actuator shaft for urging the latter to rotate from its first position to its second position, said actuator arm being in interfitted relationship with said interlock rod when said actuator shaft is in its first position thereby preventing movement of said interlock rod in its first direction, said actuator arm permitting axial movement of the interlock rod in its first direction when said actuator shaft is in its second position;
- (f) first and second cam means on said actuator shaft;
- (g) said enclosure having first and second openings respectively communicating with said cylindrical opening;
- (h) a locking pin adapted to be slidably mounted in said first opening and having first and second ends;
- (i) first biasing means urging said first end of the locking pin into engagement with said first cam means, said first cam means serving to force said second end of the locking pin into the aperture in said plug when said actuator shaft is rotated from its first position to its second position;
- (j) a slider adapted to be received within said second opening and having a first end and a second end, said slider being slidably mounted in said second opening for movement back and forth between first and second positions;
- (k) second biasing means urging said slider toward said first position such that the first end of the slider projects into the cylindrical opening, said slider having cam follower means on said second end thereof and positioned for engagement with said second cam means to hold said actuator shaft in its first position when the slider is in its first position, whereby engagement of the cylindrical wall of the plug with the first end of said slider forces said slider toward its second position thereby moving said cam follower out of engagement from said second cam means whereupon said spring means will rotate said actuator shaft from its first position to its second position thereby permitting movement of the interlock rod in its first direction, such rotation of the actuator shaft causing said first cam means to force said second end of the locking pin into said plug aperture.

5,670,764
IMPACT SENSOR
 Kazunori Sakamoto, Chiryu; Masanobu Ishikawa; Atsushi Onoda, both of Nagoya, and Koji Ito, Kariya, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
 Continuation of Ser. No. 942,009, Sep. 8, 1992, abandoned.
 This application Dec. 20, 1994, Ser. No. 360,116
 Claims priority, application Japan, Sep. 9, 1991, 3-229097; Aug. 26, 1992, 4-226570
 Int. Cl.⁶ H01H 35/14
 U.S. Cl. 200—61.45 R

15 Claims



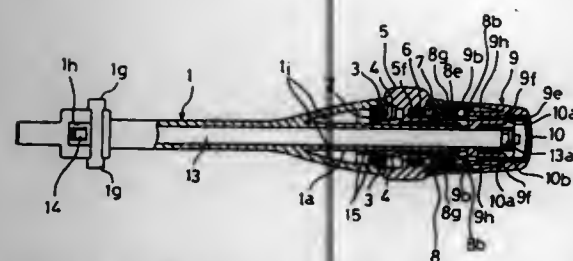
1. An impact sensor comprising:
 - a housing having an inner space and a wall for receiving an impact applied in a first direction;
 - a unitary assembly constructed independent of the housing and positioned within the housing for being secured to the housing, said unitary assembly including a frame having a first portion which extends along the wall of the housing and a second portion which extends transverse to the first portion;
 - a weight pivotally mounted on the second portion of the frame to rotate about a pivot axis when an impact is applied to the housing;
 - a cam provided on the weight;
 - an electrically conductive output lever pivotally mounted on the first portion of the frame for moving rotatably between one position in which a portion of the output lever engages the cam and another position in which a portion of the output lever extends outside the housing through the first portion of the frame in opposition to the first direction, the output lever having a first contact portion;
 - a spring urging the output lever against the cam; and a contact plate mounted to the housing, a portion of the contact plate being spaced from the output lever to form a second contact portion for contact by said first contact portion, said second contact portion being located to be positioned on a path of movement of the first contact portion of said output lever, both the second contact portion and the output lever being continually connected to respective terminals of an electric current source;
 - said first and second portions being electrically connected via said output lever by coming into contact with a projection of the output lever, to close an electrical circuit to actuate an impact safety system electrically connected to said first and second contact portions, the spring maintaining electrical contact between the first and second contact portions upon movement of the weight by an external impact.

5,670,765
AUTOMOTIVE LEVER SWITCH
 Toshiaki Yokoyama, and Takeshi Shibata, both of Tokyo, Japan, assignors to Niles Parts Co., Ltd., Japan
 Filed Mar. 13, 1996, Ser. No. 614,644
 Claims priority, application Japan, Apr. 28, 1995, 7-129006
 Int. Cl.⁶ H01H 9/00

U.S. Cl. 200—61.54

3 Claims

1. An automotive lever switch, comprising:
 - a lever (1) including a tubular bearing (1a);



a switch plate (2) inserted within an opening (1) of said lever (1) and including a fixed contact plate (15);
an intermediate knob (5) including a movable contact plate (3) placed in contact with said fixed contact plate (15);
a fixed knob (8) secured to said tubular bearing (1a); and
a shaft (13) inserted into said tubular bearing (1a), an arm (14) secured to one end of said shaft (13), and a rotating knob (9) secured to the other end of said shaft (13), said rotating knob (9) including a resilient arm (9a) integral with said rotating knob (9) that is engaged with a locking recess (13a) of said shaft (13).

5,670,766

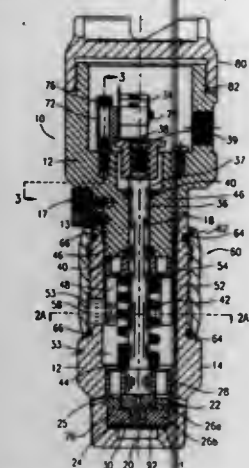
PRESSURE SWITCH

James Richard Ellett, Edmonton, Canada, assignor to Argus Machine Co. Ltd., Edmonton, Canada

Filed Sep. 21, 1995, Ser. No. 531,775

Int. Cl.⁶ H01H 35/38

U.S. Cl. 200—83 J



1. A pressure switch comprising:
a housing;
a piston guide mounted within the housing, the piston guide having an interior bore and a first end, the interior bore forming an opening at the first end;
a diaphragm mounted on the piston guide across the opening;
a piston slidable over a limited range within the interior bore under external fluid pressure acting on the diaphragm, the piston having a piston head;
a mechanically operated switch operatively connected to the piston;
a support disc for the diaphragm, the support disc being mounted between the diaphragm and the piston; and
the support disc being made of a high tensile elastic material and the support disc comprising an outer annulus that extends beyond the opening, an inner disc that is smaller in diameter than the piston head, and a flexible intermediate annulus cantilevered between the outer annulus and the inner disc.

5,670,767

GAS-INSULATED SWITCHGEAR WITH IMPROVED INSULATION JOINT

Masatomo Kobayashi; Hiromichi Hokuto, both of Hitachi; Yoichi Ohshita, Hitachinaka, and Minoru Sakaguchi, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

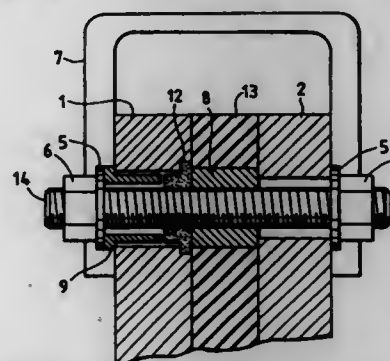
Filed Aug. 23, 1995, Ser. No. 518,315

Claims priority, application Japan, Aug. 30, 1994, 6-204845

Int. Cl.⁶ H01H 33/00; H02B 13/045

U.S. Cl. 218—43

4 Claims



1. An insulating joint between two tanks of a gas insulated switchgear, the tanks being electrically connected by a first conductor member and having a main circuit conductor extending therethrough, said insulating joint comprising:
an insulating member positioned between adjacent ends of said tanks, and
a second conductor member electrically connecting said tanks and having a resistivity higher than that of said first conductor member.
2. An insulating joint according to claim 1, which further includes a conductive bolt extending through said ends of said tanks and said insulating member, said bolt having a conductive nut and a conductive washer attached adjacent one end thereof and wherein said second conductor member electrically connects said washer and one of said tanks.

5,670,768

VEHICLE MOUNTED CASH DISPENSING MACHINE

Andrea Modiano, Brussels, Belgium, and Moshe Milchman, Ramat Hasharon, Israel, assignors to Inflight Financial Services Ltd., Dublin, Ireland

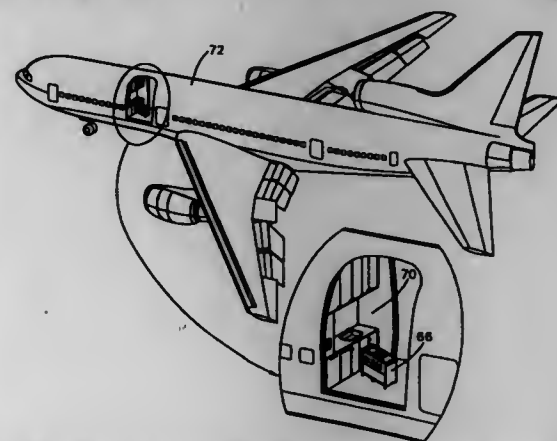
Filed Dec. 22, 1994, Ser. No. 361,947

Claims priority, application Israel, Dec. 24, 1993, 108177

Int. Cl.⁶ G06F 17/60; 17/00

U.S. Cl. 239—379

5 Claims



1. A method of providing currency services during travel comprising the steps of:
providing on a transport vehicle a financial services system comprising an enclosure which is mounted on wheels so as to be readily movable and which includes at least one banknote

acceptor, a card reader, a computer interfacing with the at least one banknote acceptor and the card reader; and at least one banknote dispenser for dispensing banknotes in response to control inputs received from the computer;
causing the at least one banknote acceptor to accept banknotes at least from the country from which the transport vehicle has departed; and
causing the at least one banknote dispenser to dispense banknotes at least from the country of destination of the transport vehicle.

5,670,769

CASE FOR MICROCIRCUIT CARD READER

Michel Pernet, Pontarlier, France, assignor to Framatome Connectors International, Courbevoie, France

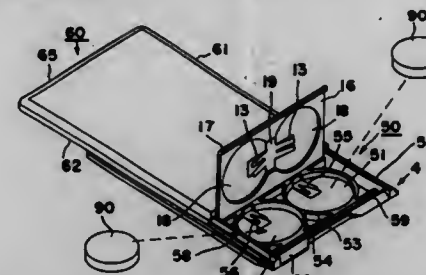
Filed Mar. 17, 1995, Ser. No. 405,986

Claims priority, application France, Mar. 21, 1994, 94 03265

Int. Cl.⁶ G06K 17/06

U.S. Cl. 235—441

11 Claims



1. A case for a microcircuit card reader, said case comprising a case body having an upper face constituting a card receiving plane surface, an electronic circuit incorporated into a housing of said case body, a connector directly attached to said case body and incorporating elastic contact segments which provide an electrical connection between contacts of a microcircuit card and said electronic circuit, said case having a removable sliding upper cover containing longitudinally extending slide rails which, jointly with said card receiving plane surface, define a card receiving space.

5,670,770

PORTABLE TERMINAL APPARATUS

Maki Miyata, Yokohama; Akihiko Iura, and Akio Murata, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

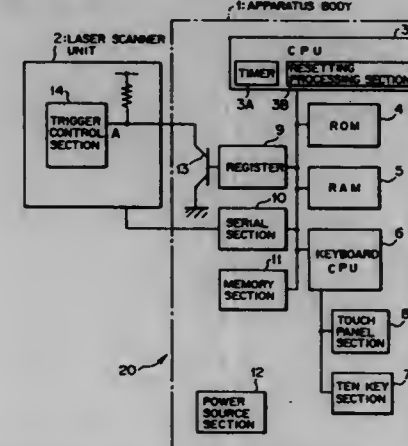
Filed Jul. 28, 1995, Ser. No. 508,934

Claims priority, application Japan, Jan. 11, 1995, 7-002814

Int. Cl.⁶ G06K 7/10

U.S. Cl. 235—462

6 Claims



1. A portable terminal apparatus, comprising:
an apparatus body;

an inputting section provided on said apparatus body for inputting processing information including data and an operation instruction;
an optical reading unit mounted on said apparatus body for irradiating light upon a reading object and receiving reflected light from the reading object to obtain read information of the reading object, said portable terminal apparatus being additionally provided with a reading function as said optical reading unit is mounted integrally on said apparatus body;
a trigger key allocated on said inputting section of said apparatus body of being manually operated to start a reading operation by said optical reading unit;
a register for storing trigger key operation information when said trigger key is operated;
a reading operation driving section for causing said optical reading unit to perform the reading operation while the trigger key operation information is stored in said register;
a timer for counting a time elapsed after the trigger key operation information is stored into said register; and
a resetting processing section for erasing the trigger key operation information stored in said register when the elapsed time counted by said timer exceeds a supervisory time or when read information of the reading object is obtained by the reading operation of said optical reading unit within the supervisory time.

5,670,771

APPARATUS FOR READING A BAR CODE

Mitsuo Watanabe; Shinichi Sato, and Ichiro Shinoda, all of Kanagawa, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

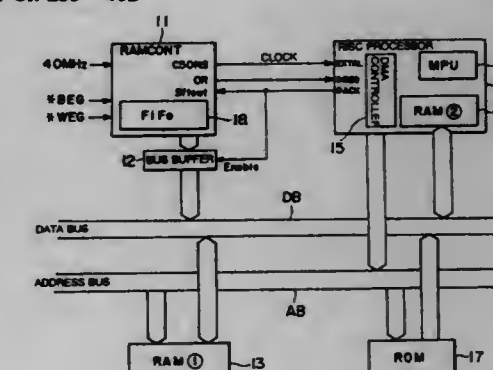
Filed May 29, 1996, Ser. No. 654,676

Claims priority, application Japan, Sep. 5, 1995, 7-227822

Int. Cl.⁶ G06K 7/10

U.S. Cl. 235—462

7 Claims



1. A bar code reading apparatus comprising:
bar width data generating means for detecting widths of respective bars of a bar code and generating bar width data corresponding to the widths of the respective bars;
a low-speed memory to which the bar width data generated by said bar width data generating means are transferred;
a high-speed memory to which the bar width data transferred to said low-speed memory are further transferred; and
a demodulation device for reading the bar width data transferred to said high-speed memory and demodulating the bar width data into corresponding data.

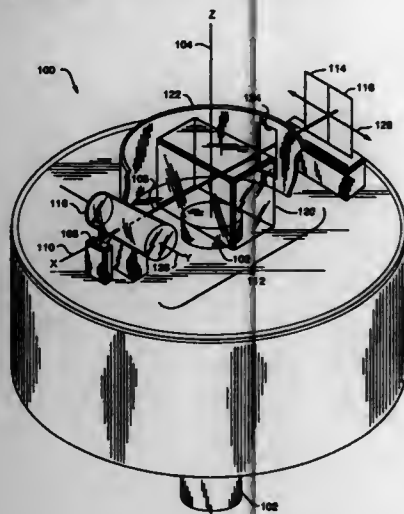
a light source means mounted to one of said first movable storage unit and said opposing object,
 a reflecting means mounted to the other of first movable storage unit and said opposing object, said reflecting means comprising a reflector which is linear along a horizontal plane and curved about a vertical plane whereby said reflector reflects light diagonally upward from said light source means to said sensing means while said first mobile storage unit is within a range of distances from said opposing object
 a sensing means vertically offset from said light source means mounted to the same one of said first movable storage unit and said opposing object as said light source means, wherein said light source means, said reflecting means and said sensing means are configured so that light is reflected from said light source by said reflecting means to impinge on said sensing means in the absence of an obstacle in a light path from the light source means to the reflecting means or from the reflecting means to the sensing means; and
 means for inhibiting said transporting means in the event light from said light source means does not impinge upon said sensing means.

5,670,779
ELECTRO-OPTICAL SHAFT ANGLE TRANSDUCER
HAVING A ROTATABLE REFRACTIVE OPTICAL
ELEMENT

Bill Bell, Brookline, Mass., assignor to General Scanning, Watertown, Mass.

Filed May 5, 1995, Ser. No. 435,319
 Int. Cl.⁶ G01D 5/34

U.S. Cl. 250—231.13



1. A transducer for measuring angular displacement of an object, said transducer comprising:

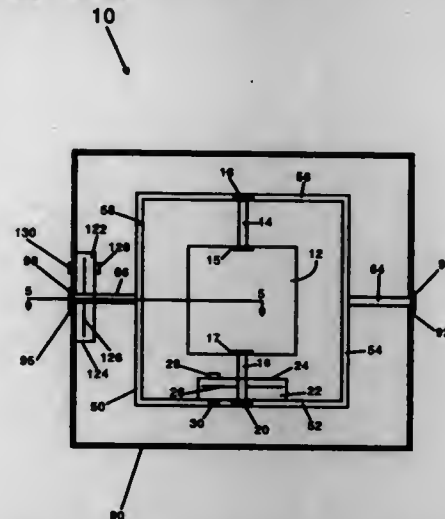
- A. a radiation source producing a diverging beam of radiation,
- B. a radiation sensor, disposed in the path of said beam, said sensor producing an output signal that varies continuously in accordance with the movement of a patch of radiation thereon in a line perpendicular to the axis of said angular displacement,
- C. a refractive optical element disposed in said diverging beam between said source and said sensor, said element being attached to said object for rotation therewith, whereby rotation of the optical element translates said beam perpendicularly to said axis, and
- D. means forming an aperture intercepting said diverging beam between said optical element and said sensor, thereby to define the size of an illuminated patch on said sensor, said

patch moving perpendicularly to said axis in response to angular displacement of said object.

5,670,780
DEVICE PROVIDING REAL-TIME ORIENTATION AND
DIRECTION OF AN OBJECT
 W. Stan Lewis, 709 Mar Vista Dr., Vista, Calif. 92083
 Filed Apr. 14, 1995, Ser. No. 421,787
 Int. Cl.⁶ G01D 5/34

U.S. Cl. 250—231.14

7 Claims



1. An apparatus for determining the real-time orientation and direction of an object which may be moving through space comprising:

- a plate and a frame member, said plate nested within said frame member, said plate connected to said frame member by a first and second shaft member, said first shaft member and said second shaft member being attached to opposite sides of said plate and said first shaft member and said second shaft member further being rotatably connected to said frame member, permitting free rotation of said plate inside of said frame member,
- a housing, said frame member connected to said housing by a third and fourth shaft member, said third shaft member and said fourth shaft member being attached to opposite sides of said frame and said third shaft member and said fourth shaft member being further rotatably connected to said housing, permitting free rotation of said frame inside of said housing,
- a first sensor, said first sensor mounted on said second shaft, said first sensor including a first disk, said first disk located intermediate a first photosource and a first photosensor,
- a second sensor, said second sensor mounted on said fourth shaft, said second sensor including a second disk, said second disk located intermediate a second photosource and a second photosensor,
- said first disk including a first slot, said first slot proximal to the circumference of said first disk and defining a first passage through said first disk, said first passage having a first width, said first width varying about the circumference of said first disk,
- said first photosource generating a first photo-emission and said first passage permitting a first portion of said first photo-emission to pass therethrough, said first portion dependent on the position of said first disk, said first portion being detected by said first photosensor, said first photosensor generating a first signal proportional to a first rotation of said plate,
- said second disk including a second slot, said second slot proximal to the circumference of said second disk and defining a second passage through said second disk, said second passage having a second width, said second width varying about the circumference of said second disk,
- said second photosource generating a second photo-emission and said second passage permitting a second portion of said

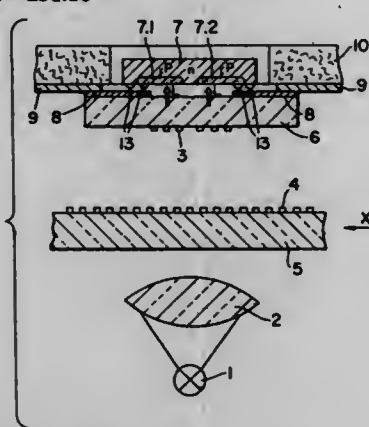
second photo-emission to pass therethrough, said second portion dependent on the position of said second disk, said second portion being detected by said second photosensor, said second photosensor generating a second signal proportional to a second rotation of said frame member,
 a data processing means, said data processing means permitting said first and second signal to be processed, whereby said apparatus is attached to said object and precise real-time orientation of said object is obtained by the processing of said first signal and said second signal.

5,670,781
PHOTOELECTRICAL ENCODER
 Robert Setbacken, Santa Barbara, Calif., assignor to Renco Encoders, Inc., Goleta, Calif.

Filed Feb. 8, 1996, Ser. No. 598,479
 Int. Cl.⁶ G01D 5/347

U.S. Cl. 250—231.16

9 Claims



1. An encoder, comprising
 a scale having a graduation;
 a light source for illuminating the scale; and
 a sensing device displaceable relative to the scale in a measuring direction for generating position-dependent measuring signals;
 wherein the sensing device includes a transparent carrier provided with a scanning grating and photosensors arranged behind the scanning grating for converting a position-dependent modulated light into electrical signals defining the position-dependent measuring signals,
 wherein strip conductors are provided directly on a surface of the transparent carrier for forming an electrical connection with the photosensors, and
 wherein the photosensors each have electrical connection contacts which are provided on a light-sensitive side thereof and which are located opposite to and in an electrical contact with respective strip conductors.

5,670,782
SCANNING ELECTRON MICROSCOPE AND SPECIMAN
OBSERVATION METHOD THEREBY
 Mitsugu Sato, Hitachinaka, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

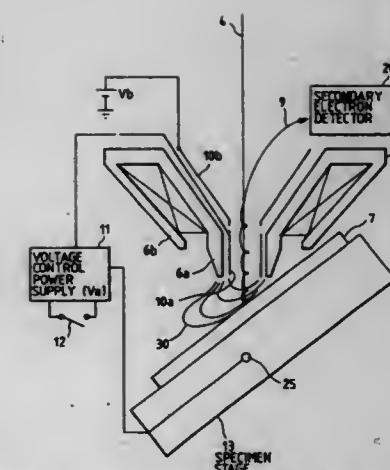
Filed Dec. 28, 1995, Ser. No. 579,756

Claims priority, application Japan, Dec. 28, 1994, 6-327068
 Int. Cl.⁶ H01J 37/28

U.S. Cl. 250—310

23 Claims

1. A scanning electron microscope comprising:
 a. a specimen stage adapted to receive a specimen and including an inclining mechanism;
 b. a cathode emitting a primary electron beam;
 c. a condenser lens system reducing the diameter of said primary electron beam and directing said primary electron beam to a specimen on said stage;



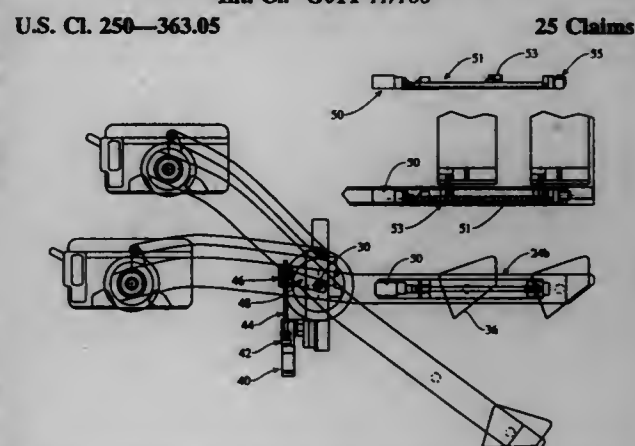
- d. an electron beam deflector providing two-dimensional scanning of said primary electron beam on said specimen;
- e. an objective lens having a magnetic pole;
- f. an inclination detector, detecting the inclination of said stage and providing an output signal indicative thereof;
- g. an axially symmetric electrode through which said primary electron beam passes, installed in the electron beam path inside said magnetic pole of said objective lens; and
 h. a first control which controls the voltage applied to said electrode as a function of the inclination of said specimen stage based on the output signal from said inclination detector.

5,670,783
AUTOMATED DETECTOR BALANCE
 Jeffrey S. Ray, Richmond Hts., Ohio, assignor to Picker International, Inc., Cleveland, Ohio

Filed Feb. 15, 1996, Ser. No. 602,127

Int. Cl.⁶ G01T 1/166

U.S. Cl. 250—363.05



1. An apparatus for balancing the weight of a gamma camera, the apparatus comprising:
 a support structure comprising a detector and a counterweight and having a center of mass;
 means for moving the support structure;
 means for measuring the velocity of the support structure; and
 means for adjusting the center of mass of the support structure based on the measured velocity.

5,670,790

ELECTRONIC DEVICE

Riichi Katoh, Yokohama; Tetsufumi Tanamoto, and Shigeki Takahashi, both of Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

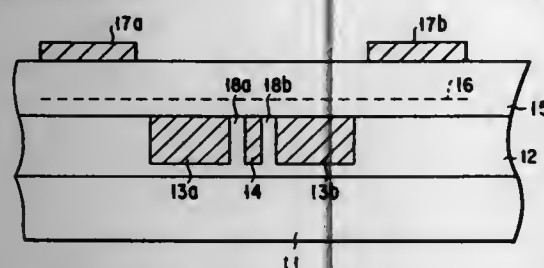
Filed Sep. 19, 1996, Ser. No. 718,186

Claims priority, application Japan, Sep. 21, 1995, 7-242246; Mar. 26, 1996, 8-069588

Int. Cl.⁶ H01L 29/06; 31/03; 38; 31/0336; 31/072

U.S. Cl. 257-14

21 Claims



1. An electronic device which comprises:
a couple of first conduction regions which are capable of confining carriers;

a second conduction region having a higher energy level than those of said first conduction regions; and
a first electrode for impressing a voltage on said first conduction regions;

Wherein, when a voltage is impressed via said first electrode between said couple of first conduction regions, carriers are caused to move due to a tunneling effect from one of said first conduction regions via said second conduction region to the other of said first conduction regions; and when the voltage impressed between said couple of first conduction regions is removed, carriers are confined mainly in said one of said first conduction regions.

5,670,791

PHOTORESPONSIVE DEVICE WITH A PHOTORESPONSIVE ZONE COMPRISING A POLYMER BLEND

Jonathan J. M. Halls, and Richard H. Friend, both of Cambridge, England, assignors to U.S. Philips Corporation, New York, N.Y.

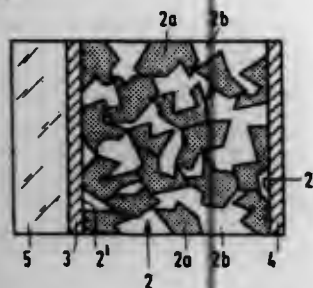
Filed Nov. 22, 1995, Ser. No. 561,962

Claims priority, application United Kingdom, Nov. 23, 1994, 9423692

Int. Cl.⁶ H01L 35/24

U.S. Cl. 257-40

62 Claims



1. A photoresponsive device comprising a photoresponsive zone having first and second major surfaces and first and second electrodes provided on respective ones of the first and second major surfaces of the photoresponsive zone, the photoresponsive zone comprising a polymer blend having regions of a first semiconductor polymer and regions of a second semiconductor polymer phase-separated from the first semiconductor polymer, the second semiconductor polymer having an electron affinity greater than that of the first semiconductor polymer so that, in use of the

device, a photocurrent between the first and second electrodes resulting from light incident on the photoresponsive zone comprises electrons travelling predominantly through the second semiconductor polymer and holes travelling predominantly through the first semiconductor polymer.

5,670,792

CURRENT-CONTROLLED LUMINOUS ELEMENT ARRAY AND METHOD FOR PRODUCING THE SAME

Koji Utsugi, and Naoyasu Ikeda, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

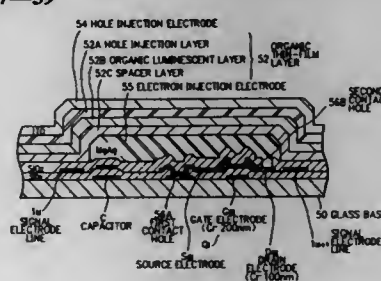
Filed Oct. 12, 1994, Ser. No. 321,608

Claims priority, application Japan, Oct. 12, 1993, 5-253866

Int. Cl.⁶ G09G 3/30

U.S. Cl. 257-59

14 Claims



1. A current-controlled luminous element array, comprising:
a plurality of current-controlled-type luminous elements, each luminous element comprising a pair of terminals and at least one organic luminescent layer;

a current-controlling transistor for controlling a current through said luminous element;

a switching transistor, wherein said luminous element, said current-controlling transistor, and said switching transistor are arranged in a matrix between a plurality of signal electrode lines and a plurality of scan electrode lines; and

a diode connected to each of said luminous elements and oriented in a forward direction toward each of said luminous elements,

wherein said luminous element is connected at a first of said pair of terminals to a power source electrode line through said diode and at the other one of said pair of terminals to a drain electrode of said current-controlling transistor, and

wherein a gate electrode of said current-controlling transistor and one of said signal electrode lines have said switching transistor connected therebetween, and

wherein said current-controlling transistor in an arbitrary one of a plurality of columns of said matrix has a source electrode thereof connected to one of said scan electrode lines in another one of said columns.

5,670,793

SEMICONDUCTOR DEVICE HAVING A POLYCRYSTALLINE SILICON FILM WITH CRYSTAL GRAINS HAVING A UNIFORM ORIENTATION

Hideo Miura, Koshigaya; Shunji Moribe, Koganei; Hisayuki Kato, Kokubunji; Atsuyoshi Koike, Kunitachi; Shuji Ikeda, Koganei, and Asao Nishimura, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

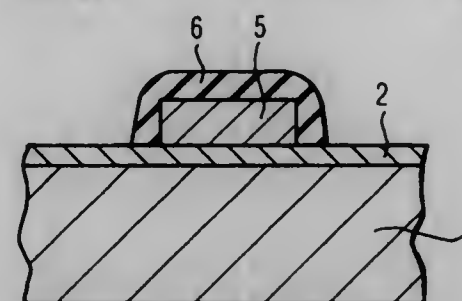
Filed Sep. 14, 1995, Ser. No. 527,942

Claims priority, application Japan, Sep. 19, 1994, 6-248310

Int. Cl.⁶ H01L 29/04

U.S. Cl. 257-64

19 Claims



1. A semiconductor device comprising a semiconductor substrate, an underlying film formed thereon and a silicon thin film, as a single body of a plurality of crystal grains of silicon, doped with an impurity selected from a group consisting of group III and V elements and formed on the underlying film, the crystal grains of said silicon thin film as a single body having mainly a columnar structure grown from an interface of the underlying film to a surface of the silicon thin film, and a crystal orientation on film surfaces of individual crystal grains of said silicon thin film as a single body being in an almost uniform direction, wherein an impurity concentration of the silicon thin film near an interface between the underlying film and the silicon thin film is sufficiently low or sufficiently high, compared with an average impurity concentration in the silicon thin film, such that the crystal orientation is in the almost uniform direction.

5,670,794

THIN FILM TRANSISTORS

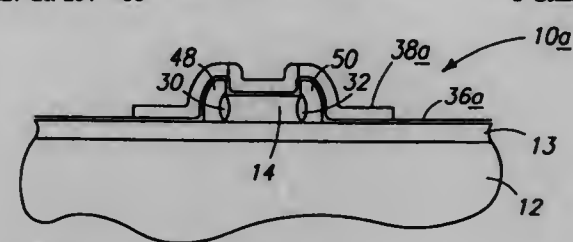
Monte Manning, Kuna, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 452,134, May 26, 1995, Pat. No. 5,600,153, which is a division of Ser. No. 320,044, Oct. 7, 1994, abandoned. This application Sep. 20, 1996, Ser. No. 710,786

Int. Cl.⁶ H01L 29/786

U.S. Cl. 257-66

8 Claims



1. A thin film transistor comprising:
a substrate;

a conductive thin film transistor gate line over the substrate, the conductive gate line comprising at least two different materials at least one of which is a metal silicide and having a gating surface and opposing outer sidewalls;

at least one of the sidewalls comprising the metal silicide which covers a predominant portion of the sidewall and running along the line; and

a thin film layer of semiconductor material over the substrate and operably adjacent the thin film transistor gate line, the

thin film layer comprising a channel region operably adjacent the thin film gating surface.

5,670,795

THIN-FILM TRANSISTOR ARRAY FOR DISPLAY

Hiroyuki Ikeda, Kanagawa, Japan, assignor to Sony Corporation, Japan

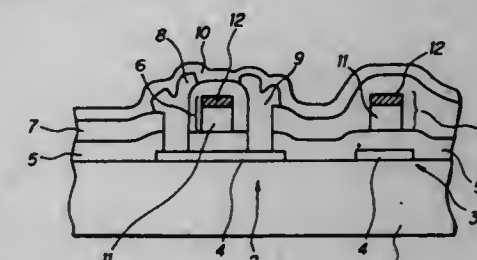
Filed May 16, 1995, Ser. No. 442,311

Claims priority, application Japan, May 20, 1994, 6-131246

Int. Cl.⁶ H01L 29/76; 29/04

U.S. Cl. 257-72

11 Claims



1. A thin-film transistor array for displaying comprising:
a plurality of pixel electrodes and thin-film transistors integrally formed on a substrate; and
an interconnection layer patterned for connecting individual thin-film transistors, wherein at least part of the interconnection layer is laminated with a conductive layer and a metal layer, wherein said metal layer has a lower resistance value than does said conductive layer and wherein said metal layer is overlaid on said conductive layer, and wherein the metal layer comprises a metal film 200 nm or less thick composed mainly of aluminum.

5,670,796

SEMICONDUCTOR DEVICE CONSISTING OF A SEMICONDUCTOR MATERIAL HAVING A DEEP IMPURITY LEVEL

Yoshiki Nishibayashi; Shin-ichi Shikata; Naoki Fujimori, all of Itami, and Takeshi Kobayashi, Osaka, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Continuation of Ser. No. 311,464, Sep. 22, 1994, abandoned.

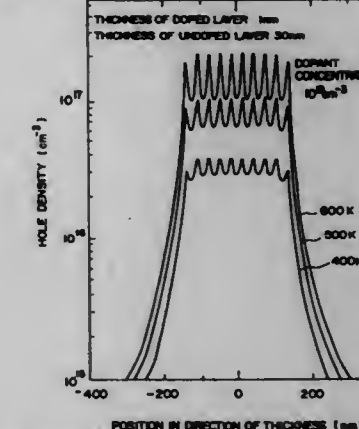
This application Mar. 20, 1996, Ser. No. 619,105

Claims priority, application Japan, Sep. 24, 1993, 5-238577

Int. Cl.⁶ H01L 31/0312

U.S. Cl. 257-77

6 Claims



1. A semiconductor device comprising

(a) a multi-layer structure including:

N+1 layers of undoped diamond, each of which has a thickness of not less than 30 nm; and

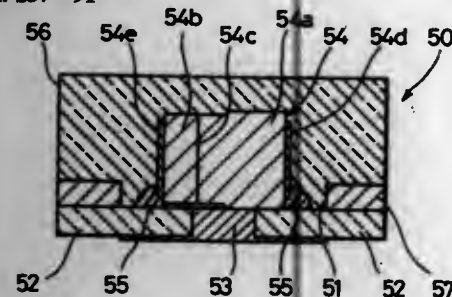
N layers of doped diamond, each of which has a thickness of not more than 3 nm, wherein N is an integer of 1 or larger,

wherein said layers of doped diamond are stacked alternately with said layers of undoped diamond, and wherein the top layer and bottom layer of said multi-layer structure are said layer of undoped diamond, and

(b) an electrode disposed on the top of said multi-layer structure.

5,670,797
COMPACT LIGHT-EMITTING DEVICE WITH SEALING MEMBER AND LIGHT-TRANSMITTING RESIN SEAL
 Jun Okazaki, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
 Filed Dec. 1, 1995, Ser. No. 566,134
 Claims priority, application Japan, Dec. 6, 1994, 6-302329; Jun. 8, 1995, 7-142202

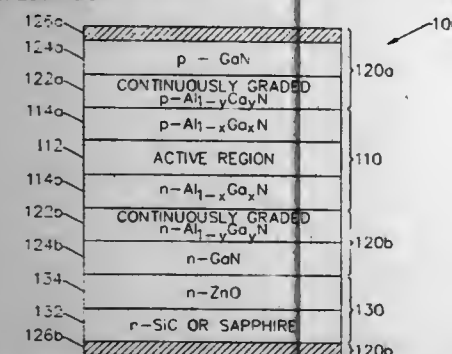
Int. Cl.⁶ H01L 33/00
 U.S. Cl. 257-91 3 Claims



1. A light-emitting device comprising:
 an insulating substrate having at least one through hole;
 first and second electrodes each having respective ends, the first and second electrodes being provided on a bottom surface of the insulating substrate so that the ends are separated from each other in a through hole; and
 a light-emitting diode chip connected between a first electrode and a second electrode of each through hole of said insulating substrate.

5,670,798
INTEGRATED HETEROSTRUCTURES OF GROUP III-V NITRIDE SEMICONDUCTOR MATERIALS INCLUDING EPITAXIAL OHMIC CONTACT NON-NITRIDE BUFFER LAYER AND METHODS OF FABRICATING SAME
 Jan Frederick Schetzina, Cary, N.C., assignor to North Carolina State University, Raleigh, N.C.

Filed Mar. 29, 1995, Ser. No. 412,971
 Int. Cl.⁶ H01L 33/00; 31/075; 31/105; 31/117
 U.S. Cl. 257-96 29 Claims

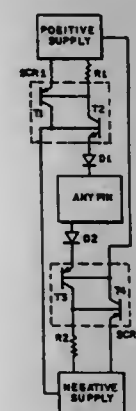


1. An ohmic contact for a semiconductor device formed of Group III-V nitride compound semiconductor materials and including a first layer comprising a first binary Group III-V nitride compound semiconductor material or an alloy thereof, said first binary Group III-V nitride compound semiconductor material or an

alloy thereof comprising a first Group III element and nitrogen, and which is doped a predetermined conductivity type, said ohmic contact comprising:

- a second layer comprising a ternary Group III-V nitride compound semiconductor material, including said first group III element, a second Group III element and nitrogen, on said first layer, said ternary Group III-V nitride compound semiconductor material being doped said predetermined conductivity type and being continuously graded such that concentration of said second Group III element relative to said first Group III element increases continuously from adjacent said first layer to opposite said first layer;
- a third layer comprising a second binary Group III-V nitride compound semiconductor material or an alloy thereof, including said second Group III element and nitrogen, on said second layer, said second binary Group III-V nitride compound semiconductor material or an alloy thereof being doped said predetermined conductivity type; and
- a conductor layer on said third layer, said second layer and said third layer forming an ohmic contact between said first layer and said conductor layer.

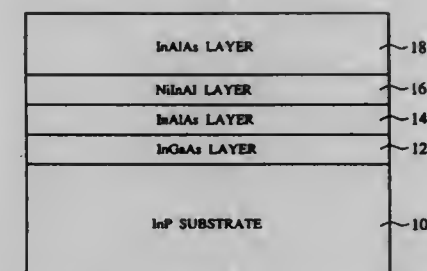
5,670,799
HIGH VOLTAGE PROTECTION USING SCRS
 Gregg D. Croft, Palm Bay, Fla., assignor to Harris Corporation, Melbourne, Fla.
 Continuation of Ser. No. 732,475, Jul. 18, 1991, Pat. No. 5,359,211. This application Aug. 26, 1994, Ser. No. 253,287
 Int. Cl.⁶ H01L 29/74; 31/111
 U.S. Cl. 257-173 29 Claims



1. An overvoltage protection circuit, for a first terminal in a protected circuit connected to a source of power, the protection circuit comprising:
 breakdown means connected between the first terminal and the source of power; and
 the breakdown means having a first threshold value when power is not being supplied by the source of power and a second, higher threshold value when power is being supplied by the source of power.

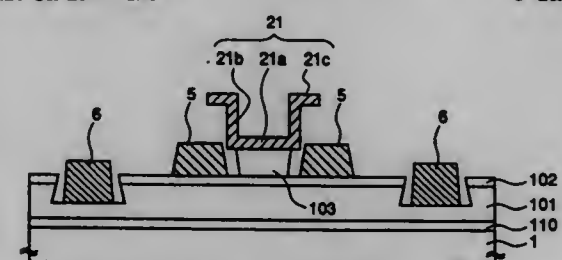
5,670,800
SEMICONDUCTOR DEVICE AND METHOD FOR FABRICATING THE SAME
 Hiroshi Nakao, and Toshihiko Mori, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan
 Filed Jun. 14, 1995, Ser. No. 490,211
 Claims priority, application Japan, Aug. 25, 1994, 6-200726
 Int. Cl.⁶ H01L 31/0328; 31/0336; 31/072; 31/109
 U.S. Cl. 257-190 27 Claims

1. A semiconductor device comprising a base substrate and an intermetallic compound layer made of an intermetallic compound formed on the base substrate,



the intermetallic compound being a ternary intermetallic compound mixing a set amount of In with one of CoGa, NiGa, FeGa, CoAl, NiAl and FeAl,
 twice of a lattice constant of the ternary intermetallic compound being substantially equal to a lattice constant of compound semiconductor forming the base substrate.

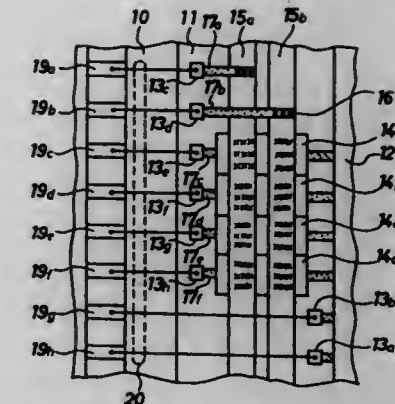
5,670,801
HETEROJUNCTION BIPOLAR TRANSISTOR
 Hirofumi Nakano, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed Jan. 3, 1996, Ser. No. 582,317
 Claims priority, application Japan, Mar. 1, 1995, 7-041763
 Int. Cl.⁶ H01L 29/201
 U.S. Cl. 257-198 8 Claims



1. A semiconductor device comprising:
 a laminated semiconductor structure comprising a collector layer, a base layer, and an emitter layer disposed on a semiconductor substrate;
 an emitter electrode disposed on the emitter layer and comprising a planar bottom part that contacts the emitter layer, a peripheral side part extending upward from the bottom part, and an upper fringe part protruding outward from the peripheral side part in a direction perpendicular to the peripheral side part, wherein the planar bottom part, the peripheral side part, the upper fringe part comprise a conductive material united in one body;
 base electrodes contacting the base layer at opposite sides of the emitter electrode and self-aligned with the planar bottom part of the emitter electrode; and
 collector electrodes contacting the collector layer.

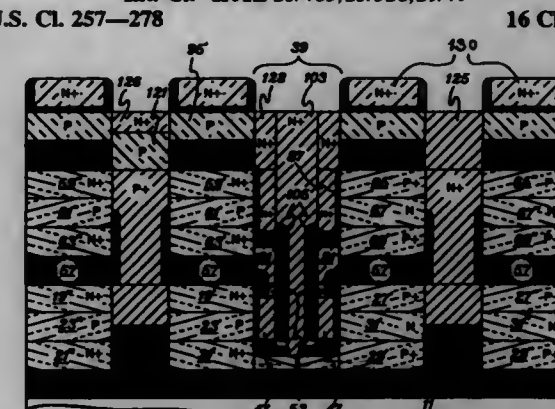
5,670,802
SEMICONDUCTOR DEVICE
 Tsuneo Kolke, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
 Filed Mar. 21, 1996, Ser. No. 621,194
 Claims priority, application Japan, Mar. 30, 1995, 7-072812
 Int. Cl.⁶ H01L 27/10
 U.S. Cl. 257-207 5 Claims

1. A semiconductor device, comprising:
 a semiconductor chip having an internal circuit formed in an internal circuit formation region on a semiconductor substrate of said semiconductor chip;
 a support having external lead terminals and having said semiconductor chip supported thereon;



said semiconductor substrate further comprising a first pad arrangement region, a buffer arrangement region and a second pad arrangement region successively arranged towards an outer edge of said internal circuit formation region;
 a power source wiring line and a grounding wiring line for an input/output buffer in said buffer arrangement region arranged in said buffer arrangement region;
 a first power source pad and a first grounding pad for said internal circuit provided in said first pad arrangement region; and
 a plurality of pads provided in said second pad arrangement region for inputting and outputting signals;
 said first power source pad and said first grounding pad each being connected to a respective one of said external lead terminals by at least one thin metal line which passes over said buffer arrangement region.

5,670,803
THREE-DIMENSIONAL SRAM TRENCH STRUCTURE AND FABRICATION METHOD THEREFOR
 Kenneth Edward Bellstein, Jr., Essex Junction; Claude Louis Bertin, So. Burlington; John Edward Cronin, Milton, and Francis Roger White, Essex Junction, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Feb. 8, 1995, Ser. No. 386,721
 Int. Cl.⁶ H01L 23/485; 23/528; 29/41
 U.S. Cl. 257-278 16 Claims



1. A semiconductor trench structure comprising:
 a substrate having a plurality of layers thereon;
 a first semiconductor device including a first input and a first output, said first semiconductor device being formed on said substrate in said plurality of layers;
 a second semiconductor device including a second input and a second output, said second semiconductor device being formed on said substrate in said plurality of layers substantially adjacent to said first semiconductor device;
 a trench formed in the plurality of layers to intersect said first semiconductor device and said second semiconductor device, said first semiconductor device and said second semiconductor device being disposed at a first sidewall of said trench; and

means for electrical connection disposed within said trench, said means for electrical connection comprising coaxial wiring within said trench electrically connected to said first semiconductor device and said second semiconductor device such that said first input and said second output are electrically coupled within said trench and said first output and said second input are electrically coupled within said trench, thereby electrically cross-coupling said first semiconductor device and said second semiconductor device.

5,670,804

PN-JUNCTION GATE FET

Toshiyuki Usagawa, Yono; Akemi Sawada, Akishima, and Kenichi Tomimaga, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

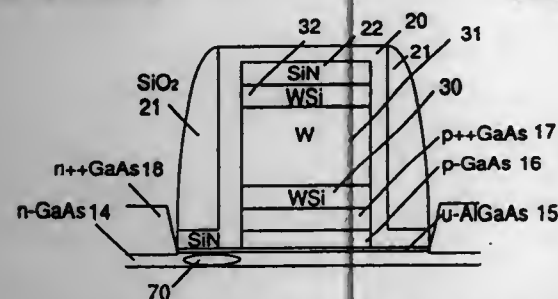
Filed Jul. 13, 1995, Ser. No. 501,956

Claims priority, application Japan, Jul. 13, 1994, 6-160931

Int. Cl.⁶ H01L 29/80; 31/0328; 27/088

U.S. Cl. 257-279

20 Claims



1. A semiconductor device having an active layer of a first conductivity type, a source and a drain of a field effect transistor made of semiconductor layers formed directly on said active layer, an undoped semiconductor layer whose band gap is greater than that of said active layer which is formed on the active layer between opposing end surfaces of said source and said drain, and a semiconductor layer of conductivity opposite to the first conductivity type which is formed on said undoped semiconductor layer apart from said source and said drain, wherein said opposite-conductivity semiconductor layer, said undoped semiconductor layer, and said active layer constitute a PN-junction gate of said field effect transistor, and the semiconductor device has source, drain, and gate electrodes which are respectively electrically connected to said source, said drain, and said gate.

5,670,805

CONTROLLED RECRYSTALLIZATION OF BURIED STRAP IN A SEMICONDUCTOR MEMORY DEVICE

Erwin Hammerl; Jack A. Mandelman, both of Stormville; Herbert L. Ho, Washingtonville; Junichi Shiozawa, and Reinhard Johannes Stengl, both of Wappingers Falls, all of N.Y., assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan; International Business Machines Corporation, Armonk, N.Y., and Siemens, Aktiengesellschaft, Munich, Germany

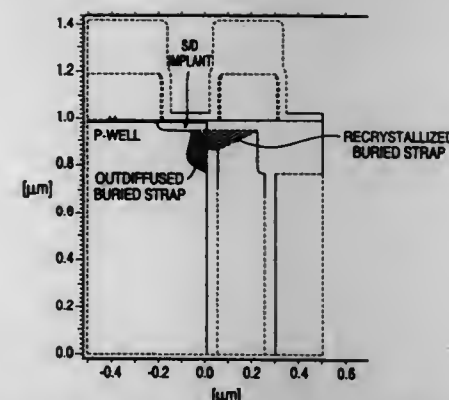
Division of Ser. No. 412,442, Mar. 29, 1995, Pat. No. 5,543,348. This application May 7, 1996, Ser. No. 643,983

Int. Cl.⁶ H01L 27/108; 29/76; 29/94

U.S. Cl. 257-301

1 Claim

1. A semiconductor memory device, comprising:
a semiconductor substrate;
a trench formed in said semiconductor substrate;
conductive material formed in said trench and insulatively spaced from semiconductor substrate to form a capacitor;
a transfer gate transistor including source/drain regions formed on a surface of said semiconductor substrate and a control gate insulatively spaced from a channel region between said source/drain regions; and



a buried strap electrically connecting said capacitor to one of said source/drain regions of said transfer gate transistor, a portion of said buried strap comprising recrystallized silicon.

5,670,806

SEMICONDUCTOR MEMORY DEVICE

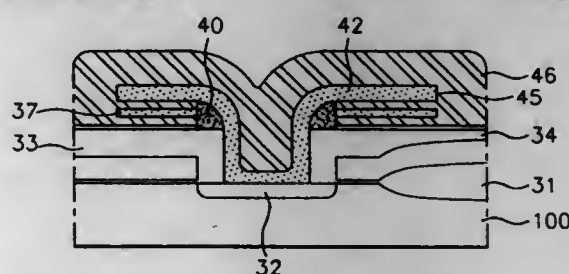
Young Kwon Jun, Seoul, Rep. of Korea, assignor to LG Semiconductor Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Continuation of Ser. No. 470,086, Jun. 6, 1995, abandoned, which is a division of Ser. No. 174,388, Dec. 28, 1993, Pat. No. 5,508,218. This application Nov. 1, 1996, Ser. No. 742,952

Int. Cl.⁶ H01L 27/108; 29/76; 29/94; 31/119

U.S. Cl. 257-306

12 Claims



1. A semiconductor memory device comprising:
a semiconductor substrate;
a memory cell transistor disposed on the semiconductor substrate and having a gate electrode, a source and a drain;
an insulation film disposed over the memory cell transistor and having a contact hole formed therethrough to expose at least one of the source and drain of the memory cell transistor; and
a storage node including:
a conductive sidewall spacer disposed on the insulation film, multi-layer conductive stacked films extending from the conductive sidewall spacer, and
an upper conduction layer disposed in the contact hole physically contacting the at least one of the source and drain of the memory cell transistor and contacting the conductive sidewall spacer, wherein the conductive sidewall spacer is at least three times a thickness of one of the multi-layer conductive stacked films.

5,670,807

Patent Not Issued For This Number

5,670,808

METAL OXIDE CAPACITOR WITH A WN_x ELECTRODE
Kazuya Nishihori, Tokyo; Yoshiaki Kitaura, Kawasaki; Yoshikazu Tanabe, Kawasaki; Tomonori Aoyama, Kawasaki; Kyoichi Suguro, Yokohama; Kumi Okuwada, Kawasaki; Shuichi Komatsu, Yokohama, and Kazuhide Abe, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

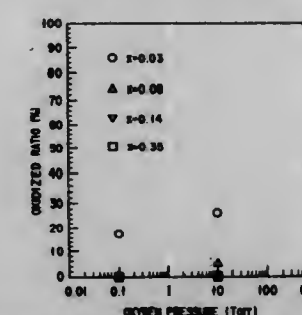
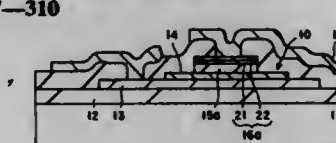
Filed Jan. 25, 1996, Ser. No. 591,153

Claims priority, application Japan, Jan. 30, 1995, 7-012131; Jan. 10, 1996, 8-002475

Int. Cl.⁶ H01L 27/108

U.S. Cl. 257-310

6 Claims



1. A semiconductor device comprising a capacitor having first and second electrodes, a dielectric film comprising an oxide interposed between said electrodes, and a first contacting surface comprising tungsten nitride interposed between, and contacting, both said dielectric film and said first electrode, wherein said tungsten nitride of said first contacting surface is expressed by WN_x and its coefficient x falls in a range of from 0.05 to 0.5.

5,670,809

NON-VOLATILE SEMICONDUCTOR MEMORY DEVICE
Kenji Saitoh, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

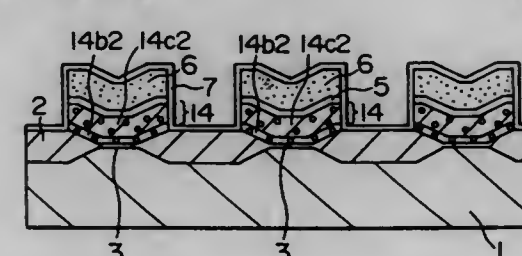
Filed Mar. 21, 1996, Ser. No. 619,189

Claims priority, application Japan, Mar. 22, 1995, 7-087652

Int. Cl.⁶ H01L 29/788

U.S. Cl. 257-316

4 Claims



1. A non-volatile semiconductor memory device comprising:
a semiconductor substrate,
a plurality of diffused layers formed in said semiconductor substrate and extending parallel to one another in a column direction, each adjacent two of said diffused layers defining a channel region,
a plurality of field insulating film extending parallel to one another in a row direction, for dividing each of said channel region into a plurality of channels,
a plurality of floating gates arrayed in a matrix in said row and column directions, each of said floating gates being disposed in operative relationship with a corresponding one of said channels, each of said floating gates being composed of a lower layer having a first impurity concentration and an upper

layer having a second impurity concentration which is higher than said first impurity concentration, each of the layers having an even thickness, and
a plurality of control gates extending parallel to one another in said row directions and each overlaying a corresponding row of said floating gate.

5,670,810

SEMICONDUCTOR DEVICE WITH A VERTICAL FIELD EFFECT TRANSISTOR

Tokuhiro Tamaki; Tatsuo Sugiyama, and Hiroaki Nakaoka, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

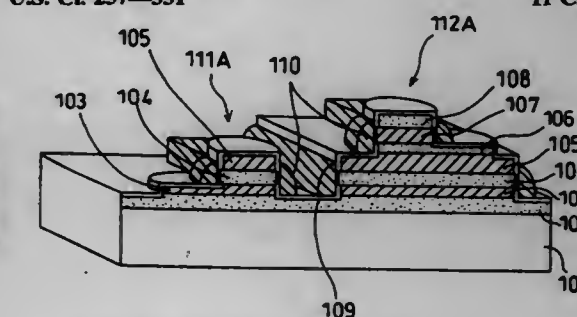
Filed Aug. 24, 1995, Ser. No. 518,973

Claims priority, application Japan, Aug. 25, 1994, 6-200656; Jun. 8, 1995, 7-142005

Int. Cl.⁶ H01L 29/76; 29/74; 31/062

U.S. Cl. 257-331

11 Claims



1. A semiconductor device comprising:
a semiconductor substrate of a first conductivity type;
a first MOSFET of a first polarity composed of a first insular multilayered portion including, in a successively layered fashion, a first semiconductor layer doped with impurity of a first conductivity type and forming a source or a drain, a second semiconductor layer doped with impurity of a second conductivity type and forming a channel, and a third semiconductor layer doped with impurity of the first conductivity type and forming the drain or the source;
a second MOSFET of a second polarity composed of a second insular multilayered portion including, in a successively layered fashion, a fourth semiconductor layer doped with impurity of the second conductivity type and forming a source or a drain, a fifth semiconductor layer doped with impurity of the first conductivity type and forming a channel, and a sixth semiconductor layer doped with impurity of the second conductivity type and forming the drain or the source;
a first gate electrode formed on a side surface of said second semiconductor layer with a first gate insulating film therebetween; and
a second gate electrode formed on a side surface of said fifth semiconductor layer with a second gate insulating film therebetween,
wherein said first insular multilayered portion is formed on a semiconductor layer of the second conductivity type which is formed on said semiconductor substrate and said second insular multilayered portion is formed on said semiconductor substrate or on a semiconductor layer of the first conductivity type formed on said semiconductor substrate.

5,670,811
VERTICAL INSULATED GATE SEMICONDUCTOR
DEVICE HAVING HIGH CURRENT DENSITY AND HIGH
RELIABILITY

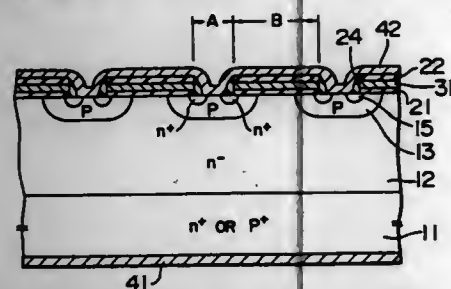
Matsuhiko Mori; Tomoyuki Tanaka; Yasumichi Yasuda, and Yasunori Nakano, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 160,808, Dec. 3, 1993, abandoned, which is a continuation of Ser. No. 921,226, Jul. 29, 1992, Pat. No. 5,285,094, which is a division of Ser. No. 683,695, Apr. 11, 1991, Pat. No. 5,179,034, which is a continuation of Ser. No. 233,007, Aug. 17, 1988, Pat. No. 5,032,532. This application Apr. 28, 1995, Ser. No. 430,289

Claims priority, application Japan, Aug. 24, 1987, 62-208123 Int. Cl.⁶ H01L 29/76; 29/94; 31/062

U.S. Cl. 257—341

14 Claims



1. An insulated gate semiconductor device, comprising:
 - a semiconductor substrate having a pair of main surfaces; a first semiconductor region of a first conductivity type, forming one of the pair of main surfaces;
 - a second semiconductor region of a second conductivity type adjacent to said first semiconductor region and forming the other of the pair of main surfaces;
 - a plurality of third semiconductor regions of the first conductivity type extending from the other of the pair of main surfaces into said second semiconductor region, such that a respective portion of the second semiconductor region is exposed between two adjacent third semiconductor regions; and
 - two fourth semiconductor regions, of the second conductivity type, extending from the other of the pair of main surfaces into each of said third semiconductor regions, each of the fourth semiconductor regions having opposed sides;
- (b) a first main electrode connected to said first semiconductor region at the one of the pair of main surfaces of the semiconductor substrate;
- (c) a second main electrode connected to said third semiconductor regions and said fourth semiconductor regions at the other of the pair of main surfaces of the semiconductor substrate; and
- (d) a plurality of insulating gates formed on the other of the pair of main surfaces, each of said plurality of insulating gates being formed (1) on a respective exposed portion of the second semiconductor region, (2) on portions of two adjacent third semiconductor regions having the respective exposed portion of the second semiconductor region therebetween, and (3) on fourth semiconductor regions, in said two adjacent third semiconductor regions, having only said portions of the two adjacent third semiconductor regions and said respective exposed portion of the second semiconductor region therebetween, and each of said insulating gates having a gate oxide film on the other of the pair of main surfaces of the semiconductor substrate, a gate electrode formed on said gate oxide film, and an insulating film formed on said gate electrode, each of said plurality of third semiconductor regions being aligned with two sides of two insulating gates adjacent to a respective third semiconductor region, wherein both of the opposed sides of each of said fourth semiconductor regions are aligned only to a respective side of said insulating gate adjacent to the respective fourth semiconductor region, and wherein a length of each of said insulating gates, from one side to another opposed side of each insulating gate, is longer than a distance between adjacent sides of adjacent insulating gates.

5,670,812
FIELD EFFECT TRANSISTOR HAVING CONTACT
LAYER OF TRANSISTOR GATE ELECTRODE
MATERIAL

Eric Adler, Jericho, Vt.; Subhash Balakrishna Kulkarni, Peekskill, N.Y.; Randy William Mann, Jericho, Vt.; Werner Alois Rausch, Stormville, N.Y., and Luigi Ternullo, Jr., Colchester, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 29, 1995, Ser. No. 536,725

Int. Cl.⁶ H01L 27/01

U.S. Cl. 257—347

21 Claims



1. A field effect transistor (FET) structure, comprising:
 - a thin film transistor which itself comprises a diffusion region and a channel; a gate dielectric layer disposed over the channel and a first portion of the diffusion region; and a transistor gate electrode disposed over a portion of the gate dielectric layer, and substantially self-aligned with the channel;
 - a stud underlying and connected to the thin film transistor; and
 - a contact layer of transistor gate electrode-material applied over at least a portion of the diffusion region; wherein the contact layer is formed simultaneously with the transistor gate electrode.

5,670,813
PROTECTION CIRCUIT FOR ELECTRONIC
COMPONENTS EMPLOYING BIPOLAR TRANSISTORS
Kouchi Harada; Tetsuya Iizuka, and Hiroshi Hibi, all of
Kanagawa, Japan, assignors to Sony Corporation, Japan

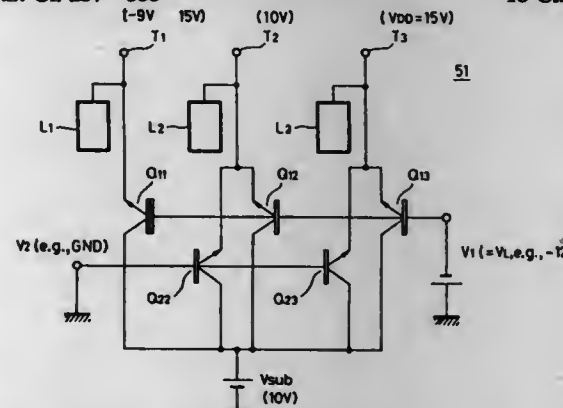
Filed Oct. 6, 1995, Ser. No. 540,074

Claims priority, application Japan, Oct. 12, 1994, 6-246482

Int. Cl.⁶ H01L 29/06; 29/78

U.S. Cl. 257—355

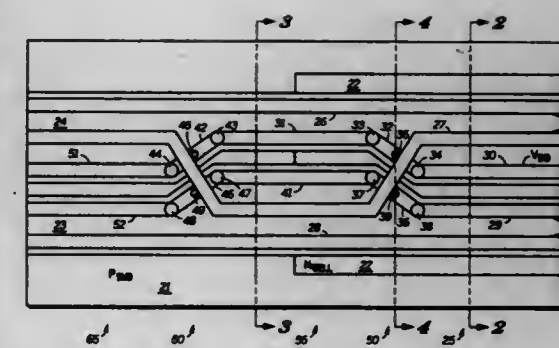
18 Claims



1. An electric circuit comprising:
 - a first electrical element operating within a first voltage area and having a first breakdown voltage;
 - a second electrical element operating within a second voltage area and having a second breakdown voltage;
 - a first terminal connected to said first electrical element;
 - a second terminal connected to said second electrical element;
 - a first protection circuit connected to said first and second terminals wherein said first protection circuit comprises a first bipolar transistor whose emitter is connected to said first terminal and a second bipolar transistor whose emitter is

connected to said second terminal, and wherein bases of said first and second bipolar transistors are connected in common to ground;

- a second protection circuit connected to one of said first and second terminals, wherein said second protection circuit comprises a third bipolar transistor whose emitter is connected to one of said first and second terminals, wherein a base of said third bipolar transistor is electrically isolated from said bases of said first and second bipolar transistors.



5,670,814
ELECTROSTATIC DISCHARGE PROTECTION CIRCUIT
TRIGGERED BY WELL-COUPLED

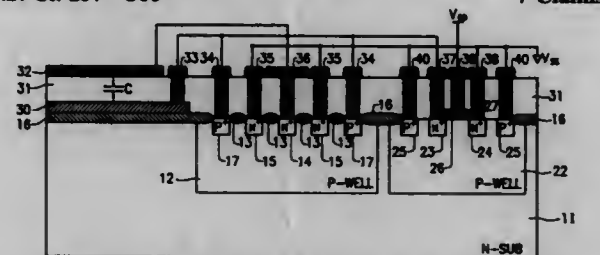
Chau-Neng Wu, Kaoshiung Hsien, and Ming-Dou Ker, Kuei-Jen Hsiang, both of Taiwan, assignors to Winbond Electronics Corporation, Taiwan

Filed Jun. 3, 1996, Ser. No. 655,076

Int. Cl.⁶ H01L 22/62; H02H 3/20; 3/24

U.S. Cl. 257—360

7 Claims



1. An electrostatic discharge protection circuit, comprising:
 - an N-type semiconductor substrate;
 - a first P-well region and a second P-well region mutually spaced apart and formed in the substrate;
 - at least one contact region formed in the first P-well region;
 - an isolating structure formed on the substrate;
 - a polysilicon layer formed on the isolating structure and coupled to the contact region;
 - a dielectric layer formed overlying the polysilicon layer;
 - a metal pad formed on the dielectric layer, wherein the metal pad, the dielectric layer, and the polysilicon layer form a capacitor for coupling ESD stress to the first P-well region when an ESD voltage appears at the pad;
 - a first heavily-doped N-type region formed in the first P-well region and coupled to the pad;
 - at least one second heavily-doped N-type region spaced apart from and electrically isolated from the first heavily-doped N-type region, and coupled to a circuit ground, wherein the first heavily-doped N-type region, the second heavily-doped N-type region, and the first P-well region form a bipolar junction transistor which bypasses ESD stress when an ESD voltage is coupled to the first P-well region through the capacitor; and
 - an NMOS transistor formed in the second P-well region, the NMOS transistor having a source coupled to the circuit ground, a drain coupled to the contact region, and a gate responsive to a circuit power signal to cause the NMOS transistor to connect the first P-well region to the circuit ground.

5,670,815
LAYOUT FOR NOISE REDUCTION ON A REFERENCE
VOLTAGE

Lawrence F. Childs; Stephen T. Flannagan; Ray Chang, and Donovan L. Rantz, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 5, 1994, Ser. No. 270,560

Int. Cl.⁶ H01L 29/76; 31/062

U.S. Cl. 257—386

11 Claims

1. A layout for reducing power supply noise on a reference voltage, comprising:

- a semiconductive substrate;
- a first conductive layer overlying the semiconductive substrate;
- a second conductive layer overlying the semiconductive substrate and laterally adjacent to the first conductive layer;
- a first power supply line overlying the first conductive layer and coupled to the first conductive layer;
- a second power supply line overlying the second conductive layer and coupled to the second conductive layer;
- a reference voltage line overlying the first conductive layer and laterally adjacent to the first power supply line for a first predetermined length, and for a second predetermined length, the reference voltage line disposed above the second conductive layer and is laterally adjacent to the second power supply line; and
- well regions implanted in the semiconductive substrate, the well regions underlying predetermined alternating portions of both the first and second conductive layers, wherein a capacitive coupling between the first and second conductive layers and the well regions substantially cancels a capacitive coupling between the semiconductive substrate and the first and second conductive layers.

5,670,816
SEMICONDUCTOR DEVICE

Hiroshi Hatano, Hamamatsu; Ichiro Yoshii, Kawasaki, and Satoru Takatsuka, Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

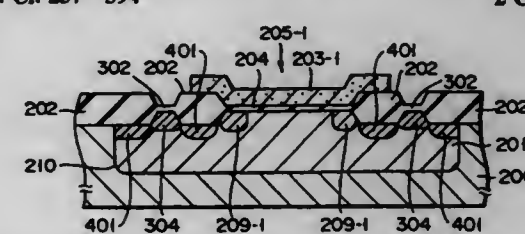
Continuation of Ser. No. 134,856, Oct. 12, 1993, abandoned, which is a continuation-in-part of Ser. No. 715,886, Jun. 18, 1991, abandoned, which is a continuation of Ser. No. 505,439, Apr. 6, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 487,163

Claims priority, application Japan, Apr. 7, 1989, 1-88730

Int. Cl.⁶ H01L 29/76

U.S. Cl. 257—394

2 Claims



1. A semiconductor device comprising:
 - a first P-type region having a first impurity concentration;
 - an N-channel MOS transistor, in the first P-type region, including
 - a source,
 - a channel juxtaposed to the source, and
 - a drain juxtaposed to the channel;

- a second P-type region on the first P-type region, and having an impurity concentration higher than the first impurity concentration;
- a third P-type region on the first P-type region, and having a side adjacent to the channel and extending from the source to the drain, the third P-type region having a third impurity concentration higher than the first impurity concentration;
- a fourth P-type region on the first P-type region, in an area between the second P-type region and the third P-type region, and having an impurity concentration lower than the third impurity concentration and higher than the first impurity concentration; and
- an insulation film having a first thickness in an area on the fourth P-type region, having a second thickness in an area on the second P-type region, the second thickness being smaller than the first thickness, and having a third thickness in an area on the third P-type region, the third thickness being smaller than the first thickness.

5,670,817 MONOLITHIC-HYBRID RADIATION DETECTOR/ READOUT

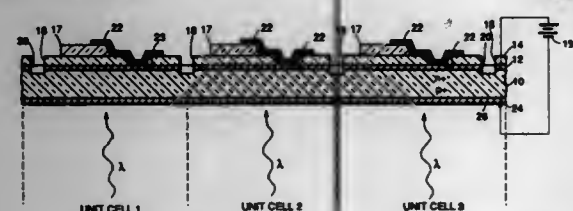
David A. Robinson, Oceanside, Calif., assignor to Santa Barbara Research Center, Goleta, Calif.

Filed Mar. 3, 1995, Ser. No. 397,818

Int. Cl.⁶ H01L 31/00

U.S. Cl. 257—443

7 Claims



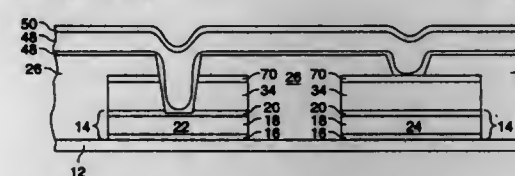
1. A monolithic array of photodiodes and readout integrated circuits, comprising:
- a substrate comprised of a semiconductor material, said substrate having a first major surface and an oppositely disposed radiation receiving second major surface, said substrate having a first doped region adjacent to said first major surface that is doped with a dopant having a first type of electrical conductivity, said substrate having a second doped region adjacent to said second major surface that is doped with a dopant having a second type of electrical conductivity;
- means for partitioning said first doped region of said substrate into a plurality of adjacently disposed and electrically isolated areas each of which corresponds to one photodiode unit cell; wherein each of said unit cells includes,
- an electrically insulating dielectric layer disposed on said first major surface;
- a semiconductor layer disposed on said electrically insulating dielectric layer, said semiconductor layer comprising a unit cell readout integrated circuit; and
- an electrode directly connecting said readout integrated circuit to an underlying portion of said first doped region;
- said monolithic array further comprising a common electrode disposed over said second major surface.

5,670,818
ELECTRICALLY PROGRAMMABLE ANTIFUSE
Abdul Rahim Forouhi, San Jose; Esmat Z. Hamdy, Fremont; Chenming Hu, Alamo, and John L. McCollum, Saratoga, all of Calif., assignors to Actel Corporation, Sunnyvale, Calif.
Continuation of Ser. No. 947,275, Sep. 18, 1994, Pat. No. 5,387,812, which is a division of Ser. No. 743,261, Aug. 9, 1991, Pat. No. 5,272,101, which is a continuation-in-part of Ser. No. 604,779, Oct. 26, 1990, Pat. No. 5,181,096, which is a continuation-in-part of Ser. No. 508,306, Apr. 12, 1990, Pat. No. 5,070,384. This application Aug. 16, 1994, Ser. No. 291,422

Int. Cl.⁶ H01C 29/00

U.S. Cl. 257—530

16 Claims

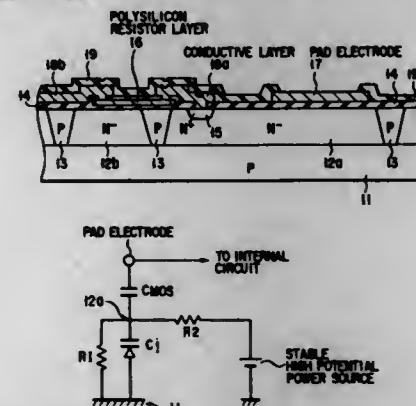


1. An antifuse and metal interconnect structure in an integrated circuit comprising:
- a substrate having an insulating layer disposed on an upper surface thereof;
- a first multilayer metal interconnect layer disposed on said insulating layer and having a first portion forming a lower antifuse electrode and a second portion forming a lower metal interconnect electrode, said first portion including an upper barrier metal layer;
- an inter-metal dielectric layer disposed on said lower antifuse and metal interconnect electrodes, said inter-metal dielectric layer including an antifuse via formed therethrough communicating with said lower antifuse electrode and a metal interconnect via formed therethrough communicating with said lower metal interconnect electrode;
- an antifuse material layer disposed in said antifuse via; and
- a second multilayer metal interconnect layer in said integrated circuit comprising an upper antifuse electrode disposed on said antifuse material layer and an upper metal interconnect electrode disposed in said upper metal interconnect electrode via and on said lower metal interconnect electrode.

5,670,819
SEMICONDUCTOR DEVICE WITH PAD ELECTRODE
Hisao Yamaguchi, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 340,387, Nov. 15, 1994, abandoned.
This application Jan. 22, 1996, Ser. No. 589,572
Claims priority, application Japan, Nov. 15, 1993, 5-284775
Int. Cl.⁶ H01L 29/00

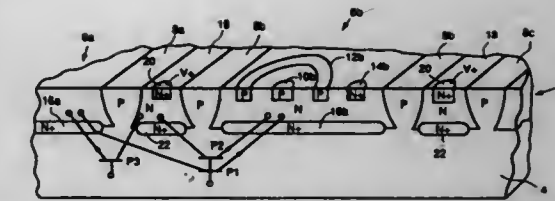
U.S. Cl. 257—536

11 Claims



1. A semiconductor device comprising:
- a semiconductor substrate of a first conductivity type;

- an epitaxial layer of a second conductivity type formed on a surface of the semiconductor substrate, said epitaxial layer including first and second regions;
- a semiconductor layer of the first conductivity type, formed in the epitaxial layer, for isolating the first region from the second region, said first region including a first resistance, a relatively strongly doped second conductivity layer and a relatively weakly doped second conductivity layer;
- an insulating film formed on the epitaxial layer;
- a bonding pad electrode formed on the insulating film and located above the first region and above said weakly doped second conductivity layer, said bonding pad electrode and said first region forming a capacitor using said insulating film as an insulator; and
- a resistor layer, formed on the insulating film and located above the second region, one end of the resistor layer being connected to said strongly doped second conductivity layer in the first region through said insulating film and another end of the resistor layer being connected to a power source.



- a first active transistor in said device pocket having doped emitter, base and collector regions with respective doping concentrations, a first isolation ring surrounding said pocket, a doped guard ring with the same conductivity as said pocket surrounding said isolation ring and, together with said pocket and said substrate, forming a first parasitic transistor, said guard ring having a doping concentration at least about 100 times less than said emitter and collector region doping concentrations, said guard ring having the same type doping conductivity as said active transistor base region, said active transistor base region being integral with said pocket and forming the emitter of said parasitic transistor, and
- a contact for applying a voltage to said guard ring.

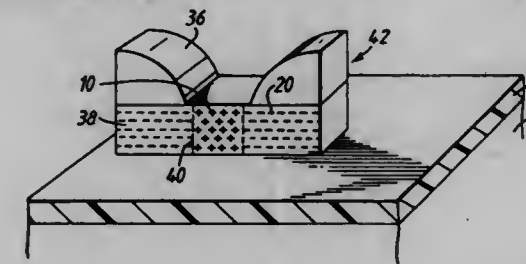
5,670,820 SEMICONDUCTOR ELEMENT INCORPORATING A RESISTIVE DEVICE

Richard Norman Campbell, Coed Eva; Michael Kevin Thompson, Maindee, and Elizabeth Ann Smith, Malpas, all of United Kingdom, assignors to Inmos Limited, United Kingdom
Continuation of Ser. No. 31,132, Mar. 12, 1993, abandoned, which is a division of Ser. No. 185,140, Apr. 22, 1988, Pat. No. 5,198,382. This application Aug. 15, 1994, Ser. No. 290,226
Claims priority, application United Kingdom, May 1, 1987, 8710359

Int. Cl.⁶ H01L 29/43; H01C 7/13

U.S. Cl. 257—538

5 Claims



4. A resistor formed in a polysilicon layer of a polycide element, the resistor comprising an impurity-doped first region in the polysilicon layer of one conductivity type, two impurity-doped second regions in the polysilicon layer of opposite conductivity type on opposed sides of the first region and two regions of silicide interconnect each of which is disposed on a respective second region of polysilicon and is spaced from the first region of polysilicon.

5,670,821 GUARD RING FOR MITIGATION OF PARASITIC TRANSISTORS IN JUNCTION ISOLATED INTEGRATED CIRCUITS

Derek F. Bowers, Sunnyvale, Calif., assignor to Analog Devices, Inc., Norwood, Mass.

Filed Dec. 13, 1995, Ser. No. 571,562

Int. Cl.⁶ H01L 29/00; 23/58

U.S. Cl. 257—547

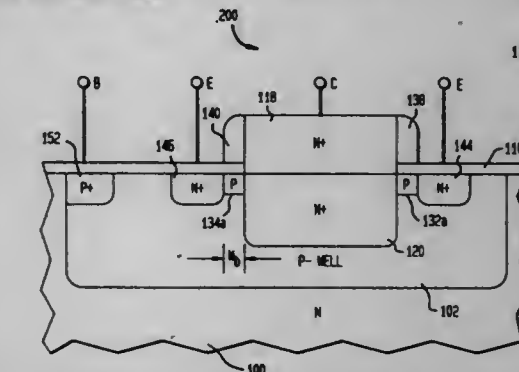
4 Claims

1. A parasitic protected, junction isolated integrated circuit (IC), comprising:
- a substrate having a doping of one conductivity,
- a first integrated circuit device pocket in said substrate with a doping conductivity opposite to the substrate doping,

5,670,822
CMOS PROCESS COMPATIBLE SELF-ALIGNMENT
LATERAL BIPOLAR JUNCTION TRANSISTOR
Wen-Yueh Jang, Hsin Chu, Taiwan, assignor to Winbond Electronics Corporation, Hsinchu, Taiwan
Division of Ser. No. 227,358, Apr. 13, 1994, Pat. No. 5,444,004.
This application Jun. 7, 1995, Ser. No. 476,311
Int. Cl.⁶ H01L 27/082

U.S. Cl. 257—565

7 Claims



1. A CMOS process compatible lateral bipolar junction transistor comprising:
- a substrate,
- a heavily doped region disposed on said substrate surface,
- a first oxide spacer, disposed on said substrate surface laterally adjacent to a side of said heavily doped region, having a width extending in said lateral direction which is smaller than a photolithographic resolution of a process utilized to form said lateral bipolar transistor,
- a collector region disposed in said substrate to a first depth below said heavily doped region by thermally diffusing impurities from said heavily doped region into said substrate in a vicinity of said collector region, said collector region comprising the same impurities as said heavily doped region,
- a first base region disposed in said substrate laterally adjacent to said collector region and entirely below said first oxide spacer, said first base region having a lateral width that is equal to said lateral width of said first oxide spacer, and
- a first emitter region disposed in said substrate having a second depth that is smaller than said first depth so as to increase a collection efficiency of said collector region, said first emitter region being laterally separated from said collector region by said first base region so that a base width of said lateral bipolar transistor equals said lateral width of said first base region,

wherein said collector, base and emitter regions are disposed in a well having the same conductivity type as said base region, but an opposite conductivity type as said emitter and collector regions and wherein a base of said bipolar junction transistor comprises said base region and said well.

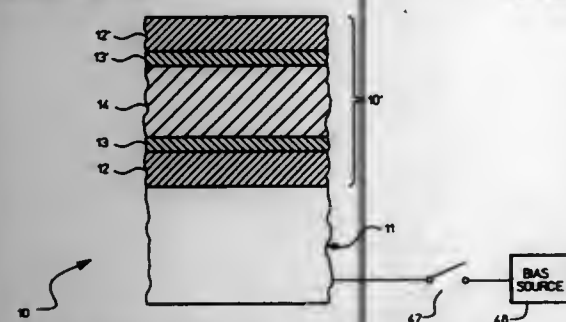
5,670,823

INTEGRATED CIRCUIT BARRIER STRUCTURE

James B. Kruger, 164 Kelly Ave., Half Moon Bay, Calif. 94019; S. Jeffrey Rosner, 1235 College Ave., Palo Alto, Calif. 94306, and Iton Wang, 20398 Clay St., Cupertino, Calif. 95014
Continuation of Ser. No. 371,061, Jan. 10, 1995, abandoned, which is a continuation of Ser. No. 190,399, Feb. 2, 1994, which is a division of Ser. No. 898,906, Jun. 15, 1992, Pat. No. 5,286,676. This application Jun. 28, 1996, Ser. No. 671,105
Int. Cl.⁶ H01L 23/48; 23/59; 29/40

U.S. Cl. 257—751

6 Claims



1. An integrated circuit barrier structure comprising:
 - a substrate;
 - a first barrier layer disposed on the substrate, the first barrier layer comprising a transitional metal capable of forming a nitride compound;
 - a second barrier layer disposed on the first barrier layer, the second barrier layer comprising the same transitional metal as the first barrier layer, the second barrier layer thinner than the first barrier layer; and
 - nitrogen saturating the second barrier layer in a concentration exceeding that concentration which would be consumed in a nitride reaction with the transitional metal of the second barrier layer, the nitrogen defining a diffusion barrier that prevents diffusion through the barrier layers of a conductor material deposited on the second barrier layer.

5,670,824

VERTICALLY INTEGRATED COMPONENT ASSEMBLY INCORPORATING ACTIVE AND PASSIVE COMPONENTS

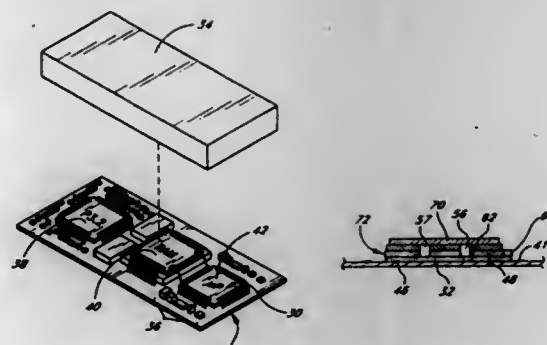
Alvin H. Weinberg, Moorpark, Calif., assignor to Pacsetter, Inc., Sylmar, Calif.

Filed Dec. 22, 1994, Ser. No. 363,426
Int. Cl.⁶ H01L 23/34; H05K 1/16

U.S. Cl. 257—723

21 Claims

1. An apparatus for combining an integrated circuit device with passive components comprising:
 - a conductive layer forming a first ground plane;
 - a substrate layer juxtaposed with the conductive layer, the substrate layer having contact pads and passive component material printed in a desired pattern between the contact pads so that a plurality of passive components are formed thereon, the contact pads having fingers extending substantially to an edge of the substrate layer;
 - a dielectric layer juxtaposed with the substrate layer for insulating the passive components; and
 - a second conductive layer juxtaposed with the dielectric layer and forming a second ground plane, the second ground plane being electrically connected to the first ground plane and



electrically insulated from the plurality of passive components, the second conductive layer providing a mounting surface for the integrated circuit device.

5,670,825

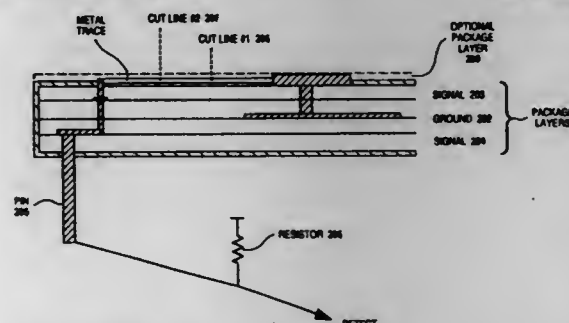
INTEGRATED CIRCUIT PACKAGE WITH INTERNALLY READABLE PERMANENT IDENTIFICATION OF DEVICE CHARACTERISTICS

John W. Hyde, Abby M. Schwartz, both of Portland, Oreg., and David A. Brown, San Jose, Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 536,353, Sep. 29, 1995. This application Dec. 29, 1995, Ser. No. 580,750
Int. Cl.⁶ H01L 23/12; 23/58

U.S. Cl. 257—730

20 Claims



1. An integrated circuit device comprising:
 - a package encapsulating an integrated circuit die having an on-chip driver and an input buffer; and
 - at least one conductive indicator coupled through a portion of the package to the on-chip driver and the input buffer to encode a characteristic of said integrated circuit die based on electrical continuity of said at least one indicator from the on-chip driver to the input buffer.

5,670,826

METHOD FOR MOUNTING A SEMICONDUCTOR DEVICE ON A CIRCUIT BOARD USING A CONDUCTIVE ADHESIVE AND A THERMOSETTING RESIN, AND A CIRCUIT BOARD WITH A SEMICONDUCTOR DEVICE MOUNTED THEREON USING THE METHOD

Yoshihiro Bessho, Higashiosaka, and Yoshihiro Tomura, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 315,084, Sep. 29, 1994, abandoned.
This application Sep. 9, 1996, Ser. No. 709,606

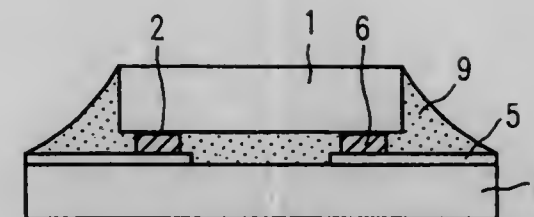
Claims priority, application Japan, Sep. 29, 1993, 5-242645; Sep. 29, 1993, 5-242646; Sep. 29, 1993, 5-242647

Int. Cl.⁶ H01L 23/31; 23/50

U.S. Cl. 257—737

7 Claims

1. A circuit board with a semiconductor device mounted thereon, comprising:



a joining layer formed of a thermoplastic conductive adhesive between a terminal electrode of the semiconductor device and a connecting electrode of the circuit board; and
a resin layer formed of a thermosetting resin between the semiconductor device and the circuit board,
wherein the joining layer and the resin layer are both formed prior to a curing step, and then the thermosetting resin is cured at a temperature equal to or higher than a plasticizing temperature of the thermoplastic conductive adhesive.

5,670,827

PROTEIN-BASED SEMICONDUCTOR INTEGRATED CIRCUIT

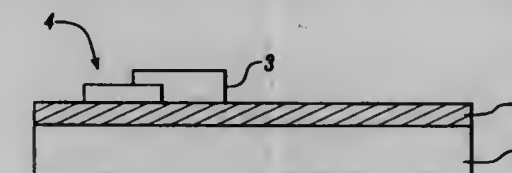
Shuji Sakuma; Kiminori Atsumi, and Tsutomu Ishizaki, all of Tokyo, Japan, assignors to Kabushiki Kaisha Sangi, Tokyo, Japan

Filed Oct. 17, 1995, Ser. No. 543,919

Claims priority, application Japan, Oct. 20, 1994, 6-279726
Int. Cl.⁶ H01L 23/48; 23/52; 29/40

U.S. Cl. 257—741

13 Claims



1. A semiconductor integrated circuit comprising:
 - a substrate layer;
 - an insulating layer on at least a portion of said substrate layer, said insulating layer comprising apatite molecules substantially aligned in the C-axis (002) orientation; and
 - an electrode layer on at least a portion of said substrate layer, said electrode layer comprising at least one of an electric conductive protein and organella matter containing an electric conductive protein matter.

5,670,828

TUNNELING TECHNOLOGY FOR REDUCING INTRA-CONDUCTIVE LAYER CAPACITANCE

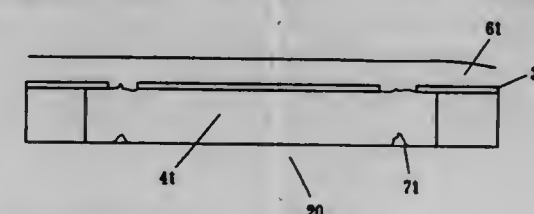
Robin W. Cheung, Cupertino; Simon S. Chan, Saratoga, and Richard J. Huang, Milpitas, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Feb. 21, 1995, Ser. No. 391,692

Int. Cl.⁶ H01L 23/48; 23/52; 29/40

U.S. Cl. 257—773

21 Claims



1. A semiconductor device comprising:
 - a substrate;
 - an insulating layer formed on the substrate; and

a conductive pattern formed on the insulating layer; wherein the conductive pattern comprises conductive lines separated by interwiring spaces, and a selected plurality of the interwiring spaces contain air forming air tunnels in the interwiring spaces,
wherein the interwiring spaces containing air tunnels comprise:
a dielectric liner on the conductive lines and substrate; and
a capping layer enclosing air within each interwiring space to form the individual air tunnels.

5,670,829

PRECISION CURRENT LIMIT CIRCUIT

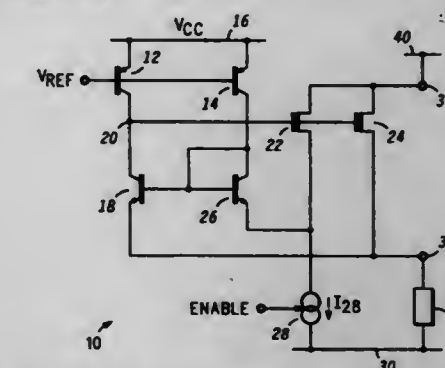
David M. Susak, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 20, 1995, Ser. No. 407,121

Int. Cl.⁶ B60R 21/32

U.S. Cl. 307—10.1

19 Claims



1. A current limit circuit, comprising:
 - a first current source;
 - a first transistor having a gate coupled to a first node, and a drain and source conduction path coupled to an output of said first current source;
 - a second transistor having a gate coupled to said first node, a drain coupled to a first terminal, and a source coupled to a second terminal; and
 - a feedback circuit coupled between said sources of said first and second transistors and said first node to maintain substantially equal gate-source voltages for said first and second transistors, said feedback circuit including:
 - (a) a second current source,
 - (b) a third transistor having a collector coupled to a first output of said second current source at said first node, and an emitter coupled to said second terminal, and
 - (c) a fourth transistor having a collector and base coupled together to a second output of said second current source and to a base of said third transistor, and an emitter coupled to said output of said first current source.

5,670,830

FUEL USE LIMITER-EQUIPPED HYBRID ELECTRIC CAR

Hisamitsu Koga, Okazaki; Naotake Kumagai, Tokyo; Tomiji Ohwada; Nobuya Furukawa, both of Okazaki; Masaaki Kato, Kyoto, and Nobuyuki Kawamura, Okazaki, all of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 28, 1995, Ser. No. 431,289

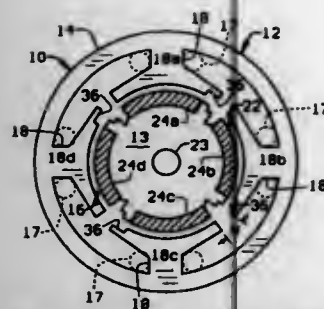
Claims priority, application Japan, Apr. 28, 1994, 6-091785

Int. Cl.⁶ F02B 73/00

U.S. Cl. 307—10.1

28 Claims

1. A fuel use limiter-equipped hybrid electric car having a battery unit chargeable by external charging means, an electric drive motor for driving wheels by electric power from said battery unit, an internal combustion engine for driving a generator to



of the adjacent ring segments, and each stator pole having an indentation formed therein to one side thereof, the rotor aligning with the stator so a recess in the rotor substantially aligns with the indentation in a stator pole when the machine is stopped, the indentation in each stator pole being formed at one end of the stator pole, and each stepped recess in the rotor comprising a first recess portion having a width corresponding to that of the indentation in a stator pole and a second recess portion the depth of which corresponds to the thickness of the ring segments.

5,670,837

DISK DRIVE SPINDLE MOTOR HAVING SPLIT WINDINGS FOR EACH PHASE

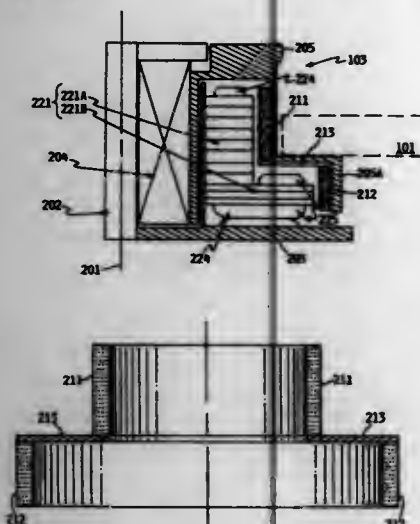
Zine-Eddine Boutaghou, and Kevin Jack Erickson, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 286,760, Aug. 4, 1994. This application May 22, 1995, Ser. No. 445,510

Int. Cl.⁶ H02K 1/00; 3/00

U.S. Cl. 310—184

9 Claims



1. An electric motor, comprising:
a base;

a rotor housing rotatably mounted to said base for rotation about an axis, said rotor housing having a substantially cylindrical first hub portion having a first diameter, and a substantially cylindrical second hub portion having a second diameter, said second diameter being greater than said first diameter, said first and second hub portions being cylindrical about said axis;

a first set of permanent magnets mounted within said first hub portion of said rotor housing and surrounding said axis at a first radial distance;

a second set of permanent magnets mounted within said second hub portion of said rotor housing and surrounding said axis at a second radial distance, said second radial distance being greater than said first radial distance;

an electromagnetic stator assembly rigidly mounted to said base and surrounding said axis, said stator including a first stator

portion for driving said first set of permanent magnets, and a second stator portion for driving said second set of permanent magnets.

5,670,838

ELECTRICAL MACHINES

John M. Everton, Redditch, United Kingdom, assignor to Unique Mobility, Inc., Golden, Colo.

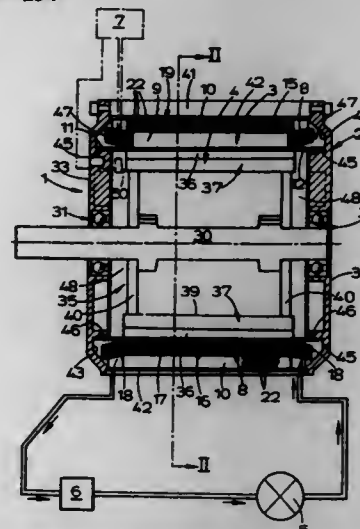
Filed Dec. 6, 1993, Ser. No. 157,133

Claims priority, application United Kingdom, Jun. 5, 1991, 9112059

Int. Cl.⁶ H02K 1/12; 9/00; 9/08; 1/32

U.S. Cl. 310—254

20 Claims



1. An electromechanical transducer for an electrically powered automobile, said transducer comprising:

a housing;

a stator, disposed within said housing, comprising a winding, said winding having a first region embedded in thermal insulating resin, and a second region not embedded in said resin; a rotor, disposed within said housing, comprising (i) a main shaft, and (ii) at least one permanent magnet disposed in operative association with said stator;

means, operatively disposed within said stator, for fluidly isolating said second region of said winding from a remaining portion of said transducers; and

means, in fluid communication with said second region of said winding, for circulating coolant over said second region of said winding, to thereby dissipate heat from said transducer; wherein:

said second region comprises a plurality of end turns of said winding;

said first region comprises a central portion of said winding that is between said plurality of end turns; and

said coolant is in direct cooling contact with said second region, but not with said first region.

5,670,839

THIN-FILM LUMINESCENCE DEVICE UTILIZING $Zn_{(1-x)}Mg_xS$ HOST MATERIAL COMPOUND ACTIVATED BY GADOLINIUM OR A GADOLINIUM COMPOUND

Mikihiko Noma, Tenri, and Akiyoshi Mikami, Ayama-gun, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 5, 1995, Ser. No. 463,730

Claims priority, application Japan, Jun. 14, 1994, 6-132261

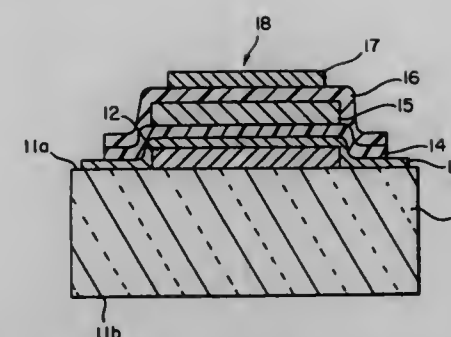
Int. Cl.⁶ H01J 1/62; H05B 33/14

U.S. Cl. 313—503

10 Claims

5. A luminescence device comprising:

a pair of electrodes;



an EL layer, disposed between the pair of electrodes, for emitting the pair of electroluminescence in response to the application of an electric field, the EL layer including a host material and luminescence centers incorporated therein; and a Pn layer for emitting photoluminescence in response to the electroluminescence by the EL layer, the PL layer disposed opposite the EL layer relative to either of the pair of electrodes, wherein the host material is selected from a compound represented by the general formula: $Zn_{(1-x)}Mg_xS$, wherein the composition ratio, x, of Mg is in the range of 0.33–0.8, inclusive; and the luminescence center is selected from Gd or a Gd compound.

5,670,840

TUNGSTEN-HALOGEN INCANDESCENT LAMP WITH REDUCED RISK OF CONTAINMENT FAILURE

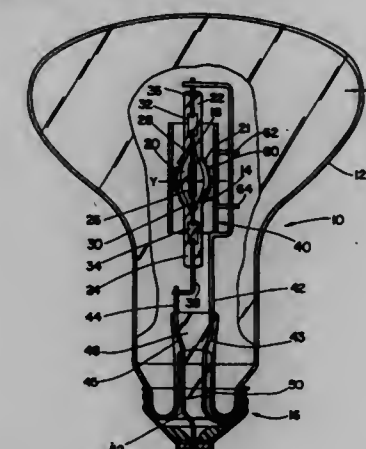
Gustino J. Lanese, 11445 Kristine Dr., Chesterland, Ohio 44026; Frank E. Zalar, 2874 Lamplight La., Willoughby Hills, Ohio 44094, and Ronald J. Olwert, 7039 Teal Cove, Concord Township, Ohio 44077

Filed Nov. 12, 1992, Ser. No. 975,296

Int. Cl.⁶ H01J 61/34

U.S. Cl. 313—25

17 Claims



1. A lamp comprising:

an outer envelope formed from light-transmissive material, the outer envelope having a wall thickness, x;

a tungsten-halogen light source comprising a light transmissive filament chamber enclosing a filament, the filament chamber being coated with an infrared reflecting and visible light transmitting coating, the filament chamber having a wall thickness, y;

an inert fill gas within the filament chamber having a room temperature pressure of no greater than 2500 Torr;

an assembly that mounts the light source within the outer envelope; and

a wall thickness ratio, x/y, of less than 0.65 whereby the likelihood of the outer envelope fracturing is substantially reduced.

5,670,841

ELECTRON GUN FOR A CATHODE RAY TUBE HAVING A PLURALITY OF ELECTRODE LAYERS FORMING A MAIN LENS

Tsunao Muti, Kanagawa, and Tsunenari Saito, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

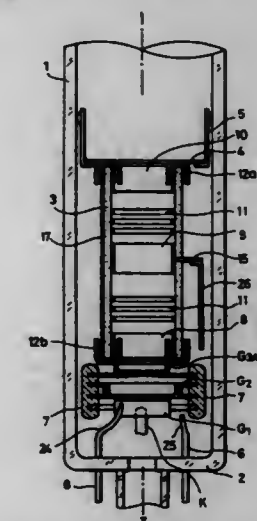
Filed Dec. 27, 1993, Ser. No. 172,733

Claims priority, application Japan, Dec. 28, 1992, 4-349368; Jan. 21, 1993, 5-008557

Int. Cl.⁶ H01J 29/58

U.S. Cl. 313—450

6 Claims



1. An electron gun for a cathode ray tube comprising:

at least one tube;

first and second holders for holding corresponding first and second ends of said tube;

a plurality of electrode layers which are provided on an inner surface of said tube so as to form a part of a main lens;

at least one conductive layer provided exclusively on a first outer side surface of said tube; and

a plurality of electrodes for forming a part of a triode.

5,670,842

METHOD AND APPARATUS FOR IGNITING ELECTRODELESS LAMP DISCHARGE

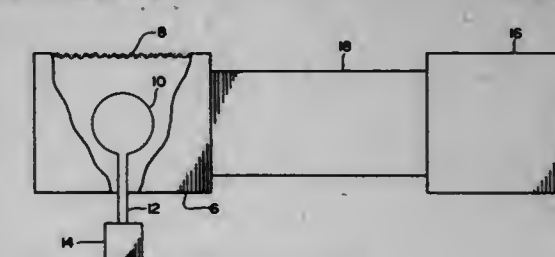
James T. Dolan, 536 Ellrose Ct., Frederick, Md. 21702; Brian P. Turner, 9087 Dawn Ct., Myersville, Md. 21773; Michael G. Ury, 6518 E. Halbert Rd., Bethesda, Md. 20817, and Charles H. Wood, 14725 Janice Dr., Rockville, Md. 20853

Continuation-in-part of Ser. No. 149,818, Nov. 10, 1993, which is a continuation of Ser. No. 60,553, May 13, 1993, abandoned, which is a continuation-in-part of Ser. No. 867,551, Apr. 13, 1992, abandoned, Ser. No. 875,769, Apr. 29, 1992, abandoned, and Ser. No. 882,409, May 13, 1992, abandoned, said Ser. No. 867,551 Ser. No. 875,769, and Ser. No. 882,409, is a continuation-in-part of Ser. No. 779,718, Oct. 23, 1991, abandoned, which is a continuation-in-part of Ser. No. 604,487, Oct. 25, 1990, abandoned. This application May 10, 1995, Ser. No. 438,600

Int. Cl.⁶ H01J 17/20; 61/12; 61/18

U.S. Cl. 313—570

12 Claims



1. An electrodeless lamp comprising:
a light transmissive envelope;

a primary fill material disposed in said envelope, said primary fill material having the characteristic of emitting light when ignited and excited by high frequency electrical energy; means for selectively exciting said primary fill material with said high frequency electrical energy; and an additive material disposed in said envelope for facilitating ignition of said primary fill material, said additive fill material having the characteristic of being at least partially electrically conductive and solid at room temperature but electrically non-conductive or vapor at operating temperatures existing in the envelope when said primary fill material is emitting said light.

5,670,843

PLASMA ADDRESSED DISPLAY DEVICE

Kiyoshige Matsuura, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

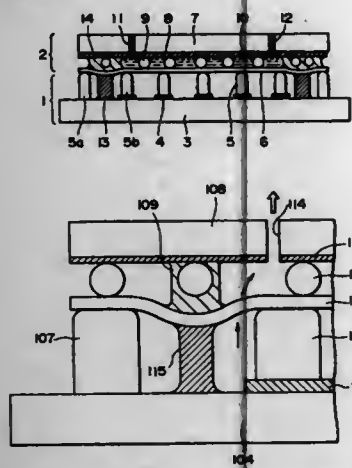
Filed Dec. 1, 1995, Ser. No. 566,172

Claims priority, application Japan, Dec. 2, 1994, 6-329449

Int. Cl.⁶ H01J 17/49; 17/16; 61/30; 9/26

U.S. Cl. 313—582

8 Claims



1. A plasma addressed display device, comprising:
 - a display cell comprising a first substrate having transparent electrodes arranged in a column direction on an inner surface, a microsheet glass adhered spaced at a gap to the first substrate and a liquid crystal layer held in the gap; and
 - a plasma cell comprising a second substrate having discharge electrodes arranged in a row direction and a plurality of barrier ribs to an inner surface and an ionizable gas sealed between the second substrate and the microsheet glass, wherein
- said second substrate is adhered to a lower surface of the microsheet glass by a bonding material disposed between barrier ribs situated to an outer side and barrier ribs situated to an inner side thereof, said bonding material extending between said second substrate and said microsheet glass,
- said first substrate is adhered to an upper surface of the microsheet glass by an adhesive material disposed in alignment with the bonding material, and
- said adhesive material being of a sealing width at least as great as a sealing width of the bonding material and said sealing width of said adhesive material extending for a distance between the barrier rib situated to said outer side of said bonding material and the barrier rib situated to said inner side of said bonding material.

5,670,844
DISCHARGE LAMP

Yukio Yasudaa, and Kiyotada Nakamura, both of Himeji, Japan, assignors to Ushiodenki Kabushiki Kaisha, Chiyoda-ku, Japan

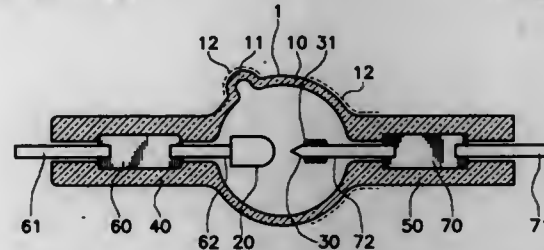
Filed Jun. 21, 1995, Ser. No. 492,948

Claims priority, application Japan, Jun. 21, 1994, 6-160791; Jun. 21, 1994, 6-160792

Int. Cl.⁶ H01J 17/16; 61/30

U.S. Cl. 313—636

6 Claims



1. A discharge lamp comprising a pair of electrodes located with a discharge gap formed therebetween, mercury and an inert gas encapsulated within a tube made of quartz glass; wherein said quartz glass has an OH radical concentration of a weight of 300 to 800 ppm.

5,670,845

VEHICLE ELECTRONIC CONTROL APPARATUS

Philip Grant, Crewe; Michael Christopher Becker, Stoke-on-Trent; David Brassington; Philip Samuel Butler, both of Crewe; Steven Graham Hutson; Nicholas Jonathan Fulllove, both of Cheshire, and Leslie Douglas Preston, Crewe, all of United Kingdom, assignors to Rolls-Royce Motor Cars Limited, London, England

PCT No. PCT/GB93/00723, § 371 Date Aug. 3, 1995, § 102(e) Date Aug. 3, 1995, PCT Pub. No. WO93/21035, PCT Pub. Date Oct. 28, 1993

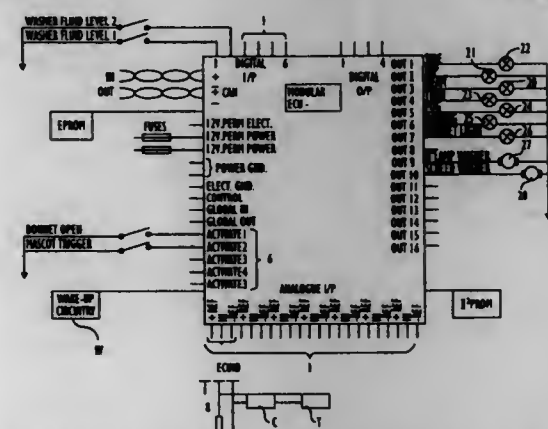
PCT Filed Apr. 6, 1993, Ser. No. 318,636

Claims priority, application United Kingdom, Apr. 10, 1992, 9207909

Int. Cl.⁶ B60Q 1/26

U.S. Cl. 315—77

8 Claims



1. Apparatus for controlling the electrical functions in a plurality of different locations of a vehicle, comprising a plurality of electronic control units, each of which is operable to control at least one electrical function in a particular one of those locations, and a plurality of activation devices disposed to feed control signals to one or more of the units under the control of a vehicle occupant wherein the control units are all identical and include programs to control all the functions in all the locations of the vehicle and comprise means for identifying which program to activate in dependence upon the particular location of the unit whereby one unit may be substituted for another where necessary.

5,670,846

FULL POWER LIGHT CONTROL

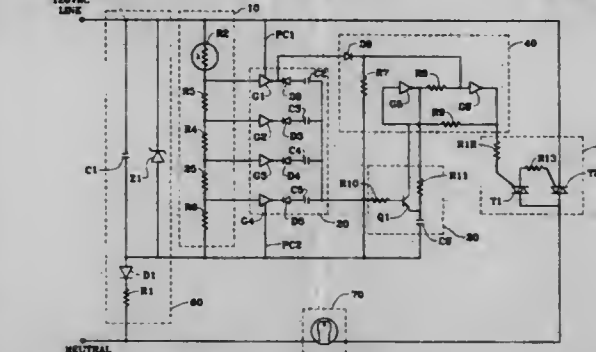
Jerrell P. Hollaway, 1330 Meadowbrook Rd., Palm Bay, Fla. 32905

Filed Aug. 7, 1995, Ser. No. 511,884

Int. Cl.⁶ H05B 37/02

U.S. Cl. 315—151

10 Claims



1. A light control apparatus comprising:
 - a light sensing means which produces a light level signal representative of the amount of light present at said light sensing means;
 - a time delay means which establishes a second point in time later than a first point in time;
 - a memory means which records said light level signal at said first point in time;
 - a logic means which produces output signals whenever said light level signal from said second point in time is different by a prescribed amount from said signal stored in said memory from said first point in time; and
 - a power switching means coupled between a source of electrical power and a light producing device which controls the application of said power to said device in response to said output signals from said logic means.

5,670,847

SOCKET STRUCTURE WITH SLIDABLE INSULATIVE DISK FORMED IN LONGITUDINAL GROOVES FOR SHOCK HAZARD PROTECTION

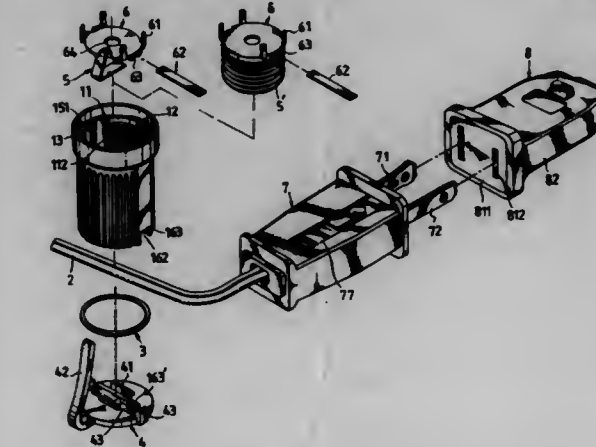
Chiu-Yuan Lin, No. 150, Chang Hsin Street, Hsinchu City, Taiwan

Filed Nov. 6, 1996, Ser. No. 744,583

Int. Cl.⁶ H05B 37/02

U.S. Cl. 315—185 S

5 Claims



1. A Christmas tree light system comprising an electrical receptacle connected to power supply, and electrical wire having an electrical plug at one end connected to said electrical receptacle, and a plurality of lamp sockets respectively connected to said electrical wire to hold a respective bulb, wherein:
 - each of said electrical sockets comprises a hollow, cylindrical, cup-like shell socket body, a rubber ring, a socket cap, a

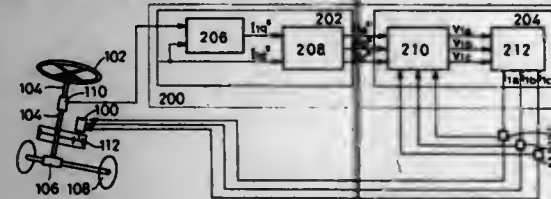
spring member, a circular insulative plate, a gasket ring, a first metal contact plate, a second metal contact plate, and a metal connecting plate, said socket body comprising a plurality of threads on the inside adapted for receiving a bulb, a plurality of longitudinal sliding grooves equiangularly spaced on the inside and intersecting said threads, a plurality of transverse stop ribs respectively disposed in said longitudinal sliding grooves in the middle, an annular step on the inside above said threads and adapted for receiving said gasket ring, a bottom wall, a through hole through said bottom wall, a circular bottom chamber, a transverse wire groove on said bottom wall in communication with said circular bottom chamber for receiving said electrical wire, and two retaining notches disposed in said bottom wall within said circular bottom chamber and separated by said transverse wire groove, said first metal contact plate having an elongated contact body longitudinally mounted inside said socket body and adapted for contacting the ring contact of the corresponding bulb, and a pointed tip partially projecting into said transverse wire groove, said second metal contact plate being mounted in the through hole through said bottom wall and suspended above said bottom wall for contacting the tip contact of the corresponding bulb and having a pointed tip partially projecting into said transverse wire groove, said rubber ring being mounted within the circular bottom chamber of said socket body, said socket cap being fitted into the circular bottom chamber of said socket body to hold down said rubber ring and said electrical wire, permitting the pointed tips of said first metal contact plate and said second metal contact plate to be respectively forced to cut into said electrical wire and to make contact with a respective conductor in said electrical wire, said socket cap comprising a plurality of upright press blocks fitted into said transverse wire groove of said socket body and pressed on said electrical wire and said rubber ring, two upright hooks respectively hooked in the retaining notches of said socket body, and a clip raised from the periphery of fastening, said circular insulative plate being mounted inside said socket body and supported on said spring member above the bottom wall of said socket body, having a plurality of upright mounting legs raised from the periphery and respectively forced into the longitudinal sliding grooves of said socket body and stopped below the transverse stop ribs of said socket body, a center through hole adapted for receiving the tip contact of the corresponding bulb, and a bottom channel adapted for receiving said metal connecting plate, said metal connecting plate being mounted in the bottom channel of said circular insulative plate and covered over the center through hole of said circular insulative plate for contacting the tip contact of the corresponding bulb, said circular insulative plate being lowered to compress said spring member and to force said metal connecting plate into contact with said second metal contact plate when the corresponding bulb is threaded into said socket body;

said electrical plug comprises a positive metal contact blade and a negative metal contact plate respectively extended out of a front side thereof, a fuse holder on the inside, a cartridge fuse loaded in said fuse holder and connected between said positive metal contact blade and one conductor of said electrical wire, a longitudinal sliding groove above said fuse holder, two symmetrical pairs of raised portions bilaterally projecting into said longitudinal sliding groove near two opposite ends, and a sliding cover plate slidably mounted in said longitudinal sliding groove to close said fuse holder and having two symmetrical pairs of raised portions at two opposite lateral sides respectively forced into engagement with the raised portions in said longitudinal sliding groove, said fuse holder having a protective flange at one end adapted for protecting one conducting blade of said cartridge fuse.

[illegible][illegible][illegible]

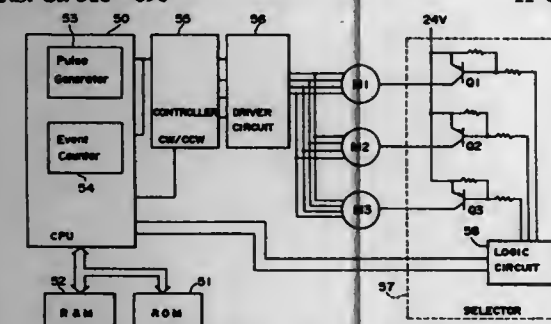
occupant positioning means for positioning the occupant to said determined occupant position in response to said control signal.

5,670,854
CONTROL SYSTEM FOR AN INDUCTION MOTOR
 Sadahiro Matsuura; Shigeru Satou; Yasuhiro Kondou, all of Osaka, and Yoshiaki Igarashi, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
 Filed Dec. 12, 1995, Ser. No. 570,871
 Claims priority, application Japan, Dec. 14, 1994, 6-310400; Apr. 20, 1995, 7-094713
 Int. Cl.⁶ B62D 5/04; H02P 5/408
 U.S. Cl. 318-432 5 Claims



1. An electric power steering apparatus comprising: an induction motor for generating an auxiliary steering force on a steering system, having a stator current group, a steering force sensor for detecting a steering force, a current commander for independently commanding a torque current component and an exciting current component of a stator current group to be supplied to a stator of the induction motor, and commanding the amplitude and phase of the stator current group, a current detector for measuring or estimating the stator current group, and a current controller for performing control so that the output of the current detector corresponds to that of the current commander, wherein the torque current component is commanded to control the output torque of the induction motor according to the output of the steering force sensor.

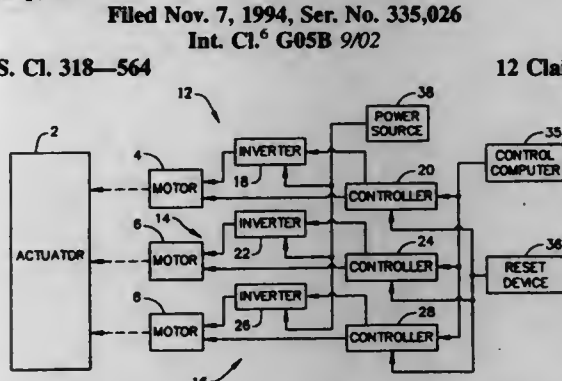
5,670,855
MOTOR CONTROL DEVICE
 Kazuo Okunishi, Aichi-ken, Japan, assignor to Minolta Co., Ltd., Osaka, Japan
 Filed May 23, 1995, Ser. No. 447,987
 Claims priority, application Japan, Jun. 1, 1994, 6-120281; Nov. 24, 1994, 6-289489
 Int. Cl.⁶ G03B 27/34; H02P 8/00
 U.S. Cl. 318-696 11 Claims



1. A motor control device for singly controlling each of a plurality of stepping motors, said motor control device comprising: a pulse generator; a pulse counter for counting the number of pulses generated by said pulse generator; a single driver for singly driving each of said plurality of stepping motors in accordance with pulses generated by said pulse generator; a selector for selecting one of connections between said driver and each respective one of said plurality of stepping motors; a comparator for comparing an excitation phase of said driver and an excitation phase of a respective stepping motor; and a controller for matching the excitation phase of said driver and the excitation phase of the respective stepping motor based on

results of the comparison by said comparator without rotating any of said stepping motors.

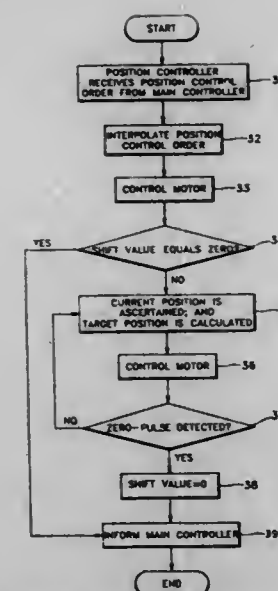
5,670,856
FAULT TOLERANT CONTROLLER ARRANGEMENT FOR ELECTRIC MOTOR DRIVEN APPARATUS
 Dong Tuan Le, Lakewood, and Colin E. Huggett, Torrance, both of Calif., assignors to AlliedSignal Inc., Morris Township, N.J.
 Filed Nov. 7, 1994, Ser. No. 335,026
 Int. Cl.⁶ G05B 9/02
 U.S. Cl. 318-564 12 Claims



1. A fault tolerant system for driving an actuator, comprising: a plurality of motors coupled to the actuator for driving said actuator; a corresponding plurality of control channels, each of which is connected to a respective motor for driving said respective motor; each of said control channels including controller means connected to a respective motor and receiving data therefrom; and said controller means at each motor for voting on the data at the individual channel level with each of said controller means being effective for controlling a respective channel of the plurality of channels so that each of said plurality of channels shares the load required for driving the actuator, with each of said channels in a system of n channels supplying 1/n of a required load driving force in the same direction even in the event of channel failure.

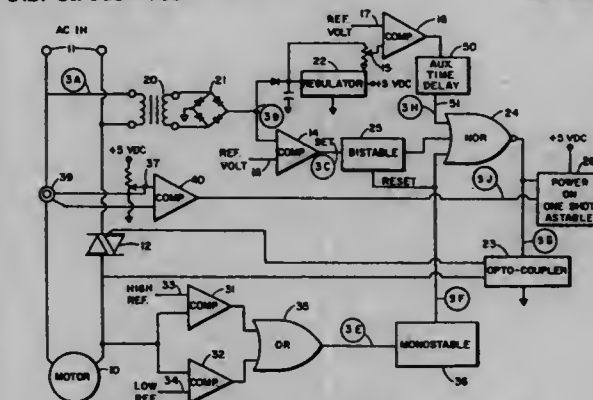
5,670,857
METHOD OF RETURNING TO AN ABSOLUTE ZERO POINT FOR USE BY AN INDUSTRIAL CONTROLLER
 Sang-jin Choi, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
 Filed May 3, 1996, Ser. No. 642,604
 Claims priority, application Rep. of Korea, May 4, 1995, 95-11015
 Int. Cl.⁶ G05B 19/25; G06F 7/64
 U.S. Cl. 318-573 3 Claims

1. A method of returning to an absolute zero point of an industrial controller which includes right and left limit sensors, a center sensor, main control means, position control means and a motor, and which controls at least one operational axis, the method comprising the steps of:
 - (a) periodically transmitting, from the main control means to the position control means, a position control command for returning the axis to an absolute zero point on the basis of signals from the sensors;
 - (b) performing interpolation in the position control means so as to divide a period of the position control command by a predetermined quantity to obtain an interpolated time interval;
 - (c) controlling the motor according to said position control command of said position control means so as to move said axis, and moving said axis in the reverse direction so as to meet with said center sensor when said axis meets with either the right limit sensor or the left limit sensor;



- (d) detecting a shift value between the axis and the absolute zero point so as to determine whether the axis which has been moved according to said step (c) is located on the absolute zero point; and
- (e) controlling the motor according to the interpolated time interval by said position control means when the shift value is not zero so as to exactly return the axis to the absolute zero point.

5,670,858
SINGLE-PHASE INDUCTION MOTOR SAFETY CONTROLLER
 Gary Heath, Longwood, Fla., assignor to Condyne Technology, Inc., Longwood, Fla.
 Continuation of Ser. No. 116,813, Sep. 7, 1993, abandoned, which is a continuation of Ser. No. 710,380, Jun. 3, 1991, abandoned. This application Oct. 7, 1996, Ser. No. 726,625
 Int. Cl.⁶ H02P 1/26
 U.S. Cl. 318-768 20 Claims

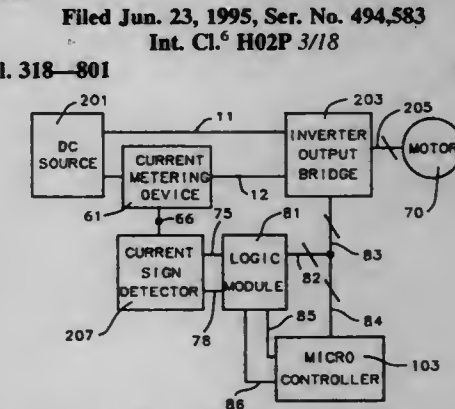


1. An electronic control apparatus for automatically adjusting electrical input to a single phase alternating current (AC) induction motor running at constant RPM comprising:
 - means for sampling voltage input provided by an electrical source to the motor, said means being connected to an input line from the electrical source;
 - means for rectifying the sample voltage input taken from the electrical source to yield a rectified output voltage;
 - means for creating a fixed pulse indicating zero voltage crossing;
 - means for sampling current input being provided by the electrical source to the motor to create a time-variable pulse indicating zero current crossing, said time-variable pulse which triggers a monostable output voltage; and

174-443 O.G.-97-20: QL3

means for adjusting voltage supplied to the motor by using the fixed pulse and the monostable output voltage.

5,670,859
FEEDBACK CONTROL OF AN INVERTER OUTPUT BRIDGE AND MOTOR SYSTEM
 Michael John North; Christopher Hall; Thomas Mark Cyster, all of Taipei, and Ching-Chuan Chen, Keelung, all of Taiwan, assignors to General Resource Corporation, Taipei, Taiwan
 Filed Jun. 23, 1995, Ser. No. 494,583
 Int. Cl.⁶ H02P 3/18
 U.S. Cl. 318-801 17 Claims



1. An inverter feedback mechanism, comprising:
 - a direct current power source having a positive output terminal and a negative output terminal;
 - an inverter output bridge for converting direct current power input to alternating current power output having a positive power input terminal, a negative power input terminal, a plurality of control input terminals, a plurality of alternating current power output terminals, and an induction motor connected to said alternating current power output terminals wherein the signals at said control input terminals control the alternating current power delivered by said inverter output bridge to said induction motor;
 - a positive direct current link connected between said positive output terminal of said direct current power source and said positive power input terminal of said inverter output bridge wherein the current in said positive direct current link is positive when flowing into said positive power input terminal of said inverter output bridge and negative when flowing out of said positive power input terminal of said inverter output bridge;
 - a negative direct current link connected between said negative output terminal of said direct current power source and said negative power input terminal of said inverter output bridge wherein the current in said negative direct current link is positive when flowing out of said negative power input terminal of said inverter output bridge and negative when flowing into said negative direct current input terminal of said inverter output bridge;
 - means for generating a first logic signal wherein said first logic signal has a first logic value when the current in said negative direct current link is positive and a second logic value when the current in said negative direct current link is not positive;
 - means for generating a second logic signal wherein said second logic signal has said first logic value when the current in said negative direct current link is negative and said second logic value when the current in said negative direct current link is not negative;
 - means for combining said first logic signal and said second logic signal to generate a number of control signals wherein each of said control signals depends on the amount of time said current in said negative direct current link is positive and the amount of time said current in said negative direct current link is negative;
 - electrical connections between each of said control signals and one of said control input terminals of said inverter output bridge; and

a number of switching elements wherein each said switching element has a connection to one of said control input terminals and a connection to one of said alternating current power output terminals.

5,670,860

HIGH POWER, HIGH FREQUENCY, LIQUID-COOLED TRANSMISSION CABLE AND CHARGING SYSTEM

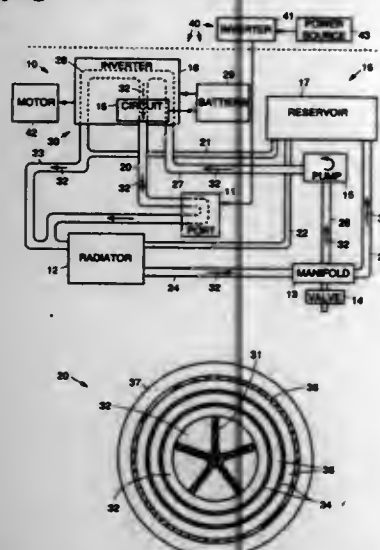
Clint Conrady; George R. Woody, both of Redondo Beach; Juventino Rosas, Los Angeles; Victor O. Asbury, Costa Mesa; Sergio Ramos, Wilmington, and Eddie Yeow, San Gabriel, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Jun. 6, 1995, Ser. No. 467,423

Int. Cl.⁶ H02J 7/00; H01B 7/34; 9/06

U.S. Cl. 320—2

6 Claims



1. A charging system for an electric vehicle, said system comprising:

- a power source for supplying power;
- an off-vehicle inverter for providing charging current that is used to charge propulsion batteries of the electric vehicle;
- a charge port disposed on the electric vehicle that is coupled to the off-vehicle inverter;
- a liquid-cooled transmission cable coupled between the charge port and the propulsion batteries of the electric vehicle, that comprises:
 - a central tube that is used to carry coolant;
 - an extruded member disposed within the central tube;
 - a plurality of layers of coaxial tubular wire braid disposed around the central tube that are used to carry charging current and that each layer thereof is separated by a layer of dielectric material;
 - an outer layer of wire braid disposed around an outermost layer of dielectric material that is used for grounding and shielding; and
 - an outer jacket disposed around the outer layer of wire braid;
- a cooling system coupled to the transmission cable for pumping coolant therethrough to cool the transmission cable, that comprises:
 - a radiator for cooling coolant;
 - a manifold coupled to an output of radiator;
 - a pump coupled to the manifold that pumps coolant through the cooling system; and
 - a reservoir coupled to the manifold and the radiator for storing excess coolant.
- 4. A transmission cable comprising:
 - a central tube that is used to carry coolant;
 - an extruded member disposed within the central tube;

a plurality of layers of coaxial tubular wire braid disposed around the central tube that are used to carry charging current and that each layer thereof is separated by a layer of dielectric material;

an outer layer of wire braid disposed around an outermost layer of dielectric material that is used for grounding and shielding; and

an outer jacket disposed around the outer layer of wire braid.

5,670,861

BATTERY ENERGY MONITORING CIRCUITS

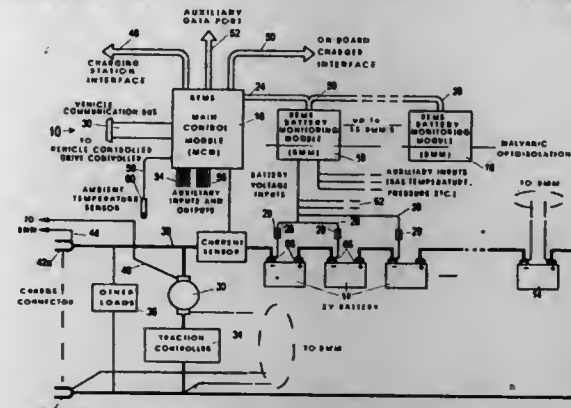
Jiri K. Nor, Oakville, Canada, assignor to Norvik Traction Inc., Mississauga, Canada

Filed Jan. 17, 1995, Ser. No. 372,936

Int. Cl.⁶ H01M 10/44

U.S. Cl. 320—15

4 Claims



1. A method of taking the resistance free voltage reading of a long chain battery during charging from a battery charger or discharge thereof, wherein said long chain battery is installed in an electric vehicle together with a monitoring and control apparatus therefor;

wherein said long chain battery comprises a plurality of series connected cells or battery modules;

wherein said electric vehicle has installed therein a main control module, at least one battery monitoring module which is associated with a respective plurality of cells or battery modules, a current sensor means in series with said long chain battery, a vehicle communication bus, a drive controller, an electric motor and a traction controller therefor in series across said battery, other vehicle electrical loads in parallel with said series connected electric motor and traction controller, current control means and current flow interruption means within said main control module, a serial communications bus, and voltage reading means for receiving and storing voltage information for each cell or battery module from each of said battery monitoring modules;

wherein said method comprises following any one of the following steps:

- I: providing a parallel connection of a high current capacity switch and a rearward facing diode in series with said electric motor and traction controllers; a free wheeling diode in parallel with said series connected electric motor and traction controller, and an energy storage filter comprising an inductor in series with said switch or a capacitor in parallel with said switch, or both; periodically interrupting the control of current through said switch by opening said switch for a diagnostic period of time less than the time constant of said energy storage filter so as to continue to feed electrical energy to said electric motor; and taking a voltage reading for each cell or battery module while said switch is open;
- II: providing means for controlling said traction controller; reading the instantaneous current flowing through said long chain battery; controlling said traction controller whereby said electric motor may be controlled to draw a current which is significantly different from the current just previously

ously flowing to said electric motor for a diagnostic period for from about 3 to about 10 ms, taking a current reading of current through said long chain battery during said diagnostic period; comparing the current reading taken just prior to said diagnostic period with the current reading taken during said diagnostic period, and mathematically extrapolating the resistance free voltage from said current readings, due to the linear relationship of direct current voltage, current, and resistance under Ohm's law;

III: providing means for controlling said traction controller; reading the instantaneous current flowing through said long chain battery; controlling said traction controller whereby said electric motor may be reversed for a brief diagnostic period to a level which is equal to the current being drawn by said other electrical loads, whereby the current flowing through said battery is reduced to zero; and determining the resistance free voltage of said long chain battery while the current flow therethrough is zero;

IV: providing a parallel connection of a high current capacity switch and a rearward facing diode in series with said other vehicle electrical loads but beyond said series connected electric motor and traction controller; reading the instantaneous current flowing through said long chain battery; periodically interrupting the control of current through said switch by opening said switch for a diagnostic period of time; taking a current reading of current through said long chain battery while said switch is open; and comparing the current reading taken just prior to opening said switch with the current reading taken during said diagnostic period, and mathematically extrapolating the resistance free voltage from said current readings, due to the linear relationship of direct current voltage, current, and resistance under Ohm's law; or

V: providing a series connection of a further load resistor and a high current capacity switch, in parallel with said series connected electric motor and traction controller, wherein said switch is galvanically isolated from said main control module; reading the instantaneous current flowing through said long chain battery, periodically closing said switch for a diagnostic period of time; taking a current reading of current through said long chain battery while said switch is closed; and comparing the current reading taken just prior to closing said switch with the current reading taken during said diagnostic period, and mathematically extrapolating the resistance free voltage from said current readings, due to the linear relationship of direct current voltage, current, and resistance under Ohm's law.

5,670,862

RAPID CHARGING TECHNIQUE FOR LITHIUM ION BATTERIES

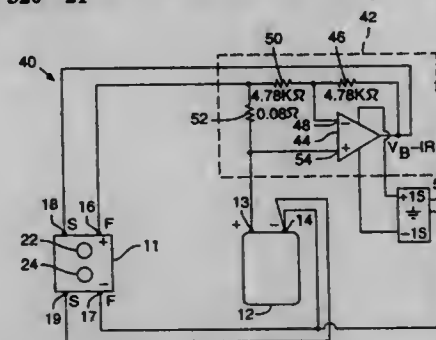
Lanny L. Lewyn, Laguna Beach, Calif., assignor to Siliconix Incorporated, Santa Clara, Calif.

Filed Mar. 12, 1996, Ser. No. 615,517

Int. Cl.⁶ H01M 10/44; 10/46

U.S. Cl. 320—21

25 Claims



1. A method for charging a battery comprising the steps of:

providing charging current to an external terminal of a battery through a first impedance, said first impedance being approximately equal to an electrical series resistance between said external terminal and an electrode internal to said battery;

detecting a voltage drop across said first impedance;

generating a first voltage representative of a voltage at said electrode internal to said battery, said first voltage being based on said voltage drop and said voltage at said external terminal; and

applying said first voltage to a sense circuit for comparing said first voltage to a preset voltage to control said charging current to maintain said first voltage at approximately said preset voltage.

16. A battery charger comprising:

a power supply having a charging current terminal;

an impedance, related to an electrical series resistance of said battery, connected in series between said charging current terminal and an external battery terminal;

a measuring circuit connected across said impedance for generating a first voltage representative of a voltage at an electrode internal to said battery, said first voltage representing the voltage at said external battery terminal minus a voltage drop caused by a charging current through said impedance; and

a voltage sense circuit connected to an output of said measuring circuit for comparing said first voltage to a preset voltage and causing said charging current to maintain said first voltage at approximately said preset voltage.

5,670,863

LEAD ACID CHARGER WITH RATIOED TIME-OUT PERIODS AND CURRENT PULSE MODE OF OPERATION

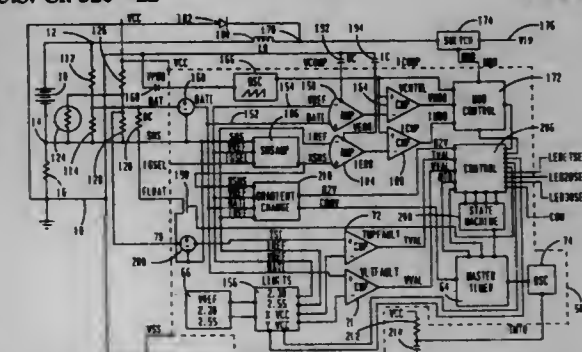
Frederick Gaudenz Broell, Plano; Jehangir Parvereshi, and Stephen Paul Sacarisen, both of Carrollton, all of Tex., assignors to Benchmark Microelectronics, Inc., Dallas, Tex.

Filed Feb. 7, 1995, Ser. No. 385,536

Int. Cl.⁶ H02J 7/00

U.S. Cl. 320—22

6 Claims



1. A charge control circuit for controlling a charging operation of a lead acid battery, comprising:

a charging device having an input connected to an external power supply source and an output connected to the positive terminal of the battery and controllable to determine the amount of charge input to the battery;

a control system for controlling said charging device during a charging operation to operate in accordance with a predetermined charging profile;

said charging profile having a plurality of states, each state defining a different mode of operation for said charging device, each mode of operation having an initiation condition and a termination condition, said control system controlling switching from one of said modes of operation to another of said modes of operation upon the occurrence of said termination condition in said one of said modes of operation;

a master timer for providing a timebase;

a user definable circuit for setting said master timer;

an elapsed time circuit for defining a plurality of time periods initiated at predetermined points in said charging profile and

each of said time periods having a predetermined duration, such that all of said time periods are ratioed to said master timer, each of said time periods associated with one of said modes of operation; and

a control circuit for terminating operation of any of said modes of operation when said associated time period has completed prior to the occurrence of the terminal condition of the associated mode of operation, said control circuit operable with said control system to switch the operation of said charging device to another of said modes of operation.

5,670,864

ADAPTIVE AUTOMATIC POWER CAPACITOR FOR CONTROLLING CONTROLLER A CAPACITOR BANK OF A POWER DISTRIBUTION SYSTEM

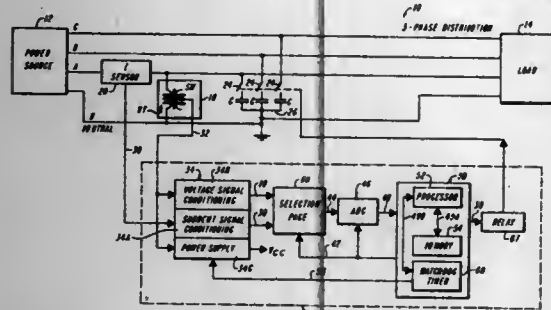
Thomas I. Marx, Hingham, Mass., and Richard A. Girard, North Providence, R.I., assignors to Pacific Scientific Company, Weymouth, Mass.

Filed May 26, 1995, Ser. No. 452,018

Int. Cl.⁶ G05F 1/70

U.S. Cl. 323—211

69 Claims



1. An adaptive power capacitor controller system for adjusting the reactive power of an electrical line by selectively applying a capacitor bank to the line, said controller system comprising sensor means for sensing at least a reactive current condition of the line,

switching means for coupling the capacitor bank to the line, said switching means establishing a first line state when the capacitor bank is connected to the line and establishing a second line state when the capacitor bank is disconnected from the line, and

control means associated with said switching means and with said sensor means for selectively operating said switching means to connect and to disconnect the bank relative to the line, said control means including

means for actuating said switching means for attaining a selected succession of said first and second line states,

means for determining a change in said reactive current of the line in response to at least said sensed reactive current during said selected succession of said first and second line states,

first threshold determination means for automatically determining a first threshold value of at least said sensed line condition at which said control means operates said switching means to establish said first line state in response to said change in reactive current, and

second threshold determination means for automatically determining a second threshold value of at least said sensed line condition at which said control means operates said switching means to establish said second line condition in response to said change in reactive current.

5,670,865 CIRCUIT TO IMPROVE THE TRANSIENT RESPONSE OF STEP-DOWN DC TO DC CONVERTERS

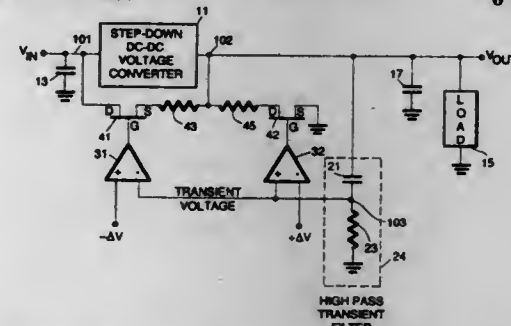
William D. Farwell, Thousand Oaks, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Aug. 29, 1996, Ser. No. 705,439

Int. Cl.⁶ G05F 1/618

U.S. Cl. 323—285

6 Claims



1. A transient response circuit for a step-down DC to DC converter having a DC input and a DC output, the transient response circuit comprising:

means for detecting transients at the DC output of the DC to DC converter;

first comparator means responsive to said detecting means for providing a first comparator means output that is active when said detecting means detects a negative transient that is less than a first threshold voltage;

second comparator means responsive to said detecting means for providing a second comparator means output that is active when said detecting means detects a positive transient that is greater than a second threshold voltage;

first switching means responsive to said first comparator means for providing a current path between the input of the DC to DC converter and the output of the DC to DC converter when said first comparator means output is active; and

second switching means responsive to said second comparator means for providing a current path between the output of the DC to DC converter and a ground reference potential when said second comparator means output is active.

5,670,866

CHOPPER-TYPE REGULATOR CIRCUIT AND CHOPPER-TYPE REGULATOR IC

Tomohiro Suzuki, Kitakatsuragi-gun, and Kenji Hachimura, Nara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

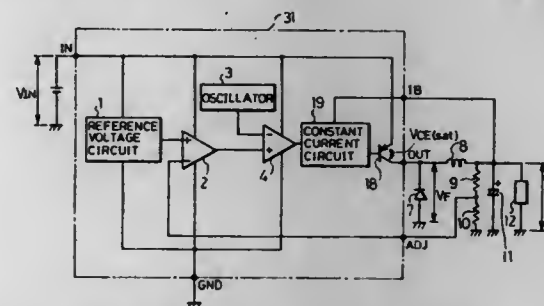
Filed Nov. 28, 1995, Ser. No. 563,766

Claims priority, application Japan, Nov. 28, 1994, 6-293009; Sep. 18, 1995, 7-237985

Int. Cl.⁶ G05F 1/56

U.S. Cl. 323—289

10 Claims



1. A chopper-type regulator circuit for stabilizing an output voltage, comprising:

an output transistor composed of a PNP-type transistor for switching an input current; and

a control section for controlling the switching of said output transistor based upon a voltage difference between a reference voltage and an output voltage,

wherein said control section includes a base current output terminal for supplying base current of said output transistor to a load connected to said chopper-type regulator circuit, and further wherein said control section controls a pulse width of a voltage mode and includes:

a voltage difference output means for outputting the voltage difference between the reference voltage and the output voltage,

a comparison means for comparing the output signal from said voltage difference output means with a prescribed pulse signal so as to output a control signal, and

a constant current means for drawing the base current so as to keep a value of the base current constant when said output transistor is in conducting state based upon the control signal, said constant current means being connected between a base of said output transistor and said base current output terminal, said constant current circuit including:

a first transistor for switching said output transistor based upon the control signal;

a reference current generating means for generating a reference current;

a second transistor where said reference current flows when said output transistor is connected by said switching operation via said first transistor;

a third transistor where a first current, which has a prescribed relationship to the reference current, flows, said third transistor being in current mirror arrangement to said second transistor;

a fourth transistor where the first current flows, said fourth transistor connected between the base of said output transistor and said third transistor; and

a fifth transistor where the base current, which has a prescribed relationship to the first current, flows, said fifth transistor being in current mirror arrangement to said fourth transistor.

5,670,867

CURRENT SENSING CIRCUIT

Tsuyoshi Mitsuda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

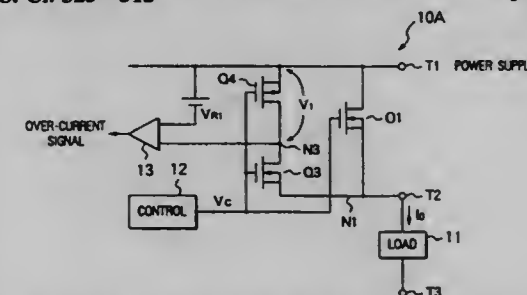
Filed Jul. 22, 1996, Ser. No. 685,950

Claims priority, application Japan, Jul. 26, 1995, 7-190317

Int. Cl.⁶ G05F 3/04; H02H 7/00

U.S. Cl. 323—312

5 Claims



1. A current sensing circuit coupled between a load having a load current passing therethrough and a power supply terminal, comprising:

a first transistor coupled between an output terminal and said power supply terminal for passing said load current;

a second and a third transistors connected, in series at a first node between said output terminal and said power supply terminal,

a control section for supplying a first control signal to turn on said first and second transistors while supplying a second control signal to turn off said third transistor during a sensing operation; and

a voltage detection section for detecting a voltage at said first node.

5,670,868

LOW-CONSTANT VOLTAGE SUPPLY CIRCUIT

Akisada Moriguchi, Ome; Osamu Yumoto, Urawa; Masaharu Hata, Yokohama; Hironori Saito, Ome, and Teruhisa Azumaguchi, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

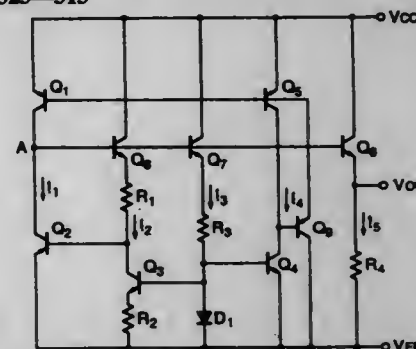
Filed Oct. 20, 1995, Ser. No. 546,036

Claims priority, application Japan, Oct. 21, 1994, 6-256762

Int. Cl.⁶ G05F 3/16; 3/20

U.S. Cl. 323—313

16 Claims



1. A constant-voltage power source circuit comprising:

a first current mirror circuit including at least a diode and a first transistor; and

a second current mirror circuit including at least second and third transistors; wherein

a current which flows to said first current mirror circuit is set substantially equal to a current flowed to said second current mirror circuit, and a current flowed to said second current mirror circuit is flowed to a fourth transistor that determines an output voltage, wherein

said first current mirror circuit includes a diode, a cathode of which is connected to one of power source voltage terminal and a first NPN type transistor, a base of which is connected to an anode of said diode, and said second current mirror circuit includes second and third PNP type transistors, bases of which are connected in common,

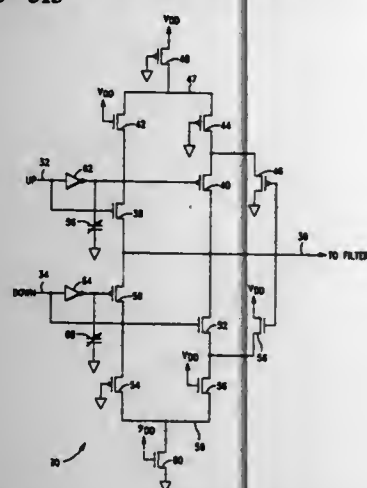
emitters of said second and third transistors respectively of said second current mirror circuit are connected to the other power source voltage terminal, a collector of said second transistor is connected to at least a collector of said first transistor of said first current mirror circuit, and an emitter of said first transistor is connected to said first power source voltage terminal;

said collector of said first transistor is connected to a base of a fifth PNP type transistor, an emitter of said fifth transistor is connected to bases of said second and third transistors respectively, and a collector of said fifth transistor is connected to one power source voltage terminal;

a collector of said third transistor of said second current mirror circuit is connected to at least a collector of a fourth NPN type transistor, and an emitter of said fourth transistor is connected to said one power source voltage terminal; and

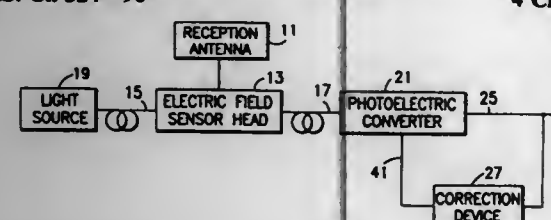
a current from flowing in said collector of said second transistor of said second current mirror circuit to said collector of said first transistor of said first current mirror circuit, is set substantially equal to a current from flowing in said collector of said third transistor of said second current mirror circuit to said collector of said fourth transistor for determining an output voltage.

5,670,869
REGULATED COMPLEMENTARY CHARGE PUMP
WITH IMBALANCED CURRENT REGULATION AND
SYMMETRICAL INPUT CAPACITANCE
 Robert J. Weisenbach, Cupertino, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.
 Filed May 30, 1996, Ser. No. 655,148
 Int. Cl.⁶ G05F 3/16
 U.S. Cl. 323—313



1. A charge pump circuit, comprising:
 an output line for supplying a regulated current in proportion to a duration of a first input pulse, and for sinking a regulated current in proportion to a duration of a second input pulse;
 inverting means for providing inverses of the first and second input pulses;
 current regulators defining a current source and a current sink;
 a first pair of complementary pass transistors responsive to the first input pulse and its inverse for connecting the current source to the output line;
 a second pair of complementary pass transistors responsive to the second input pulse and its inverse for connecting the current sink to the output line;
 fixed bias means for reducing the current through each pass transistor; and
 regulated means, responsive to the output line, for reducing the current through one pass transistor relative to the other pass transistor of each complementary pair.

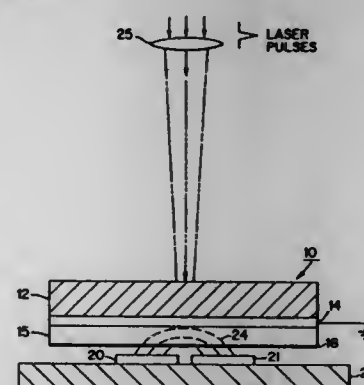
5,670,870
ELECTRIC FIELD SENSOR CAPABLE OF RELIABLY
MEASURING AN ELECTRIC FIELD INTENSITY OF A
SIGNAL
 Ryoji Muramatsu, Sendai, Japan, assignor to Tokin corporation, Miyagi, Japan
 Filed Jun. 9, 1995, Ser. No. 488,942
 Claims priority, application Japan, Jun. 17, 1994, 6-135737
 Int. Cl.⁶ G01R 31/00; H01J 5/16
 U.S. Cl. 324—96



1. An electric field sensor comprising:
 a reception antenna for receiving an input signal;
 an electric field sensor head for varying an intensity of a propagating light beam propagating therethrough in response to an electric field intensity of said input signal;

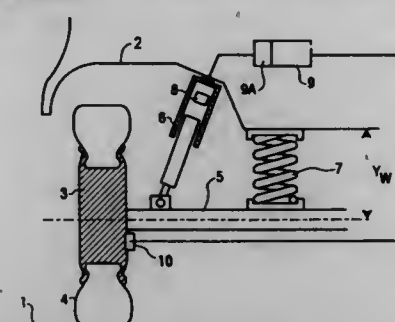
an incident optical fiber and an outgoing optical fiber both of which are operatively coupled to said electric field sensor head;
 a light source operatively coupled to one end of said incident optical fiber for emitting a light beam to said incident optical fiber as said propagating light beam;
 a photo-electric converter supplied with said propagating light beam delivered from said electric field sensor head through said outgoing optical fiber for converting said propagating light beam into an electric signal, said photo-electric converter outputting an output signal corresponding to said electric signal; and
 a correcting device operatively coupled said photo-electric converter for comparing said output signal with a reference signal to correct said electric signal.

5,670,871
POLYMERIC FILM ELECTROOPTIC SENSOR DEVICE
 Hong-Tai Man, 24 Hampton Ct., Basking Ridge, N.J. 07920; Iain A. McCulloch, 30 Southgate Rd., Apt. 2A, Murray Hill, N.J. 07974, and Hyun-Nam Yoon, 88 Clochester Rd., New Providence, N.J. 07974
 Continuation of Ser. No. 234,490, Apr. 28, 1994. This application 16, 1996, Ser. No. 683,079
 Int. Cl.⁶ G01R 31/00
 U.S. Cl. 324—96



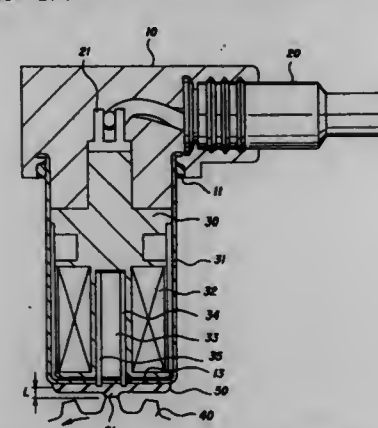
1. In an electrooptic sensor device using a Pockels effect for measuring electrical signals with subpicosecond resolution, the improvement which comprises (1) an optically-transparent thin support substrate; (2) an optically-transparent electrically-conductive coating on a support substrate surface, with means for electrical grounding of the conductive coating; and (3) an optically-transparent electrooptic organic polymer film matrix which is in coextensive contact with the surface of the conductive coating opposite to said support substrate; wherein the device is adapted for positioning adjacent to an electrical signal transmission line and within a fringe electric field of the transmission line, and wherein the refractive index of the electrooptic polymer film modulates by Pockels effect in response to the fringe electric field produced by a transmission line electrical signal, and the electrooptic polymer film is adapted for passage of an optical probe beam of focused electrical signal-synchronized laser pulses of picosecond range duration in a direction transverse to the direction of said electric field, and the output laser beam pulses are processed to provide an optical profile measurement of the electrical signal, wherein said electrooptic organic polymer is a noncentrosymmetric matrix of an electric field poled side chain polymer which has a number average molecular weight between about 250,000–1,000,000 and is characterized by inter-chain entanglements.

5,670,872
SYSTEM AND DEVICE WITH VERTICAL AND ROTARY
WHEEL-VELOCITY-MEASURING FOR DETERMINING
VEHICLE DISPLACEMENT
 Gerjan F. A. Van De Walle, and Franciscus P. Widdershoven, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
 Filed May 14, 1993, Ser. No. 62,373
 Claims priority, application European Pat. Off., Jun. 22, 1992, 92201817
 Int. Cl.⁶ E01B 1/00; G01P 3/64; 15/00; G01C 22/00
 U.S. Cl. 324—171



1. A device for determining distance traveled by a vehicle comprising a body and wheels connected to said body by a suspension means, said device including:
 a. means for measuring a first quantity representative of rotary wheel velocity during an instant of time Δt;
 b. means for measuring a second quantity representative of substantially vertical wheel velocity relative to the vehicle body during the instant of time Δt; and
 c. processing means for processing a plurality of said first and second quantities to determine the distance travelled by the vehicle.

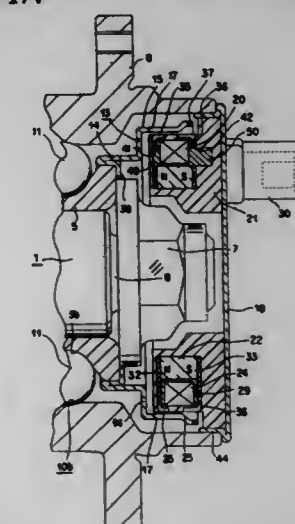
5,670,873
ROTATIONAL SPEED SENSOR WITH MEMBRANE
 Junichi Onishi, Shizuoka-ken; Hideyuki Shibuya, and Tadayuki Kuze, both of Kanagawa-ken, all of Japan, assignors to Nissan Motor Co., Ltd; Unisia Jecs Corporation, and Nissinbo Industries Inc., all of Japan
 Continuation of Ser. No. 184,049, Jan. 21, 1994, abandoned.
 This application Nov. 2, 1995, Ser. No. 552,165
 Claims priority, application Japan, Jan. 22, 1993, 5-004600
 Int. Cl.⁶ G01P 3/44; 3/488
 U.S. Cl. 326—174



1. A two-polepiece type rotational speed sensor including a pickup component positioned to face a rotor affixed integrally to a rotating member of a vehicle, said pickup component comprising a housing having a solid floor, a bobbin mounted within said housing, a coil wrapped around a circumference of the bobbin, a

layered body comprising a permanent magnet and two plates sandwiching said permanent magnet, said layered body being inserted into the center of the bobbin, and a non-magnetic elastic membrane uniformly affixed to a bottom surface of the floor of said housing, said membrane having at least one integrally formed protuberance of a thickness at least equal to a maximum air gap between the membrane and the rotor.

5,670,874
ROLLING BEARING UNIT WITH ROTATING SPEED
SENSOR HAVING PERIPHERALLY FACING ANNULAR
TOE WHEEL AND SENSOR
 Hiroya Miyazaki, Junshi Sakamoto, and Hayato Ohmi, all of Fujisawa, Japan, assignors to NSK Ltd., Japan
 Filed Mar. 15, 1996, Ser. No. 616,755
 Claims priority, application Japan, Mar. 16, 1995, 7-056909;
 Jun. 28, 1995, 7-161683
 Int. Cl.⁶ G01B 7/14; G01P 3/44; 3/488; 3/487
 U.S. Cl. 324—174



1. A rolling bearing unit with rotating speed sensor comprising a stationary outer ring member having an inner peripheral face formed with an open end portion and an outer ring raceway, a rotatable inner ring member having an outer peripheral face formed with an open end portion and an inner ring raceway, a plurality of rolling elements provided so as to be freely rotatable between the outer ring raceway and the inner ring raceway, an annular magnetic tone wheel secured to the open end portion of the inner ring member and having a cylindrical peripheral portion formed with rotating cutouts circumferentially with a uniform space therebetween, a cover comprising a synthetic resin block and a metal portion and having a cylindrical engaging portion which is fixed to the open end portion of the outer ring member by engaging the cylindrical engaging portion with the inner peripheral face at the open end portion of the outer ring member, an annular sensor embedded in the synthetic resin block and having a peripheral face such that the peripheral face thereof opposes at least partly the cylindrical peripheral portion of the tone wheel, and a guide formed adjacent to at least one of the cylindrical peripheral portion of the tone wheel and the peripheral face of the sensor to make the tone wheel and sensor overlapped radially with each other.

5,670,875

ANGULAR POSITION SENSOR WITH ADJUSTABLE GAIN AND OFFSET SIGNAL CAPABILITY

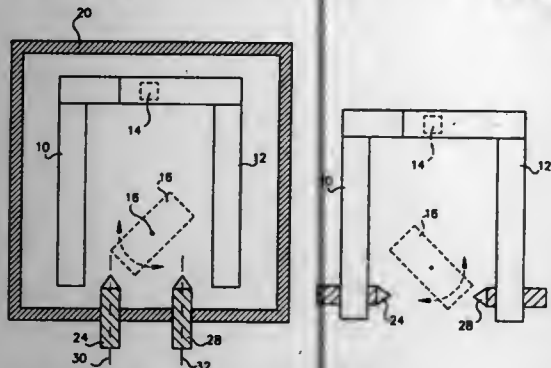
Eugene D. Alfors, Rockford; Ronald G. Cox, Cedarville; Edward D. Hoffman, and Joseph K. Murdock, both of Freeport, all of Ill., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 29, 1996, Ser. No. 627,760

Int. Cl.⁶ G01B 7/14; G01R 35/00

U.S. Cl. 324—202

10 Claims



1. An angular position sensor, comprising:

a rotatable permanent magnet, said permanent magnet being attachable to a shaft;

first and second ferromagnetic pole pieces, each of said first and second ferromagnetic pole pieces having a first end and a second end, said permanent magnet being disposed in spaced relation with said first and second ferromagnetic pole pieces between said first ends of said ferromagnetic pole pieces with a first gap disposed between said first ferromagnetic pole piece and said permanent magnet and a second gap disposed between said second ferromagnetic pole piece and said permanent magnet;

a magnetically sensitive component disposed between said second ends of said first and second ferromagnetic pole pieces, said magnetically sensitive component having an output signal which is representative of the angular position of said permanent magnet;

a first ferromagnetic insert which is variably disposable within said first gap; and

a second ferromagnetic insert which is variably disposable within said second gap, wherein the positions of said first and second ferromagnetic inserts within said first and second gaps affects the magnetic field extending from said permanent magnet to said magnetically sensitive component.

5,670,876

MAGNETIC DISPLACEMENT SENSOR INCLUDING FIRST AND SECOND FLUX PATHS WHEREIN THE FIRST PATH HAS A FIXED RELUCTANCE AND A SENSOR DISPOSED THEREIN

John Patrick Dilger, Marshalltown; Nile Kenton Dielschneider, Conrad, and Jerry Marvin Cesser, Marshalltown, all of Iowa, assignors to Fisher Controls International, Inc., Austin, Tex.

Filed Nov. 14, 1995, Ser. No. 558,689

Int. Cl.⁶ G01R 33/038; G01B 7/14; 7/02

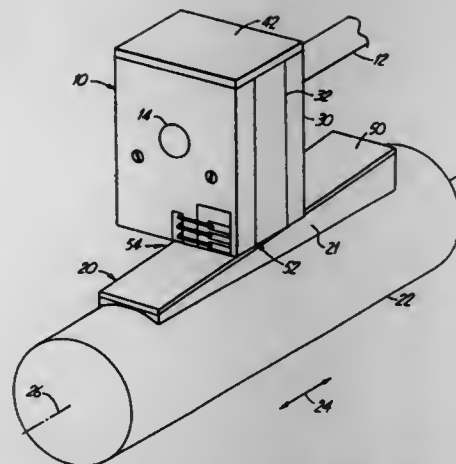
U.S. Cl. 324—207.13

51 Claims

1. A displacement sensor for sensing relative displacement between a valve housing and a movable valve operator comprising: a magnet means for mounting to the valve housing, the magnet means having first and second pole tips;

a magnetic flux sensor for mounting to the valve housing between the first and second pole tips; and

a magnetic circuit having a first flux path between the first and second pole tips containing the magnetic flux sensor, the first flux path having a



fixed reluctance and the sensor being arranged to sense magnetic flux in the first flux path, and a second flux path between the first and second pole tips containing a target for mounting to the valve operator, the second flux path having a reluctance that varies with displacement between the valve operator and the valve housing.

5,670,877

SHAFT ROTATION SENSOR WITH MAGNETIC SENSORS ANGULARLY SPACED APART WITH RESPECT TO A MAGNETIC SOURCE

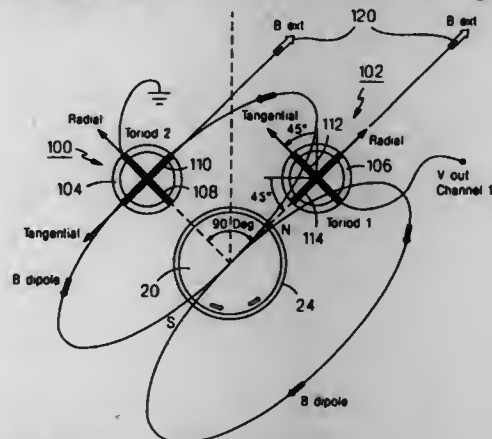
Donald J. Scheiber, Columbia City, Ind., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Dec. 5, 1994, Ser. No. 349,279

Int. Cl.⁶ G01B 7/30; G01P 3/487; B60T 8/32

U.S. Cl. 324—207.25

8 Claims



1. A shaft rotation sensor, comprising:

(a) first and second directional magnetic sensors, having first and second cores, respectively, angularly spaced apart from each other in a plane orthogonal to the axis of rotation of said magnetic source, such that said first sensor senses, and provides a first output representing, the magnitude of a first magnetic field component and said second sensor senses, and provides a second output representing, the magnitude of a second magnetic field component orthogonal to said first magnetic field component;

(b) said first and second outputs being electrically connected in series to provide a first output channel;

(c) said first sensor also senses, and provides a third output representing, the magnitude of said second magnetic field component, and said second sensor also senses, and provides a fourth output representing, the magnitude of said first magnetic field component; and

(d) said third and fourth outputs being electrically connected in series to provide a second output channel having an output

orthogonal to the output of said first output channel as said rotating member rotates.

5,670,878

INSPECTING A CONDUCTIVE OBJECT WITH A STEADY STATE MAGNETIC FIELD AND INDUCED EDDY CURRENT

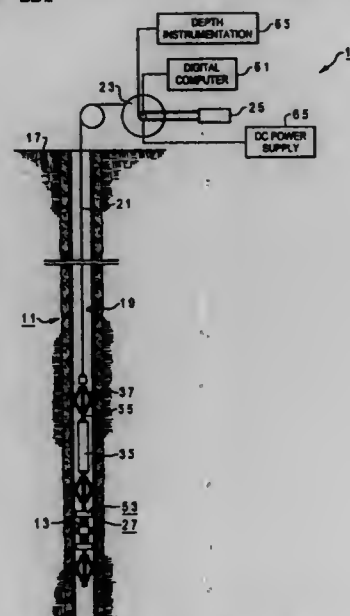
Keith W. Katahara, Allen; Pedro F. Lara, Dallas, and Kenneth R. Riggs, Richardson, all of Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Jan. 21, 1993, Ser. No. 80,295

Int. Cl.⁶ G01N 27/72; 27/82; G01R 33/12

U.S. Cl. 324—221

10 Claims



1. A method of inspecting a conductive object, comprising the steps of:

a) energizing a first coil with electrical current so as to subject a portion of said object to a steady-state magnetic field, wherein the inspection can be conducted faster;

b) providing an abruptly changing current to a second coil so as to induce an eddy current into said subjected object portion;

c) allowing said induced eddy current to decay while continuing to subject the portion of said object to said steady-state magnetic field;

d) detecting said decay of said induced eddy current in said object portion.

5,670,879

NONDESTRUCTIVE INSPECTION DEVICE AND METHOD FOR MONITORING DEFECTS INSIDE A TURBINE ENGINE

Paul J. Zombo, Cocoa, Fla.; Paul Guenther, Murrysville, Pa.; Charles C. Moore, Hibbs, Pa., and Michael J. Metala, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 13, 1993, Ser. No. 165,289

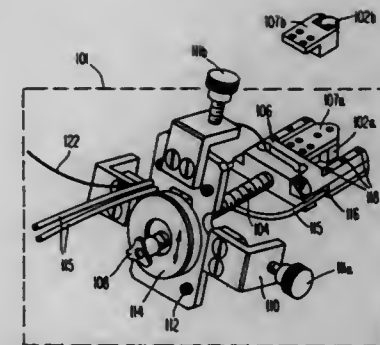
Int. Cl.⁶ G01N 27/90; 27/82; G01M 1/22

U.S. Cl. 324—227

16 Claims

9. A nondestructive inspection device for inspecting a cylindrical surface of a rotating member in a turbine engine, comprising:

(a) a sensor adapted for being disposed within a turbine engine adjacent said cylindrical surface of said rotating member, said sensor being one of an ultrasound transducer and an eddy current sensor, said sensor being capable of monitoring said rotating member for a crack therein; and



(b) a holder assembly configured to position one of said ultrasound transducer and said eddy current sensor adjacent said cylindrical surface of said rotating member; and wherein said holder is capable of providing angular skew adjustments for rotating said one of said ultrasound transducer and said eddy current sensor to a predetermined angle for substantially optimal monitoring of said crack.

5,670,880

APPARATUS FOR TESTING MAGNETIC PROPERTIES OF SHEET MATERIAL SUCH AS BANK NOTES OR PAPERS OF VALUE

Michael Bloss, München, and Dieter Stein, Holzkirchen, both of Germany, assignors to Giesecke & Devrient GmbH, Munich, Germany

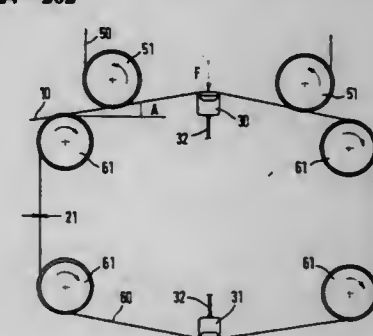
Filed Jan. 16, 1996, Ser. No. 587,899

Claims priority, application Germany, Jan. 17, 1995, 195 01 245.3

Int. Cl.⁶ G01R 33/12; G06K 7/08

U.S. Cl. 324—262

9 Claims



1. An apparatus for testing magnetic properties of sheet material such as bank notes or papers of value with a predetermined local resolution comprising:

at least one magnetic measuring system (30), and

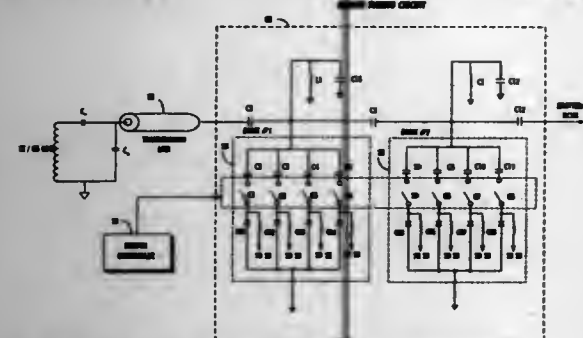
a transport medium (20) for guiding the sheet material (10) past the measuring system (30) at a measuring distance (21) defined between the sheet material (10) and the measuring system (30),

characterized in that

the transport medium (20) is disposed between the measuring system (30) and the sheet material (10),

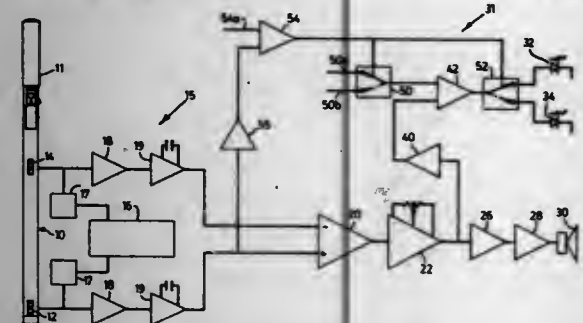
the measuring distance (21) is determined substantially by the thickness (22) of the transport medium, and the thickness (22) of the transport medium is smaller than the predetermined resolution.

5,670,881
DISCRETE STEP REMOTELY ADJUSTABLE MATCHING CIRCUIT FOR MRI RF COILS
 Mitsunori Arakawa, Hillsborough; John G. van Heteren, Foster City; Joseph W. Carlson, Kensington; Leon Kaufman, San Francisco; and Einar Taplo, Mountain View, all of Calif., assignors to Toshiba America, Inc., Tustin, Calif.
 Filed Feb. 9, 1996, Ser. No. 599,071
 Int. Cl.⁶ G01R 33/34; H01P 5/08; A61B 5/055
 U.S. Cl. 324—322 16 Claims



1. An RF assembly for an MRI system, comprising a RF coil; RF circuits to control operation of the RF coil; a tuning unit, having first and second ports, connected at the first port with the RF circuits; and a transmission line connecting the RF coil to the second port of the tuning unit, the RF coil being remote from the tuning unit; wherein the tuning unit comprises: first and second capacitor banks, each having a plurality of capacitive branches connected in parallel to each other and in parallel to an inductance, each capacitive branch comprising a capacitive element connected in series with an electro-magnetic switch and a semiconductor switch; a first series capacitor connected in series between the first port and the first capacitor bank; a second series capacitor connected in series between the first capacitor bank and the second capacitor bank; and a third series capacitor connected in series between the second capacitor bank and the second port.

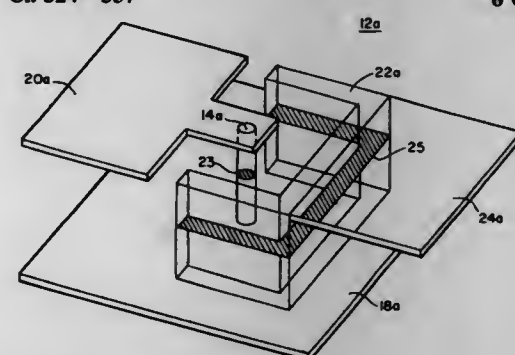
5,670,882
FERROUS TARGET IDENTIFICATION SYSTEM WITH MAGNETIC FIELD POLARITY AND GRADIENT INDICATION
 Giuseppe Brandolino, Brampton, and Fred Maroske, Thornhill, both of Canada, assignors to Magnawand Inc., Concord, Canada
 Filed Sep. 21, 1995, Ser. No. 531,676
 Int. Cl.⁶ G01V 3/08; 3/165; 3/40
 U.S. Cl. 324—345 22 Claims



1. A target identification system for a gradiometer for detecting a desired ferrous object concealed beneath a surface, said system comprising: (a) a first sensor for detecting a magnetic field at a first point above the surface;

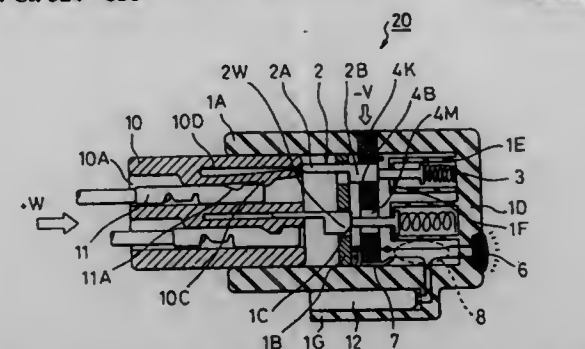
- (b) a second sensor for detecting said magnetic field at a second point above the surface, said second point located above said first point;
- (c) means for providing drive signals for the sensors, connected the first and second sensors, to generate sensor output signals proportional to the magnetic fields sensed by the sensors;
- (d) circuit means connected to the first and second sensors and including means for generating a difference signal at an output thereof, said difference signal being the difference between the output signals of the sensors and being proportional to the detected gradient of the magnetic field between said first point and said second point, the circuit means also generating a polarity signal indicative of the magnetic field polarity at the first sensor; and
- (e) interface means for producing an indication signal when both said polarity signal has a selected value, indicative that said magnetic field has a selected polarity and when said difference signal has a magnitude that exceeds a set value, indicative that the magnitude of the detected magnetic field gradient exceeds a set value, the interface means being connected to the circuit means.

5,670,883
INTEGRATED CIRCUIT INTERLEVEL CONDUCTOR DEFECT CHARACTERIZATION TEST STRUCTURE AND SYSTEM
 Geoff O'Donoghue, Andover, and Scott C. Munroe, Carlisle, both of Mass., assignors to Analog Devices, Inc., Norwood, Mass.
 Filed Nov. 20, 1995, Ser. No. 560,650
 Int. Cl.⁶ H01H 31/02; G01R 31/26; H01L 21/66
 U.S. Cl. 324—537 6 Claims



1. An interlevel conductor defect characterization integrated circuit test structure comprising: first and second spaced test pads; a conductor layer; an insulator layer between said conductor layer and said test pads; and a first interlevel unit conductor having a unit cross-sectional conductive area extending between said first test pad and said conductor layer, and a second interlevel conductor extending between said second test pad and said conductor layer and having a cross-sectional conductive area substantially greater than said unit area for detecting defects which restrict the current carrying capacity of said unit area of said first interlevel conductor but not said second interlevel conductor.

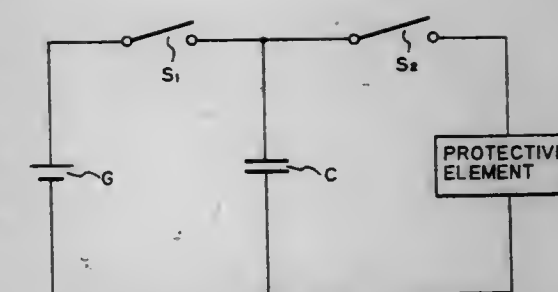
5,670,884
CONNECTOR TESTING DEVICE
 Shinji Kodama, Haibara-gun, Japan, assignor to Yazaki Corporation, Tokyo, Japan
 Filed Jun. 14, 1996, Ser. No. 665,099
 Claims priority, application Japan, Jun. 16, 1995, 7-150638
 Int. Cl.⁶ H01H 31/04 12 Claims
 U.S. Cl. 324—538



1. A connector testing device for a connector having a space and a lance provided in a connector housing, the lance having a retaining projection for retaining a connection terminal inserted into said connector housing in a rearward direction and being elastically deformable into the space, said connector testing device comprising: a hood portion for receiving the connector housing in such a manner that an outer surface of the connector housing is in contact with an inner surface of said hood portion; a detection pin including a tip end portion extending in a forward direction from a body portion thereof so as to be inserted into the space, and a detection portion which extends in said rearward direction from said body portion, and is smaller in cross-sectional area than said body portion, said detection pin being movable in said forward and rearward directions and being normally urged forward; first urging means for normally urging said detection pin in said forward direction; a spacer having an insertion hole having such a size as to allow said body portion to pass therethrough, said spacer being movable upward and downward and being normally urged upward, and in an upwardly-urged position of said spacer, said insertion hole allowing the body portion to pass therethrough; and second urging means for normally urging said spacer upward, wherein when said detection pin is disposed in a forward position, only said detection portion passes through said insertion hole, and when said detection pin is disposed in a rearward position, at least part of said body portion passes through said insertion hole.

5,670,885
SEMICONDUCTOR DEVICE
 Takashi Iwai, Hachioji, and Motoo Nakano, Yokohama, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
 Division of Ser. No. 312,050, Sep. 23, 1994, which is a continuation of Ser. No. 757,184, Sep. 10, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 475,504
 Claims priority, application Japan, Sep. 10, 1990, 2-239350; Mar. 18, 1991, 3-52496
 Int. Cl.⁶ G01R 27/00 5 Claims
 U.S. Cl. 324—550

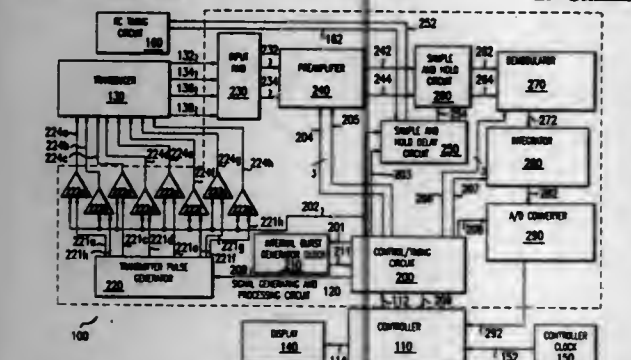
1. A method of selecting an optimum protective element for an internal circuit of a semiconductor device, comprising the steps of: using a resistance value defined as: applied energy/(discharge current)²dt as an evaluation parameter that determines the electrostatic energy absorbing capacity of the protective element; and



5,670,887
METHOD AND APPARATUS FOR FAST SAMPLING IN CAPACITIVE POSITION TRANSDUCERS
 Nils Ingvar Andermo, Kirkland; Patrick H. Mawet, Snohomish, and Karl G. Masreliez, Bellevue, all of Wash., assignors to Mitutoyo Corporation, Kanagawa-ken, Japan
 Filed Apr. 17, 1996, Ser. No. 634,094
 Int. Cl.⁶ G01R 27/26

U.S. Cl. 324—684

29 Claims



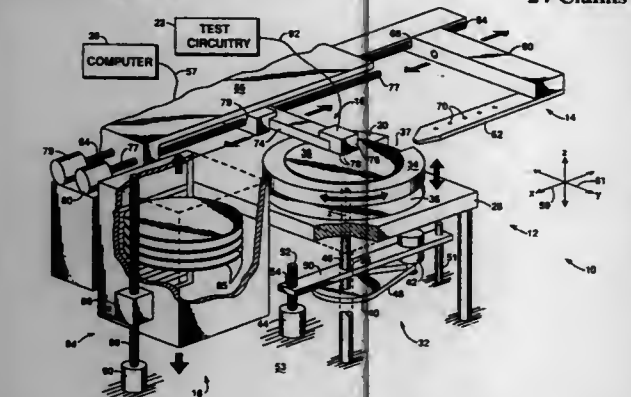
4. A method for determining, for a capacitive position transducer, a sampling delay interval after an input signal is input to the capacitive position transducer, the method comprising: determining a gap distance between a first member and a second member of the capacitive position transducer; determining a separation distance between driver electrodes on one of the first member and the second member; determining a desired minimum proportion of a signal contrast of a sampled output signal of the capacitive position transducer relative to a maximum signal contrast of the output signal; and determining the sample delay interval based on the determined gap distance, the determined separation distance, and the determined desired minimum proportion of the signal contrast for the output signal.

5,670,888
METHOD FOR TRANSPORTING AND TESTING WAFERS

David Cheng, 711 Hibernia Ct., Sunnyvale, Calif. 94087
 Division of Ser. No. 981,801, Nov. 25, 1992, Pat. No. 5,479,108. This application Jun. 7, 1995, Ser. No. 484,792
 Int. Cl.⁶ G01R 31/02

U.S. Cl. 324—754

24 Claims



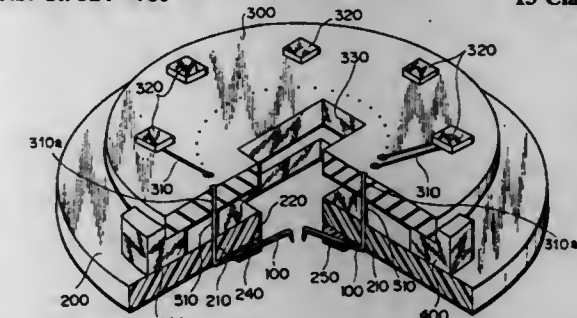
1. A method for testing a surface of a planar workpiece comprising:
 - a) placing a workpiece on a support surface such that a test surface of said workpiece faces upwardly;
 - b) moving a test head to a position above said workpiece, said test head being moved in an x-direction along an x-axis parallel to said test surface of said workpiece;

- c) moving said support surface upwardly to cause said test surface to engage said test head positioned above said workpiece;
- d) moving said support surface downwardly to disengage said test head from said workpiece;
- e) translating said test head parallel to the plane of said workpiece; and
- f) repeating steps c and d.

5,670,889
PROBE CARD FOR MAINTAINING THE POSITION OF A PROBE IN HIGH TEMPERATURE APPLICATION
 Masao Okubo, Nishinomiya; Nobuyuki Murakami, Amagasaki; Kouji Katahira, Kikuchi-gun; Hiroshi Iwata, Otokuni-gun, and Kazumasa Okubo, Naka-gun, all of Japan, assignors to Nihon Denshizaiyo Kabushiki Kaisha, Amagasaki, Japan
 Filed Mar. 15, 1995, Ser. No. 404,729
 Claims priority, application Japan, Oct. 17, 1994, 6-278447
 Int. Cl.⁶ G01R 31/02

U.S. Cl. 324—760

13 Claims



1. A probe card for testing semiconductor wafers at a high temperature comprising: a probe for contacting the semiconductor wafers, a ceramic board, the probe being secured to one side of the ceramic board, a print board including a wiring pattern, means for holding the print board at a superposed position spaced from the ceramic board at the other side of the ceramic board so as to decrease deformation of the print board at a high temperature, and an interconnector between the wiring pattern and the probe.

5,670,890
SWITCHABLE PULL-UPS AND PULL-DOWNS FOR IDDQ TESTING OF INTEGRATED CIRCUITS
 Michael Colwell, Livermore; Rochit Rajsuman, San Jose; Ray Abrishami, Los Altos, and Zarir B. Sarkari, Santa Clara, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.
 Continuation-in-part of Ser. No. 359,950, Dec. 20, 1994, abandoned, which is a continuation of Ser. No. 52,418, Apr. 22, 1993, abandoned. This application Sep. 26, 1995, Ser. No. 533,704
 Int. Cl.⁶ G01R 31/28

U.S. Cl. 324—765

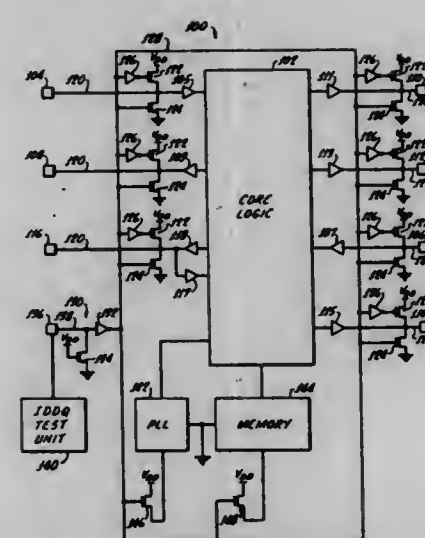
20 Claims

1. An integrated circuit having a normal mode of operation and a test mode of operations, comprising:
 - a) logic means responsive to at least one of a plurality of input signal lines, each signal line having an electrical potential associated therewith;
 - b) switchable pull circuit means coupled to said plurality of input signal lines for helping input signals carried thereon to pull to a desired potential level during the normal mode of operation;
 - c) quiescent power means coupled to said switchable pull circuit means to enable it to receive a voltage potential for helping to pull the input signals to said desired potential level during the normal mode of operation; and
 - d) IDDQ test control means coupled to said switchable pull circuit means for causing it to switch between the normal mode of operation permitting input signals to be pulled to said desired

5,670,892
APPARATUS AND METHOD FOR MEASURING QUIESCENT CURRENT UTILIZING TIMESET SWITCHING
 Nicholas Sporck, Saratoga, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.
 Filed Oct. 20, 1995, Ser. No. 545,880
 Int. Cl.⁶ G01R 31/06

U.S. Cl. 324—765

6 Claims

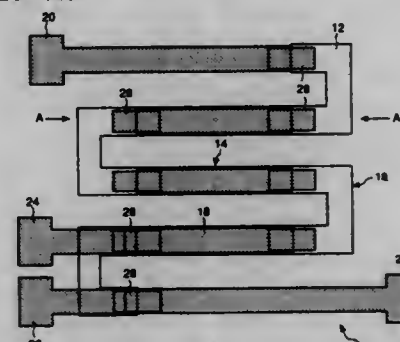


potential level, and the test mode of operation permitting each signal line having an electrical potential associate therewith to float to said electrical potential without being pulled to said desired potential level for IDDQ testing purposes.

5,670,891
STRUCTURES TO EXTRACT DEFECT SIZE INFORMATION OF POLY AND SOURCE-DRAIN SEMICONDUCTOR DEVICES AND METHOD FOR MAKING THE SAME
 Zhi-Min Ling, San Jose; Yung-Tao Lin, Fremont, and Ying Shiao, San Jose, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.
 Filed Jun. 7, 1995, Ser. No. 477,384
 Int. Cl.⁶ G01R 31/26

U.S. Cl. 324—765

18 Claims



1. A structure for detecting defect sizes on a semiconductor, comprising:
 - a) a resistor path of first semiconductor material formed on said semiconductor and comprising a plurality of strip segments and interconnection segments disposed between said strip segments, said first semiconductor material having a first resistivity;
 - b) a plurality of strips of second semiconductor material formed from selectively masking the resistor path and the semiconductor, the strips having a second resistivity lower than the first resistivity and corresponding to said strip segments of said resistor path to form strip segments having parallel paths of said first and second resistivities, respectively;
 - c) first and second electrodes formed of said second semiconductor material and electrically connected to two of said strips corresponding to each end of said resistor path; and
 - d) third and fourth electrodes formed of said second semiconductor material that determine a resistivity value of said interconnection segments.

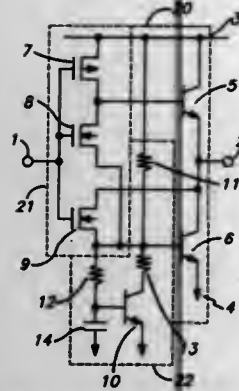
1. A process for use with a circuit testing apparatus having a vector generator which provides a sequence of vectors to a circuit at a rate responsive to a timeset, the vectors being associateable with a quiescent current measurement, a power supply which provides quiescent current to the circuit and a current monitor which measures the current provided to the circuit, the process comprising:
 - a) providing current to the circuit being tested;
 - b) associating at least one vector in the sequence with a quiescent current measurement;
 - c) retrieving a first plurality of vectors from the sequence of vectors which are not associated with a quiescent current measurement;
 - d) setting the timeset of the vector generator so that the vector generator provides the first plurality of vectors to the circuit being tested at a first rate;
 - e) executing the first plurality of vectors with the circuit being tested whereby a predetermined state of the circuit is achieved;
 - f) retrieving the at least one vector in the sequence which is associated with a quiescent current measurement and setting the timeset to a second rate, the second rate being slower than the first rate;
 - g) providing the at least one vector to the circuit being tested at the second rate;
 - h) executing the at least one vector with the circuit being tested; and
 - i) measuring the quiescent current of the circuit while the circuit being tested is executing the at least one vector.

5,670,893
BICMOS LOGIC CIRCUIT WITH BIPOLAR BASE CLAMPING
 Hitoshi Okamura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
 Filed Sep. 26, 1994, Ser. No. 312,396
 Claims priority, application Japan, Sep. 24, 1993, 5-237620
 Int. Cl.⁶ H03K 17/0412

U.S. Cl. 326—18

6 Claims

1. A BICMOS logic gate circuitry comprising:



an input terminal for receiving input logic signals having a high level which is the same as a power source;
an output terminal connected to an external load for permitting output logic signals to be outputted;
a CMOS circuit having an input side which is connected to said input terminal for receiving said input signals and having an output side from which clamping-free logic signals are outputted;
an output pull-up bipolar transistor connected in series between a high voltage line and said output terminal, said output pull-up bipolar transistor having a base which is connected to an output side of said CMOS circuit for allowing said output pull-up bipolar transistor to be driven by said clamping-free logic signals;
an output pull-down bipolar transistor connected in series between a low voltage line and said output terminal so as to form a series connection of said output pull-up and output pull-down bipolar transistors between said high and low voltage lines, said output pull-down bipolar transistor having a base connected to said CMOS circuit so that said CMOS circuit is biased between said high voltage line and said base of said output pull-down bipolar transistor;
a clamping circuit biased between said high and low voltage lines, said clamping circuit having a clamping terminal which is connected to said base of said output pull-down bipolar transistor for clamping a base potential of said output pull-down bipolar transistor which is lower than a threshold potential level at which said output pull-down bipolar transistor turns ON and OFF and which is higher than ground voltage, and said clamping circuit further having a higher impedance than an input impedance of said base of said output pull-down bipolar transistor; and
an n-channel MOS field effect transistor having a gate which is connected to said input terminal for receiving said input logic signals, said n-channel MOS field effect transistor being connected in series between said output terminal and said base of said output pull-down bipolar transistor for clamping a low level of said output logic signals appearing on said output terminal to said base potential clamped by said clamping circuit to thereby prevent said output pull-down bipolar transistor from entering into a saturation state.

5,670,894

SEMICONDUCTOR DEVICE HAVING OUTPUT SIGNAL CONTROL CIRCUIT

Toru Takaishi, and Tetsu Tanizawa, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 450,173, May 25, 1995, abandoned. This application Dec. 4, 1996, Ser. No. 754,029

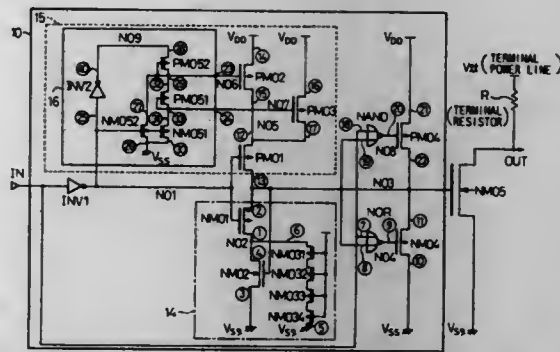
Claims priority, application Japan, Jul. 28, 1994, 6-176715

Int. Cl.⁶ H03K 19/0948; 19/017; 17/16

U.S. Cl. 326—27

6 Claims

5. A semiconductor circuit, comprising:
an output transistor connected between an output node and a reference voltage;



an inverter connected between an input node and a gate of the output transistor; and
a first variable resistor circuit connected between the reference voltage and a power node of the inverter;
a second variable resistor circuit connected between the gate of the output transistor and the reference voltage, and a resistance value thereof being set in such a way that the resistance value after completion of a change of the potential of the output node becomes a value smaller than the resistance value just before completion of the change; wherein a resistance value of the first variable resistor circuit is set in such a way that the resistance value, during a term from when a gate potential of the output transistor reaches to approximately the same value as a threshold value of the output transistor in response to the change of the potential of the input node until the change of the potential of the output node is completed, is set to a resistance value larger than the resistance value just before the term.

5,670,895

ROUTING CONNECTIONS FOR PROGRAMMABLE LOGIC ARRAY INTEGRATED CIRCUITS

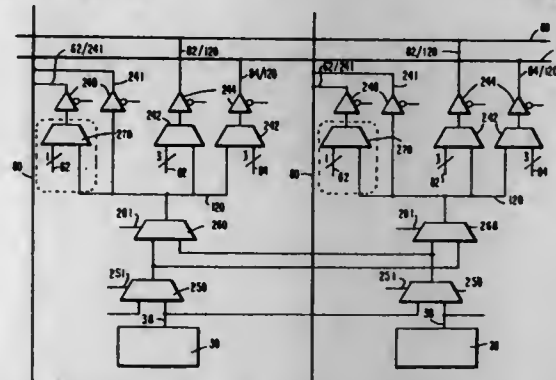
Peter J. Kazarian, Cupertino; Bruce B. Pedersen, San Jose; Francis B. Heile, Santa Clara, and David Wolk Mendel, Sunnyvale, all of Calif., assignors to Altera Corporation, San Jose, Calif.

Filed Oct. 19, 1995, Ser. No. 545,084

Int. Cl.⁶ H03K 7/38; 19/173

U.S. Cl. 326—39

35 Claims



33. A programmable logic array integrated circuit having a plurality of logic modules, each of which receives an associated plurality of input signals and each of which is programmable to produce an associated output signal which is a programmable logic function of the associated input signals, said circuit further including a network of conductors for selectively conveying the output signal of each logic module to others of said logic modules in order to make said output signal available for use as one said input signals to said others of said logic modules, said network having an input lead respectively associated with each of said logic modules through which said network normally receives the output signal of the associated logic module, said circuit comprising:

a first programmable switch for applying either the output signal of a first of said logic modules or the output signal of a second of said logic modules to said input lead that is associated with said first logic module; and
a second programmable switch for applying either the output signal of said second logic module or the output signal of a third of said logic modules to said input lead that is associated with said second logic module.

5,670,896

HIGH SPEED PRODUCT TERM ASSIGNMENT FOR OUTPUT ENABLE, CLOCK, INVERSION AND SET/RESET IN A PROGRAMMABLE LOGIC DEVICE

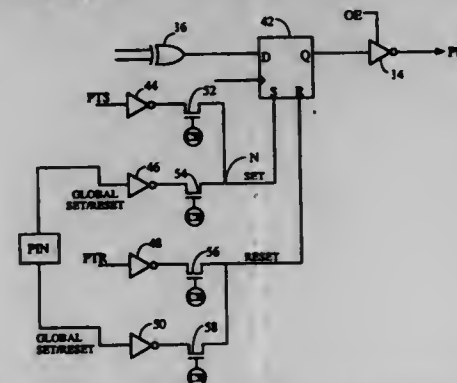
Sholeh Diba, Los Gatos, and Wei-Yi Ku, San Jose, both of Calif., assignors to Xilinx, Inc., San Jose, Calif.

Filed Sep. 26, 1995, Ser. No. 533,890

Int. Cl.⁶ H03K 7/38; 19/173

U.S. Cl. 326—40

12 Claims



4. A method of operating a macrocell of a programmable logic device, the macrocell including a flip-flop having at least a data input terminal, a data output terminal, a set terminal, and a reset terminal, comprising the steps of:
providing a selected one of a first product term signal and a global set signal to the set terminal; and
providing a selected one of a second product term signal and a global reset signal to the reset terminal.

5,670,897

HIGH SPEED MASK REGISTER FOR A CONFIGURABLE CELLULAR ARRAY

Thomas A. Kean, Edinburgh, Scotland, assignor to Xilinx, Inc., San Jose, Calif.

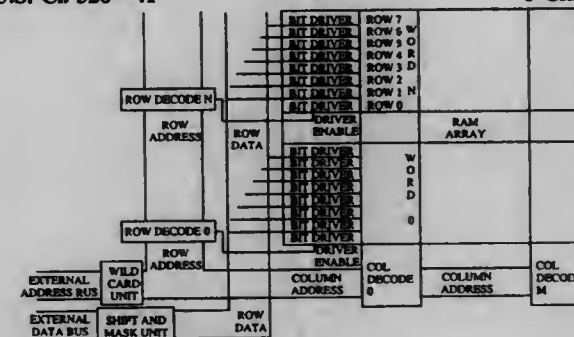
Division of Ser. No. 486,464, Jun. 7, 1995, Pat. No. 5,552,722, which is a division of Ser. No. 148,793, Nov. 5, 1993, Pat. No. 5,469,003. This application Aug. 27, 1996, Ser. No. 711,225

Claims priority, application United Kingdom, Nov. 5, 1992, 9223226

Int. Cl.⁶ H03K 19/177

U.S. Cl. 326—41

3 Claims



1. A register structure comprising:
a plurality of input lines;

a mask register having one bit for each input line;
a plurality of output lines;
a matrix of programmable connectors for programmably connecting each of said input lines to each of said output lines; for each of said programmable connectors, a decoder receiving an enable signal from a corresponding bit in said mask register and a decode address signal derived from all less significant bits in said mask register, each of said decoders enabling a corresponding input line to be connected to a corresponding output line only when said decode address signal indicates that no previous input lines have been connected to that output line.

5,670,898

LOW-POWER, COMPACT DIGITAL LOGIC TOPOLOGY THAT FACILITATES LARGE FAN-IN AND HIGH-SPEED CIRCUIT PERFORMANCE

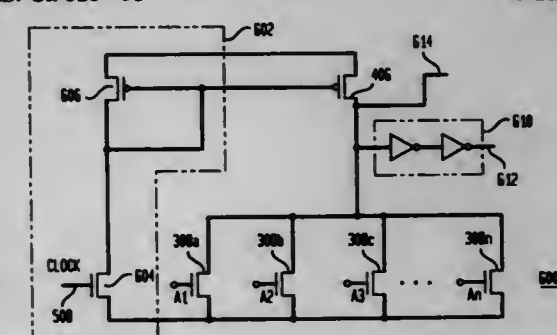
Emerson Fang, Daly City, Calif., assignor to Silicon Graphics, Inc., Mountain View, Calif.

Filed Nov. 22, 1995, Ser. No. 561,914

Int. Cl.⁶ H03K 19/017

U.S. Cl. 326—93

4 Claims



1. A circuit topology for implementing combinational logic functions comprising:
a dynamically precharged gate; and
a Pseudo-NMOS gate coupled to said dynamically precharged gate, comprising
an active load;
a switch coupled to said active load; and
a power control circuitry comprising
a second active load coupled to said first active load; and
a second switch coupled to said second active load.

5,670,899

LOGIC CIRCUIT CONTROLLED BY A PLURALITY OF CLOCK SIGNALS

Takayuki Kohdaka, Shizuoka-ken, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

Filed Nov. 9, 1995, Ser. No. 556,199

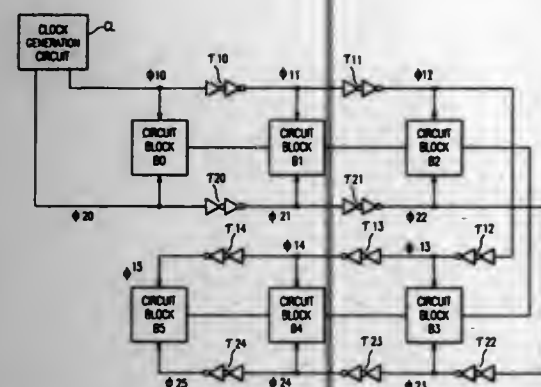
Claims priority, application Japan, Nov. 21, 1994, 6-311208; Nov. 21, 1994, 6-311209

Int. Cl.⁶ H03K 19/096; 17/16

U.S. Cl. 326—97

29 Claims

1. A semiconductor integrated circuit comprising:
a clock signal delay device that generates a plurality of clock signals, each clock signal having a phase that is shifted by a small amount with respect to the other of the plurality of clock signals; and
a plurality of circuit blocks defining a logic circuit to be controlled by clock signals, the circuit blocks being serially connected;
wherein each of the circuit blocks is controlled by one of the plurality of clock signals, and



the amount of phase shift between any two of the clock signals that control adjacent circuit blocks is small enough to cause the two clock signals to overlap.

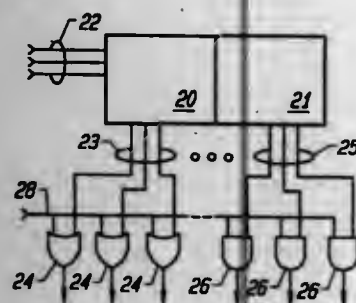
5,670,900 MASK DECODER CIRCUIT OPTIMIZED FOR DATA PATH

Frank Worrell, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Oct. 31, 1995, Ser. No. 550,944
Int. Cl.⁶ G06F 9/00

U.S. Cl. 326—105

6 Claims



1. In an integrated circuit device a mask decoder circuit having N input terminals and 2^N output terminals, N being at least five, said mask decoder circuit comprising

a plurality of logic gates connected between said input terminals and output terminals to generate mask bits on said output terminals responsive to control bit signals on said input terminals, said logic gates implementing AND, OR, invert and buffer functions with said plurality of logic gates logically comprises a plurality of output logic elements having input nodes and an output node connected to one of said output terminals, one of said input nodes connected to Nth input terminal; and

first and second N-1 decoder circuits, each N-1 decoder circuit having N-1 input nodes connected to input terminals, 1 through N-1, and having 2^{N-1} output nodes connected to a first half or a second half of said output terminals, each output node of an N-1 decoder circuit connected to a corresponding output terminal of one of said halves of said output terminals, wherein a unique electrical path is formed between each output terminal and said input terminals; whereby said mask decoder circuit occupies a minimal amount of space on said integrated circuit device.

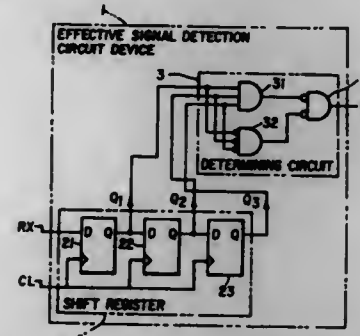
5,670,901 EFFECTIVE SIGNAL DETECTION CIRCUIT DEVICE OF SERIAL TRANSMISSION APPARATUS USING BI-PHASE CODE

Yutaka Yoshida, Kawasaki, Japan, assignor to Fuji Electric Co., Ltd., Japan

Filed Sep. 13, 1995, Ser. No. 527,556
Claims priority, application Japan, Sep. 13, 1994, 6-218447
Int. Cl.⁶ H03K 5/19

U.S. Cl. 327—148

4 Claims



1. An effective signal detection circuit device included in a receiver circuit device of a serial transmission apparatus that transmits data using bi-phase codes consisted of two half bits, the effective signal detection circuit device comprising:

a shift register for converting every half bit of the bi-phase codes to a parallel signal by using a clock signal having a frequency obtained by multiplying a bit frequency of the bi-phase codes by an even number; and

a determining circuit for receiving parallel signals corresponding to at least three consecutive half bits that are output from the shift register and determining existence or non-existence of an effective transmitted signal;

wherein the determining circuit comprises a detector circuit for detecting that the parallel signals have a same signal level, thereby indicating non-existence of an effective transmitted signal; and

wherein the detector circuit further detects that one of the parallel signals has a signal level different from the signal level of the other parallel signals, thereby indicating existence of an effective transmitted signal.

5,670,902 SATELLITE BROADCAST RECEIVING SYSTEM AND CHANGE-OVER DIVIDER FOR USE IN SAME

Yutaka Nakagawa; Tadashi Kajiwara, both of Kanagawa; Keiji Fukuzawa, Chiba, and Keiji Yuzawa, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 513,576, Aug. 10, 1995, Pat. No. 5,565,805, which is a continuation of Ser. No. 140,842, Oct. 25, 1993, abandoned, which is a division of Ser. No. 904,557, Jun. 26, 1992, Pat. No. 5,301,352. This application Jul. 19, 1996, Ser. No. 671,318

Claims priority, application Japan, Jul. 4, 1991, 3-164103

Int. Cl.⁶ H03K 17/00

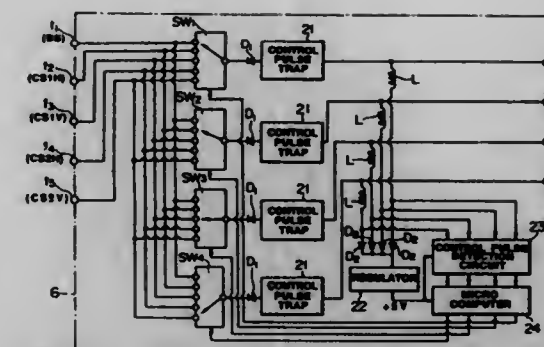
U.S. Cl. 327—99

7 Claims

1. A change-over divider for selecting at least one of a plurality of input signals, comprising:

a plurality of input terminals receiving respectively said plurality of input signals comprising broadcast satellite signals, communication satellite signals, and UHF broadcast signals;

a plurality of selector switches, each switch having a plurality of inputs respectively connected to receive said broadcast satellite signals and said communication satellite signals and each switch having an output terminal for outputting a selected one of said plurality of inputs;



a plurality of mixer means for mixing said broadcast satellite signals, said communication satellite signals, and said UHF broadcast signals and producing respective mixed output signals therefrom;

a plurality of input/output terminals connected respectively to said outputs of said plurality of mixer means and for receiving respective coded control pulses and power supply signals from respective external sources and for outputting said mixed output signals;

control pulse detection means connected to said plurality of input/output terminals for detecting said coded control pulses input through at least one of said plurality of input/output terminals; and

a microcomputer connected to said plurality of selector switches and said control pulse detection means, said microcomputer decoding said coded control pulses and outputting a change-over control signal to one of said plurality of switches in response to said decoded control pulses,

said one of said plurality of selector switches independently selecting one of said plurality of input signals in response to said change-over control signal supplied by said microcomputer.

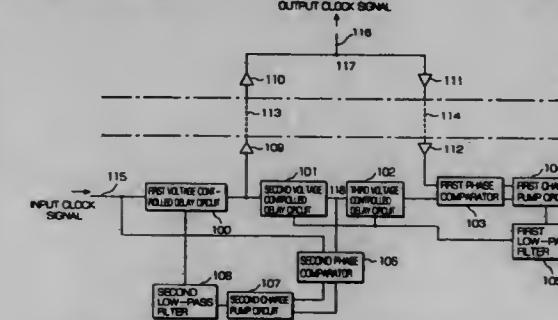
5,670,903 CLOCK SIGNAL DISTRIBUTION CIRCUIT HAVING A SMALL CLOCK SKEW

Masayuki Mizuno, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 30, 1995, Ser. No. 521,433
Claims priority, application Japan, Aug. 30, 1994, 6-204080
Int. Cl.⁶ H03K 5/13; 5/00

U.S. Cl. 327—158

18 Claims



1. A clock signal distribution circuit comprising:

a first voltage controlled delay circuit including an input for receiving an input clock signal;

a second voltage controlled delay circuit including an input connected to an output of said first voltage controlled delay circuit;

a third voltage controlled delay circuit including an input connected to an output of said second voltage controlled delay circuit, each of said first through third voltage controlled delay circuits including a control input and generating an output signal having a variable phase delay with respect to an input signal supplied through the input thereof based on a voltage of a control signal supplied from the control input

thereof, said second voltage controlled delay circuit generating a phase delay substantially equal to a phase delay of said third voltage controlled delay circuit;

a first signal transmission circuit including an input connected to an output of said first voltage controlled delay circuit and an output for supplying an output clock signal;

a second signal transmission circuit including an input connected to the output of said first signal transmission circuit, said second signal transmission circuit having a propagation delay substantially equal to a propagation delay of said first signal transmission circuit;

a first phase lock loop including a first input connected to an output of said third voltage controlled delay circuit, a second input connected to an output of said second signal transmission circuit, and an output connected to the control inputs of said second and third voltage controlled delay circuits; and

a second phase lock loop having a first input connected to the input of said first voltage controlled delay circuit, a second input connected to the output of said second voltage controlled delay circuit and an output connected to the control input of said first voltage controlled delay circuit, each of said first and second phase lock loop generating an output signal based on a phase difference between the signals supplied from the first and second inputs thereof.

5,670,904 PROGRAMMABLE DIGITAL DELAY UNIT

David Moloney, Cornaredo, and Paolo Gadducci, Pisa, both of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

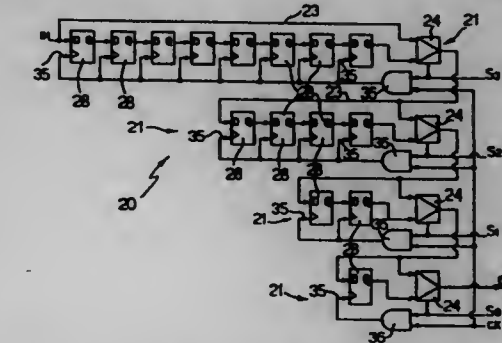
Filed Sep. 21, 1995, Ser. No. 532,016

Claims priority, application European Pat. Off., Sep. 21, 1994, 94830445

Int. Cl.⁶ H03H 11/26

U.S. Cl. 327—277

12 Claims



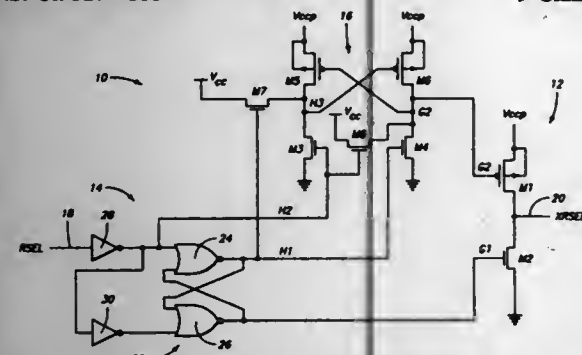
1. A programmable digital delay unit comprising:

a plurality of delay blocks, each delay block having an input and an output, and including at least one delay element, each delay block operable to delay a digital input for a selected period of time;

a plurality of multiplexers each connected to a corresponding one of the delay blocks, each multiplexer having first and second inputs respectively connected to the input and the output of the corresponding delay block, and an output connected to the input of a next delay block among the plurality of delay blocks; and

means for disabling the at least one delay element of one delay block among the plurality of delay blocks to reduce power consumption.

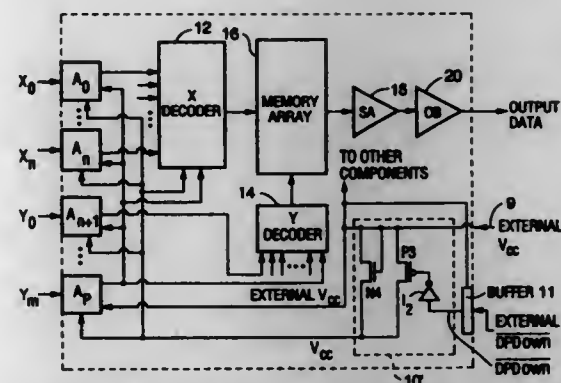
5,670,905
LOW-TO-HIGH VOLTAGE CMOS DRIVER CIRCUIT FOR DRIVING CAPACITIVE LOADS
 Brent Keeth, and William K. Waller, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
 Continuation of Ser. No. 603,499, Feb. 20, 1996, abandoned, which is a continuation of Ser. No. 777,917, Jul. 20, 1994, abandoned. This application Nov. 13, 1996, Ser. No. 749,899
 Int. Cl.⁶ H03K 19/0175; 17/10
 U.S. Cl. 327—333 9 Claims



1. A low-to-high voltage CMOS driver circuit for driving a capacitive load, comprising:
 - a CMOS output stage having a PMOS transistor and an NMOS transistor coupled between first and second voltage levels, the CMOS output stage providing an output signal that swings between the first and second voltage levels;
 - an input stage to receive an input signal that swings between the first voltage level and a third voltage level that is less than the second voltage level, the input stage including a cross-coupled latch which generates at least first and second interdependent control signals based upon the input signal, the first control signal being used to activate one transistor of the CMOS output stage, the input stage further generating a third control signal; and
 - an intermediate voltage translation stage coupled between the input and output stages, the voltage translation stage receiving the second control signal from the input stage and using the second control signal to generate an activation signal at the second voltage level, the activation signal activating the other transistor of the CMOS output stage at a different time than the input stage activates the one transistor of the CMOS output stage, the input stage, the output stage, and the intermediate voltage translation stage operating together to minimize crossing current in the CMOS output stage, the intermediate voltage translation stage including a pair of cross-coupled transistors which are operably controlled by the second and third control signals from the input stage.

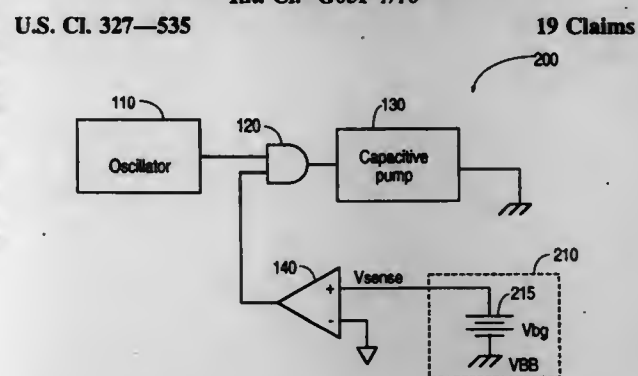
5,670,906
INTEGRATED CIRCUIT OPERABLE IN A MODE HAVING EXTREMELY LOW POWER CONSUMPTION
 Fariborz F. Roohparvar, Cupertino, Calif., assignor to Micron Quantum Devices, Inc., Santa Clara, Calif.
 Filed Jul. 5, 1995, Ser. No. 498,530
 Int. Cl.⁶ H03K 3/01 17 Claims

1. An integrated circuit which operates in an active mode in response to a first state of a control signal and operates in a deep power down mode in response to a second state of the control signal, said integrated circuit comprising:
 - at least one MOS transistor having a body, a source, and a drain;
 - a supply voltage circuit having a first input for receiving a reference voltage, a second input for receiving the control signal, a first output connected to the body of each said MOS transistor, and a second output connected to the source of each said MOS transistor, wherein the supply voltage circuit also includes:



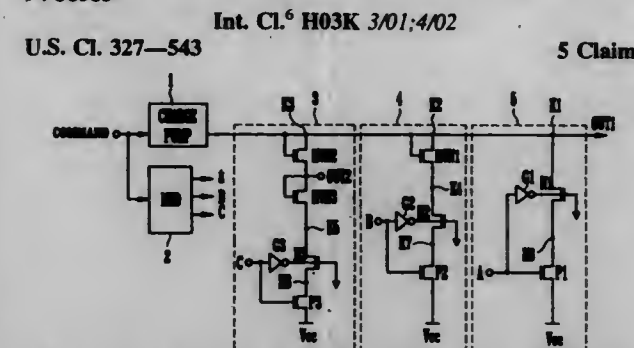
- first means for holding the first output at the reference voltage, thereby supplying said reference voltage to the body in both the active mode and the deep power down mode; and
- second means for holding the second output at a first voltage substantially equal to the reference voltage in response to said first state of the control signal, and for decoupling the second output from the first voltage in response to a transition of the control signal from the first state to the second state, whereby the second means allows the source at least initially to float in response to said transition of the control signal from the first state to the second state.

5,670,907
VBB REFERENCE FOR PUMPED SUBSTRATES
 James Gorecki, Hillsboro; Ravinder Lal, and Robert B. Leferts, both of Portland, all of Oreg., assignors to Lattice Semiconductor Corporation, Hillsboro, Oreg.
 Filed Mar. 14, 1995, Ser. No. 403,595
 Int. Cl.⁶ G05F 1/10 19 Claims



1. A circuit implemented on a substrate having a voltage generated by a charge pump, said circuit comprising:
 - a current source providing a first current that is proportional to temperature; and
 - a level shifter coupled to said current source and said substrate, said level shifter providing
 - a first voltage that is shifted from said voltage of said substrate, wherein said level shifter comprises:
 - a first P-channel transistor coupled to said current source, said first P-channel transistor conducting a current substantially equal to said first current;
 - a first resistive device coupled to a drain of said first P-channel transistor; and
 - a first PNP transistor having a base and collector coupled to said substrate and an emitter coupled to said first resistive device.

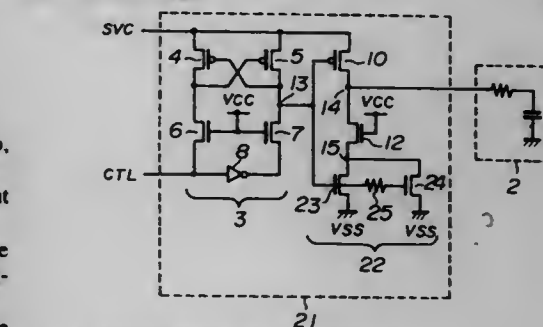
5,670,908
CIRCUIT FOR CONTROLLING OUTPUT VOLTAGE FROM CHARGE PUMP
 Dae Hyun Kim, Kyungki-do, and Yun Seob Shin, Bucheon, both of Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Kyungki-do, Rep. of Korea
 Filed Dec. 21, 1995, Ser. No. 576,052
 Claims priority, application Rep. of Korea, Dec. 29, 1994, 94-38585
 Int. Cl.⁶ H03K 3/01; 4/02 5 Claims



5. A circuit for controlling output voltage from a charge pump, comprising:
 - a charge pump to output a constant voltage through the output terminal based on command signals;
 - a multi-level selection decoder to output a plurality of pulse signals having different phases based on the command signals;
 - a first voltage control circuit to generate a first positive voltage at said output terminal according to a first pulse signal from a multi-level selection decoder, wherein said first voltage control circuit comprising a first NMOS transistor having a gate electrode, a drain region, a source region, a P+-well and a N+-well, wherein said first NMOS transistor causes a breakdown effect to occur when output voltage from said charge pump is applied to the drain region, the source region is floated, a zero volt is applied to the P+-well, and the gate electrode is grounded, a first means for supplying a first inverse signal to the P+-well in said first NMOS transistor, wherein said first inverse signal is generated by inversion of the first pulse signal and a second means for supplying a VCC power supply to the source electrode of said first NMOS transistor based on the first pulse signal;
 - a second voltage control circuit to generate a second positive voltage at said output terminal according to a second pulse signal from said multi-level selection decoder, wherein said second voltage control circuit comprising a first transistor for high voltage coupled to the output terminal of said charge pump, said first transistor operating as a diode, a second NMOS transistor causes a breakdown effect to occur when the output voltage from said charge pump is applied to the drain region, the source region is floated, a zero volt is applied to the P+-well, and the gate electrode is grounded, a third means for supplying a second inverse signal to the P+-well in said second NMOS transistor, wherein the second inverse signal is generated by inversion of the second pulse signal and a fourth means for supplying a VCC power supply to the source electrode of said second NMOS transistor based on the second pulse signal; and
 - a third voltage control circuit to generate a third positive voltage as said output terminal according to a third pulse signal from said multi-level selection decoder, wherein said third voltage control circuit comprising a second transistor for high voltage coupled to the output terminal of said charge pump, wherein said second transistor is operated as a diode, a third transistor for high voltage coupled to said second transistor, wherein said third transistor is operated as a diode, a third NMOS transistor having a gate electrode, a drain region, a source region, a P+-well and a N+-well, wherein said third NMOS transistor causes a breakdown effect to occur when output voltage from said charge pump is applied to the drain region, the source region is floated, a zero volt is applied to the P+-well, and the gate electrode is grounded, a fifth means for supplying a third inverse signal to the P+-well in said third NMOS transistor, wherein the third inverse signal is generated by inversion of the third pulse signal and a sixth means for supplying a VCC power supply to the source electrode of said third NMOS transistor based on the third pulse signal.

supplying a third inverse signal to the P+-well in said third NMOS transistor, wherein the third inverse signal is generated by inversion of the third pulse signal and a sixth means for supplying a VCC power supply to the source electrode of said third NMOS transistor based on the third pulse signal.

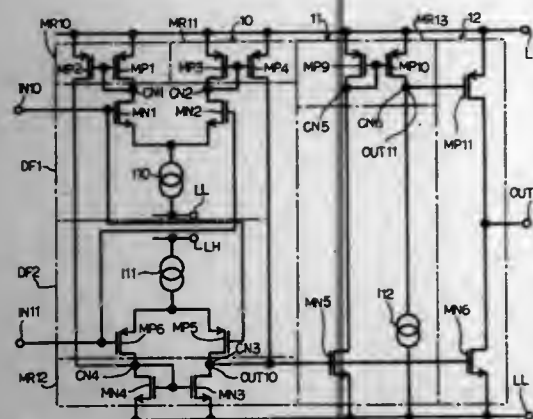
5,670,909
SEMICONDUCTOR DEVICE HAVING A BOOSTING CIRCUIT
 Kenichi Kawasaki, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
 Filed Feb. 26, 1996, Ser. No. 606,821
 Claims priority, application Japan, Jun. 19, 1995, 7-151227
 Int. Cl.⁶ G05F 1/10 22 Claims



1. A semiconductor device, comprising:
 - a boost circuit producing a boost voltage by boosting a supply voltage; and
 - a boost control circuit supplied with said boost voltage and outputting said boost voltage to a load in response to a control signal, said boost control circuit comprising:
 - a first transistor having a first diffusion region connected to said boost circuit and receiving the boost voltage produced thereby and a second diffusion region adapted for connection to said load for outputting said received boost voltage therefrom to said load, said first transistor being turned on to output said boost voltage from said second diffusion region to said load and being turned off when interrupting the output of said boost voltage from said second diffusion region to said load;
 - a second transistor having a third electrode connected electrically to said second diffusion region of said first transistor and a fourth diffusion region, said second transistor being turned on irrespective of whether or not said first transistor is turned on; and
 - a third transistor having a fifth electrode connected electrically to said fourth diffusion region of said second transistor and a sixth electrode connected electrically to a ground level, said third transistor being turned on when the output of said boost voltage from said second diffusion region to said load is interrupted and turned off when said boost voltage is output from said second diffusion region to said load, said second transistor having a conductance exceeding a conductance of said third transistor.

5,670,910
OPERATIONAL AMPLIFIER FREE FROM DISPERSION IN QUIESCENT CURRENT CONSUMED BY OUTPUT STAGE
 Fumihiko Kato, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
 Filed Jan. 26, 1996, Ser. No. 592,735
 Claims priority, application Japan, Jan. 27, 1995, 7-031351
 Int. Cl.⁶ H03F 3/45 14 Claims

1. An operational amplifier circuit comprising:



an input stage connected to first and second input nodes, and producing a first potential level variable with the magnitude of an input potential difference between said first and second input nodes at a first output node thereof;

an error compensable level-shift stage including

an inverting transistor having a control node coupled to said first output node of said input stage for producing a second potential level complementarily varied with said first potential level at an intermediate node thereof,

a first current mirror circuit having a first current mirror transistor coupled in series to said inverting transistor and a second current mirror transistor coupled in parallel to said first current mirror transistor, said first and second current mirror transistors having respective control nodes coupled to said intermediate node for producing a third potential level at a second output node thereof,

a first constant current source coupled through said second output node to said second current mirror transistor; and

an output stage including

a first output transistor coupled to a first power voltage source and having a control node coupled to said second output node for varying an on-resistance thereof,

a second output transistor coupled between said first output transistor and a second power voltage source different in power voltage level from said first power voltage source and having a control node coupled to said first output node for complementarily changing an on-resistance with respect to said on-resistance of said first output transistor, and

a third output node provided between said first output transistor and said second output transistor for producing an output potential signal corresponding to said input potential difference.

5,670,911

FET AMPLIFIER AND BIAS POWER SUPPLY CIRCUIT FOR COMMONLY AMPLIFYING MULTI-RADIO FREQUENCY (RF) SIGNALS

Tsuguo Hori, Tokyo, and Atsushi Iwahashi, Saitama, both of Japan, assignors to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 433,760, May 4, 1995, abandoned.

This application May 22, 1996, Ser. No. 664,025

Claims priority, application Japan, May 23, 1994, 6-107336

U.S. Cl. 330—277

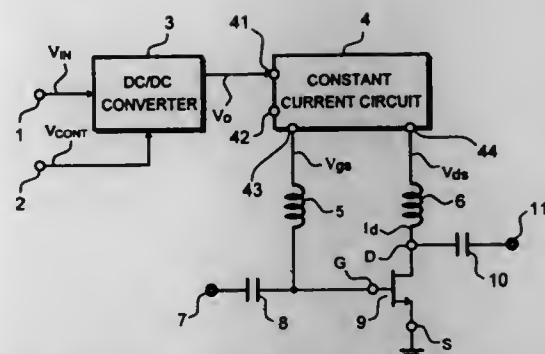
5 Claims

1. A radio frequency FET amplifier comprising:

an amplifier circuit having an FET capable of commonly amplifying a plurality of radio frequency signals; and

a bias power supplying circuit for varying bias power supplied to said FET according to a number of inputted radio frequency signals,

wherein said bias power supplying circuit varies a drain voltage supplied to a drain terminal of said FET according to the number of inputted radio frequency signals and also varies a gate voltage of said FET so as to hold a drain current flowing in said FET substantially constant irrespective of changes in the number of inputted radio frequency signals, and



wherein said bias power supplying circuit comprises:

a DC/DC converter for generating, from a DC voltage supplied, a voltage corresponding to the number of inputted radio frequency signals at a converter output terminal; and

a constant current circuit having a drain current detecting means inserted between the converter output terminal and the drain terminal of the FET for detecting the drain current, and a gate voltage supplying means for monitoring the drain current detected by said drain current detecting means and varying a gate voltage of the FET so as to hold the drain current substantially constant.

5,670,912

VARIABLE SUPPLY BIASING METHOD AND APPARATUS FOR AN AMPLIFIER

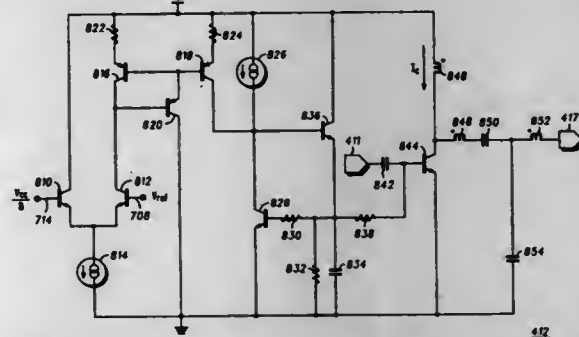
Andrew Gerald Zocher, Spring Grove, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 31, 1996, Ser. No. 594,926

Int. Cl. H03F 3/19

U.S. Cl. 330—296

23 Claims



13. A method of biasing an amplifier, the method comprising the steps of:

biasing the amplifier with a first substantially fixed current over a first operating voltage range of the amplifier; and

biasing the amplifier with a second substantially fixed current over a second operating voltage range of the amplifier.

5,670,913

PHASE LOCKED LOOP CIRCUIT WITH FALSE LOCKING DETECTOR AND A LOCK ACQUISITION SWEEP

Francisco Manuel Garcia Palancar, Camarma de Esteruelas, Spain, assignor to Alcatel N.V., Netherlands

Filed Mar. 27, 1996, Ser. No. 622,745

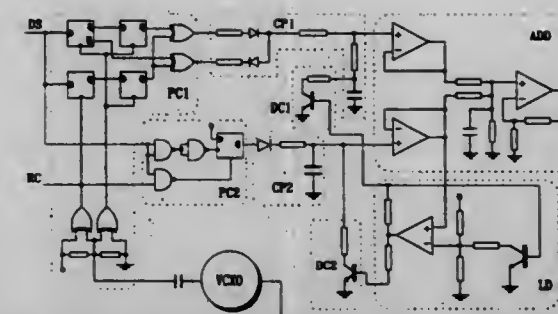
Claims priority, application Spain, Mar. 31, 1995, P 9500648

Int. Cl. H03L 7/095; 7/12

U.S. Cl. 331—4

3 Claims

1. Clock recovery circuit for an incoming data signal (DS) comprising a first phase locked loop (PC1, CP1, VCXO) comprising a first charge pump (CP1) having an output voltage which increases or decreases depending on output pulses from a first



phase comparator (PC1), characterized in that a voltage-controlled oscillator (VCXO) of the first phase locked loop receives a signal coming from a false locking detector (FLD) which, in turn, receives the incoming data signal (DS) and a signal derived from an output of the voltage-controlled oscillator (VCXO), the false locking detector (FLD) comprising a second phase comparator (PC2) and a second charge pump (CP2) having an output signal for summation with said output voltage of the first charge pump (CP1) for control of the voltage-controlled oscillator (VCXO).

5,670,914

MINIATURE ATOMIC FREQUENCY STANDARD

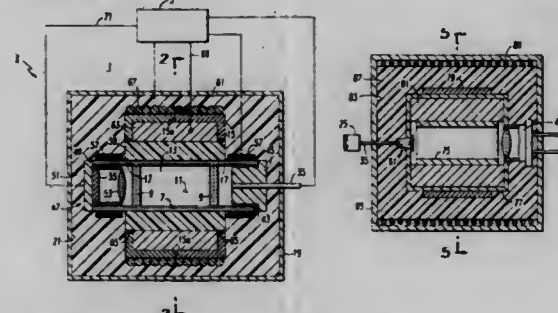
Irving Liberman, Pittsburgh, and Peter J. Chantry, Churchill Boro, both of Pa., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Sep. 25, 1995, Ser. No. 533,301

Int. Cl. H01S 1/00; H03L 7/26

U.S. Cl. 331—94.1

19 Claims



1. A miniature atomic frequency standard comprising:

a microwave cavity;

a C-field winding located on said microwave cavity;

a tubular member located in and extending transversely through said microwave cavity and including first and second ends extending beyond said microwave cavity but within a magnetic shield surrounding both said microwave cavity and said tubular member, said tubular member having a vapor chamber situated within said microwave cavity and containing a vapor with specified atomic transition frequencies/wavelengths including an optical resonance wavelength and a microwave atomic transition frequency;

heater means directly applied to said first and second ends for heating said vapor;

light beam generating means for injecting a beam of light at said optical resonance wavelength into said vapor in said chamber through said first end of said tubular member including an optic fiber having an angle of divergence which substantially fills the vapor chamber without the necessity of any collimating lens;

photodetector means generating a detector signal in response to light from said light beam generating means which has passed through said vapor in said chamber to said second end of said tubular member; and

control means responsive to said detector signal for controlling said light beam to said optical resonance wavelength and for applying a microwave signal locked to the microwave atomic transition frequency to said microwave cavity, said control

means also generating a frequency standard signal at a frequency proportional to said microwave atomic transition frequency.

5,670,915

ACCURATE RC OSCILLATOR HAVING PEAK-TO-PEAK VOLTAGE CONTROL

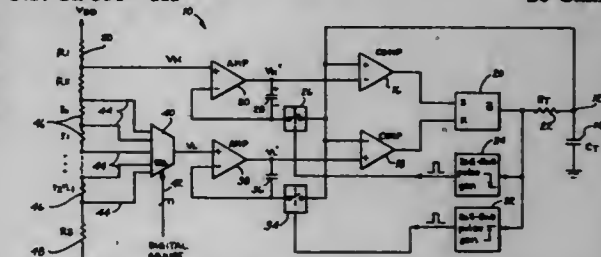
Russell E. Cooper, and Scott Ellison, both of Chandler, Ariz., assignors to Microchip Technology Incorporated, Chandler, Ariz.

Filed May 24, 1996, Ser. No. 644,917

Int. Cl. H03K 3/0231

U.S. Cl. 331—111

20 Claims



1. A circuit for generating an oscillatory signal of a predetermined frequency across a series resistor-capacitor (RC) network by ensuring that the oscillatory signal accurately oscillates between first and second voltages generated from a supply voltage source where the frequency of oscillation is determined by both the time constant of the RC network and the difference between the first and second voltages, comprising, in combination:

charging-discharging means for discharging a voltage across the capacitor commencing when voltage of the oscillatory signal exceeds a first threshold voltage and for charging said voltage across the capacitor commencing when voltage of the oscillatory signal falls below a second threshold voltage;

first sampling means coupled to said charging-discharging means for obtaining a first sampled voltage of the oscillatory signal upon commencement of discharging of said voltage across the capacitor;

first compensation means coupled to said first sampling means for adjusting said first threshold voltage to be the first voltage modified by a voltage difference between the first voltage and said first sampled voltage;

second sampling means coupled to said charging-discharging means for obtaining a second sampled voltage of the oscillatory signal upon commencement of charging of said voltage across the capacitor;

second compensation means coupled to said second sampling means for adjusting said second threshold voltage to be the second voltage modified by a voltage difference between the second voltage and said second sampled voltage; and

differential voltage setting means coupled to said second compensation means for selecting the second voltage from a plurality of different possible voltages and thereby selecting a voltage difference between the first and second voltages.

5,670,916

ADAPTIVE EQUALIZER CIRCUIT INCLUDING MULTIPLE EQUALIZER UNITS

Thomas Korn, San Jose, Calif., assignor to Cypress Semiconductor Corp., San Jose, Calif.

Filed Oct. 27, 1995, Ser. No. 549,373

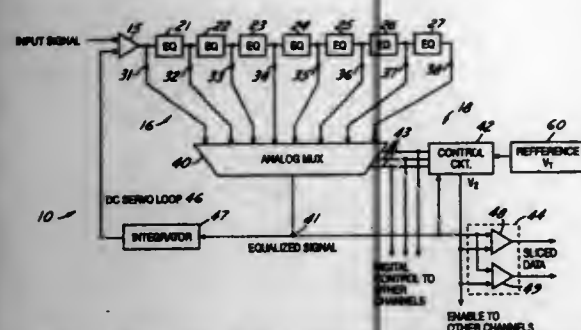
Int. Cl. H04B 3/06

U.S. Cl. 333—18

14 Claims

1. An equalizer circuit for equalizing waveform distortion of an information bearing signal comprising:

an equalizing circuit including a plurality of equalizer units, said equalizing circuit having an input for receiving an information bearing signal transmitted through a transmission medium



from a signal source, and a plurality of outputs for providing a plurality of equalized signals which represent a version of the received information bearing signal with incremental degrees of processing by said equalizer units wherein said equalizer units are DC coupled to one another;

- a control circuit for processing said plurality of equalized signals provided at a second plurality of said outputs to select the one of said plurality of equalized signals that exhibits minimum error relative to the transmitted information bearing signal at said signal source, wherein said control circuit includes means for deriving from said selected equalized signal an offset signal for compensating for offset in said one selected equalized signal caused by propagation of said received signal through said plurality of equalizer units; and
- a select circuit responsive to said control circuit for selecting said one equalized signal to be provided to a signal output of said equalizer circuit.

5,670,917

AC COUPLED TERMINATION

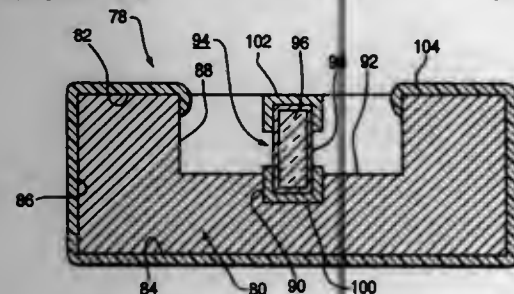
Joseph B. Mazzochette, Cherry Hill, N.J., assignor to EMC Technology, Inc., Cherry Hill, N.J.

Division of Ser. No. 558,394, Nov. 16, 1995, Pat. No. 5,598,131. This application Sep. 12, 1996, Ser. No. 713,264

Int. Cl.⁶ H01P 1/26

U.S. Cl. 333—22 R

3 Claims



1. An AC termination comprising:
- a substrate of an electrically conductive metal having first and second opposed surfaces;
 - a recess in the first surface of the substrate having a cylindrical hole in the bottom thereof;
 - a cylindrical resistor mounted on said substrate in the hole in said first surface and having one end electrically connected to the substrate; and
 - a layer of a dielectric material over the second surface of the substrate forming a portion of a capacitor with the substrate.

5,670,918
WAVEGUIDE MATCHING CIRCUIT HAVING BOTH CAPACITIVE SUSCEPTANCE REGULATING MEANS AND INDUCTIVE MATERIALS

Keiichi Umezu, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

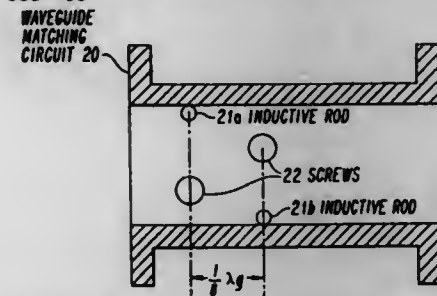
Division of Ser. No. 560,782, Nov. 21, 1995. This application Jul. 23, 1996, Ser. No. 681,379

Claims priority, application Japan, Nov. 21, 1994, 6-286930

Int. Cl.⁶ H03H 7/38; H01P 5/04

U.S. Cl. 333—33

3 Claims



1. A waveguide matching circuit, comprising:

a waveguide in the form of a rectangular tube having open ends, a central axis line perpendicular to the planes of the open ends, a pair of opposing internal wide faces, and a narrow pair of opposing internal sidewalls in which a high-frequency signal propagates, and in which means for regulating an impedance is provided; wherein said impedance regulating means comprises:

at least two means for regulating a capacitive susceptance arranged along a line having a predetermined non-zero angle with respect to the central axis line of said waveguide at a predetermined position on at least one wide face of said waveguide and respectively disposed at an interval of one eighth of a guide wavelength λ_g in the direction along said central axis line; and

at least two inductive materials which are disposed on at least one of said opposing internal sidewalls of said waveguide at the same interval as corresponding ones of said capacitive susceptance regulating means.

5,670,919

PIEZOELECTRIC FILTER

Masao Gamo, Takaoka, Japan, assignor to Murata Manufacturing Co., Ltd., Nagaokakyō, Japan

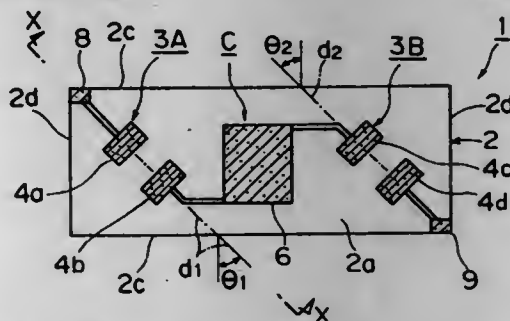
Filed Jun. 5, 1995, Ser. No. 464,936

Claims priority, application Japan, Jun. 9, 1994, 6-127530

Int. Cl.⁶ H03H 9/00

U.S. Cl. 333—189

6 Claims



1. A piezoelectric filter comprising:

a rectangular plate shaped piezoelectric substrate having an upper surface, a back surface and side surfaces connecting said upper surface and said back surface with each other;

a pair of first vibrating electrodes being arranged on said upper surface of said piezoelectric substrate;

a pair of second vibrating electrodes being arranged on said back surface of said piezoelectric substrate to be separated from said first vibrating electrodes; and

first and second opposite electrodes being formed to be opposed to said pairs of first and second vibrating electrodes respectively through said piezoelectric substrate;

said pairs of first and second vibrating electrodes and said first and second opposite electrodes forming first and second vibrating element parts respectively.

said pairs of first and second vibrating electrodes being arranged not to superpose propagation regions for vibrations along directions connecting said vibrating electrodes of said vibrating element parts with each other and those being perpendicular to said directions among vibrations caused in said first and second vibrating element parts, wherein said pairs of first and second vibrating electrodes are arranged at prescribed distances along electrode arrangement directions which are inclined with respect to said side surfaces of said piezoelectric substrate, said electrode arrangement directions being inclined with respect to said side surfaces of said piezoelectric substrate at angles of inclination being in excess of 0° and not more than 45°, and said electrode arrangement directions for said first and second vibrating electrodes of said first and second vibrating element parts being parallel to each other.

5,670,921

SURFACE ACOUSTIC WAVE DEVICE

Yoshiko Tera, Kouji Morishima, and Atsushi Sakai, all of Hyogo-ken, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 241,995, May 12, 1994, Pat. No.

5,485,051, which is a division of Ser. No. 112,474, Aug. 27,

1993, Pat. No. 5,396,199. This application Jun. 6, 1995, Ser.

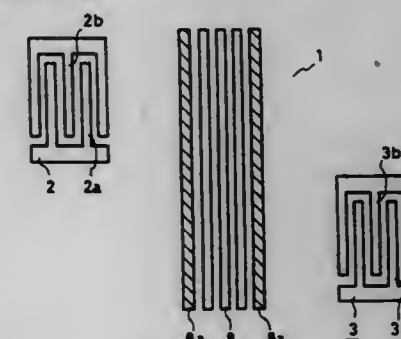
No. 470,699

Claims priority, application Japan, Sep. 2, 1992, 4-234535

Int. Cl.⁶ H03H 9/64

U.S. Cl. 333—195

1 Claim



1. A surface acoustic wave device comprising a substrate for propagating a surface acoustic wave, input and output transducers formed in patterns on the surface of said substrate with each having two opposite electrodes each of which has a plurality of electrode fingers extending toward their opposites and meshing with the electrode fingers of their opposites, and a multi-strip coupler formed of a plurality of strip lines, wherein at least some of the strip lines of said multi-strip coupler are more widely spaced apart from adjacent patterns than other strip lines of said multi-strip coupler, characterized in that those strip lines of said multi-strip coupler which are more widely spaced apart from adjacent patterns are made wider than the other strip lines of said multi-strip coupler wherein said strip lines of said multi-strip coupler which are made wider than the other strip lines of said multi-strip coupler are located at the outermost ends of said multi-strip coupler.

5,670,920

MULTI-TRACK SAW FILTER WITH REFLECTORS AND REVERSED POLARITY IDT CONNECTIONS

David P. Morgan, Northampton, England, assignor to Advanced SAW Products SA, Bevaix, Switzerland

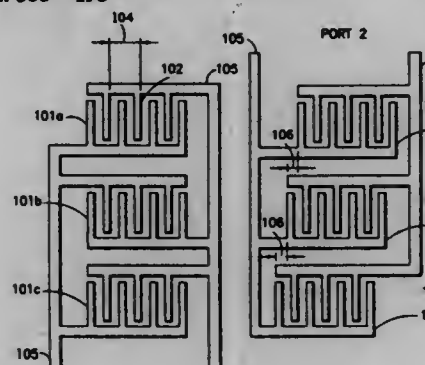
Filed Apr. 24, 1995, Ser. No. 426,885

Claims priority, application United Kingdom, Apr. 25, 1994, 9408181

Int. Cl.⁶ H03H 9/64

U.S. Cl. 333—195

20 Claims



1. A SAW filter comprising a group of N tracks, where N is an integer greater than or equal to two, including an input interdigitated transducer (IDT) spaced apart from an output IDT and a reflector disposed substantially collinear with and adjacent the input and output IDTs, wherein respective tracks are selected to have different effective electro-acoustic lengths such that surface acoustic waves launched into respective tracks from the input IDT undergo at least one reflection at a reflector corresponding to the output IDT prior to forming a substantially coherent signal at the output IDT, wherein the output IDT comprises N respective output IDTs electrically coupled together and corresponding to said respective tracks, and wherein the electrode connections of at least one of the respective IDTs are reversed with respect to the polarity of the electrode connections of the IDTs of other ones of the tracks.

5,670,922

CIRCUIT BREAKER MAGNETIC TRIP UNIT

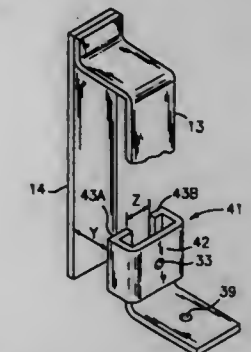
Wade A. Montague, Southington; John H. Whiton, S. Windsor; Marshall B. Hart, Middletown; Roger J. Morgan, Simsbury, and David Arnold, Chester, all of Conn., assignors to General Electric Company, New York, N.Y.

Filed May 23, 1996, Ser. No. 652,763

Int. Cl.⁶ H01H 75/12

U.S. Cl. 335—35

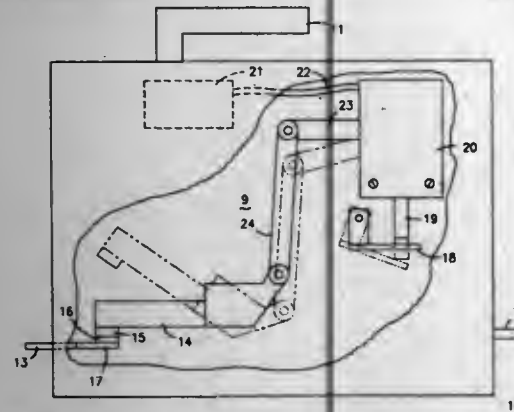
10 Claims



1. A magnetic trip unit comprising:
- a C-shaped metal plate comprising a U-shaped bight having a pair of endwalls extending from opposite ends of said U-shaped bight, said endwalls being arranged for partially engaging a magnetic element;

encompassing a metal conductor and generating a magnetic flux within said plate in response to current transport through the conductor;
 a first gap defined between opposing ends of said endwalls, said first gap being spaced for maximum flux egress from side edges of said endwalls to an adjacent armature; and
 a second gap defined between said endwalls and said armature, said second gap being sized relative to said first gap to promote further transfer of said magnetic flux between said edges of said endwalls and said armature.

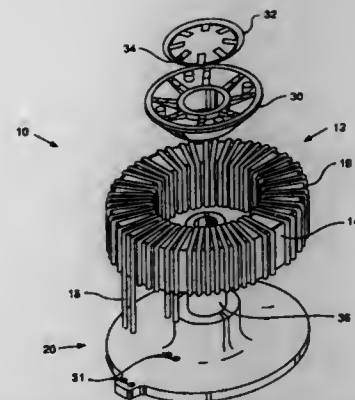
5,670,923
TRIPPING DEVICE RESET ARRANGEMENT
 Jorge Gonzalez, Carolina, Puerto Rico; Roger Castonguay, Terryville, and Jeffrey Lord, Unionville, both of Conn., assignors to General Electric Company, New York, N.Y.
 Filed Mar. 29, 1996, Ser. No. 626,218
 Int. Cl.⁶ H01H 9/00
 U.S. Cl. 335—177 8 Claims



1. A trip unit conversion kit for circuit breakers comprising: electronic means for providing a trip initiating signal to a circuit breaker;
 tripping means responsive to said trip initiating signal to articulate a circuit breaker operating mechanism and separate a pair of circuit breaker contacts, said tripping means including a flux transfer device having a flux transfer plunger;
 a trip plunger arranged for displacing a circuit breaker latch upon interaction with said flux transfer plunger;
 an intermediate lever pivotally arranged between said flux transfer plunger and said trip plunger; and
 a reset plate pivotally connected to a reset arm for interaction with said intermediate lever, one end of said reset arm connects with said reset plate by means of an expansion spring, said reset plate includes a reset pin and said reset arm includes a stop pin, one end of said intermediate lever interacting with said reset pin and one edge of said reset plate interacting with said stop pin.

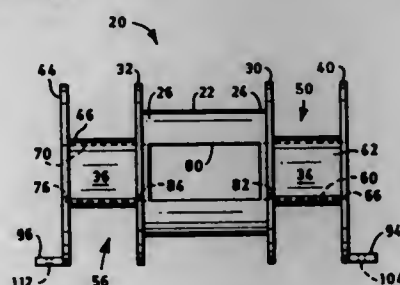
5,670,924
INDUCTOR MOUNTING ASSEMBLY
 Andrew L. Heinrich, Chillicothe, Ill., assignor to Caterpillar Inc., Peoria, Ill.
 Filed Apr. 18, 1996, Ser. No. 634,482
 Int. Cl.⁶ H01F 27/08; 15/02
 U.S. Cl. 336—61 6 Claims

1. An apparatus for facilitating mounting of an inductor assembly to a printed circuit board, comprising:
 an inductor assembly having a centrally disposed aperture therein;
 a spacer assembly adapted to receive said inductor assembly, said spacer assembly having a centrally disposed aperture therein;
 a wedge member for applying a clamping force to a top surface of said inductor assembly and for evenly distributing the



- clamping force thereabout, said wedge member having a centrally disposed aperture therein;
 a retaining member for retaining said wedge member in place, said retaining member having a centrally disposed aperture therein; and
 a bushing extending through each of said centrally disposed apertures, wherein when a clamping force is applied to said wedge member, said inductor assembly is clamped to said spacer assembly.

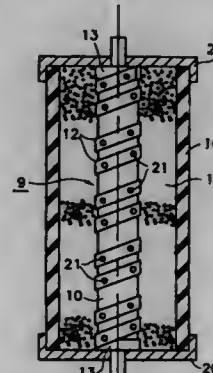
5,670,925
BOBBIN, BOBBIN AND CORE ASSEMBLY, AND INDUCTOR COIL ASSEMBLY FOR ELECTRONIC BALLAST
 Michael J. Gibbs, Enfield, Conn., assignor to Osram Sylvania Inc., Danvers, Mass.
 Filed Sep. 10, 1996, Ser. No. 711,839
 Int. Cl.⁶ H01F 27/28; 27/30; 27/06
 U.S. Cl. 336—208 18 Claims



1. A bobbin and core assembly comprising:
 a bobbin for supporting a pair of discrete windings, said bobbin comprising:
 a central body having first and second ends;
 first and second inner flanges fixed, respectively, to said first and second ends of said central body;
 first and second cylindrically-shaped tubular portions extending, respectively, outwardly from said first and second inner flanges and in axial alignment with said central body;
 first and second outer flanges fixed, respectively, to first and second outer ends of said first and second tubular portions;
 said inner and outer flanges defining first and second channels for receiving first and second of said windings upon, respectively, said first and second tubular portions;
 first and second outer core members, each having an outer core member core portion extending from an outer core member base portion and between two outer core member leg portions generally parallel with said outer core member core portion; and
 first and second inner core members each having an inner core member core portion extending from an inner core member base portion and between two inner core member leg portions generally parallel with said inner core member core portion;

said first outer flange, said first tubular portion and said first inner flange defining a first tunnel in which is disposed said first outer core member core portion, and said second outer flange, said second tubular portion, and said second inner flange defining a second tunnel in which is disposed said second outer core member core portion;
 said central body of said bobbin being provided with opening means extending widthwise therethrough and in communication with first and second inner openings of said first and second tunnels, respectively;
 said first and second inner core members being disposed in said central body opening means with said first and second inner core member core portions being respectively disposed in said first and second inner openings and said first and second tunnels;
 ends of said first and second inner core member core portions respectively abutting ends of said first and second outer core member core portions.

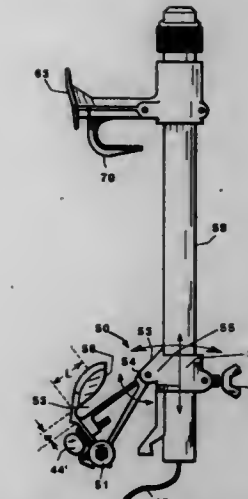
5,670,926
HIGH-VOLTAGE FUSE HAVING A CORE OF BOUND SILICA SAND ABOUT WHICH FUSIBLE ELEMENTS ARE WOUND
 Radhakrishnan Ranjan, Hickory, and Richard Francis Shoenstock, Sr., Lenoir, both of N.C., assignors to General Electric Company, New York, N.Y.
 Filed Jun. 8, 1995, Ser. No. 482,232
 Int. Cl.⁶ H01H 85/04
 U.S. Cl. 337—158 17 Claims



1. A high-voltage fuse subassembly comprising:
 (a) a core in the form of an elongated body primarily of silica sand particles bound together in a porous rigid mass having an outer peripheral surface,
 (b) a fusible element wound about said core after said sand particles are bound together in said porous rigid mass, said fusible element contacting said outer peripheral surface, and
 (c) connector assemblies at opposite ends of said core electrically connected to opposite ends of said fusible element.

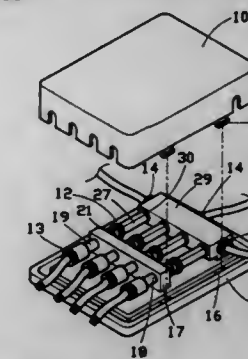
5,670,927
UNIVERSAL FUSE HOLDER AND CUT-OUT WITH BUILT-IN SAFETY FEATURES AND METHOD
 Robert B. Fennell, 978 Shawnee Egypt Rd., Springfield, Ga. 31329
 Filed Sep. 2, 1994, Ser. No. 299,622
 Int. Cl.⁶ H01H 71/10; 71/20
 U.S. Cl. 337—168 7 Claims

1. In a high above-ground distribution fuse cut-out switch system having a pair of spaced contact assemblies supported and spaced by insulator means adapted to be carried on a mounting member, one of said contact assemblies having a pair of laterally aligned trunnion sockets formed therein, an elongated fuse tube assembly having a trunnion contact end with a pair of laterally extending trunnion members receivable in said pair of trunnion



sockets, respectively, and a second latching contact end adapted to engage and latch with the second of said contact assemblies when said fuse tube assembly is rotated on said trunnions, the improvement to facilitate safe mounting and demounting of said elongated fuse tube assembly to said pair of spaced contact assemblies from the ground level by a hot/switch stick comprising, said trunnion contact end includes means forming an open ended slot having a width W and wherein said open ended slot has the open end thereof aligned with said elongated fuse tube, said hot/switch stick having an axis and a member projecting laterally of said axis, and an enlargement on the end of said projecting member which is larger than said slot width W, an intermediate portion of said projecting member being narrower than said slot width W such that said projecting member easily slides through said open end into said slot, the weight of said fuse tube and pairs of contact ends and said slot being of a length L such that jiggling and wind forces are insufficient to displace said projection from said slot while said hot/switch stick is being raised to fit said laterally extending trunnion members into said trunnion sockets.

5,670,928
FUSE BOX
 Wen-Tzung Cheng, No. 422, Fu-Hsing Rd., and Wen-Huoh Cheng, No. 424, Fu-Hsing Rd., both of Tao Yuan City, Tao Yuan Hsien, Taiwan
 Filed Jan. 2, 1997, Ser. No. 778,076
 Int. Cl.⁶ H01H 85/02; 85/50; H02B 1/26; 1/04
 U.S. Cl. 337—188 3 Claims



1. A fuse box comprising:
 a box body, said box body comprised of a bottom shell and a cover shell covered on said bottom shell, said bottom shell comprising a locating block raised from a top side thereof, said locating block comprising a plurality of parallel through holes;
 a metal common receptacle fixedly fastened to the top side of said bottom shell by screws and disposed in parallel to said locating block, having a plurality of plug holes respectively

- disposed in alignment with the through holes of said locating block, and a plurality of screw holes;
- a plurality of jacks respectively inserted through the through holes of said locating block, each of said jacks comprising a connecting element moved in one through hole of said locating block and having an inner thread at one end and an outer thread at an opposite end, a socket member having an inner thread at one end threaded onto the outer thread of said connecting element and a plug hole at an opposite end, and a spring mounted around said connecting element and stopped between said locating block and said socket member;
 - a plurality of cartridge fuses respectively connected between the plug holes of the socket members of said jacks and the plug holes of said metal common receptacle;
 - a plurality of first electric wire connectors adapted for connecting respective electric wires to the connecting elements of said jacks respectively, each of said first electric wire connectors comprising a center through hole which receives the respective electric wire, an embossed outside wall, and an outer thread at one end adapted for threading into the inner thread of one connecting element; and
 - a plurality of second electric wire connectors adapted for connecting respective electric wires to said metal common receptacle, each of said second electric wire connectors comprising a center through hole which receives the respective electric wire, an embossed outside wall, and an outer thread at one end adapted for threading into one screw hole of said metal common receptacle.

5,670,929

FUSIBLE LINK

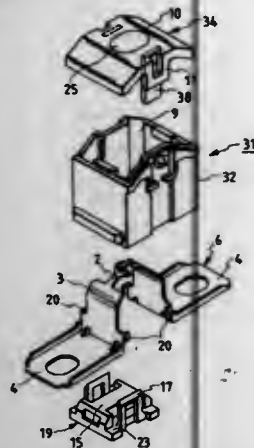
Mitsuhiko Totsuka, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Oct. 18, 1996, Ser. No. 734,023

Claims priority, application Japan, Oct. 19, 1995, 7-271320
Int. Cl.⁶ H01H 85/02; 85/36; 85/52; H01R 13/68

U.S. Cl. 337—201

5 Claims



1. A fusible link, comprising:
 - a fuse element including a fusible portion having a melting portion formed at a top portion thereof, and a pair of connection terminal portions extending respectively from opposite ends of said fusible portion, said connection terminal portions adapted to be electrically connected to a circuit;
 - a housing having upper and lower openings, and surrounding said fusible portion inserted into said housing through said lower opening;
 - a lid including a lid plate portion for closing said upper opening of said housing, and fixing members for fixing said lid to said housing;
 - a spacer including a bottom plate portion for closing said lower opening of said housing, and resilient engagement piece portions formed on said bottom plate portion, and extended

upwardly from said bottom plate portion, said resilient engagement piece portions being engaged with an inner surface of said housing,

wherein said spacer is attached to a lower end portion of said housing to retain said fuse element;

guide walls formed on said inner surface of said housing, and each of said guide walls forming an insertion space into which a respective one of said resilient engagement piece portions is inserted, and said insertion space having a space which allows elastic displacement of said resilient engagement piece portion in a direction of a thickness thereof when said resilient engagement piece portion is brought into and out of engagement with said housing; and

tongue-like portions extended downwardly from said lid, and each of said tongue-like portions inserted into a portion of the associated insertion space provided between the associated resilient engagement piece portion which is engaged with said housing, and the associated guide wall to limit the elastic displacement of said resilient engagement piece portion.

5,670,930

TEMPERATURE-DEPENDENT SWITCH

Peter Hofstäss, deceased, late of Pforzheim; by Ulrika Hofstäss, legal representative, Strietweg 45, 75181 Pforzheim; by Marcel Peter Hofstäss, legal representative, Strietweg 45, 75181 Pforzheim; by Denise Petra Hofstäss, legal representative, Strietweg 45, 75181 Pforzheim; by Henrik Peter Hofstäss, legal representative, Strietweg 45, 75181 Pforzheim; by Carola Rika Hofstäss, legal representative, Strietweg 45, 75181 Pforzheim, and by Benjamin Michael Hofstäss, legal representative, Strietweg 45, 75181 Pforzheim, all of Germany

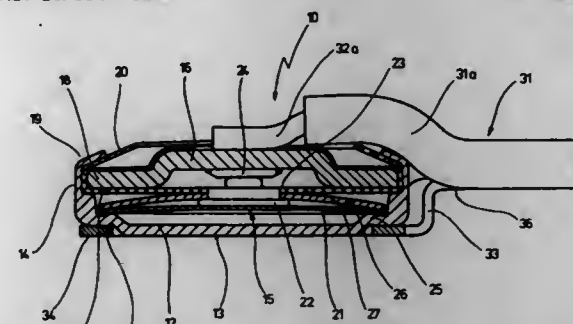
Filed Oct. 28, 1994, Ser. No. 330,932

Claims priority, application Germany, Oct. 30, 1993, 43 37 141.8

U.S. Cl. 337—380

Int. Cl.⁶ H01H 37/04

19 Claims



1. Temperature-dependent switch for opening and closing an electric circuit, comprising:
 - an electrically conductive housing member having an underside and being provided with an external collar means inset from said underside;
 - an electrically conductive cover member for closing said housing member;
 - an insulating disk means between said housing member and said cover member for electrically isolating the housing member from the cover member;
 - a switching device comprising a bimetallic part and being provided in the housing member, which switching device makes or breaks an electrical contact between said housing member and said cover member in dependence of the temperature of said bimetallic part,
- whereby said electric circuit is to be connected on the one hand to the cover member and on the other hand to the collar means.

5,670,931

METHOD AND APPARATUS FOR TRANSMITTING DATA OVER A POWER CABLE UTILIZING A MAGNETICALLY SATURABLE CORE REACTOR

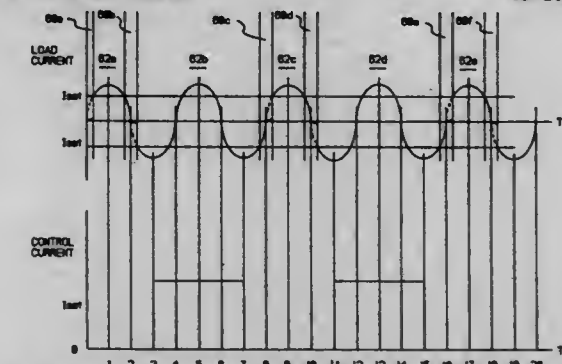
Gordon Lee Besser, Claremore, Okla.; Cecil Glynn Davis, Dallas; Edward Bryant Tickell, Jr., Crowley, both of Tex.; Dick Lee Knox, Claremore, Okla., and John Dee Martin, Jr., Richmond, Tex., assignors to Baker Hughes Incorporated, Houston, Tex.

Filed Jun. 17, 1994, Ser. No. 262,807

Int. Cl.⁶ H04M 11/04

U.S. Cl. 340—310.01

48 Claims



1. A data transmission apparatus for transmitting data over a power cable which supplies alternating electrical current to an electrical-power-consuming component, comprising:
 - a. at least one reactive circuit component, each including:
 - (1) a highly magnetically-permeable core defining a magnetic flux pathway;
 - (2) load windings wound about a portion of said highly magnetically-permeable core for receiving at least a portion of said alternating electrical current from said power cable;
 - (3) control windings wound about a portion of said highly magnetically-permeable core;
 - b. a control circuit for selectively communicating a data signal to said control windings;
 - c. said data transmission apparatus being operable in a plurality of modes of operation, including:
 - (1) a saturated mode of operation wherein said highly magnetically-permeable core is in a magnetically saturated condition and provides a low impedance to alternating current flow; and
 - (2) an unsaturated mode of operation wherein said highly magnetically-permeable core is in a magnetically unsaturated condition and provides a high impedance to said alternating current flow;
 - d. wherein said data is transmitted to a remote location through said power cable by deforming said alternating electrical current in a region associated with selected waveform zero-crossings in a predefined manner by switching between said saturated mode of operation and said unsaturated mode of operation in response to said data signal.

5,670,932

PIEZOELECTRIC SOUNDER

Kaoru Kizima, Akita-ken, Japan, assignor to TDK Corporation, Tokyo, Japan

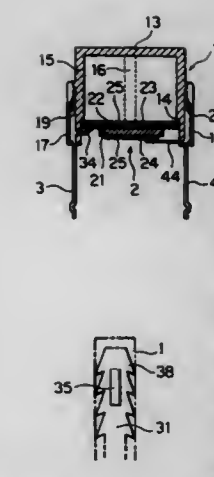
Filed Oct. 18, 1995, Ser. No. 544,587

Claims priority, application Japan, Oct. 25, 1994, 6-260082
Int. Cl.⁶ G08B 3/00

U.S. Cl. 340—384.6

3 Claims

1. A piezoelectric sounder, comprising:
 - a case made of resin and having approximately cylindrical shape with a closed bottom and a graded step inside;
 - a piezoelectric vibrator having conductive layers on both sides of a piezoelectric ceramic substrate having a general disk-shape and a generally disk-shaped metal vibrating plate mounted on one of said conductive layers; and



two connection terminals in contact with said conductive layers and said metal vibrating plate, wherein:

a peripheral edge portion of said metal vibrating plate is bonded to said graded step formed inside said resin case using a silicon-containing adhesive;

silicon-containing varnish is coated on a surface of said metal vibrating plate and conductive layers in said piezoelectric vibrator where said two connection terminals are in contact with said conductive layers; and

an opening is formed only on a circumference side of said resin case.

5,670,933

ANTITHEFT APPARATUS AND METHOD FOR AN AUTOMOBILE

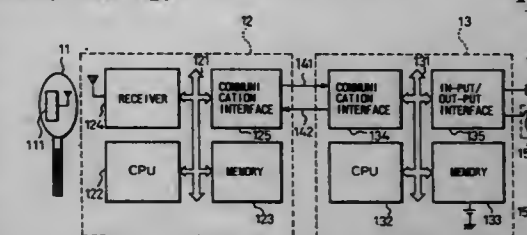
Kazuhiko Hayashi, Aichi-gun, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jun. 21, 1995, Ser. No. 492,979

Claims priority, application Japan, Jul. 14, 1994, 6-162143
Int. Cl.⁶ B60R 25/10

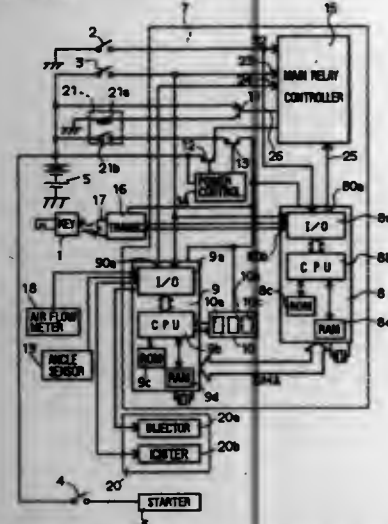
U.S. Cl. 340—426

16 Claims



1. An antitheft apparatus for an automobile comprising:
 - an identification code transmitting means for transmitting an initial identification code;
 - an immobilizing means for transmitting a variable code which is comprised of a plurality of blocks, wherein each of said plurality of blocks has a plurality of bits, further wherein at least one of said plurality of blocks is generated at random when electricity is supplied to the automobile and the remainder of said plurality of blocks are generated based upon a predetermined function of said at least one of said plurality of blocks and a predetermined key word for a predetermined period after electricity is supplied to the automobile, if the initial identification code and a predetermined identification code agree; and
 - a start inhibiting means for inhibiting the starting of an engine if a key word, which is decoded based on the variable code transmitted from said immobilizing means and said predetermined key word disagree, for a predetermined period after electricity is supplied to the automobile.

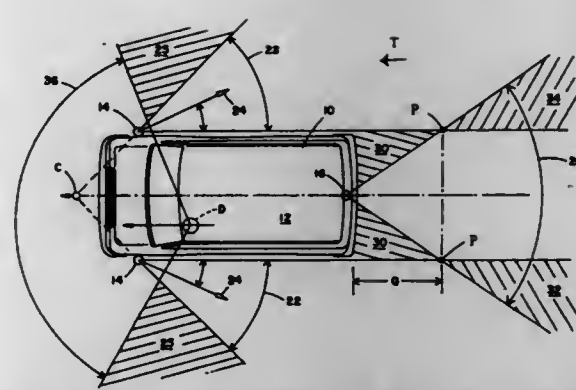
5,670,934
ANTI-THEFT DEVICE HAVING MINIMAL POWER CONSUMPTION CHARACTERISTICS
 Hiroyuki Ina, Kariya, and Hidehito Mori, Anjo, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan
 Filed Sep. 27, 1996, Ser. No. 721,738
 Claims priority, application Japan, Sep. 29, 1995, 7-253703
 Int. Cl.⁶ B60R 25/10
 U.S. Cl. 340—426 20 Claims



1. An anti-theft device for verifying a first secret identification code transmitted by a start command device with reference to a second secret identification code of a moving body driven by a motor, said anti-theft device comprising:
 - a start command detection means for detecting a start condition indicative of start of a transmission operation of said start command device;
 - a main relay unit for receiving power from an external power source;
 - a receiver for receiving said first secret identification code from said start command device when said start command detection means detects said start condition;
 - a secret identification code verification unit which is connected to said external power source, said secret identification code verification unit being for receiving said first secret identification code from said receiver and for generating a verification signal after comparing said first secret identification code and said second secret identification code, said secret identification code verification unit being actuated after receiving power from said external power source when said start command detection means detects said start condition; and
 - a motor controller which is connected to said external power source, said motor controller being for receiving said verification signal from said secret identification code verification unit and for controlling said motor based on said verification signal after receiving power from said external power source when said start command detection means detects said start condition.

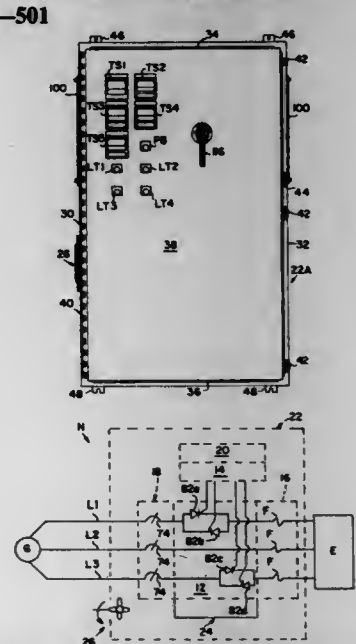
5,670,935
REARVIEW VISION SYSTEM FOR VEHICLE INCLUDING PANORAMIC VIEW
 Kenneth Schofield, Holland; Mark L. Larson, Grand Haven, and Keith J. Vadas, Coopersville, all of Mich., assignors to Donnelly Corporation, Holland, Mich.
 Continuation-in-part of Ser. No. 23,918, Feb. 26, 1993, Pat. No. 5,550,677. This application May 22, 1995, Ser. No. 445,527
 Int. Cl.⁶ B60Q 1/00; G09F 9/00
 U.S. Cl. 340—461 54 Claims

1. A rearview vision system for a vehicle, comprising:



- at least two image capture devices positioned on the vehicle and directed rearwardly with respect to the direction of travel of said vehicle; and
- a display system which displays an image synthesized from outputs of said image capture devices and which approximates a rearward-facing substantially seamless panoramic view from a single location substantially without duplicate redundant images of objects.

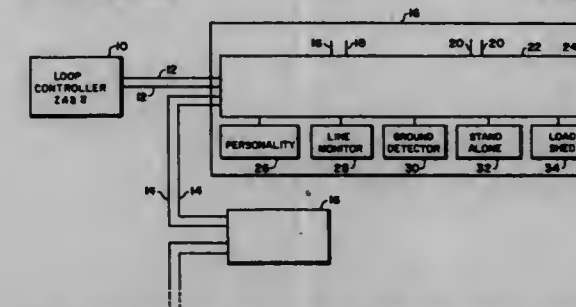
5,670,936
POWER CONTROLLER ENCLOSURE
 Wayne S. Estes, Nashville, and Carl D. Russell, Watertown, both of Tenn., assignors to Emerson Electric Co., St. Louis, Mo.
 Filed Apr. 26, 1995, Ser. No. 430,804
 Int. Cl.⁶ G08B 23/00
 U.S. Cl. 340—501 28 Claims



1. A power controller for use in supplying power to a power distribution network in which power from a polyphase source thereof is routed to using equipment connected to the network through the power controller comprising:
 - switch means for routing separate phases of the polyphase power from the source to the equipment;
 - firing means for gating the switch means to enable the switch means to route the power;
 - fuse means connected between the switch means and the using equipment to interrupt power flow to the equipment if the equipment begins drawing excessive current;
 - circuit breaker means connected between the power source and the switch means for interrupting flow of current to the switch means if excessive current is drawn by the using equipment;
 - control means for controlling a shutdown sequence when excessive current is being drawn; and,

enclosure means including mounting means for commonly mounting the switch means, firing means, fuse means, circuit breaker means and control means, and cooling means for directing air flow through the mounting means to cool the aforesaid switch means, firing means, fuse means and circuit breaker means.

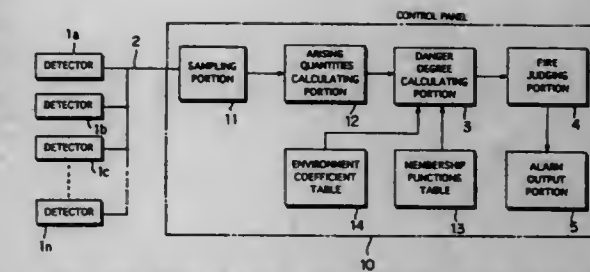
5,670,937
LINE MONITOR FOR TWO WIRE DATA TRANSMISSION
 Robert W. Right, Huntington, Conn., and Hilario S. Costa, Sarasota, Fla., assignors to General Signal Corporation, Stamford, Conn.
 Filed May 16, 1995, Ser. No. 441,754
 Int. Cl.⁶ G08B 29/00
 U.S. Cl. 340—506 5 Claims



1. An alarm system for detecting and warning of the presence of alarm and trouble conditions in transponder units located in a plurality of zones, comprising:
 - a loop controller having a plurality of signal/power supply lines, including a wiring pair, connected to the respective units;
 - a module, including a microcontroller, connected in each of said predetermined zones to said plurality of lines, said module being capable of initiating communication of the alarm and trouble conditions of said circuits to said loop controller;
 - a plurality of outgoing circuits extending from said microcontroller, and means within said microcontroller for selectively operating said circuits in a variety of modes; and
 - means, including a connection extending from said microcontroller to a portion of said selectively operated circuits, and a line, for monitoring the line voltage such that the variable state of that voltage is accurately known, including means for obtaining a resultant monitoring current, which is indicative of the presence of alarm and trouble conditions, strictly as a function of the impedance across said wiring pair, and not as a function of the source voltage.

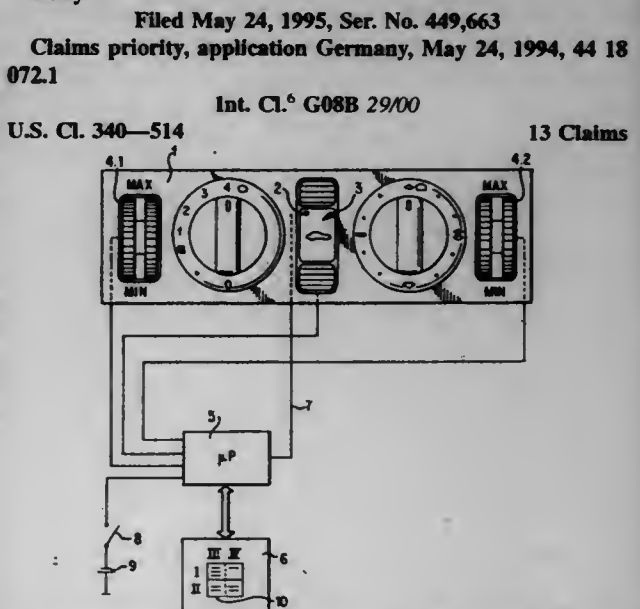
5,670,938
FIRE ALARM DEVICE
 Shigeru Ohtani, Kanagawa; Hiromitsu Ishii, and Takashi Ono, both of Chiba, all of Japan, assignors to Hochiki Kabushiki Kaisha, Tokyo, Japan
 Continuation-in-part of Ser. No. 816,186, Jan. 2, 1992, abandoned. This application May 16, 1995, Ser. No. 441,808
 Claims priority, application Japan, Jan. 18, 1991, 3-4650
 Int. Cl.⁶ G08B 29/00
 U.S. Cl. 340—506 5 Claims

2. A fire alarm device for judging an outbreak of a fire and emitting an alarm, comprising:
 - detection means for detecting at least one physical quantity of physical quantities in form of temperature, smoke density and gas arising from the outbreak of the fire;
 - arising quantity calculating means for calculating heat release quantity, smoke generation quantity, gas generation quantity and the like per unit time based on detection data transferred from said detection means;
 - membership functions table means for storing coefficients providing predetermined correlation between arising value per



- unit time, such as heat release quantity, smoke generation quantity and gas generation quantity and the danger degree which a person would feel with respect to said arising value; danger degree calculating means for calculating the danger degree corresponding to the heat release quantity, the smoke generation quantity, gas generation quantity and the like calculated by said arising quantity calculating means based on said membership functions table means; and
- judging means for determining the kind of an alarm to be emitted depending upon said danger degree calculated by said danger degree calculating means.

5,670,939
METHOD FOR EVALUATION OF THE SELF-DIAGNOSIS OF A CONTROLLER IN A MOTOR VEHICLE
 Andreas Rodewald, Stuttgart, and Wolfgang Straub, Degggen, both of Germany, assignors to Mercedes-Benz AG, Germany
 Filed May 24, 1995, Ser. No. 449,663
 Claims priority, application Germany, May 24, 1994, 44 18 072.1
 Int. Cl.⁶ G08B 29/00
 U.S. Cl. 340—514 13 Claims

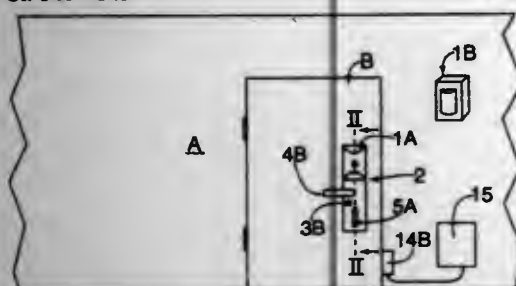


1. Method for evaluating operability of a self-diagnostic system of a control unit in a motor vehicle, said control unit having a control panel with a push-button switch with automatic return, further positionable input elements, and a signal element for emitting a flashing code, said method comprising the steps of:
 - dividing types of faults which can be diagnosed into fault classes, each type of fault being assigned a fault number within a fault class;
 - an operator selecting a fault class by setting said positionable input elements to a predetermined position combination associated therewith;
 - said operator operating said push-button switch while said positionable elements are in said predetermined position combination; and
 - said signal element emitting flashing code signals concerning status of the types of faults included in the selected fault classes.

5,670,940
ELECTRONIC LOCK SYSTEM WITH OCCUPANCY BLOCK
 Glen Holcomb, N. Richland Hills, and William Reed, Arlington, both of Tex., assignors to Trivium a.s., Norway
 Filed Apr. 19, 1996, Ser. No. 634,884
 Int. Cl.⁶ E05B 43/06

U.S. Cl. 340—543

8 Claims



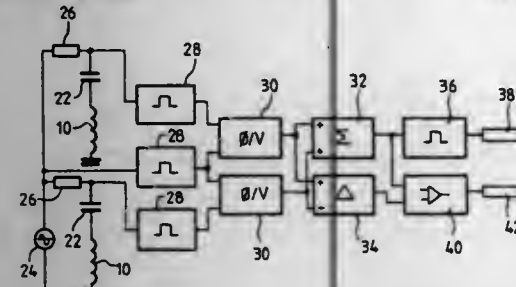
1. An electronic lock system having an electronic lock mounted in a door to allow access to a room wherein said lock can be opened by more than one key; and a key with a key code thereon; said lock having a means for reading said key code when a key is inserted into said electronic lock; a means for storing an access code; a means for comparing said key code with said access code such that if a key code matches said access code said lock opens to allow access to said room, the improvement comprising:

- (a) a guest key with a guest key code thereon for use by a guest, said means for storing having a guest access code stored therein which matches said guest key code to allow access by said guest to said room;
- (b) a staff key with a staff key code thereon for use by staff, said means for storing having a staff access code stored therein which matches said staff key code to allow access by said staff to said room;
- (c) a means for detecting when a person is in said room; and
- (d) a means for blocking opening of said lock by said staff key when said guest key has been used, succeeded by said means for detecting having detected a person in said room.

5,670,941
TERMINAL FOR CONTACTLESS COMMUNICATION WITH PORTABLE OBJECTS
 Grégory Mardinian, Montmorency, and Frédéric Wehowski, Gretz Armainvilliers, both of France, assignors to Innovatron Industries, Société Anonyme, Paris, France
 Filed Nov. 22, 1995, Ser. No. 562,126
 Claims priority, application France, Nov. 22, 1994, 94 13954
 Int. Cl.⁶ G08B 13/24

U.S. Cl. 340—551

4 Claims



1. A terminal for contactless communication with portable objects, said terminal comprising:
 a wave pickup device responsive to a magnetic component of an electromagnetic field; and
 a receiver co-operating with said wave pickup device to receive and amplify signals picked up thereby;
 wherein said wave pickup device further comprises:
 at least two distinct wave pickup elements of substantially similar dimensions which are plane and disposed adjacent to each other and which are separated from each other by a

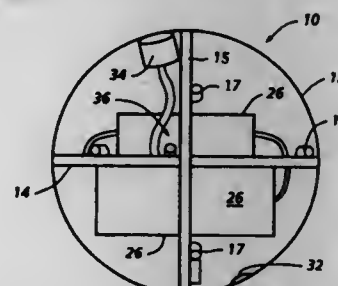
predetermined gap, said wave pickup elements being substantially vertical and defining two passages on either side of a midplane; and

a discriminator for discriminating the side of a midplane on which a signal-emitting portable object is situated, said discriminator deriving a discrimination signal from signals picked up by each of said wave pickup elements during a given period, wherein the discrimination signal indicates which one of said wave pickup elements has received the signal of greater amplitude.

5,670,942
ILLUMINATION AND COMMUNICATION DEVICE
 Michael L. Lewis, Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
 Filed Dec. 13, 1994, Ser. No. 354,993
 Int. Cl.⁶ G08B 13/18

U.S. Cl. 340—555

13 Claims



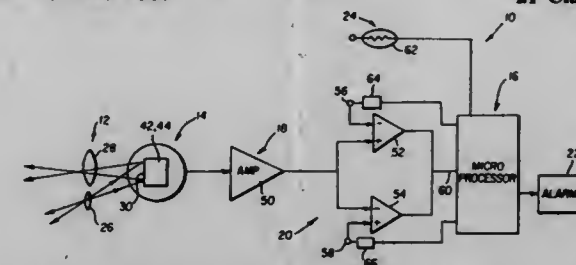
1. A multi-mode apparatus for providing spherical illumination and communication after introduction in a denied-access environment, said apparatus comprising:

- an environmentally impervious containment means having the capacity to pass light spherically, and comprising a sphere of a transparent solid plastic material prepared from catalytically cured polyester styrene clear casting compound;
- a light producing means disposed within said containment means to provide a source of light for spherical passage from said apparatus, said light producing means comprising a plurality of light emitting diodes substantially equally spaced from each other circumferentially about and equidistant from the center of said sphere, at the radial extremities of two orthogonally intersecting planes;
- a magnetically operated means for switching from one operating mode of said apparatus to another including the "ON" and "OFF" conditions of said apparatus, said switching means being disposed in said containment means close to the external environment so that an external magnet may be brought in operative juxtaposition with said switching means;
- a means for providing autonomous power to said activating and mode changing means and said light producing means, said power providing means being disposed within said containment means; programmable means disposed within said containment means for operating on said light producing means to produce continuous, strobe and coded light output from said light producing means, said programmable means also connected to said power producing means and said activating and mode changing means; and
- an LED mode indicator and a mode circuit disposed in said containment means, said circuit connected to said switching means and said LED mode indicator.

5,670,943
PET IMMUNE INTRUDER DETECTION
 William S. DiPoala, Fairport, N.Y., and Lawrence R. Tracy, Auburn, Calif., assignors to Detection Systems, Inc., Fairport, N.Y.
 Filed Apr. 10, 1996, Ser. No. 630,238
 Int. Cl.⁶ G08B 13/18

U.S. Cl. 340—567

21 Claims



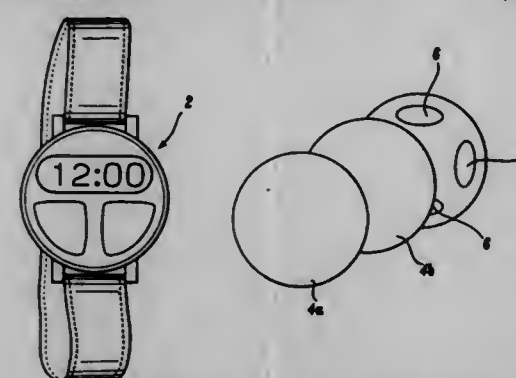
1. An infra-red intruder detector for covering a protected region above a floor plane and triggering an alarm signal in response to detected target temperatures different from background temperature; said detector comprising:

- optics defining a lower field-of-view intercepting said floor plane in said region and an upper field-of-view extending entirely above said floor plane in said region; and
- a control triggering said alarm signal at said target to background temperature differences: a) greater than seven degrees Fahrenheit in said lower field-of-view and b) less than seven degrees Fahrenheit in said upper field-of-view.

5,670,944
BODY-HELD MONITORING DEVICE FOR PHYSICAL CONDITION
 Matti Myllymäki, Sisämaantie 18 A, FIN-02780 Espoo, Finland
 PCT No. PCT/FI94/00401, § 371 Date Mar. 8, 1996, § 102(e)
 Date Mar. 8, 1996, PCT Pub. No. WO95/07652, PCT Pub. Date Mar. 23, 1995
 PCT Filed Sep. 13, 1994, Ser. No. 605,226
 Claims priority, application Finland, Sep. 14, 1993, 934012
 Int. Cl.⁶ G08B 23/00

U.S. Cl. 340—573

7 Claims



1. A body-held monitoring device for a physical condition and/or a performance condition, comprising:

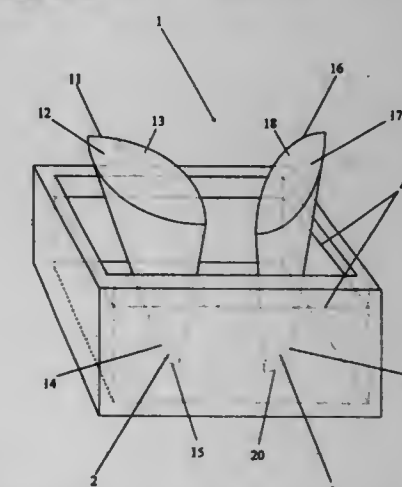
- a plurality of transducers each measuring various quantities indicating a physical condition and/or a performance condition, the plurality of transducers including a multiple detector transducer designed by a film technique;
- wherein the transducers are monitored by means of a microprocessor that provides information indicating the physical condition and/or performance condition of a monitored person in such a manner that a comparison of a plurality of different transducer signals is used to compensate for an anomaly from an individual transducer;
- a body-held transducer unit having a skin-contacting surface carrying at least some of the transducers; and

a wrist-held display and detector unit from which the information indicating a physical condition and/or performance condition is obtainable by means of a display and/or a sound signal.

5,670,945
SELF-MONITORING HAND-SANITIZING STATION
 Alan R. Applonie, 853 N. 400 West, Centerville, Utah 84014
 Continuation-in-part of Ser. No. 498,742, Jul. 6, 1995, abandoned. This application Sep. 19, 1996, Ser. No. 715,883
 Int. Cl.⁶ G08B 23/00

U.S. Cl. 340—573

15 Claims



1. A self-monitoring hand-sanitizing station, which comprises:
 a basin capable of holding an antiseptic solution;

- a first moisture-proof switch situated within the basin such that when the basin contains antiseptic solution reaching at least to a predetermined level, a user's hand can only activate the first moisture-proof switch when such hand is completely immersed in the antiseptic solution;
- a second moisture-proof switch situated within the basin in such a location that the first moisture-proof switch and the second moisture-proof switch cannot be simultaneously activated with a single hand and such that when the basin contains antiseptic solution reaching at least to a predetermined level, a user's hand can only activate the second moisture-proof switch when such hand is completely immersed in the antiseptic solution;
- a first proximity detector to be oriented to determine when an individual is approaching both the basin and an entrance to a food-handling area and to assure that there is no path an individual can use to reach the entrance to the food-handling area without having been detected by said first proximity detector;
- a second proximity detector to be oriented to determine when an individual has passed beyond the basin toward the entrance to the food-handling area and to assure that there is no path an individual can use to reach the entrance to the food-handling area without having been detected by the second proximity detector; and
- a logic unit which is electronically connected to receive electrical inputs from the first proximity detector, the second proximity detector, the first moisture-proof switch, and the second moisture-proof switch and to use such inputs to determine when an individual has approached both the basin and the entrance but passed beyond the basin toward the entrance without having simultaneously activated the first moisture-proof switch and the second moisture-proof switch as well as to produce an output signal when the determination has been made that an individual has approached both the basin and the entrance but passed beyond basin toward the entrance.

5,670,946 SMOKE DETECTOR SENSITIVITY TESTING APPARATUS

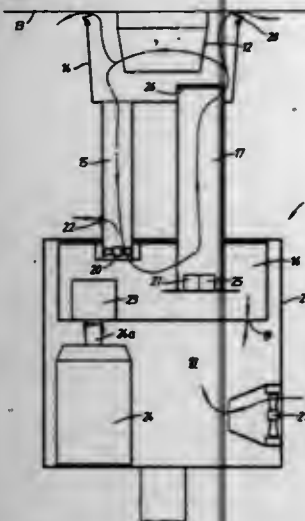
Stephen Ellwood, Mountsorrel, and David Appleby, Beauchamp, both of United Kingdom, assignors to No Cilm Products Limited, Barnet, England

Filed Feb. 23, 1996, Ser. No. 549,693

Claims priority, application United Kingdom, May 4, 1993, 9309115

Int. Cl. G08B 7/10
U.S. Cl. 340-628

14 Claims



1. Apparatus for testing the sensitivity of a smoke detector in-situ, comprising:
a head assembly comprising:
a housing for surrounding a smoke detector in-situ and forming part of,
means defining a circulating loop through which air carrying an aerosol will, in operation, circulate, said means including a defined delivery flow path and a defined return flow path,
sensor means for directly sensing the concentration of aerosol in the air circulating in the loop,
air circulating means for causing air to circulate in the loop,
aerosol supply means for supplying aerosol to the loop and
control means for controlling the concentration of aerosol in the air circulating in the loop by controlling the air circulating means and the aerosol supply means in dependence on the output of the sensing means.

5,670,947 LIGHT SCATTERING SMOKE SENSOR

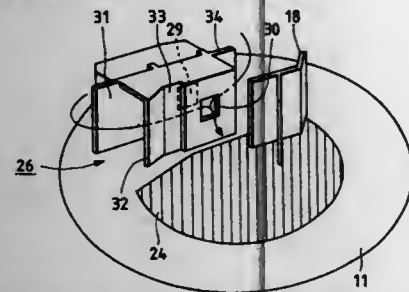
Tetsuya Nagashima, Tokyo, Japan, assignor to Hochiki Corporation, Tokyo, Japan

Filed Dec. 11, 1995, Ser. No. 570,520

Claims priority, application Japan, Dec. 12, 1994, 6-307333

Int. Cl. G08B 17/10
U.S. Cl. 340-628

8 Claims



1. A light scattering smoke sensor comprising:

- a housing defining a smoke detecting space therein, said housing having an opening for introducing smoke into said smoke detecting space;
 - a plurality of labyrinth members located within said housing and substantially surrounding said smoke detecting space;
 - light emitting means for emitting light to said smoke detecting space;
 - light receiving means for receiving light scattered by smoke introduced into said smoke detecting space;
 - first diaphragm means, which is disposed in front of said light receiving means, for defining a visual field of said light receiving means;
 - second diaphragm means, which is disposed in front of said first diaphragm means, for defining a visual field of said light receiving means; and
 - a cover member for covering said receiving means, in which said first diaphragm means is provided
- wherein said first and second diaphragm means defining a smoke introducing section therebetween through which said smoke passes as said smoke flows from said opening to said smoke detecting space.

5,670,948 FIRE DETECTOR

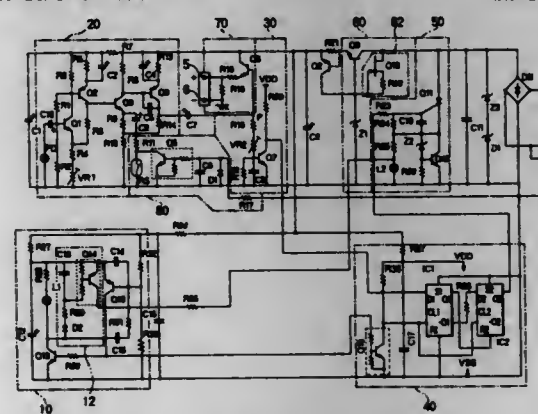
Mikio Mochizuki, Eiji Hirooka, and Makoto Yasukawa, all of Tokyo, Japan, assignors to Nohmi Bosai Ltd., Tokyo, Japan

Filed May 19, 1993, Ser. No. 63,422

Claims priority, application Japan, May 25, 1992, 4-132875; May 25, 1992, 4-132876

Int. Cl. G08B 17/10
U.S. Cl. 340-630

21 Claims



1. A photoelectric type fire detector comprising:
a light-emitting section for emitting a pulse light for detecting smoke;
a light-receiving section, including a light-receiving element for receiving scattered light of the pulse light emitted from said light-emitting section caused by smoke, and an amplifying section for amplifying an output from said light-receiving element to generate a light-receiving output, said amplifying section having a first variable resistor for adjusting said light-receiving output to a predetermined value in a state in which there is an absence of smoke;
a constant voltage circuit for supplying power to said light-emitting section, said light-receiving section, and a fire discriminating section;
said fire discriminating section including a series resistance circuit composed of at least one fixed resistor and a second variable resistor for adjusting a reference voltage, both of which are coupled between an output end of said light receiving section and an end of a Zener diode of said constant voltage circuit, and a first switching element having a base and an emitter connected to both ends of said fixed resistor, said fire discriminating section generating a fire discriminating output when said light-receiving output from said light-receiving section reaches said reference voltage;

- a sensor output section for detecting the voltage between the ends of said series resistance circuit and for outputting the detected voltage as a sensor output to an outside of said fire detector; and
 - a fire signal transmitting section for transmitting a fire signal based on said fire discriminating output from said fire discriminating section;
- wherein said first variable resistor is adjusted such that said light-receiving output, in the state without smoke and outputted through said sensor output section, becomes the predetermined value so as to correct differences in said light-receiving outputs, among a plurality of photoelectric type fire detectors, which are due to dispersions of characteristic values of circuit components in said plurality of photoelectric type fire detectors.

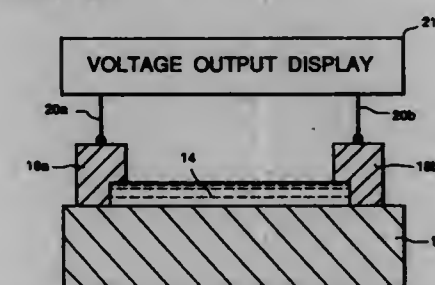
5,670,949 CARBON MONOXIDE/HYDROCARBON THIN FILM SENSOR

Kevin W. Kirby, Calabasas Hills; Hiroshi Kimura, Northridge, and M. Duchesne Courtney, Mission Hills, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Dec. 23, 1993, Ser. No. 173,306

Int. Cl. G08B 17/10
U.S. Cl. 340-632

20 Claims



1. A thin film sensor for detecting either hydrocarbon gases or a mixture of hydrocarbon and CO gases in a flowing gas stream comprising:
(a) a thin film comprising $Cu_xMn_{3-x}O_4$, where $0 < x < 1.5$, said thin film having a resistance which changes as a function of CO and hydrocarbon concentration, said thin film having a surface;
(b) means for measuring said resistance;
(c) means for determining any change in free carrier population on said surface of said thin film by determining any difference between a measured quantity of said resistance in the absence of said CO and hydrocarbon gases and a measured quantity of said resistance in the presence of said flowing gas stream; and
(d) means for relating the difference to one of hydrocarbon concentration and a mixture of CO and hydrocarbon concentration.

5,670,950 PRIVATE COMMUNICATIONS NETWORK SYSTEM AND METHOD OF AUTHENTICATION FOR A MOBILE STATION USED IN PRIVATE COMMUNICATIONS NETWORKS

Kiyokazu Otsuka, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 13, 1995, Ser. No. 506,949

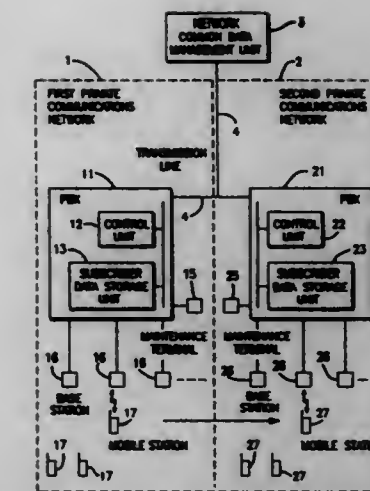
Claims priority, application Japan, Jul. 13, 1994, 6-160872

Int. Cl. G06F 7/04; H04B 1/034; H04M 7/00

U.S. Cl. 340-825.33

4 Claims

1. A private communications network system comprising at least one first private branch exchange interconnected to second private branch exchanges in a plurality of other private communications network systems by transmission lines, and having a plurality of



base stations and a plurality of first mobile stations for providing mobile communication services, said private communications network system further comprising:

common data management means provided in common to a plurality of private communications network systems including said private communications network system and interconnected to said first and second private branch exchanges by transmission lines for communicating with each private branch exchange, for managing group number data corresponding to an identification number of a mobile station of each private communications network system and network identification data including a private communications network system number and billing information corresponding to the group number information;

subscriber data corresponding to each of said first mobile stations and stored in said first private branch exchange, said subscriber data indicating authentication information and location information;

temporary subscriber data stored in said first private branch exchange and provided for a second mobile station from another private communications network system, that has entered into said private communications network system and requested mobile communications, said temporary subscriber data indicating authentication information and location information of said second mobile station and authentication means for authenticating the second mobile station having requested mobile communications in said private communications network system, said authentication means comprising inquiring means for communicating with said common data management means for requesting and receiving identification of a private communications network number corresponding to said second mobile station;

requesting means for communicating with a second private branch exchange in one of said other private communications network systems indicated by said identification of a private communications network number for requesting a transmission of subscriber data of said second mobile station and storing said subscriber data transmitted into said temporary subscriber data means; and

control means for authenticating said second mobile station by using authentication information contained in said temporary subscriber data, updating location information contained in said temporary subscriber data, instructing said second private branch exchange in said other private communications network system indicated by said identification of a private communications network number to update subscriber data corresponding to said second mobile station, and notifying the second mobile station that it is authorized to be used in said private communications network system area.

5,670,951
RADIO COMMUNICATION DEVICE AND METHOD FOR GENERATING THRESHOLD LEVELS IN A RADIO COMMUNICATION DEVICE FOR RECEIVING FOUR-LEVEL SIGNALS

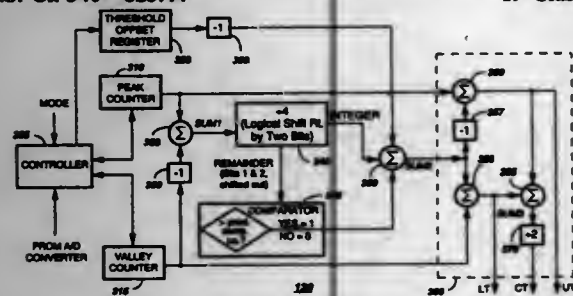
Mark L. Servilio; Carla J. Maroun; Daniel Morera, all of Boynton Beach, and Clinton C. Powell, II, Lake Worth, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 17, 1995, Ser. No. 503,366

Int. Cl.⁶ G08B 5/022; H03M 1/10; 1/00; 1/62

U.S. Cl. 340—825.44

19 Claims



8. A symbol detector for generating data symbols from a received signal having multiple signal voltages, the symbol detector comprising:

- peak and valley counters for tracking signal voltages of the received signal to determine peak and valley values associated with high and low voltages, respectively, of the received signal;
- a first summer for summing the peak and valley values to result in a first sum value;
- a first divider coupled to the first summer for dividing the first sum value by four to generate integer and remainder values;
- a comparator coupled to the first divider for providing first and second predetermined outputs, respectively, when the remainder value is greater than a comparator number and when the remainder value is not greater than the comparator number;
- a second summer coupled to the comparator for summing the integer value, a predetermined offset value, and a generated one of the first and second predetermined outputs to result in a second sum value;
- calculation circuitry coupled to the second summer for calculating upper, center, and lower thresholds of the received signal in accordance with the second sum value, wherein the upper, center, and lower thresholds define four ranges of values; and
- a decoder coupled to the calculation circuitry for generating the data symbols in accordance with the signal voltages and the upper, lower, and center thresholds.

5,670,952
DATA COMMUNICATION UNIT
 Shinji Yamamoto; Hideyuki Tayama, and Shuji Yamaguchi, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 921,588, Jul. 30, 1992, abandoned.

This application Jan. 26, 1995, Ser. No. 378,103

Claims priority, application Japan, Aug. 2, 1991, 3-193792; Jan. 10, 1992, 4-002843; Jan. 31, 1992, 4-015862

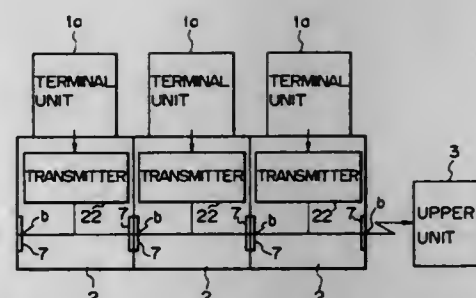
Int. Cl.⁶ H04Q 1/00

U.S. Cl. 340—825.52

7 Claims

1. A data transmission unit for transmitting data stored in a movable terminal unit to a host computer when said movable terminal unit is connected to said data transmission unit and for being coupled to at least one of a front stage data transmission unit and a rear stage data transmission unit, said data transmission unit comprising:

- coupling means for directly coupling said data transmission unit to the at least one of a front stage data transmission unit and a rear stage data transmission unit without using a connecting cable, said coupling means comprising data pins for passing data from one of said movable terminal unit and said front



stage data transmission unit to one of said rear stage data transmission unit and said host computer, said coupling means comprising power supply pins connected to a power supply pin of said front stage data transmission unit and to a power supply pin of one of said host computer and said rear stage data transmission unit, for transmitting a power supply current, a power supply line being coupled between said power supply pins;

- a power supply connector separately provided from said coupling means and connecting a power supply adapter, generating power supply current, to said power supply pins;
- reverse current preventing means connected between said power supply pins and said power supply connector, for preventing a reverse current from being conducted from one of said power supply pins to said power supply connector;
- a charging circuit, connected to the power supply line, for charging said movable terminal unit;
- a communication circuit, connected to the power supply line, for carrying out communication between said movable terminal unit and said host computer;
- a voltage regulator, connected to the power supply line, for converting the voltage at said power supply line into a voltage suitable for driving said movable terminal unit; and
- switching means connected between said power supply line and said voltage regulator, for conducting said power supply current to said voltage regulator only when said data transmission unit is transmitting.

5,670,953
DISTANCE CONTROL APPARATUS FOR VEHICLE
 Hiroshi Satoh, and Ikuhiro Taniguchi, both of Yokosuka, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

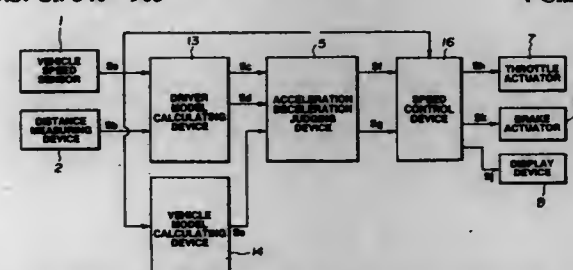
Filed Mar. 10, 1995, Ser. No. 402,046

Claims priority, application Japan, Mar. 15, 1994, 6-070038

Int. Cl.⁶ G08G 1/16

U.S. Cl. 340—903

4 Claims



- 1. A distance control apparatus for a vehicle comprising:
- a self vehicle speed detecting means for detecting a vehicle speed of the vehicle;
- a distance measuring means for measuring a distance between the vehicle and a preceding vehicle;
- a driver model calculating means for calculating a driver model deceleration distance and a driver model acceleration distance from the vehicle speed and the distance and a driver's control characteristics;
- a vehicle model calculating means for calculating a vehicle model deceleration distance from the vehicle speed and physical characteristics of the vehicle; and

a control means for executing a deceleration control of the vehicle according to a larger one of the driver model deceleration distance and the vehicle model deceleration distance and for executing an acceleration control of the vehicle according to the driver model acceleration distance; wherein a driver model deceleration distance is calculated by the following equation:

$$\text{Driver model deceleration distance} = A \times \text{vehicle speed} + B \times \text{relative speed} + C \times \text{vehicle speed}$$

wherein A, B and C are constants, and the relative speed is a value obtained by subtracting the vehicle speed from a vehicle speed of a preceding vehicle and is smaller than 0.

5,670,954
PEDESTAL MOUNTED TRAFFIC BEACON
 Wilhelm Junker, Reutlingerstrasse 14, 71422 Backnang, Germany

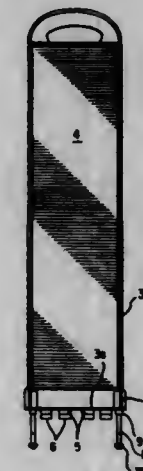
Filed Apr. 3, 1995, Ser. No. 415,271

Claims priority, application Germany, Feb. 24, 1995, 29503161 U

Int. Cl.⁶ B60Q 7/00

U.S. Cl. 340—908.1

5 Claims



- 1. A traffic beacon for guiding street traffic comprising:
- a traffic beacon member formed of a first material;
- a base pedestal;
- a coupling member detachably coupling said traffic beacon member to said base pedestal;
- said coupling member being formed from an elastically deformable material and having a folding portion;
- said coupling member having a hollow body with opposing first sides and opposing second sides, said first sides being wider than said second sides, and said hollow body defining an opening at a bottom thereof;
- said folding portion including opposing lateral recesses spanning each of said second sides permitting said first sides to bend at said folding portion;
- said elastically deformable material of said coupling member facilitating the bending of said folding portion with said first material of said traffic beacon member being stiffer than said elastically deformable material of said coupling member;
- said traffic beacon member having a panel portion with a circumferential flange;
- said traffic beacon member having at least one downwards protruding tab member extending from a bottom side of said circumferential flange;
- said coupling member having a top surface defining at least one slot for accepting said at least one tab member; and
- said tab member having a barbed expansion at a lower end thereof and said slot having a dimension in a transverse direction less than a transverse dimension of said barbed expansion.

5,670,955
METHOD AND APPARATUS FOR GENERATING DIRECTIONAL AND FORCE VECTOR IN AN INPUT DEVICE

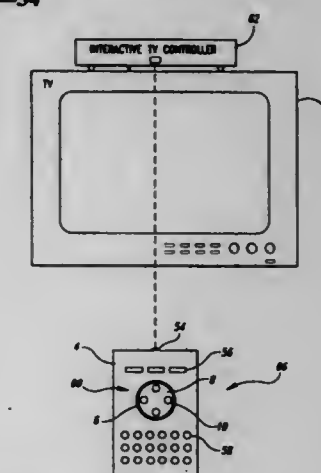
Edwin Thorne, III, Seattle; Mark T. Hanson, Lynnwood; John P. Pennock, Bellevue, and Luis A. Reyes, Woodinville, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Jan. 31, 1995, Ser. No. 381,633

Int. Cl.⁶ H03K 17/94; H03M 11/00

U.S. Cl. 341—34

28 Claims



- 1. An input device comprising:
- a pad having an upper surface and a lower surface;
- a plurality of switches positioned to be actuated from pressure applied to the upper surface of the pad with each switch representing a particular direction, the number of actuated switches varying with magnitude of pressure applied to the pad;
- a sensor to detect which of the switches are actuated; and
- a translator to calculate magnitude and direction of force input based on the actuated switches.

5,670,956
M=5 (3,7) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA

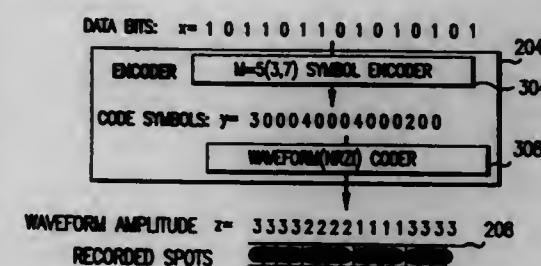
Steven W. McLaughlin, Rochester, N.Y., assignor to Optex Corporation, Rockville, Md.

Filed May 12, 1995, Ser. No. 440,233

Int. Cl.⁶ H03M 7/00

U.S. Cl. 341—59

12 Claims



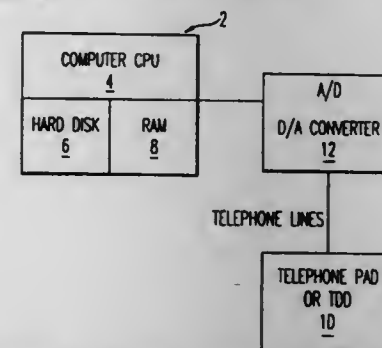
- 1. A method for encoding a series of binary input data bits x into

an M=5 run-length limited (3,7) code having a rate $R=3/4$, to produce a series of code symbols y_i , the method comprising the steps of receiving at a six-state encoder an input data bit set $x_i \dots x_{i+2}$ to be encoded into the M=5 run-length limited (3,7) code, and generating in said encoder a code symbol set $y_i \dots y_{i+3}$ based on said input data bit set $x_i \dots x_{i+2}$ according to the following mapping table:

INPUT	OUTPUT	NEXT STATE
STATE 0		
000	0000	2
001	0000	3
010	0000	4
011	0001	0
100	0000	5
101	0002	0
110	0003	0
111	0004	0
STATE 1		
000	0010	0
001	0010	1
010	0030	0
011	0030	1
100	0020	0
101	0020	1
110	0040	0
111	0040	1
STATE 2		
000	0100	2
001	0100	0
010	0100	1
011	0300	2
100	0100	3
101	0300	0
110	0300	1
111	0300	3
STATE 3		
000	0200	2
001	0200	0
010	0200	1
011	0400	2
100	0200	3
101	0400	0
110	0400	1
111	0400	3
STATE 4		
000	2000	2
001	2000	3
010	2000	4
011	4000	5
100	2000	5
101	4000	4
110	4000	3
111	4000	2
STATE 5		
000	1000	2
001	1000	3
010	1000	4
011	3000	5
100	1000	5
101	3000	4
110	3000	3
111	3000	2

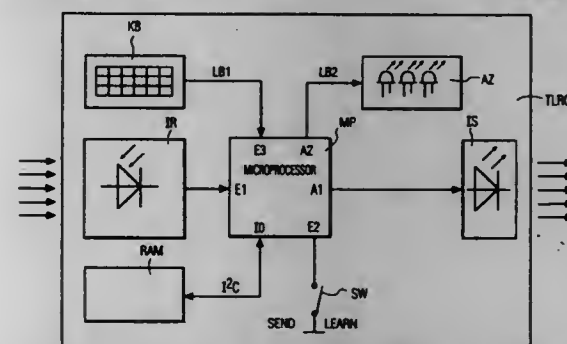
wherein said code symbol set $y_i \dots y_{i+3}$ is generated based on the input data bit set $x_i \dots x_{i+2}$ and the current state of said six-state encoder when said data bit set $x_i \dots x_{i+2}$ is received.

5,670,957
METHODS FOR COMMUNICATING WITH A TELECOMMUNICATIONS DEVICE FOR THE DEAF
 Georg E. Morduch, Alexandria, Va., and Joe J. Lynn, Gaithersburg, Md., assignors to Microlog Corporation, Germantown, Md.
 Division of Ser. No. 308,344, Sep. 19, 1994, Pat. No. 5,499,285, which is a continuation of Ser. No. 790,257, Nov. 12, 1991, Pat. No. 5,388,146. This application Jun. 7, 1995, Ser. No. 479,192
 Int. Cl. H03M 7/00
 U.S. Cl. 341-91 20 Claims



1. A method for converting message signals stored in ASCII format comprising providing a lookup table for converting an ASCII character code to a Baudot character code, storing digital waveforms, each of said digital waveforms comprising a plurality of digital samples representing the analog waveform of a respective character in analog Baudot tone code, converting said message signals by said lookup table to Baudot signals, and recalling digital waveforms corresponding to said Baudot signals.

5,670,958
REMOTE CONTROL METHOD AND DEVICE
 Eberhard Hauser, and Norbert Eigeldinger, both of Villingen-Schwenningen, Germany, assignors to Deutsche Thomson Brandt GmbH, Villingen-Schwenningen, Germany
 Filed Nov. 28, 1995, Ser. No. 495,640
 Claims priority, application Germany, Mar. 17, 1993, 43 08 441.9
 Int. Cl. G08C 19/12
 U.S. Cl. 341-176 8 Claims



1. Method for learning remote control signals of a first remote control transmitter, which initially transmits first remote control signals for a prescribed remote control command, which are received by a second remote control transmitter which is designed to receive and transmit remote control signals, comprising: the value of the first signals of the first remote control transmitter being stored in the second remote control transmitter, second or further remote control signals which differ from the first remote control signals by at least one toggle-bit are recognized, the value of the first, second or further remote control signals are entered in respective tables of one of a microprocessor and a memory of the second remote control transmitter,

time values of the signals are analyzed with respect to time differences, wherein the signals are compared whether the difference of the measured time values between two corresponding rising edges of the first, second or further remote control signals exceeds a predetermined value and that, if true, it is recognized, that at the corresponding position in the received remote control command, different logical states occur and that this position is judged to be a toggle-bit position.

8. Method for learning remote control signals of a first remote control transmitter, which initially transmits first remote control signals for a prescribed remote control command, which are received by a second remote control transmitter which is designed to receive and transmit remote control signals, the value of the first signals of the first remote control transmitter being stored in the second remote control transmitter, comprising:

at later times second or further remote control signals for the same remote control command are transmitted by the first remote control transmitter and are received and stored by the second remote control transmitter,

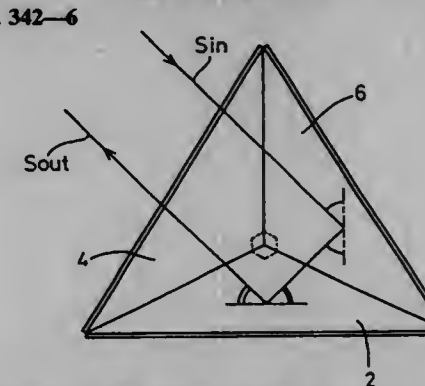
the value of the second or further remote control signals is compared in the second remote control transmitter with the value of the first remote control signals and

on the basis of the comparison in the second remote control transmitter, the remote control signals assigned to the remote control commands are formed,

in the second remote control transmitter, during reading of the data words for determining the frequency range, a changeover is made from a first infrared receiver to a second infrared receiver, the frequencies of the received frequency range trigger interrupts in an interrupt routine of a microprocessor to determine the carrier frequency,

the microprocessor evaluates these interrupts, and the microprocessor stores the information obtained therefrom as a bit in an information byte and the entire information of the information byte in the microprocessor or in an external memory for later regeneration of the data word.

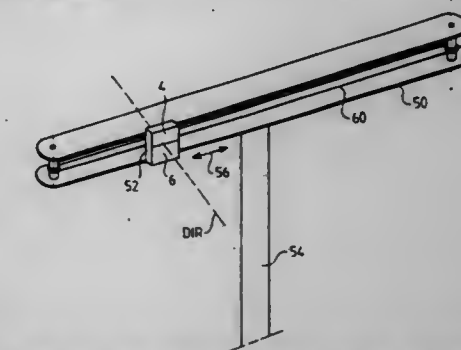
5,670,959
ANTENNA REFLECTOR
 Michinaga Nagura, Kariya, and Tomohisa Kishigami, Oobu, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan
 Filed Oct. 18, 1995, Ser. No. 544,764
 Claims priority, application Japan, Oct. 19, 1994, 6-253894
 Int. Cl. G01S 13/75
 U.S. Cl. 342-6 30 Claims



1. An antenna reflector which reflects radio waves sent by a source external to said antenna in an incoming direction of said radio waves, said antenna reflector comprising: three reflectors which reflect incoming radio waves and which have reflecting surfaces that are substantially larger than a wavelength of said radio waves; wherein said reflectors are joined in a shape of a corner of a cube so that each of said reflectors is perpendicular to each other reflector; and each of said reflectors includes a semiconductor switching element having a first state in which said semiconductor switch-

ing element is transmissive to said radio waves and a second state in which said semiconductor switching element includes an inversion layer which reflects said radio waves.

5,670,960
DEVICE FOR THE DETECTION AND LOCATION OF OBJECTS ON THE GROUND
 Pascal Cessat, Chaville, France, assignor to Dassault Electronique, Saint Cloud, France
 Filed Dec. 4, 1995, Ser. No. 566,746
 Claims priority, application France, Dec. 7, 1994, 94 14721
 Int. Cl. G01S 13/90
 U.S. Cl. 342-25 12 Claims



1. A device for the detection and location of objects on the ground in a delimited zone, comprising:

a) radar transmitter/receiver means provided with antenna means capable of generating a radiating beam displaceable parallel to itself over a path that is substantially transverse with respect to its direction around a stationary position relative to the ground;

b) synthetic aperture radar processing means operative to process the output signal of said radar receiver means relating to the return of said beam over said delimited zone in accordance with the antenna movement, so as to detect and locate objects on the ground in said delimited zone;

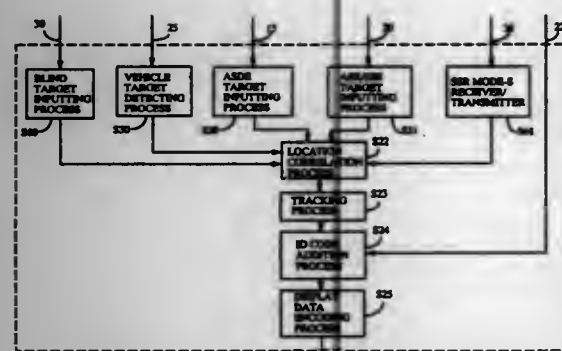
c) a horizontal platform capable of supporting said radar transmitter/receiver means and said antenna means; and

d) a mast perpendicular to the ground and disposed in accordance with a predetermined geometrical relation relative to the delimited zone, said platform being fixedly mounted around said mast;

wherein said antenna means has a phase center and comprises: a plurality of radiating elements arranged in at least one row disposed horizontally on the platform, said the radiating elements being disposed in subgroups so as to radiate along the direction of incidence of the radar beam; and switching means capable of switching the energization of each said subgroup of radiating elements in such a way that said phase center of the antenna means is movable in linear translation relative to said mast at a chosen speed along a direction which is perpendicular to the direction of incidence of the radar beam.

5,670,961
AIRPORT SURFACE TRAFFIC CONTROL SYSTEM
 Atsushi Tomita, Koichi Kimura, and Shinichi Moriwaki, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed Nov. 22, 1995, Ser. No. 562,064
 Claims priority, application Japan, Nov. 24, 1994, 6-289787
 Int. Cl. G01S 13/87; 13/91; 13/93
 U.S. Cl. 342-36 7 Claims

1. An airport surface traffic control system, comprising: an airport surface detection radar for receiving reflected radar signals from targets moving in an airport;



- a first target detector for outputting location information of targets by calculating target locations obtained from a signal outputted from the airport surface detection radar;
- a first monitoring radar for receiving reflected radar signals from airborne targets in an area around said airport;
- a second monitoring radar for receiving response signals including beacon codes from said airborne targets;
- a second target detector for outputting location information and beacon code information of targets in response to target location information from the first monitoring radar and signals from the second monitoring radar;
- a flight schedule information processor for outputting aircraft flight schedule information;
- an ID code addition apparatus for identifying targets and their locations in response to location information outputted from the first and the second target detectors and developing target display data signals corresponding to said targets and their locations, adding ID codes to said display data signals according to the beacon code information and the flight schedule information, and outputting said display data signals; and
- a display apparatus for indicating locations of targets moving on the airport surface and symbols and ID codes corresponding to the targets in response to said display data signals from the ID code addition apparatus.

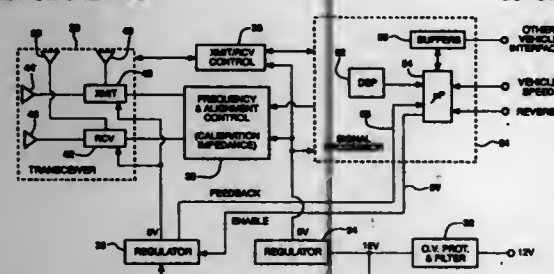
5,670,963 TRANSMIT POWER CONTROL FOR AUTOMOTIVE RADAR SYSTEM

Mark Ford Henderson, and William Lloyd Piper, both of Kokomo, Ind., assignors to Delco Electronics Corp., Kokomo, Ind.

Filed Nov. 13, 1995, Ser. No. 558,124
Int. Cl.⁶ G01S 13/62

U.S. Cl. 342-70

13 Claims



1. In a vehicle having a radar system for detecting a possible collision, the method of radar power control comprising the steps of:
energizing the radar system to transmit and receive radar signals;
sensing a vehicle speed signal;
determining from the speed signal when the vehicle is stationary for a prescribed period; and
terminating radar transmission power when the vehicle is stationary for the prescribed period.

5,670,963 RADAR APPARATUS OF AUTOMOTIVE VEHICLE FOR PRODUCING ACCURATE BEAM AXIS CORRECTION VALUE

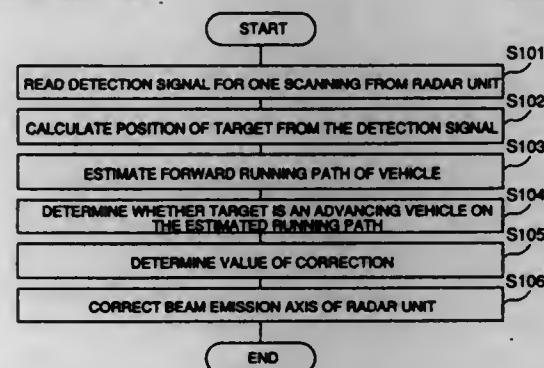
Yulchi Kubota, and Setsuo Tokoro, both of Susono, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Mar. 4, 1996, Ser. No. 610,685
Claims priority, application Japan, Mar. 17, 1995, 7-059552;
Oct. 12, 1995, 7-264300

Int. Cl.⁶ G01S 13/93

U.S. Cl. 342-70

8 Claims



1. A radar apparatus of an automotive vehicle, which corrects a beam emission axis in accordance with a correction value to eliminate an error of the beam emission axis to a straight line path of the vehicle with respect to a horizontal direction, comprising:
a radar unit outputting signals at intervals of a predetermined time, each signal indicating data of a position of a target at an output time;
a position detecting unit detecting data of the position of the target from each of the signals output by said radar unit when the vehicle operates in the straight line path; and
a correction value determining unit generating a set of errors of the beam emission axis with respect to the horizontal direction so that an average of the errors with respect to each of the signals is determined from the data detected by said position detecting unit, and determining a correction value by taking an average of said averages of the errors with respect to all the signals.

5,670,964 NAVIGATION ASSISTANCE FOR CALL HANDLING IN MOBILE TELEPHONE SYSTEMS

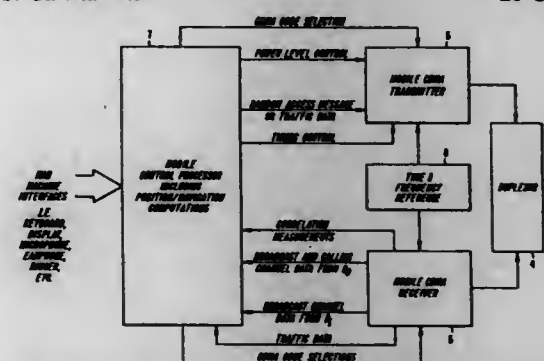
Paul W. Dent, Stehag, Sweden, assignor to Ericsson Inc., Research Triangle Park, N.C.

Continuation of Ser. No. 118,179, Sep. 9, 1993, Pat. No. 5,404,376. This application Feb. 1, 1995, Ser. No. 384,334

Int. Cl.⁶ G01S 3/02

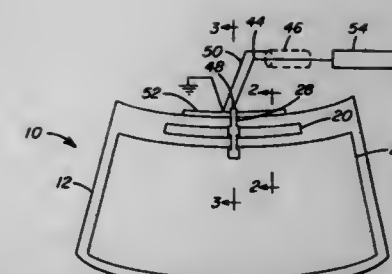
U.S. Cl. 342-457

20 Claims



1. A method of establishing communications between a mobile radio station and at least one of a plurality of fixed stations, said method comprising:

receiving at said mobile station a signal from at least one of said fixed stations;
decoding said signal to obtain broadcast information;
measuring the signal strength of said signal received from said at least one fixed station;
averaging said measured signal strength to produce an average signal strength value;
estimating a propagation loss from said mobile station to said at least one fixed station using said average signal strength value and said broadcast information; and
estimating an appropriate transmitter power level for said mobile station to use in making a first transmission to said at least one fixed station using said estimated propagation loss.



5,670,965 COMPACT ANTENNA TEST RANGE

Jussi Tuovinen, Porslahdentie 23 E 26, FIN-00980 Helsinki; Antti Vasara, Vuorimiehentie 11 A 1, FIN-00140 Helsinki, and Antti Räsänen, Visakorvuntie 2 A, FIN-02130 Espoo, all of Finland

PCT No. PCT/Fin/92/00221, § 371 Date May 24, 1994, § 102(e) Date May 24, 1994, PCT Pub. No. WO93/03388, PCT Pub. Date Feb. 18, 1993

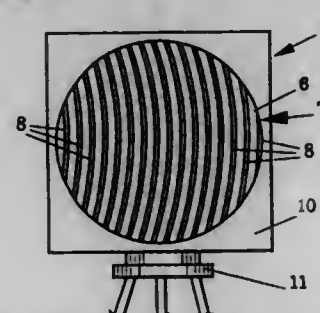
PCT Filed Jul. 29, 1992, Ser. No. 185,805

Claims priority, application Finland, Aug. 1, 1991, 913685

Int. Cl.⁶ H01Q 15/02; 19/06

U.S. Cl. 343-703

4 Claims



1. A compact antenna test range for performing antenna and radar cross-section measurements, the compact test range comprising:
transmitting means for transmitting an electromagnetic wavefront;
converting means for converting the wavefront to plane waves, said converting means
a) generating the plane waves and detrimental waves when illuminated by said transmitting means,
b) comprising at least one hologram pattern formed on a substrate, said hologram pattern failing to show concentric rings and being designed so that, when illuminated by said transmitting means, it spatially separates the plane waves from the detrimental waves by making the plane waves and the detrimental waves to leave the hologram pattern at different angles, and
a piece to be tested, positioned in such a way that the plane waves leaving the hologram pattern illuminate the piece.

5,670,966 GLASS ANTENNA FOR VEHICLE WINDOW

Peter T. Dishart, Pittsburgh; Frank J. Pazul, Lower Burrell, and James F. Wilson, Worthington, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 27, 1994, Ser. No. 364,869

Int. Cl.⁶ H01Q 1/32; 1/38

U.S. Cl. 343-713

21 Claims

2. A transparent antenna for an automobile comprising:
a first rigid transparent ply having a peripheral edge defining a desired shape;

- a first transparent electroconductive antenna element positioned at least on a central portion of a major surface of said first ply and spaced from and generally extending along selected portions of said peripheral edge of said first ply;
- a second transparent electroconductive antenna element positioned on said major surface of said first ply spaced between said first antenna element and said selected portions of said peripheral edge of said first ply;
- at least one electroconductive connector extending between said first and second antenna elements to electrically interconnect said elements and form a single antenna assembly, wherein a first portion of said connector overlays and is electrically interconnected with a portion of said first antenna element, a second portion of said connector overlays and is electrically interconnected with a portion of said second antenna element, a third portion of said connector extends between and electrically interconnects said first and second portions of said connector, and a fourth portion of said connector extends from said second portion and beyond said peripheral edge of said first ply; and
- a second rigid transparent ply secured to said first rigid ply such that said first and second antenna elements and at least said first, second and third portions of said connector are positioned between said plies, wherein said second ply has a peripheral edge generally corresponding to said peripheral edge of said first ply at least in the vicinity where said connector extends beyond said first ply.

5,670,967 METHOD AND ARRANGEMENT FOR MECHANICAL STABILIZATION

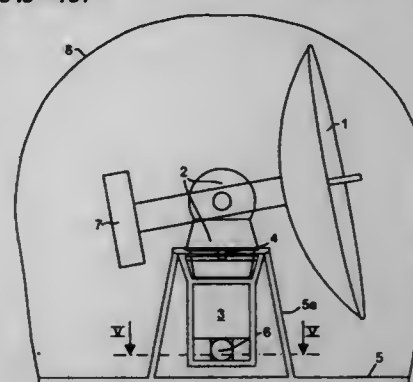
Markku Sarjala, Kukkolankatu 12, FIN-39700, Parkano, Finland

Continuation of Ser. No. 211,982, Apr. 21, 1994, abandoned. This application Feb. 2, 1996, Ser. No. 596,419

Claims priority, application Finland, Oct. 21, 1991, 914944
Int. Cl.⁶ H01Q 1/18; G12B 5/00

U.S. Cl. 343-757

22 Claims



1. A method for stabilizing a position of an antenna body having a mass center and being supported on a support base moving in relation to an earth gravity field, comprising the steps of:
supporting said antenna body at its mass center located at a connection between said antenna body and said support base whereby any torque induced by inertial forces from accelerations on said antenna body is eliminated;

measuring a kinetic state of at least one of said antenna body and said support base, and generating forces, based on said measuring step, and acting on a contact-free principle, to maintain said antenna body in said position by removing effects of destabilizing forces.

5,670,968

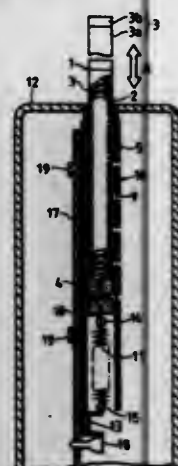
RETRACTABLE FLEXIBLE TRANSMIT/RECEIVE ANTENNA WHICH OPERATES IN A COLLAPSED AND EXTENDED POSITION

Masayuki Inanaga, Kasuga, and Shouchiro Okuda, Fukuoka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 773,878, Nov. 4, 1991, Pat. No. 5,258,772. This application Jul. 21, 1993, Ser. No. 93,944 Claims priority, application Japan, Apr. 4, 1990, 2-89918 Int. Cl.⁶ H01Q 1/10; 1/24

U.S. Cl. 343—901

19 Claims



1. An antenna device comprising: an antenna insulated case composed of an inner case of electrically insulating material and an outer case of electrically insulating material telescopically assembled together and slidably movable relative to one another so as to extend and contract the length of said antenna case; and an antenna conductor enclosed within said antenna case and having a coiled resilient portion of said antenna conductor being extendable and contractible in response to the movement of said inner case relative to said outer case.

5,670,969

INFORMATION PROCESSING APPARATUS

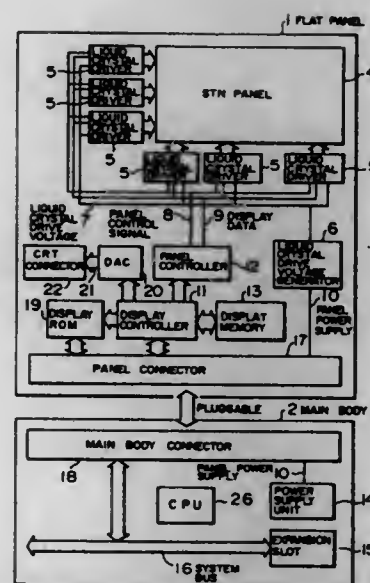
Hajime Yamagami, Yokohama, and Takashi Tsunehiro, Ebina, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 29, 1992, Ser. No. 953,953 Claims priority, application Japan, Oct. 14, 1991, 3-264617 Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—1

14 Claims

1. An information processing apparatus comprising: a main body including a CPU and a read/write bus which is readable/writable directly by said CPU; and a display device including a panel type display and display control means storing attribute information of said panel type display which is readable/writable by said CPU through said read/write bus, said display control means controlling the display of said panel type display in accordance with display data received from said CPU through said read/write bus; wherein said main body is not provided with display control means for processing data in accordance with characteristics of said panel type display so that any said display device of a plurality of display devices having different panel type displays is operably connectable with said main body, and said



CPU enables direct reading of said attribute information from said display device through said read/write bus and enables direct writing of said display data to said display device in accordance with characteristics of said panel type display through said read/write bus, said display control means processing said display data in accordance with characteristics of said panel type display.

5,670,970

HEAD-MOUNT DISPLAY WITH OPPOSITE POLARITY REVERSAL FOR LEFT AND RIGHT SIDES

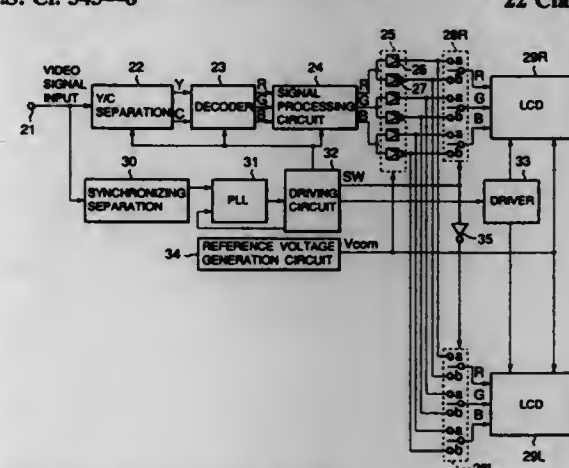
Yasuyuki Yamazaki, Matsudo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 13, 1994, Ser. No. 355,014

Claims priority, application Japan, Dec. 17, 1993, 5-343246 Int. Cl.⁶ H04N 13/04; G09G 3/36

U.S. Cl. 345—8

22 Claims



15. A head mount display comprising: display panels for right and left eyes each wired in a matrix arrangement; and a driving circuit for inverting the polarities of image signals per a predetermined period, and outputting the inverted image signals simultaneously to said display panels for the right and left eyes, wherein said driving circuit outputs, to said display panels for the right and left eyes, the image signals inverted to each other.

5,670,971

SCAN TYPE DISPLAY DEVICE WITH IMAGE SCANNING FUNCTION

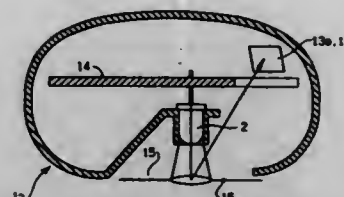
Toyotaro Tokimoto, Yokohama, and Hiroshi Yajima, Zushi, both of Japan, assignors to Avix Inc., Yokohama, Japan

Filed Dec. 19, 1994, Ser. No. 359,211

Claims priority, application Japan, Sep. 26, 1994, 6-229831 Int. Cl.⁶ G09G 3/20

U.S. Cl. 345—31

14 Claims



1. A scan type display device comprising a device body carrying a light emitting cell array including a plurality of light emitting cells arranged in a linear alignment for scanning an aerial plane to display a desired image by utilizing a residual image effect, said light emitting cells being selectively illuminated according to image data stored in a memory and in synchronism with motion of said device body, said display device further comprising:

light receiving means including at least one light receiving element provided on said device body, said light receiving element being positioned to receive a reflected light from a to-be-sampled image displayed on an image carrying medium, when such image is placed in proximity and in opposition to said light emitting cell array and is illuminated by said light emitting cells;

means for illuminating each individual light emitting cell of said light emitting array in a predetermined order for sampling line image data of a single display line of such to-be-sampled image; and

means for detecting shifting of such to-be-sampled image so as to terminate sampling of line image data of a previous display line of such to-be-sampled image and to sample line image data of a next display line of such image.

5,670,972

SELF-DIAGNOSIS ARRANGEMENT FOR A VIDEO DISPLAY AND METHOD OF IMPLEMENTING THE SAME

Young-Hee Kim, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 23, 1995, Ser. No. 546,865

Claims priority, application Rep. of Korea, Oct. 22, 1994, 27039 1994

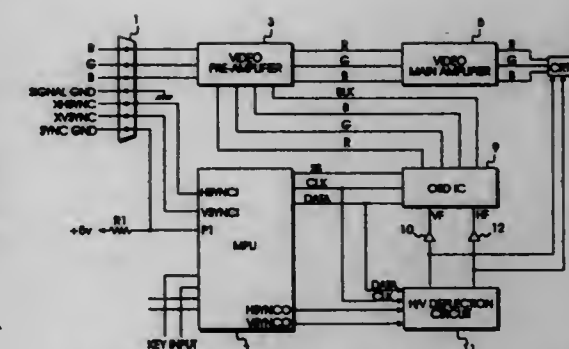
Int. Cl.⁶ G09G 1/08

U.S. Cl. 345—13

8 Claims

5. A video display apparatus including a cable connector to which a signal cable of an external system is engagedly connected, an amplifier for receiving a first video signal supplied via said cable connector and a cathode ray tube for displaying said signal input from said amplifier, said apparatus comprising:

a microprocessor storing information for an image status being displayed, for selectively switching between internal horizon-



tal and vertical synchronizing signals from an internal generator and external horizontal and vertical synchronizing signals from said external system to provide output horizontal and vertical synchronizing signals having predetermined frequency levels based on a connection status between said signal cable and said cable connector; means for supplying a plurality of second video signals corresponding to said stored information provided by said microprocessor to said amplifier; and horizontal and vertical deflection circuits, responsive to said output horizontal and vertical synchronizing signals input from said microprocessor, for supplying horizontal and vertical deflection signals to said cathode ray tube.

5,670,973

METHOD AND APPARATUS FOR COMPENSATING CROSSTALK IN LIQUID CRYSTAL DISPLAYS

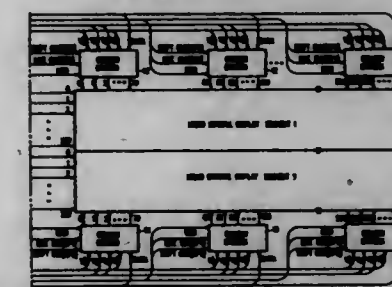
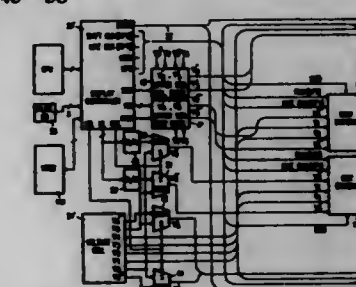
Chester Floyd Bassett, Jr., Pleasanton; Chin-Hsian Chang, Milpitas; Vlad Bril, Campbell, and Rakesh Kumar Bindlish, San Jose, all of Calif., assignors to Cirrus Logic, Inc., Fremont, Calif.

Continuation of Ser. No. 342,783, Nov. 21, 1994, abandoned, which is a continuation of Ser. No. 43,001, Apr. 5, 1993, abandoned. This application Nov. 1, 1996, Ser. No. 743,413

Int. Cl.⁶ G09G 3/36

U.S. Cl. 345—58

60 Claims

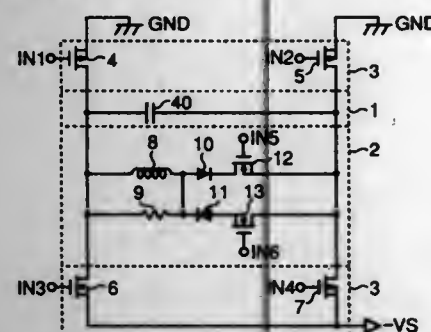


1. Apparatus for reducing crosstalk by compensating individual columns in liquid crystal display systems of the type in which column drivers and row drivers apply excitation voltages to pixels arranged in rows and columns in a liquid crystal display panel, comprising

first means for determining for an individual column a column compensation value including the number of transitions in excitation voltage between first and second designated conditions within the individual column; and

second means for applying to the individual column a column compensating signal which is a function of the column compensation value for the individual column.

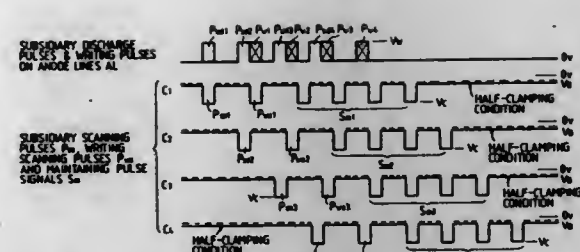
5,670,974
ENERGY RECOVERY DRIVER FOR A DOT MATRIX AC PLASMA DISPLAY PANEL WITH A PARALLEL RESONANT CIRCUIT ALLOWING POWER REDUCTION
 Masataka Ohba, and Yoshio Sano, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
 Filed Sep. 26, 1995, Ser. No. 534,211
 Claims priority, application Japan, Sep. 28, 1994, 6-233351; Mar. 1, 1995, 7-041536
 Int. Cl.⁶ G09G 3/28
 U.S. Cl. 345—60



1. A plasma display panel driver circuit comprising: a panel inter-electrode capacitor provided between scanning and sustain electrodes of a panel;
- a charging/discharging circuit connected in parallel with said panel inter-electrode capacitor and formed by a combination of a coil and two switches, said charging/discharging circuit serving to recharge the panel inter-electrode capacitor in an opposite polarity with a resonant current generated at the time of the discharging of the panel inter-electrode capacitor; and
- a first to a fourth switch provided in a voltage clamp circuit for clamping a terminal voltage across the panel inter-electrode capacitor to a power source voltage level and to the opposite polarity value thereof, said first and third switches being connected in series between a first power terminal having a ground potential and a second power terminal having a potential different from said ground potential, said second and fourth switches being connected in series between said first power terminal and said second power terminal, and said panel inter-electrode capacitor being connected between a series connection node of said first and third switches and that of said second and fourth switches, said panel inter-electrode capacitor together with said charging/discharging circuit, forming a parallel resonant circuit.

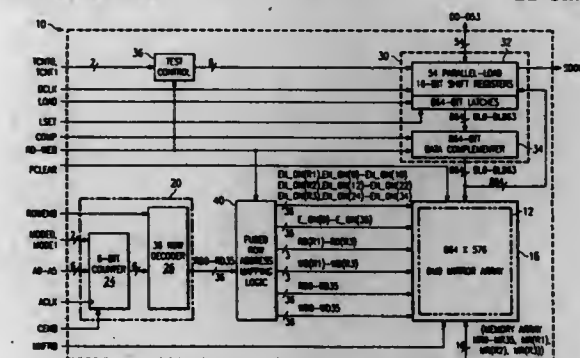
5,670,975
METHOD FOR DRIVING GAS DISCHARGE DISPLAY PANEL
 Yoshimichi Takano; Tetsuo Sakai, both of Tokyo; Hiroshi Murakami, Yokohama; Kazuo Takahashi, Osaka; Mutsumi Mimasu, Hikone; Utaro Miyagawa, Osaka; Makoto Takei, Osaka, and Koichi Wani, Osaka, all of Japan, assignors to Nippon Hoso Kyokai, Tokyo, and Matsushita Electronics Corporation, Osaka, both of Japan
 Division of Ser. No. 437,747, May 9, 1995, Pat. No. 5,610,623, which is a division of Ser. No. 54,490, Apr. 30, 1993, Pat. No. 5,572,230. This application Aug. 8, 1996, Ser. No. 694,129
 Claims priority, application Japan, Jun. 26, 1992, 4-169283
 Int. Cl.⁶ G09G 3/28
 U.S. Cl. 345—60

1. A method for driving a gas discharge display panel comprising a plurality of display electrode lines arranged side by side, a



- plurality of scanning electrode lines which are arranged side by side and cross the display electrode lines, and a plurality of display cells arranged at intersection spaces between the display electrode lines and the scanning electrode lines, comprising the step of:
- applying a subsidiary scanning pulse on a specific scanning electrode line selected from the scanning electrode lines;
 - applying a subsidiary pulse on a specific display electrode line selected from the display electrode lines in synchronism with the subsidiary scanning pulse to produce subsidiary gas discharge in cooperation with the subsidiary scanning pulse in a specific display cell which is arranged at an intersection space between the specific display electrode line and the specific scanning electrode line;
 - applying a writing scanning pulse subsequent to the subsidiary scanning pulse on the specific scanning electrode line;
 - applying a writing pulse on the specific display electrode line in synchronism with the writing scanning pulse to produce writing gas discharge in the specific display cell in cooperation with the writing scanning pulse, the writing gas discharge being quickened by the subsidiary gas discharge;
 - applying a maintaining pulse signal subsequent to the writing scanning pulse signal on the specific scanning electrode line during only a maintaining period to produce maintaining gas discharge subsequent to the writing gas discharge in the specific display cell, the maintaining gas discharge being intermittently produced in synchronism with pulses of the maintaining pulse signal, each of the pulses of the maintaining pulse signal being not synchronized with any of the subsidiary scanning pulse, the subsidiary pulse, the writing scanning pulse and the writing pulse.

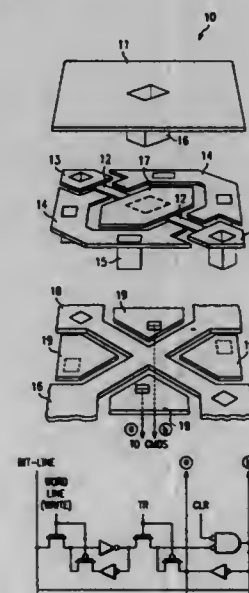
5,670,976
SPATIAL LIGHT MODULATOR HAVING REDUNDANT MEMORY CELLS
 Edison H. Chiu, Richardson, Tex.; Shigeki Numaga, and Takeshi Honzawa, both of Ibaraki-ken, Japan, assignors to Texas Instruments Incorporated, Dallas, Tex.
 Filed Feb. 28, 1995, Ser. No. 395,545
 Int. Cl.⁶ G09G 3/34
 U.S. Cl. 345—84



1. A spatial light modulator, comprising:
 - a) an array of picture elements;
 - b) a plurality of memory cells arranged in rows controlling said picture elements;
 - c) memory cell addressing means for generating row address signals; and

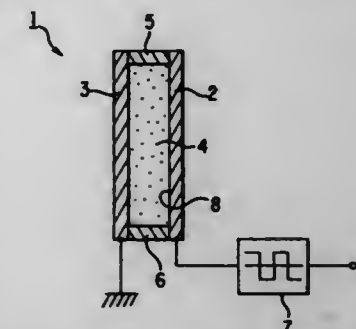
- d) a mapping circuit coupled between said addressing means and said memory cell rows for selectively determining which subset of said memory cell rows are addressed by said row address signals to control said picture elements, said mapping circuit having a separate logic cell associated with each said memory cell row, each said logic cell having two inputs receiving two of said row address signals and an output driving said associated memory cell row.

5,670,977
SPATIAL LIGHT MODULATOR HAVING SINGLE BIT-LINE DUAL-LATCH MEMORY CELLS
 Edison H. Chiu, Richardson, and Quang Dieu An, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
 Filed Feb. 16, 1995, Ser. No. 389,673
 Int. Cl.⁶ G09G 3/34
 U.S. Cl. 345—85



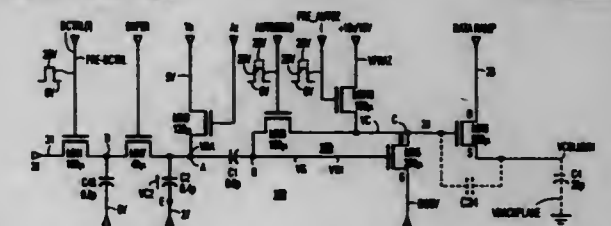
1. A spatial light modulator, comprising:
 - a) an array of electrically addressable pixels, arranged in rows and columns;
 - a) a memory cell array, arranged in rows and columns, each memory cell being in data communication with at least one of said pixels, each said memory cell having a first latch in data communication with a second latch, said first latch transferring pixel data to said second latch in response to a transfer signal, said second latch providing an address signal representative of said pixel data to said at least one of said pixels with which said memory cell is in data communication;
 - a) a bit-line associated with each said column of said memory cell array, each said bit-line delivering said pixel data to the first latch of each said memory cell in its associated column of said memory cell array; and
 - a) a write word-line associated with each said row of said memory cell array, each said word-line delivering a write signal enabling its associated row of said memory cell array to be written with said pixel data.

5,670,978
LIGHT MODULATOR USING AN ASYMETRICALLY-DRIVEN FERROELECTRIC LIQUID CRYSTAL THICK CELL
 Junya Kobayashi, and Junichi Kita, both of Kyoto, Japan, assignors to Shimadzu Corporation, Kyoto, Japan
 Filed Dec. 27, 1994, Ser. No. 364,298
 Claims priority, application Japan, Dec. 28, 1993, 5-338237; Apr. 20, 1994, 6-081973; Aug. 26, 1994, 6-202455
 Int. Cl.⁶ G06F 3/00
 U.S. Cl. 345—94



1. A liquid crystal thick cell light modulator comprising: a thick cell containing ferroelectric liquid crystal between a pair of parallel electrode plates; and a voltage applying circuit for applying a series of voltage pulses with an asymmetrical duty ratio between the pair of electrode plates.

5,670,979
DATA LINE DRIVERS WITH COMMON REFERENCE RAMP DISPLAY
 Ruqiyi Ismat Ara Huq, Plainfield, and Dora Plus, S. Bound Brook, both of N.J., assignors to Thomson Consumer Electronics, S.A., Courbevoie, France
 Continuation of Ser. No. 399,009, Mar. 6, 1995, abandoned. This application Dec. 4, 1996, Ser. No. 760,680
 Int. Cl.⁶ G09G 3/36
 U.S. Cl. 345—100



1. Apparatus for applying video signal to a plurality of column electrodes of a display device, comprising:
 - a source of a video signal;
 - a reference ramp generator for generating a reference ramp signal;
 - a plurality of data line drivers, a given data line driver that is associated with a corresponding column electrode being responsive to said video signal for applying said video signal to said column electrode, said given data line driver including:
 - a comparator;
 - a capacitance for coupling said reference ramp generator to an input of said comparator;
 - a first switching arrangement coupled to said video signal source and to said capacitance for selectively storing said video signal in said capacitance to apply said stored video signal to said input of said comparator, such that, when said video signal is being stored in said capacitance, an output terminal of said reference ramp generator is connected in common to respective electrodes of the capacitances of each of said data

line drivers in a manner to exclude any switching element between said ramp generator output terminal and each of the capacitances;
 a source of a data ramp signal; and
 a switching transistor responsive to an output signal of said comparator for applying said data ramp signal to said column electrode during a controllable portion of a period of said data ramp signal that varies in accordance with a signal that is developed at said input of said comparator.

5,670,980 OUTPUTTER

Kaeko Kuga, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

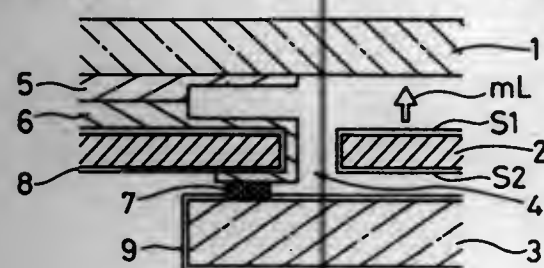
Filed Feb. 1, 1995, Ser. No. 382,263

Claims priority, application Japan, Feb. 2, 1994, 6-010750

Int. Cl.⁶ G09G 3/36; G02F 1/1335

U.S. Cl. 345-102

4 Claims



1. An outputter comprising:
 an output panel which outputs image information by transmission and interception of light, said output panel including a driving signal inputting electrode;
 a back light means for illuminating the output panel, said back light means having a first surface which emits light and a second surface which is a back surface of the back light means, said back light means including a through hole extending between the first and second surfaces, and a transparent electrode formed on said first and second surfaces and extending through said through hole, said driving signal input electrode connected to a portion of the transparent electrode on said first surface such that the output panel is arranged on the first surface; and
 a driving circuit which outputs a driving signal to the output panel, said driving circuit arranged on the second surface of the back light means, said driving circuit including a driving outputting electrode connected to a portion of the transparent electrode formed on the second surface of said back light means.

5,670,981

METHOD FOR MAPPING A SOURCE PIXEL IMAGE TO A DESTINATION PIXEL SPACE

Philip E. Jensen, Bellvue, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

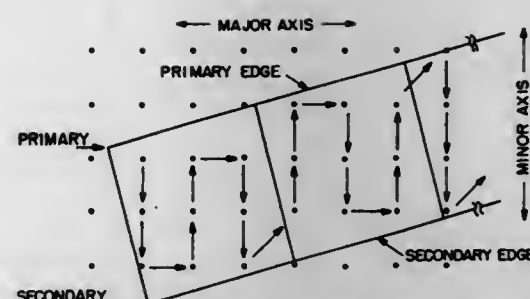
Filed Jan. 30, 1996, Ser. No. 593,104

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345-118

6 Claims

1. A method for mapping a source pixel image to a destination pixel space manifesting a major direction axis and a minor direction axis, said method comprising the steps of:
 a) deriving source image edge intersection coordinate values in said destination pixel space for both a primary edge and a secondary edge of said source pixel image, one of said coordinate values being a starting coordinate;
 b) determining a first occurring line of destination pixels along said major direction axis from said starting coordinate;



- c) deriving clip points at intersections of said first occurring line of destination pixels with said primary edge and said secondary edge;
 d) determining a next occurring line of destination pixels along said major direction axis from said first occurring line of destination pixels;
 e) deriving clip points at intersections of said next occurring line of destination pixels with said primary edge and said secondary edge;
 f) assigning a display value to each pixel in a first minor direction along said first occurring line of destination pixels until a next destination pixel after a current pixel exceeds a clip point;
 g) assigning a display value to a pixel along said next occurring line of destination pixels which falls within said clip points derived in step e);
 h) assigning a display value to each pixel in a second minor direction along said next occurring line of destination pixels until a next destination pixel from a current pixel exceeds a clip point derived in step e); and
 i) repeating steps d-h for each next occurring line of pixels falling within bounds of said source pixel image, said minor direction reversing at each next occurring line of destination pixels.

5,670,982

SYSTEM FOR FAST 90-DEGREE ROTATION OF BI-LEVEL IMAGES

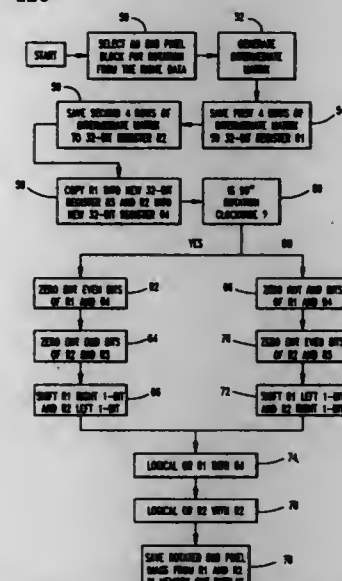
Albert Z. Zhao, Don Mills, Canada, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 8, 1995, Ser. No. 385,263

Int. Cl.⁶ G09G 5/34; I/O6

U.S. Cl. 345-126

13 Claims



1. In a 32-bit operating system, a method of rotating by 90° a block of bi-level image data having 8 rows by 8 columns of pixel data bits, comprising the computer implemented steps of:

generating an intermediate matrix having 8 rows by 8 columns of pixel data bits from the pixel data bits of the block, wherein the block is divided into four row pairs and the intermediate matrix is divided into four nibble column pairs, each said row pair corresponding to one of the nibble column pairs, each row of each row pair being divided into two halves, one of said halves of one row of each row pair being rotated 90° and translated to form a top half of one nibble column of the corresponding nibble column pair, the other one of said halves of said one row also being rotated 90° and translated to form a bottom half of the other nibble column of the corresponding nibble column pair, one of said halves of the other row of each row pair being rotated 90° and translated to form a top half of said one nibble column, the other one of said halves of said other row being rotated 90° and translated to form a bottom half of the other nibble column of the corresponding nibble column pair;
 saving the rows of the intermediate matrix sequentially into first and second 32-bit processor registers;
 copying the first 32-bit register into a third 32-bit processor register and the second 32-bit register into a fourth 32-bit processor register;
 shifting each of the first and second registers by one bit in opposite directions; and
 overlaying alternate bits from the fourth register onto the first register and from the third register onto the second register.

5,670,983

VIDEO CONTROLLER WITH SHARED CONFIGURATION PINS

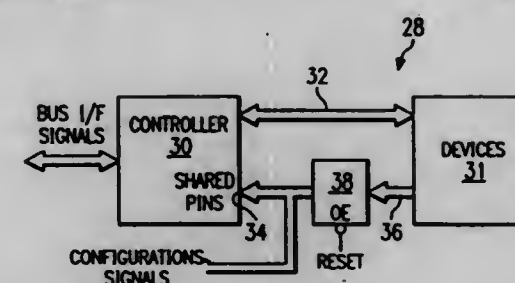
Abdel Hamid Suboh, Houston; Patrick A. Harkin, Spring, and Stuart Hecht, Houston, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Oct. 31, 1994, Ser. No. 332,345

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345-132

19 Claims



1. A control system comprising:
 an integrated control circuit having a memory for storing configuration data and one or more common nodes coupled to said memory and to other devices internal to said integrated control circuit;
 first and second voltage sources coupled to said common nodes through associated resistive devices for presenting configuration data onto said common nodes; and
 one or more devices external to said integrated control circuit coupled to said common nodes for communicating external data to said internal devices, wherein the voltage sources present configuration data onto said common nodes concurrently with the external devices communicating external data through said common nodes.

5,670,984

IMAGE LENS

George G. Robertson, Foster City, and Jock D. Mackinlay, Palo Alto, both of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Oct. 26, 1993, Ser. No. 143,323

Int. Cl.⁶ G09G 00/00

U.S. Cl. 345-139

15 Claims



1. A method for displaying an image on a display surface, preserving context and detail information even when the image contains too much detail to be displayed all at once on the display surface, comprising the steps of:
 storing a data block representing objects appearing in the image, wherein a full image is an image generated from said data block without loss of information;
 defining, in a 3-D space, a viewpoint in the 3-D space;
 defining a viewing surface in the 3-D space corresponding to the display surface;
 defining an image surface in the 3-D space, wherein the image surface comprises a top face and a plurality of side faces of a truncated pyramid, the top face being nearer to the viewpoint than the plurality of side faces and the truncated pyramid being a shape realizable in the 3-D space;
 determining a position of a lens panel on the image;
 determining the extent of side panels, wherein a side panel is defined by a quadrilateral with one edge coincident with an edge of the lens panel and an opposite edge coincident with an edge of the image;
 rendering said lens panel onto said top face and said side panels onto said side faces to form a rendered image providing a detailed view of image portions under said lens panel and context views of image portions under said plurality of side panels.

5,670,985

SYSTEM AND METHOD FOR ADJUSTING THE OUTPUT OF AN OUTPUT DEVICE TO COMPENSATE FOR AMBIENT ILLUMINATION

Richard D. Capps, Sr., San Jose, and Mathew Hernandez, Half Moon Bay, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

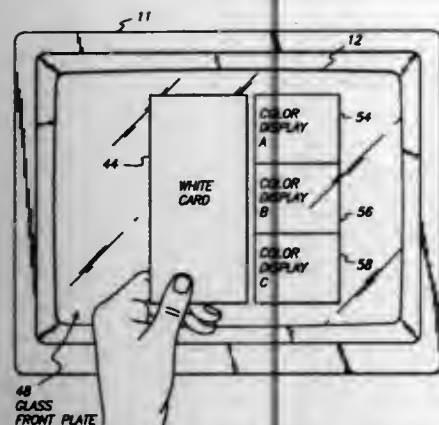
Filed May 9, 1994, Ser. No. 240,002

Int. Cl.⁶ G09G 5/04

U.S. Cl. 345-153

32 Claims

29. A method for compensating the output of an output device for reflected ambient illumination, the method comprising:
 providing a reflection device, having predetermined reflectivity characteristics, for comparing to the output of the output device;
 displaying a first set of discrete display regions on the output device, each display region in the first set having a different optical characteristic to provide a first range of optical characteristics;
 comparing the optical characteristics of the first set of discrete display regions to the reflection device;



selecting a first selected display region from the first set of discrete display regions; and
adjusting the output of the output device based upon the first selected display region to compensate for the effects of ambient illumination.

5,670,986 GRAPHICS SYSTEM FOR DISPLAYING IMAGES IN GRAY-SCALE

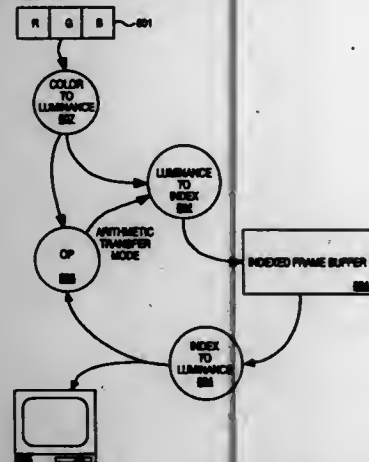
Bruce Alan Leak, Palo Alto, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Continuation of Ser. No. 296,092, Aug. 25, 1994, Pat. No. 5,546,105, which is a continuation of Ser. No. 732,603, Jul. 19, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 478,817

Int. Cl. G09G 5/04

U.S. Cl. 345-154

13 Claims



1. In a computer graphics system a method for displaying a color image at lower color resolution, the color image comprising a plurality of pixels each having one of a plurality of colors, the method comprising the steps of:

- defining a three-dimensional color space as a plurality of discrete luminance levels; generating a luminance lookup table, said table comprising a plurality of index values each representing one of said plurality of discrete luminance levels; for a pixel in the color image, mapping a pixel color of the pixel to a selected one of said index values that out of said plurality of index values represents a first luminance level that is nearer to a luminance level associated with said pixel color than a second luminance level represented by any other of said plurality of index values;
- and rendering the color image using the selected one of said index values in the luminance lookup table.

5,670,987 VIRTUAL MANIPULATING APPARATUS AND METHOD

Miwako Doi, Kawasaki; Nobuko Kato, Yokohama, and Naoko Umeki, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 308,415, Sep. 19, 1994, abandoned.

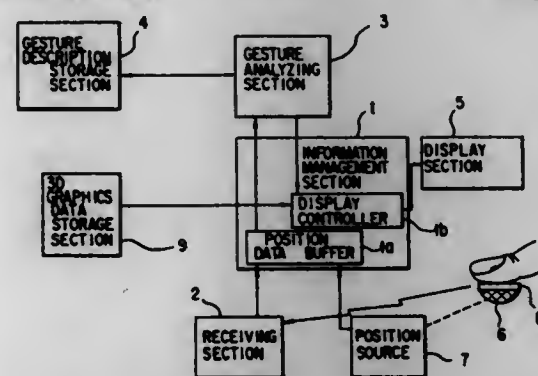
This application Mar. 7, 1996, Ser. No. 612,076

Claims priority, application Japan, Sep. 21, 1993, 5-234372; Dec. 28, 1993, 5-337416

Int. Cl. G09G 5/00

U.S. Cl. 345-156

12 Claims



1. A virtual manipulating apparatus, comprising:
presentation means for presenting a manipulation target in a three-dimensional virtual space using three-dimensional computer graphics;
position detecting means for detecting a finger tip position of an operator, including:
a position source for generating a magnetic field;
position sensors, mounted on a tip of a thumb and a tip of an index finger of the operator, for detecting the magnetic field from said position source;
transmitting means, mounted on the tip of the thumb and the tip of the index finger for transmitting position information from said position sensors; and
receiving means for receiving the position information sent from said transmitting means;
interpreting means for interpreting a manipulation instruction, using prescribed rules, on the basis of a relation between the position of the finger tip which is detected by said position detecting means and the position of the manipulation target on the presentation means.

5,670,988 TRIGGER OPERATED ELECTRONIC DEVICE

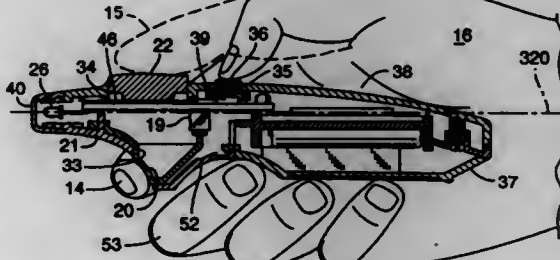
James Dexter Tickle, Thousand Oaks, Calif., assignor to Interlink Electronics, Inc., Camarillo, Calif.

Filed Sep. 5, 1995, Ser. No. 523,716

Int. Cl. G09G 5/08

U.S. Cl. 345-157

19 Claims



1. A portable, trigger operated pointing device for use with an electronically responsive system, comprising:

a housing for location at least partly between first and second fingers of a user's hand, the housing having an elongate profile defining a longitudinal axis and having a forward end, a rear end, opposed sides, a top face, and a bottom face, the bottom face including a contoured step positioned medially of the forward and rear ends and transversely of the opposed sides, the contoured step having a first face for generally providing a rest location for the first finger of the user's hand; an electronic circuit mounted on a board contained within the housing, the circuit including on opposite sides of the board a switch responsive to pressure selectively to open and close an electronic circuit and a transducer responsive element; a first control element mounted with the housing at the first face of the contoured step and operatively connected to the switch to respond to pressure applied by the first finger of the user's hand to operate the switch;

a second control element mounted with the housing at the top face and responsive to force, applied by the second finger of the user's hand such that force applied to the second element in a selected direction acts to cause a change in a condition of the transducer responsive element and thereby cause the electronic circuit to provide a corresponding output signal; and an output signal emitter responsive to the output signal provided by the electronic circuit and positioned to transmit from the forward end a transmitted output signal propagating in a direction generally along the longitudinal axis.

5,670,989 COMMUNICATIONS AUXILIARY MODULE

David B. Owen, 11513 River Dr. East, Carmel, Ind. 46033

Filed May 5, 1995, Ser. No. 435,753

Int. Cl. G09G 5/08

U.S. Cl. 345-163

13 Claims



1. A communications auxiliary module, for use with computer apparatus having a generally non-moving central body assembly and a movable control mouse, and a flexible and electronically active cord operatively inter-connecting them for electronic communication therebetween relating to the use of the control mouse's operativity of being manually manipulated to traverse over an associated friction surface to give input signals to the central body assembly by the control mouse's operativity,
the auxiliary module comprising a spindle and a casing,
the casing being provided with a hollow interior whose size is such that it is placed in an ensleeving manner over the spindle, and, when so placed, it will loosely ensleeve the spindle,
a base means for supporting the spindle on an associated supportive surface,
the casing being provided with an input opening and an exit opening, accommodative of the cord, the size of the hollow interior of the casing being, in comparison to the size of the spindle, such that a plurality of loops of the cord are releasably retained between the outer surface of the spindle and the interior surface of the casing's interior, thus providing temporary length changer effect for the cord, and minimizing the

likelihood of the cord's movement, during the mouse's manipulation, being bothersome to the computer apparatus' environment.

5,670,990 INTEGRAL BALL CAGE FOR POINTING DEVICE

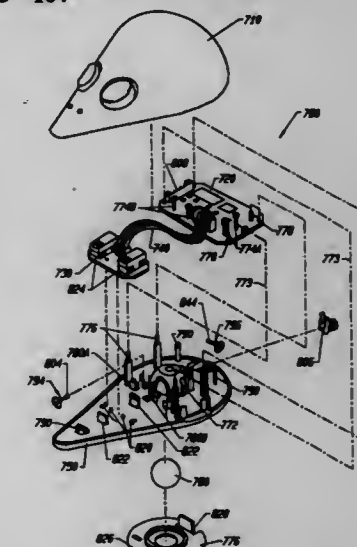
Marc Bldville, Pully, Switzerland; Kieran Devey, Cork, Ireland, and Denes Karal, Le Sentier, Switzerland, assignors to Logitech Incorporated, Fremont, Calif.

Continuation of Ser. No. 50,723, Apr. 19, 1993, abandoned, which is a continuation of Ser. No. 768,813, Sep. 27, 1991, abandoned, which is a continuation-in-part of Ser. No. 672,093, Mar. 19, 1991, abandoned. This application Jan. 21, 1994, Ser. No. 183,897

Int. Cl. G09G 5/08

U.S. Cl. 345-164

8 Claims



1. An electronic mouse for translating linear movement of the mouse across a work surface into digital signals for control of a cursor in a personal computer or workstation comprising:
an upper housing;
a lower housing having an opening therethrough;
a ball extending through said opening;
first and second shaft encoders having a shaft, a slotted disk, and axial protrusions at each end, said shaft encoders each being integrally formed as a single piece of plastic;
first and second pairs of spindle supports, each of said pairs integrally formed with the lower housing and having holes for receiving said axial protrusions of said shaft encoders;
a printed circuit board mounted above said lower housing;
first and second optical emitters mounted on said printed circuit board, each being on a first side of one of said slotted disks;
first and second optical receivers mounted on said printed circuit board, each being on a second side of one of said slotted disks opposite one of said optical emitters
a pressure roller;
a pressure roller support integrally formed with said lower housing;
a spring having a first end biasing said pressure roller against said ball and a second end secured to an integral part of said lower housing;
the ball being sandwiched between the pressure roller and the shaft encoders to cause the shaft encoders to remain in contact with the ball whenever the ball is rolled across a working surface during operation of the electronic mouse.

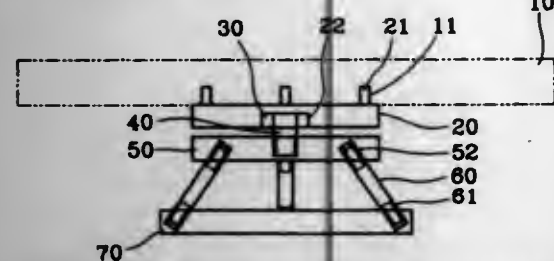
5,670,991

KEYBOARD WITH A UNIVERSALLY ADJUSTING APPARATUS

Rong-Fu Kuo, and Ching-Chiang Yu, both of Taipei, Taiwan, assignors to Behavior Tech Computer Corp., Taipei, Taiwan
Filed Aug. 22, 1995, Ser. No. 517,675
Int. Cl. G09G 5/00

U.S. Cl. 345-168

3 Claims



1. A keyboard comprising a pair of keyboard units each of which has a universally adjusting apparatus engaged therewith, the universally adjusting apparatus comprising:

- a tray having a plurality of pins to insert into a plurality of slots formed on a lower side of the keyboard unit for engagement therewith, and an axle hole formed on a lower side of the tray;
- a bearing block having an axle hole and a plurality of tap holes formed on a lower side thereof;
- a jack post with a nut thereon and a bearing, an upper end of the jack post being inserted into the axle hole of the tray, and a lower end of the jack post being inserted into the axle hole of the bearing block;
- a lower base having a plurality of tap holes formed in an upper side thereof; and
- a plurality of screw studs having threads on opposing ends thereof, each stud being installed between the bearing block and the lower base and engaged with the bearing block and the lower base.

5,670,992

PORTABLE GRAPHIC COMPUTER APPARATUS

Nae Yasuhara, Masaharu Kashii, Miyuki Marusawa, Yoshio Iizuka, and Satoru Murayama, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 571,719, Aug. 24, 1990, abandoned.

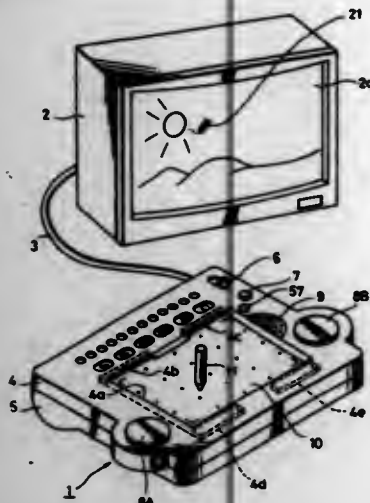
This application Sep. 23, 1992, Ser. No. 950,975

Claims priority, application Japan, Aug. 25, 1989, 1-219820

Int. Cl. G09G 5/00

U.S. Cl. 345-173

5 Claims



1. A portable graphic computer apparatus comprising:

- (a) a tablet for inputting coordinate data;
- (b) tracing means for performing a tracing motion on said tablet;

- (c) detecting means for detecting coordinate data inputted by tracing motion of said tracing means on said tablet;
- (d) video image data forming means connected to receive an output signal from said detecting means for forming video image data corresponding to input coordinates based on said coordinate data;
- (e) a memory connected to said video image data forming means for storing said video image data;
- (f) video signal generating means connected to said memory for generating a video signal from said video image data;
- (g) a sound source;
- (h) a speaker connected to said sound source;
- (i) output means connected to said video signal generating means for outputting said video signal;
- (j) a cabinet for enclosing at least said tablet and said detecting means, and said cabinet having an aperture aligned with a tracing area of said tablet for tracing said tracing area of said tablet, wherein a musical scale of said sound source is varied by a changing first output signal of said coordinate data detecting means, said changing first output signal being generated in response to movement of said tracing means in one direction relative to said tablet, and a sound volume of said sound source is varied by a changing second output signal of said coordinate data detecting means, said changing second output signal being generated in response to movement of said tracing means in a different direction from said one direction relative to said tablet; and
- (k) an executing switch for fixing video image data corresponding to movement of said tracing means.

5,670,993

DISPLAY REFRESH SYSTEM HAVING REDUCED MEMORY BANDWIDTH

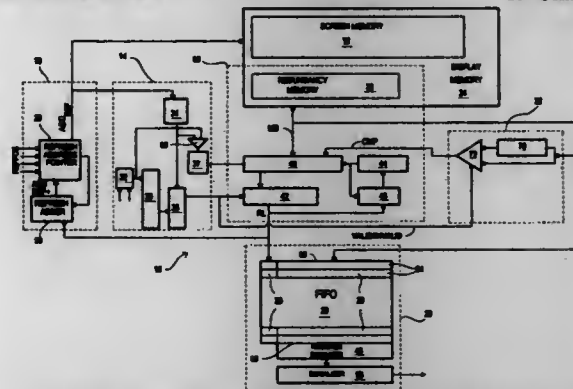
Spencer H. Greene, Palo Alto, and Andrew D. Daniel, San Jose, both of Calif., assignors to Alliance Semiconductor Corporation, San Jose, Calif.

Filed Jun. 7, 1995, Ser. No. 486,945

Int. Cl. G09G 5/36

U.S. Cl. 345-189

23 Claims



1. An improved computer graphics display refresh system; comprising:

- a screen memory for storing and manipulating a display image as a plurality of addressable units, the addressable units of the display image being arranged in a plurality of display rows;
- redundancy data means for providing a plurality of successive run lengths for each display row, the run lengths representing consecutive repetitions of identical addressable units in the display row;
- refresh address means for generating a refresh address, said refresh address means including an address advancer for advancing the refresh address in response to the run lengths of said redundancy data means;

5,670,995

APPARATUS FOR SIMULTANEOUS DOUBLE SIDED PRINTING

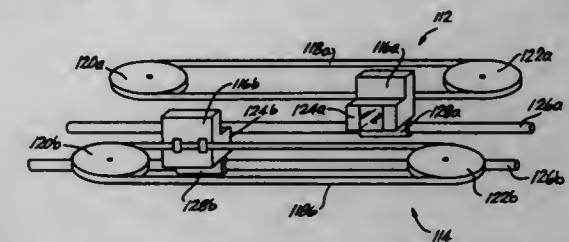
Kevin M. Kupcho, 15652 Williams St., Apt. 11K, Tustin, Calif. 92680, and Maria K. Delano, 560 S. Revere St., Anaheim, Calif. 92805

Filed Dec. 18, 1995, Ser. No. 574,239

Int. Cl. B41J 2/07

U.S. Cl. 347-5

14 Claims



1. A dot matrix ink jet-type desktop printer adapted to be connected to a personal computer over an RS232 serial connector, the improvement comprising:

- (a) a platen-less paper transport system, further including a first pair of pick-up pinch roller assemblies arranged in contacting, opposed, counter rotating fashion, and a second pair of tension roller assemblies, spaced apart from the pinch roller assemblies, the paper transport system securing a sheet of paper to be printed in a substantially rigid plane between the first and second pairs of rollers;
- (b) a first print head carriage assembly disposed to one side of the plane of the paper, the first print head carriage assembly including a first print head;
- (c) a second print head carriage assembly disposed in mirror-image fashion on the opposite side of the plane of the paper from the first print head carriage assembly, the second print head carriage assembly including a second print head;
- (d) processor controlled electronic printer control circuitry including parallel pipelined data paths for providing front and back page printer information to said first and second print heads, wherein said first and second print head carriage assemblies are independently operable in response to front and back page control signals provided by said control circuitry, and wherein said first and second print heads are independently operable so as to effectuate simultaneous printing on both sides of a piece of paper.

5,670,994

ASSEMBLY STRUCTURE OF A FLAT TYPE DEVICE INCLUDING A PANEL HAVING ELECTRODE TERMINALS DISPOSED ON A PERIPHERAL PORTION

Hisao Kawaguchi, Shinichi Sugimoto, both of Nara, and Yasunobu Tagusa, Ikoma, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 186,455, Jan. 25, 1994, Pat. No. 5,592,199.

This application Oct. 11, 1996, Ser. No. 730,665

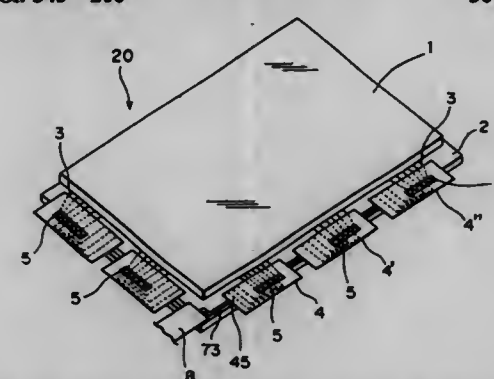
Claims priority, application Japan, Jan. 27, 1993, 5-011728;

Feb. 8, 1993, 5-020295; Aug. 6, 1993, 5-196416

Int. Cl. G09G 5/00

U.S. Cl. 345-206

36 Claims



1. An assembly structure of a flat type device, in which a panel has a plurality of electrode terminals disposed along a peripheral portion of one surface thereof, a flexible wiring board on which a drive IC for driving the panel is mounted is electrically connected to the electrode terminals of the panel, and wherein a circuit wiring for transferring a signal fed from external is electrically connected to the flexible wiring board, the assembly structure comprising:

- an arrangement of the peripheral portion of the panel where a circuit wiring is provided at a layer below the electrode terminals so as to extend along the peripheral portion and to be electrically insulated from the electrode terminals with an insulating layer interposed therebetween, and where a junction terminal is provided so as to conduct with the circuit wiring, to penetrate through the insulating layer at a specified place, and to share the same layer with the electrode terminals; and

an arrangement of one side of the flexible wiring board where an input terminal and output terminals leading to the drive IC are provided at places corresponding to the junction terminal and electrode terminals of the peripheral portion of the panel; wherein the flexible wiring board is overlaid on the peripheral portion of the panel so that the junction terminal and electrode terminals of the peripheral portion of the panel are electrically connected to the input terminal and output terminals of the flexible wiring board, respectively;

wherein a portion of the flexible wiring board that projects sideward of the peripheral portion of the panel is bent so as to be wound around the peripheral portion of the panel.

5,670,996

THERMAL INK JET RECORDING DEVICE AND METHOD OF CLEANING A RECORDING HEAD

Masao Mitani, Hitachinaka, Japan, assignor to Hitachi Koki Co., Ltd., Tokyo, Japan

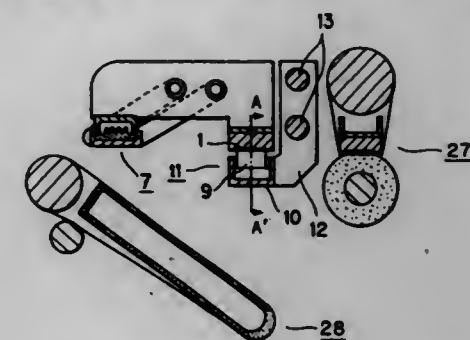
Filed Mar. 31, 1995, Ser. No. 414,490

Claims priority, application Japan, Apr. 1, 1994, 6-065005

Int. Cl. B41J 2/165

U.S. Cl. 347-29

19 Claims



1. An ink jet recording device comprising:
 - a thermal ink jet recording head formed with at least two rows of nozzles aligned in a direction, the nozzles being in fluid communication with atmosphere by orifices, said thermal ink jet recording head having an orifice surface formed with at least two rows of orifices aligned in closely spaced relation, from which ink droplets of at least two colors are ejected and which face downwardly at least during cleaning;
 - a cleaning unit including an integral wiper and ink pool, the wiper for wiping the orifice surface of said thermal ink jet recording head, and the ink pool for receiving ink dripping from the wiper when the wiper wipes the orifice surface; and
 - an ejection control unit for causing an ink droplet from each nozzle to be ejected toward the ink pool directly after wiping.

5,670,997
RECORDING MEANS FOR ENHANCING REMOVAL OF INK DEPOSITED ON AN EJECTION SIDE SURFACE THEREOF, INK JET RECORDING APPARATUS HAVING SAID RECORDING MEANS, AND RECOVERY METHOD
 Hitoshi Sugimoto, Kawasaki; Hiromitsu Hirabayashi, Yokohama; Shigeyasu Nagoshi, Kawasaki; Noribumi Koltabashi, Yokohama; Miyuki Matsubara, Tokyo; Fumihiko Gotoh, Yokohama, and Masaya Uetsuki, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

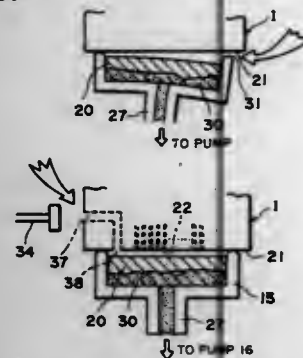
Filed Jul. 21, 1993, Ser. No. 94,688

Claims priority, application Japan, Jul. 24, 1992, 4-218368

Int. Cl.⁶ B41J 2/165

U.S. Cl. 347—30

23 Claims



1. An ink jet recording apparatus comprising:
 - a carriage for carrying recording means for effecting recording by ejection of ink on a recording material;
 - a cap for capping an ejection outlet of said recording means formed in an ejection side surface;
 - sucking means for sucking the ink out through the ejection outlet while said cap is closely contacted to said ejection side surface; and
 - clearance forming means for forming a clearance at a first part of said close-contact portion between said ejection side surface and said cap by relative motion between said cap and said carriage, wherein said clearance forming means maintains a second part of said close-contact portion at a closely contacted state when said clearance is formed.

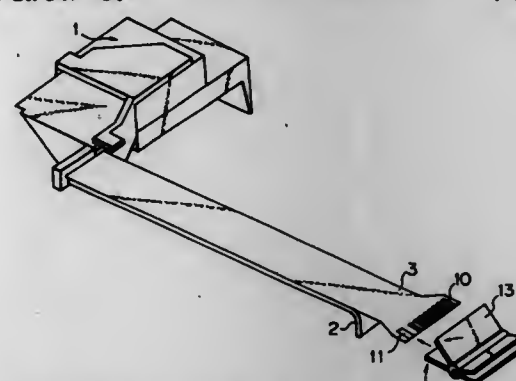
5,670,998
INK JET HEAD HAVING PLURAL TERMINALS ELECTRICALLY CONNECTED IN COMMON DURING STORAGE
 Junji Shimoda, Chigasaki; Sakiko Tanabe, Tokyo, and Toshiaki Hirose, Hiratsuka, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Continuation of Ser. No. 949,370, Sep. 23, 1992, abandoned, which is a continuation of Ser. No. 798,343, Nov. 20, 1991, abandoned, which is a continuation of Ser. No. 611,443, Nov. 13, 1990, abandoned, which is a continuation of Ser. No. 263,070, Oct. 27, 1988, abandoned. This application Aug. 4, 1993, Ser. No. 101,821

Claims priority, application Japan, Oct. 30, 1987, 62-275033

Int. Cl.⁶ B41J 2/05; H05F 3/02

U.S. Cl. 347—50

7 Claims



1. A method for preserving an ink jet head, the method comprising the steps of:
 - providing an ink jet head having a plurality of energy generating means for generating energy used to discharge ink, wherein said ink jet head is mountable on a recording apparatus for supply of recording signals to said energy generating means by plural electrical wires extending in a flexible cable, the flexible cable having an end and an other end, the electrical wires extending from the one end thereof, the flexible cable having plural electrical contact portions including discrete electrode terminals and a common electrode terminal disposed at the other end of the flexible cable, the recording apparatus to be connected to the electrical contact portions; and
 - electrically connecting in common said plural electrical contact portions using a resilient conductive means including a pair of plate-shaped members to be clipped onto said flexible cable at the plural electrical contact portions.

5,670,999
INK JET PRINT HEAD HAVING MEMBERS WITH DIFFERENT COEFFICIENTS OF THERMAL EXPANSION
 Yukihisa Takeuchi, Aichi-ken; Nobuo Takahashi, Owariasahi, and Shigeki Okada, Nagoya, all of Japan, assignors to NGK, Insulators, Ltd., and Seiko Epson Corporation, both of Japan
 Continuation of Ser. No. 110,801, Aug. 23, 1993, abandoned. This application Feb. 13, 1996, Ser. No. 600,651

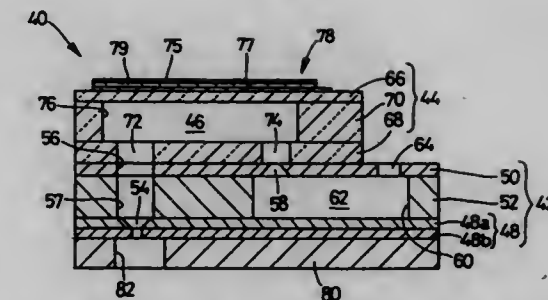
Claims priority, application Japan, Aug. 25, 1992, 4-248773; Aug. 5, 1993, 5-194730

Int. Cl.⁶ B41J 2/045

U.S. Cl. 347—70

16 Claims

1. An ink jet print head comprising:
 - a metallic nozzle member having a plurality of nozzles through which fine particles of ink are jetted, and a first and a second opposite major surface;
 - a ceramic ink pump member having a first and a second opposite major surface, said ceramic pump member being superposed on and bonded to said nozzle member, the first opposite major surfaces of the nozzle member and the ceramic ink pump member being bonded together, said ink pump member hav-



- ing a plurality of ink chambers formed behind respective nozzles of said nozzle member, said ink pump member including a plurality of piezoelectric/electrostrictive elements each disposed on a portion of said ink pump member opposite a respective ink chamber, for deforming said portion so as to change a pressure of the respective ink chamber, whereby the ink supplied to the ink chamber is jetted through the corresponding one of said nozzles; and
- coefficient of thermal expansion adjusting means for reducing a stress which is applied to said ink pump member due to a difference between a coefficient of thermal expansion of said nozzle member and a coefficient of thermal expansion of said ink pump member, said coefficient of thermal expansion adjusting means comprising an adjusting member superposed on and bonded to at least one of said nozzle member and said ink pump member.

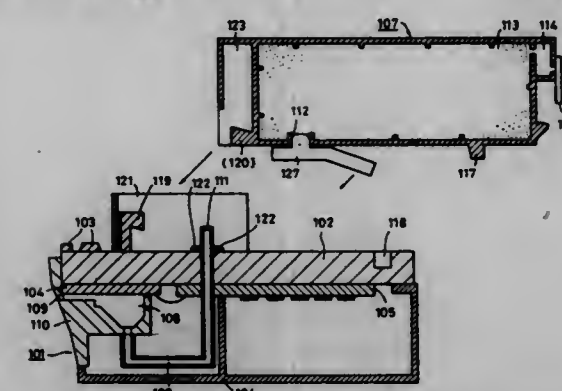
5,671,000
INK JET CARTRIDGE WITH SEPARATELY EXCHANGEABLE INK TANK AND RECORDING HEAD
 Hiromitsu Hirabayashi, Yokohama; Shigeyasu Nagoshi, Kawasaki; Noribumi Koltabashi; Hitoshi Sugimoto, both of Yokohama; Miyuki Fujita, Tokyo; Fumihiko Gotoh, and Masaya Uetsuki, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Filed Jul. 20, 1994, Ser. No. 277,589

Claims priority, application Japan, Jul. 21, 1993, 5-180187

Int. Cl.⁶ B41J 2/175

U.S. Cl. 347—86

12 Claims



1. An ink jet head of an ink jet cartridge removably mounted on a carriage of an ink jet apparatus and in which said ink jet head and an ink tank are separable from each other, said ink jet head comprising:
 - a head portion having a discharge opening for discharging ink, an ink guide tube to guide ink from said ink tank to said head portion for discharge from said discharge opening and to be connected with said ink tank;
 - an electrode portion to receive a recording signal to be inputted in order to discharge ink from said discharge opening;
 - a first engaging member to be engaged with a first engaging portion provided in said ink tank and to secure a linking state of said ink tank and said ink jet head, and

- a protective member to enclose and protect said ink guide tube and said first engaging member.

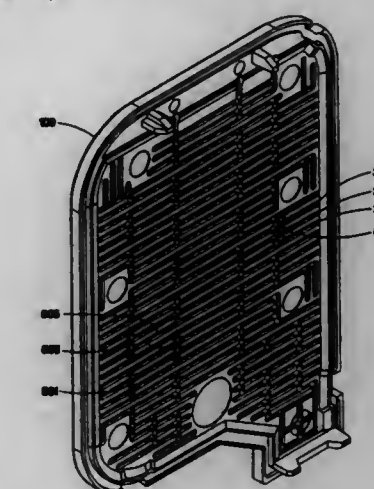
5,671,001
LEAK RESISTANT INK CONTAINMENT FOR A PRINTER
 Joseph R. Elliot, Corvallis; J. Paul Harmon, Albany; Naoto Kawamura, and John M. Altendorf, both of Corvallis, all of Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 3, 1995, Ser. No. 397,823

Int. Cl.⁶ B41J 2/175

U.S. Cl. 347—87

13 Claims



1. An ink container for an inkjet cartridge comprising:
 - an ink inlet disposed near a first end of the ink container;
 - a first wall and a second wall disposed opposite each other and said first wall and said second opposing wall extending between said first end and a second end of the ink container;
 - a porous member disposed between and compressed by said first wall and said second opposing wall and extending from said first end towards said second end;
 - a plurality of relief pockets each comprising a slot disposed essentially perpendicular to a direction from said first end to said second end and disposed in a surface of said first wall, each of said relief pockets having a bottom which is recessed from said surface of said first wall by a depth such that said compressed porous member does not touch said bottom in substantially all of said plurality of relief pockets; and
 - at least one vent channel communicating with at least a portion of said plurality of relief pockets and extending essentially in said direction from said first end toward said second end.

5,671,002
PRINT HEAD WITH MULTIPLEXED RESISTANCES CONTROLLING SUPPLY OF CURRENT TO IMAGE BLOCKS
 Shunji Murano, Aira-gun, Japan, assignor to Kyocera Corporation, Kyoto, Japan
 Continuation of Ser. No. 10,660, Jan. 28, 1993, abandoned. This application Jun. 27, 1996, Ser. No. 674,590

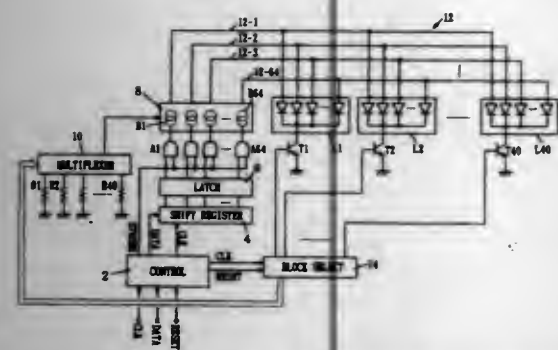
Claims priority, application Japan, Jan. 31, 1992, 4-046057; Jan. 31, 1992, 4-046058; Feb. 14, 1992, 4-061218

Int. Cl.⁶ B41J 2/47; 2/38; 2/355; H04N 1/23

U.S. Cl. 347—237

14 Claims

1. A print head comprising:
 - a plurality of image blocks, each of said image blocks including a plurality of image formation modules;
 - a driving circuit for driving said plurality of image blocks, one block at a time.



block select means for connecting said plurality of image blocks with said driving circuit, block by block, in a first, predetermined order,

a plurality of resistances for determining the output of said driving circuit, said plurality of resistances being connectable to said driving circuit in any one of a plurality of different resistance configurations so that each of the configurations determines a respectively different driving circuit output, and switching means for connecting said resistances to the driving circuit in successive ones of said different resistance configurations in a second predetermined order, one of the resistance configurations being connected to the driving circuit during driving of one image block, and each of the connected resistance configurations reducing differences between image formation module outputs from one block to another.

5,671,003

HYBRID DIGITAL IMAGE PRINTER WITH HALFTONE GRAY SCALE CAPABILITY

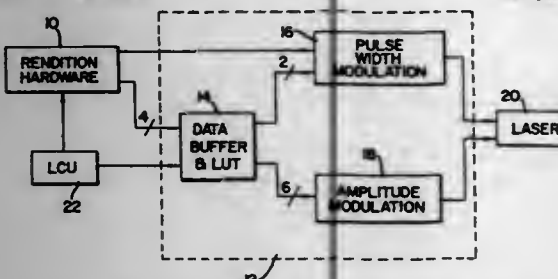
Karen L. Herczeg, and David M. McVay, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 4, 1991, Ser. No. 787,284

Int. Cl.⁶ H04N 1/21

U.S. Cl. 347—251

10 Claims



1. A gray scale printer adapted to modulate an exposure source in both amplitude and duration in accordance with an eight-bit data signal, said printer comprising:

means for modulating the amplitude of the exposure source in accordance with six bits of the data signal; and means for modulating the duration of the exposure source in accordance with two bits of the data signal;

and wherein the eight-bit data signal represents 256 exposure values (0 to 255) and said means for modulating the duration controls duration so that for exposure values 0 to 63 the duration is about 25% of a nominal pixel recording period, for exposure values 64-127 the duration is about 37% of the nominal pixel recording period, and for exposure values 128-191 the duration is about 50% of the nominal pixel recording period, and for exposure values of 192-255 the duration is about 75% of the nominal pixel recording period.

5,671,004

INTERNAL DRUM SCANNING TYPE IMAGE RECORDING APPARATUS

Yoshiaki Morizumi, Kyoto, Japan, assignor to Dainippon Screen Manufacturing Co., Ltd., Japan

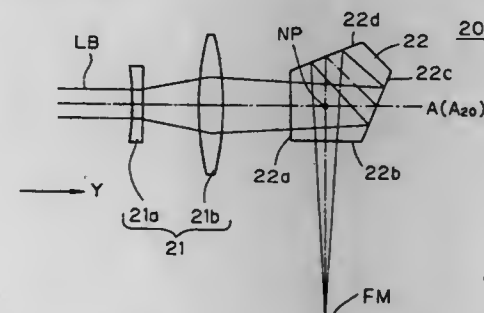
Filed Apr. 12, 1995, Ser. No. 421,060

Claims priority, application Japan, Apr. 14, 1994, 6-075979; Jun. 3, 1994, 6-122717

Int. Cl.⁶ B41J 2/47

U.S. Cl. 347—259

19 Claims



1. An internal drum scanning type image recording apparatus for scanning at least one light beam over an inner surface of a cylindrical member and exposing a recording medium which is held on said inner surface to record an image on said recording medium, said cylindrical member having a central axis, said apparatus comprising:

light beam outputting means for outputting a light beam along said central axis of said cylindrical member into the inner space of said cylindrical member;

an optical head including deflecting means for deflecting said light beam from said light beam outputting means toward said inner surface of said cylindrical member and an imaging optical system for focusing said light beam from said light beam outputting means on said recording medium, said imaging optical system being disposed so that a nodal point of said imaging optical system is located at or close to a point on said central axis which is nearest a beam irradiation position on said recording medium, said imaging optical system and said deflecting means being disposed inside said cylindrical member in such a manner that said deflecting means and said imaging optical system are rotatable as one unit about said central axis; and

optical head driving means for rotating said optical head about said central axis and scanning said light beam from said optical head over said recording medium.

5,671,005

METHOD AND APPARATUS FOR MAINTAINING CONTACT BETWEEN THE RECORDING MEDIA AND MEDIA SUPPORT SURFACE OF A SCANNING SYSTEM

Robert P. McNay, Tewksbury; Donald J. Garand, Chelmsford, both of Mass.; Norris C. LeMay, Salem, N.H.; Robert D. Pepe, Dracut, and David P. Viola, Andover, both of Mass., assignors to AGFA Division, Bayer Corporation, Wilmington, Mass.

Filed Feb. 21, 1995, Ser. No. 393,104

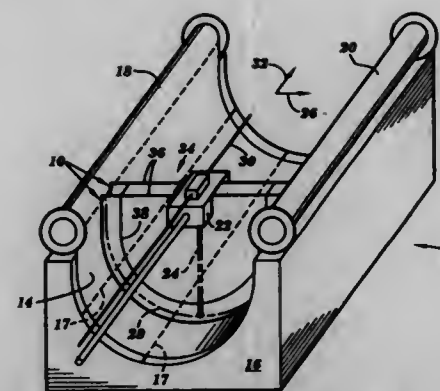
Int. Cl.⁶ B41J 2/47

U.S. Cl. 347—262

17 Claims

1. In an optical scanner including an internal drum and an optical arrangement for directing a scanning laser beam toward a quantity of recording media disposed on said internal drum, a method for maintaining contact between said internal drum and said recording media, comprising the steps of:

positioning said recording media on said internal drum; and,



applying a mechanical pressure load against said recording media immediately adjacent said scanning laser beam, said pressure load forcing said recording media against said internal drum.

5,671,006

METHOD OF USING COLOR LASER-PRINTED GRAPHICS WITH MULTIPLE WEIGHT SHEET STOCKS

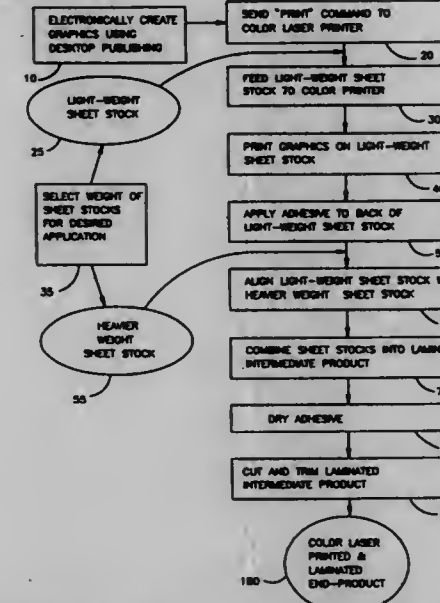
Edwine Anthony Billiot, P.O. Box 2051, Morgan City, La. 70831

Filed Jun. 16, 1995, Ser. No. 491,067

Int. Cl.⁶ B41J 2/435

U.S. Cl. 347—262

9 Claims



1. A method of use of color graphics printing comprising the steps of:

providing desktop publishing apparatus comprising at least a computer and a multi-color laser printer;

providing a supply of light-weight sheet stock comprising sheet stock dimensioned to be accepted by said multi-color laser printer for printing thereon and which sheet stock is limited to no greater than 60 pound weight;

designing graphics using said desktop publishing apparatus whereby backgrounds, fonts, type-faces, scripting styles and other designs may be created;

sending a command to said multi-color laser printer to print said graphics on said light-weight sheet stock;

feeding said light-weight sheet stock to laser printer for printing thereon, whereby a color laser printed stock is yielded;

selecting predetermined, preselected-weight sheet stock;

applying an adhesive to at least one surface of at least one said sheet stocks;

aligning said printed color laser printed stock with said preselected-weight sheet stock in a predetermined orientation;

combining said printed color laser printed stock with said preselected-weight sheet stock to yield a unitary laminated product.

5,671,007

TWO-DIMENSIONAL AND THREE-DIMENSIONAL IMAGING DEVICE WITH IMPROVED LIGHT VALVE AND FIELD RATE

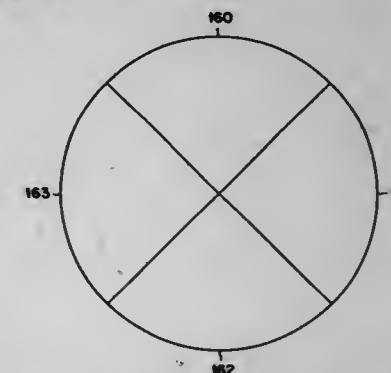
Jimmie D. Songer, Burleson, Tex., assignor to Magma, Inc., Fort Worth, Tex.

Continuation-in-part of Ser. No. 218,108, Mar. 28, 1994, abandoned. This application May 31, 1995, Ser. No. 454,656

Int. Cl.⁶ H04N 7/18;13/02

U.S. Cl. 348—49

13 Claims



1. A two-dimensional and three-dimensional imaging system for imaging and viewing, by a viewer having a left eye and a right eye, color and monochrome images simultaneously two-dimensional and three-dimensional, with the color and monochrome images meeting any of NTSC, PAL, SECAM, and other world-wide electronic viewing formats, comprising:

a. a camera device including,

i. means for generating a drive signal synchronized to a vertical field rate;

ii. a single imaging lens; and

iii. a multi-aperture light valve, located within proximity of the single imaging lens, responsive to the drive signal, for alternately and field-sequentially imaging, at the field rate, an object as a plurality of left-eye images and a plurality of right-eye images, said multi-aperture light valve defined as having at least four apertures, with at least two apertures remaining open during the imaging of the plurality of left-eye images and during the imaging of the plurality of right-eye images for enhanced lens light efficiency;

b. a viewing device for displaying the plurality of left-eye images and the plurality of right-eye images;

c. means for transmitting the drive signal; and

d. at least one pair of viewing glasses including,

i. a drive circuit for receiving the drive signal;

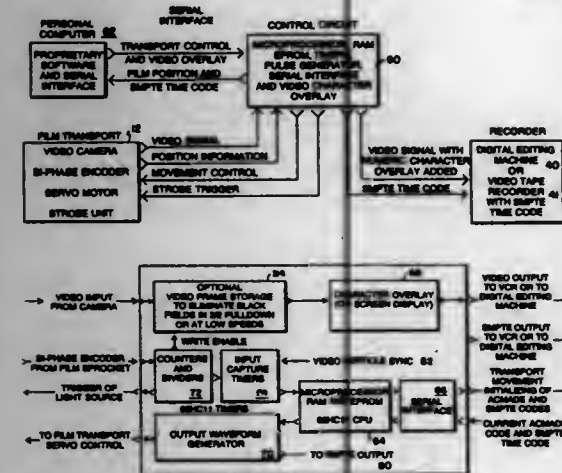
ii. a left-viewing-light valve for operating over the left eye, with said left-viewing-light valve, responsive to receiving the drive signal from said transmitting means, opening and closing synchronized with the field rate, for viewing the plurality of left-eye images;

iii. a right-viewing-light valve for operating over the right eye, with said right-viewing-light valve, responsive to receiving the drive signal from said transmitting means, opening and closing synchronized with the field rate, alternatingly from said left-viewing-light valve, for viewing the plurality of right-eye images; and

e. whereby, with the viewing glasses, the plurality of left-eye images and the plurality of right-eye images appear to the viewer as a three-dimensional image and, without the viewing

glasses, the plurality of left-eye images and the plurality of right-eye images appear to the viewer as a two-dimensional image having normal clarity and definition.

5,671,008
TELECINE SYSTEM
Stephen Scott Linn, 702 5th St., Hermosa Beach, Calif. 90254
Filed Feb. 23, 1995, Ser. No. 393,555
Int. Cl.⁶ H04N 3/36; 5/253; 9/11; 9/47
U.S. Cl. 348—97 20 Claims



1. A telecine system for converting motion picture film having a consecutive series of frames to consecutive video image signals that temporally correspond exactly to the motion picture film with each film frame corresponding to a unique video frame, comprising:

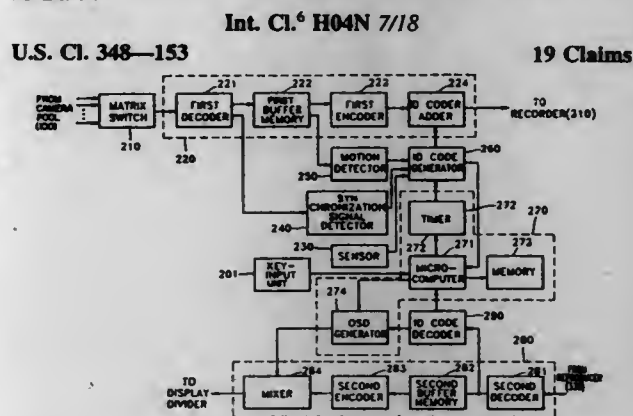
film transport means for transporting said film from a supply reel to a take up reel at a film rate having a first number of film frames per second reflecting a temporal sequence captured by said film, said film transport transmitting film transport signals indicating transport of said film, said film transport means being remotely operable;

a video camera, said video camera coupled to said film transport means in proximity to said film, said video camera creating a video signal stream having video image signals at a video image signal rate having a second number of video frames per second, said video camera selectively transmitting video sync signals for selected video fields;

an intermittent illumination source adjacent said film and projecting individual frames of said film to said video camera at said film rate, said illumination source remotely triggerable; and

a control circuit, said control circuit coupled to said film transport means, said video camera, and said illumination source, said control circuit remotely operating said film transport means and remotely triggering said illumination source in response to said film transport signals, said control circuit receiving said film transport signals and said video sync signals and responsive thereto adjusting said film rate to maintain a predetermined relationship between said film rate and said video image signal rate, whereby said video signal stream temporally corresponds exactly to the motion picture film travelling at said film rate with each frame of the motion picture film temporally corresponding exactly to a frame of said video signal stream.

5,671,009
CCTV SYSTEM HAVING IMPROVED DETECTION FUNCTION AND DETECTING METHOD SUITED FOR THE SYSTEM
Doo-hwan Chun, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
Filed Dec. 20, 1995, Ser. No. 575,230
Claims priority, application Rep. of Korea, Aug. 14, 1995, 95-24974
U.S. Cl. 348—153 19 Claims



1. An identification code recording apparatus for use in a closed circuit television (CCTV) system which includes a plurality of monitoring cameras which output camera signals to a plurality of channels, frame switching means for switching between the plurality of channels at a frame cycle rate, thereby selecting one of the camera signals, an image recording and reproducing apparatus for recording on a recording medium the camera signal selected by the frame switching means, reproducing the recorded signal from the recording medium, and outputting the reproduced signal to the frame switching means, display dividing means for displaying on a monitor the reproduced signal corresponding to the selected camera signal output through the frame switching means, wherein the reproduced signal is displayed as a multiscreen picture, wherein said frame switching means comprises:

a plurality of camera signal input means for inputting via the plurality of channels camera signals output from the plurality of monitoring cameras;

switching means for switching between the plurality of channels, selecting one of the camera signals input to said plurality of camera signal input means, and outputting a selected camera signal, wherein said switching occurs at a predetermined frame cycle rate;

sensing means for sensing with respect to predetermined conditions and outputting a sensing signal;

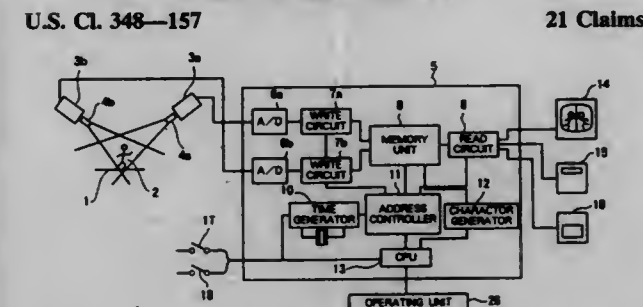
first detecting means for detecting synchronization signals from said selected camera signal and outputting a first detection signal;

second detecting means for detecting motion based on said selected camera signal and outputting a second detection signal;

ID code generating means for generating an ID code in accordance with predetermined physical event and time-of-day conditions based on said sensing signal, said first detection signal and said second detection signal; and

adding means for adding said ID code generated by said ID code generating means with said selected camera signal, and outputting the result to the image recording and reproducing apparatus.

5,671,010
APPARATUS FOR JUDGING THE ORDER OF ARRIVAL OF RACERS AT A GOAL IN A RACE AND THE TIME TAKEN FOR THE RACE, HAVING A PLURALITY OF LINE SENSOR CAMERAS
Naoyuki Shimbo, Urawa; Toshimichi Okada, Zama, and Haruki Watanabe, Kodaira, all of Japan, assignors to Hitachi Denshi Kabushiki Kaisha, Tokyo, Japan
Filed May 17, 1995, Ser. No. 442,992
Claims priority, application Japan, May 20, 1994, 6-106410
Int. Cl.⁶ H04N 7/18; 9/74 21 Claims



1. An apparatus for judging the order of arrival of racers at a judging criterion line in a race and time taken for the race, said apparatus comprising:

at least two line sensor cameras disposed opposite to each other over said judging criterion line so as to pick up images of moving objects passing through said judging criterion line; a memory unit for storing respective video signals supplied from said respective line sensor cameras successively in time series;

an operating unit for specifying ranges of said respective video signals to be stored in said memory unit and specifying ranges of signals to be read out of said respective video signals stored in said memory unit;

readout means for effecting scan conversion on all or a part of video signals specified by said operating unit out of said respective video signals stored in said memory unit and reading out resultant video signals; and

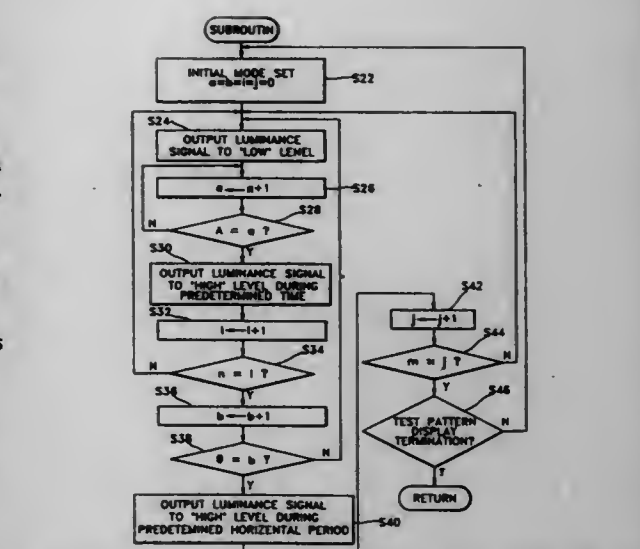
video monitor means for simultaneously displaying said respective video signals from said respective line sensor cameras read out by said readout means.

5,671,011
APPARATUS FOR DISPLAYING A TEST PATTERN BY REPEATING A UNIT PICTURE AND METHOD THEREOF
Soon-doc Kim, Seongnam, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
Filed Jun. 6, 1995, Ser. No. 471,271
Claims priority, application Rep. of Korea, Jun. 9, 1994, 94-12941
U.S. Cl. 348—189 5 Claims

1. A test pattern display apparatus for use in a television, said apparatus comprising:

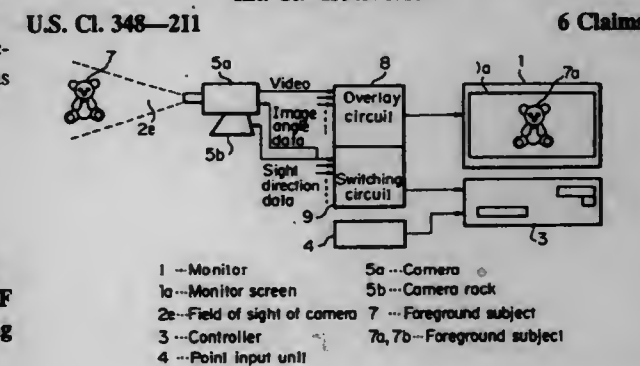
storage means for storing font data of a unit picture of a test pattern having a predetermined shape, said unit picture constituting portions of horizontal lines of a video frame and portions of vertical lines of the video frame;

control means for repeatedly reading said stored font data of the unit picture and repeatedly outputting a drive signal corresponding to the read font data, thereby outputting data of one frame of said test pattern;



drive means for converting said output drive signal into an image signal and outputting the converted image signal; and display means for displaying the converted image signal as said test pattern.

5,671,012
CONTROL METHOD AND CONTROL SYSTEM FOR HIGH SPEED INTRODUCTION OF INTENDED FOREGROUND SUBJECT IN CAMERA PICTURE
Masahiko Oyashiki, Ryosuke Nishiguchi, and Hidenori Kawamura, all of Tokyo, Japan, assignors to NEC System Integration & Construction, Ltd., Tokyo, Japan
Filed Sep. 6, 1995, Ser. No. 524,276
Claims priority, application Japan, Feb. 16, 1995, 7-053577
Int. Cl.⁶ H04N 5/232 6 Claims



1. A control method of allowing high speed introduction of an intended subject in a camera picture comprising the steps of:

designating an intended foreground subject displayed on a monitor screen with a point input unit;

inputting picture angle data from a camera;

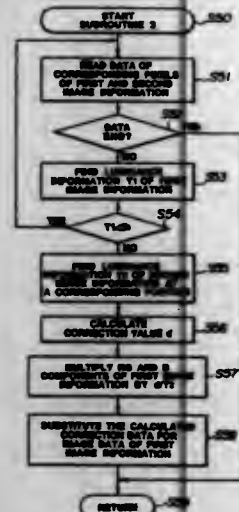
calculating the per-dot angle of the monitor screen from the picture angle data;

calculating the distance or dot number on the monitor screen between the screen center and the designated subject;

calculating the relative angle difference by multiplying the calculated distance or dot number by the calculated per-dot angle; and

using the relative angle difference directly or obtaining absolute value data thereof as camera movement data.

5,671,013
LUMINANCE CORRECTION APPARATUS FOR IMAGE SIGNALS
 Toshio Nakao, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan
 Filed Oct. 28, 1992, Ser. No. 967,840
 Claims priority, application Japan, Oct. 31, 1991, 3-313719
 Int. Cl.⁶ H04N 9/68; 5/22; 5/222; 5/238
 U.S. Cl. 348—234

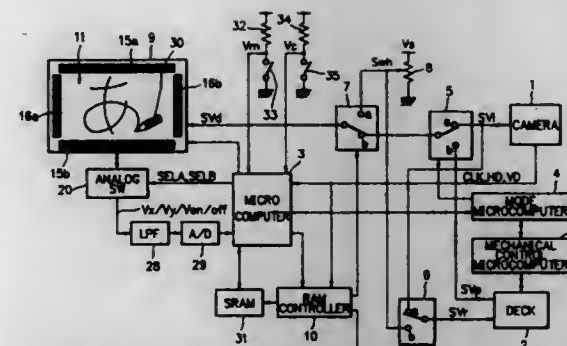


1. An apparatus for correcting a luminance level of a still picture, comprising:
 means for obtaining a first image of an object comprised of pixels having first image information and a second image of the same object comprised of corresponding pixels having second image information;
 means for setting a boundary luminance level smaller than a maximum luminance level of said first image and larger than a minimum luminance level of said first image;
 means for determining a correspondent luminance level of said pixels of said second image which correspond with those pixels of said first image having said boundary luminance level;
 means for determining a respective substitution correction value for each pixel of said second image which corresponds with a respective pixel of said first image having a luminance level above or below said boundary luminance level, each said respective substitution correction value being a function of said boundary luminance level and said correspondent luminance level; and
 means for substituting each of said pixels of said first image having said luminance level above or below said boundary luminance level with said corresponding respective pixel of said second image corrected by said respective substitution correction value, each of the substituted corrected pixels having a luminance value within a luminance range extending from said minimum luminance level to said maximum luminance level of said first image.

5,671,014
VIDEO APPARATUS WITH IMAGE FORMING MEANS RESPONSIVE TO TOUCH SENSITIVE DISPLAY
 Masanobu Ito, Saitama; Shunji Motohashi, Kanagawa, and Yoshinari Higuchi, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan
 Filed Aug. 30, 1995, Ser. No. 521,576
 Claims priority, application Japan, Sep. 5, 1994, 6-211279
 Int. Cl.⁶ H04N 5/262
 U.S. Cl. 348—239

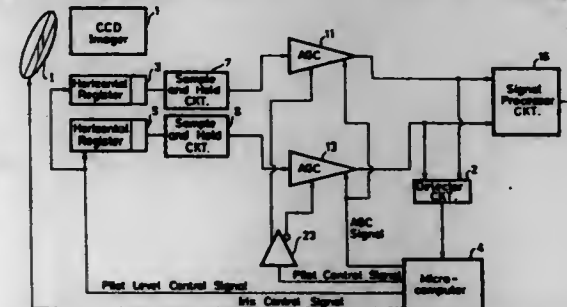
1. A video apparatus, comprising:
 a display device;
 video signal input means;

6 Claims



position detection means disposed on a display screen of said display device for detecting a pressed position of said display screen;
 image data forming means for forming image data;
 superimposing means connected to said image data forming means, said display device, said position detecting means, and said video signal input means for superimposing the image data formed by said image data forming means on a video signal from said video signal input means for display on said display device at a position corresponding to the pressed position detected by said position detection means;
 operating key generating means connected to said superimposing means for superimposing operation key screen data on the video signal for displaying operation keys on said display device; and
 operation signal generation means connected to said position detection means for generating an operation signal when the pressed position detected by said position detection means corresponds to the displayed operation keys.

5,671,015
SIGNAL PROCESSING APPARATUS
 Osamu Yagi, and Kenji Tanaka, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
 Filed Nov. 30, 1992, Ser. No. 982,969
 Claims priority, application Japan, Dec. 12, 1991, 3-328714
 Int. Cl.⁶ H04N 5/217; 5/235; 5/238; 5/16
 U.S. Cl. 348—241

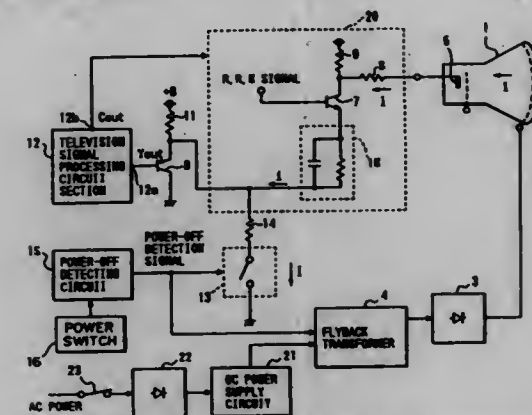


1. A signal processing circuit for processing output signals from a CCD (charge-coupled device) imager of a multiple read-out type having horizontal and vertical blanking periods for receiving light signals from an iris and on which respective pilot signals are superimposed, comprising:
 a plurality of variable gain amplifiers for receiving said output signals from said CCD imager to produce respective amplified signals;
 a first loop circuit operable to adjust respective gains of said plurality of variable gain amplifiers;
 an iris control circuit operable to control said iris on the basis of said amplified signals;
 a second loop circuit operable at least once during each horizontal blanking period of said CCD image to similarly adjust said respective pilot signals at a desired level;

10 Claims

a third loop circuit operable at least once during each horizontal blanking period of said CCD imager to equalize the levels of said respective pilot signals; and
 control means for controlling said first loop circuit, said iris control circuit, said second loop circuit, and said third loop circuit to operate during respective different time intervals in a predetermined cycle, said predetermined cycle being repeated at least once during each vertical blanking period of said CCD imager.

5,671,016
HIGH VOLTAGE DISCHARGE CIRCUIT FOR CRT
 Hirotsugu Suzuki, Daito, Japan, assignor to Funai Electric Co., Ltd., Osaka, Japan
 Filed Jan. 13, 1995, Ser. No. 374,062
 Claims priority, application Japan, Jan. 13, 1994, 6-014822
 Int. Cl.⁶ H04N 5/68
 U.S. Cl. 348—377

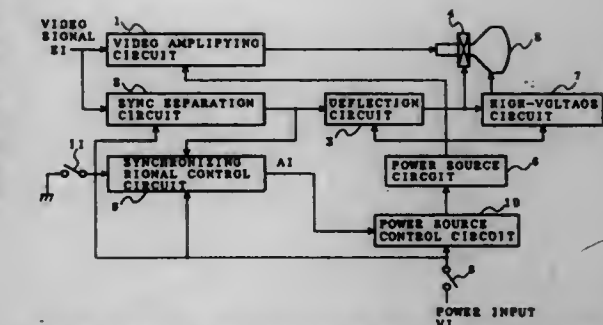


1. A high voltage discharge circuit for a CRT comprising:
 means including a video amplifying transistor for receiving a luminance signal outputted by a luminance signal terminal of a television signal processing circuit;
 a video signal processing circuit including luminance adjusting means connected to the video amplifying transistor for adjusting a luminance of a picture on the CRT;
 power-off detecting means for detecting turning off of a power switch of a circuit for supplying power to the CRT; and
 luminance increasing means connected between said video amplifying transistor and said luminance adjusting means for increasing the luminance of the picture on the CRT when the power switch is turned off based on a power-off detection signal outputted from said power-off detecting means.

5,671,017
DISPLAY UNIT INCLUDING CIRCUIT FOR CONTROLLING CONNECTION TO A POWER SOURCE BASED ON PRESENCE OR ABSENCE OF A SYNC SIGNAL
 Takeshi Chujo, Nagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed Sep. 1, 1995, Ser. No. 523,525
 Claims priority, application Japan, Mar. 3, 1995, 7-043975
 Int. Cl.⁶ H04N 5/63
 U.S. Cl. 348—378

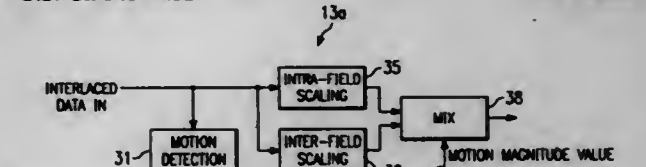
1. A display unit comprising:
 a video amplifying circuit for amplifying a video signal and outputting an amplified video signal to a cathode-ray tube;
 a sync separation circuit for separating a synchronizing signal from the video signal to take out the video signal;
 a deflection circuit for allowing a sawtooth current synchronized with an output produced from the sync separation circuit to flow into a deflection coil of said cathode-ray tube;

6 Claims



a high voltage circuit for receiving therein an output produced from said deflection circuit and supplying a high voltage to the cathode ray tube;
 a synchronizing signal control circuit for determining whether the synchronizing signal obtained from said sync separation circuit is present and outputting a signal indicative of the presence or absence of the synchronizing signal therefrom, said synchronizing signal control circuit having a synchronizing signal control switch for enabling supply of a signal indicative of the absence of the synchronizing signal at all times as necessary;
 a power source control circuit for opening and closing a power source circuit in response to an output supplied from said synchronizing signal control circuit; and
 a power switch connected to a terminal for inputting power to said display unit;
 whereby said sync separation circuit, said synchronizing signal control circuit and said power source control circuit are directly supplied with power from a power source through said power switch and at least one of said video amplifying circuit, said deflection circuit and said high voltage circuit is at least partially supplied with power from said power source circuit.

5,671,018
MOTION ADAPTIVE VERTICAL SCALING FOR INTERLACED DIGITAL IMAGE DATA
 Kazuhiro Ohara, Plano; Vishal Markandey, Dallas, both of Tex., and Robert J. Gove, Los Gatos, Calif., assignors to Texas Instruments Incorporated, Dallas, Tex.
 Filed Feb. 7, 1995, Ser. No. 384,986
 Int. Cl.⁶ H04N 7/01
 U.S. Cl. 348—452



1. A method of generating new pixel values for vertical scaling an image represented by a digital video signal and having interlaced fields, comprising the steps of:
 determining a motion magnitude value that indicates the extent to which the portion of the image to be represented by a new pixel is in motion;
 generating an intra-field pixel value of said new pixel using pixel values of neighboring pixels in the same field wherein said step of generating said intra-field pixel value is performed by calculating a weighted average value of pixel values of neighboring pixels, and wherein the weighting coefficients of neighboring pixels in pairs of adjacent fields are centered to accommodate interlaced fields;
 generating an inter-field pixel value of said new pixel, using pixel values of neighboring pixels in time-separated fields; and

12 Claims

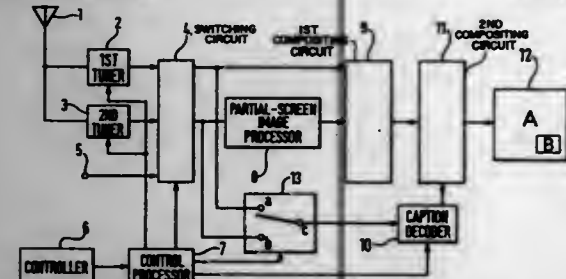
selecting between said intra-field pixel value and said inter-field pixel value, on the basis of said motion magnitude value, to generate a new pixel value; and repeating the above steps for each pixel of said image.

5,671,019
CHARACTER INFORMATION DISPLAY APPARATUS FOR A PARTIAL AND A FULL-SCREEN DISPLAY
Youichi Ise, and Tatsuo Morishita, both of Saitama-ken, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed Dec. 23, 1994, Ser. No. 363,229
Claims priority, application Japan, Dec. 24, 1993, 5-328909
Int. Cl.⁶ H04N 5/445

U.S. Cl. 348—565

5 Claims



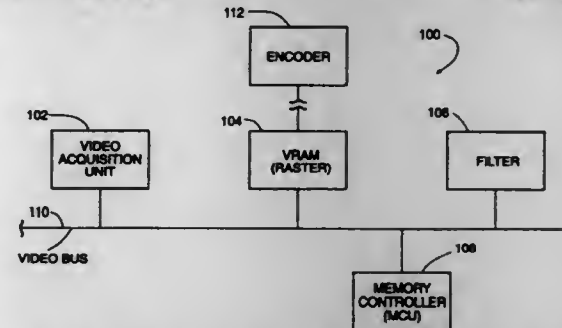
1. A character information display apparatus comprising:
first generator means for generating a first video signal for a full-screen image including character information;
second generator means for generating a second video signal for a partial-screen image including character information;
change-over means for exchanging said first video signal for said full-screen image and said second video signal for said partial-screen image from said first generator means;
demodulation means for demodulating said character information extracted from one of said first video signal for said full-screen image and said second video signal for said partial-screen image output from said change-over means;
partial-screen image processing means for compressing said second video signal for said partial-screen image from said second generator means in at least one of a horizontal direction and a vertical direction;
first compositing means for compositing said first video signal for said full-screen image from said first generator means and a compressed video signal for said partial-screen image from said partial-screen image processing means to form first composite signals for a first composite image;
second compositing means for compositing said first composite signals from said first composite image and a character signal from said demodulation means to form second composite signals for a second composite image;
display means for displaying said second composite signals from said second compositing means;
controller means provided with a first key for turning ON and OFF a display of said partial-screen image and a second key for turning ON and OFF a display of the character information;
control processor means for controlling said second generator means, said change-over means and said demodulation means under control of said controller means, and further for turning ON and OFF said display of said character information corresponding to said full-screen image when said second key is pressed and said first key is OFF and said partial-screen image is not displayed, and for controlling a cyclic operation to turn ON said display of said character information corresponding to said full-screen image, to turn on said display of said character information corresponding to said partial-screen image and to turn OFF said display of said character information when said second key is pressed and said first key is ON and said partial-screen image is displayed.

5,671,020
METHOD AND APPARATUS FOR IMPROVED VIDEO FILTER PROCESSING USING EFFICIENT PIXEL REGISTER AND DATA ORGANIZATION
Patrick Y. Law, Milpitas, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Oct. 12, 1995, Ser. No. 542,283
Int. Cl.⁶ H04N 5/14; 9/64

U.S. Cl. 348—608

20 Claims



1. A data register for providing data to an n-element parallel processing array for performing filtering operations, comprising:
a memory buffer including first and second memory modules, each including n columns of data locations, wherein a plurality of consecutive data values are stored in said memory buffer in two separate groups, including a group of even data values stored in a first region of said memory buffer beginning in said first memory module, and a group of odd data values stored in a second region beginning in said second memory module and separated from the beginning of said first region by an offset address value;
select logic coupled to said first and second memory modules for selecting between respective columns of said first and second memory modules and for retrieving n selected data values according to a predetermined order;
a shift network coupled to said select logic for reordering said retrieved data values from said select logic and for providing said reordered data values to the processing array; and
address decoder logic coupled to said memory buffer, said select logic and said shift network and receiving an address for asserting corresponding address values to said first and second memory modules, respectively, for providing a select value to said select logic and for providing a shift value to said shift network to retrieve n data values at a time from said group of even data values and said group of odd data values and for providing said retrieved data values to the processing array.

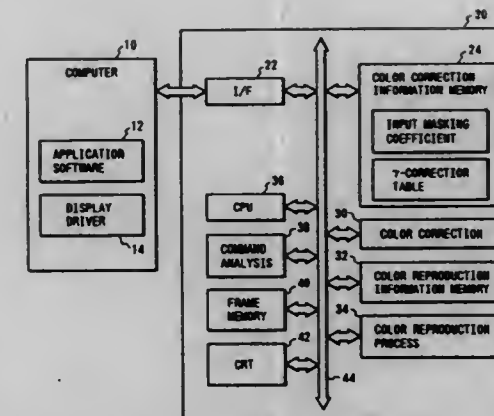
5,671,021
IMAGE MONITORING APPARATUS HAVING A COMMON INTERFACE FOR COMMANDS AND INPUT SIGNALS AND MONITOR DRIVER THEREFOR
Shuichi Kumada, and Toshihisa Okutsu, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 22,170, Feb. 25, 1993, abandoned.
This application Mar. 7, 1995, Ser. No. 400,517
Claims priority, application Japan, Feb. 27, 1992, 4-041077
Int. Cl.⁶ H04N 9/73; G09G 1/02

U.S. Cl. 348—644

10 Claims

1. An image monitoring apparatus for displaying color images, comprising:
an interface for receiving both commands and color signals from a monitor driver in an external apparatus;
correcting means for correcting said color signals received over said interface, said correcting means correcting the color signals in accordance with a color correction parameter;
parameter setting means for setting said color correction parameter to be used by said correcting means to correct the color signals, said parameter setting means setting the color correction parameter in accordance with said commands received over said interface; and



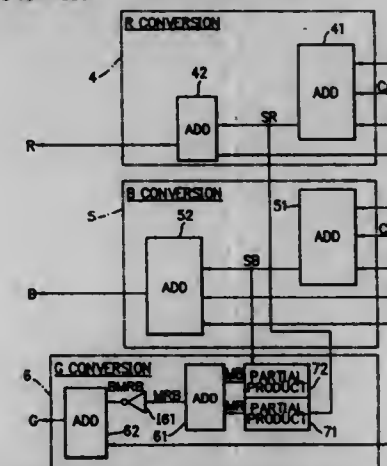
displaying means for displaying a visible color image based on a color signal corrected by said correcting means.

5,671,022
IMAGE PROCESSING SYSTEM AND METHOD FOR CONVERTING YCBCR DATA COMPOSED OF LUMINANCE AND CHROMA INTO RGB DATA OF THREE PRIMARY COLORS
Hideo Ishida, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 15, 1996, Ser. No. 698,029
Claims priority, application Japan, Aug. 16, 1995, 7-208888
Int. Cl.⁶ H04N 9/67

U.S. Cl. 348—659

4 Claims



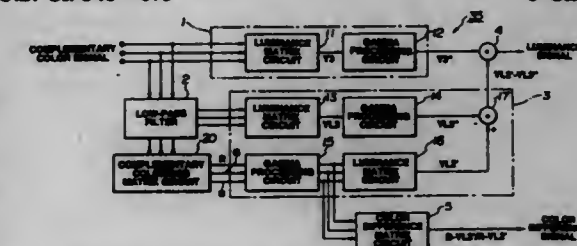
1. An image processing system, comprising:
first conversion means having first multiplying means for producing a first product of a first color difference signal and a first multiplier using a fixed factor multiplication for executing a bit shift of input data of a binary multiplier and for accumulating the bit-shifted data;
second conversion means having second multiplying means for producing a second product of a second color difference signal and a second multiplier; and
third conversion means having third multiplying means for producing a third product of the first color difference signal and a third multiplier and fourth multiplying means for producing a fourth product of the second color difference signal and a fourth multiplier;
first image data composed of a binary luminance signal, a binary first color difference signal and a binary second color difference signal being converted into second image data composed of binary first, second and third chrominance signals,

the third multiplying means including third product producing means for producing the third product by shifting a first intermediate product corresponding to a first partial bit string as a common part of bit strings of the first and third multipliers of the first product by a first predetermined bit number, the fourth multiplying means including fourth product producing means for producing the fourth product by shifting a second intermediate product corresponding to a second partial bit string as a common part of bit strings of the second and fourth multipliers of the second product by a second predetermined bit number.

5,671,023
GAMMA CORRECTION CIRCUIT
Kazuhiko Nishiwaki, Kanagawa, and Ken Nakajima, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Nov. 6, 1995, Ser. No. 553,871
Claims priority, application Japan, Nov. 10, 1994, 6-276780
Int. Cl.⁶ H04N 5/202

U.S. Cl. 348—675

3 Claims



1. A gamma correction circuit, comprising:
output-picture luminance signal generating means including first conversion means for converting supplied color picture signals into first luminance signals, and
first gamma correction means for gamma correcting said first luminance signals from said first conversion means and outputting an output-picture luminance signal;
a low-pass filter for transmitting low-frequency band components of said supplied color picture signals;
luminance correction signal generating means including second gamma correction means for gamma correcting said low-frequency band components of said supplied color picture signals transmitted by said low-pass filter, second conversion means for converting gamma-corrected color picture signals from said second gamma correction means into second luminance signals,
third conversion means for converting said low-frequency band components of said supplied color picture signals transmitted by said low-pass filter into third luminance signals,
third gamma correction means for gamma correcting said third luminance signals, and
a luminance correction signal generator for generating a luminance correction signal from said second luminance signals from said second conversion means and an output signal of said third gamma correction means;
output-picture luminance signal correction means for correcting said output-picture luminance signal from said output-picture luminance signal generating means in response to said luminance correction signal from said luminance correction signal generator and outputting a corrected luminance signal; and
color difference matrix means for generating color difference signals from said gamma corrected color picture signals from said second gamma correction means.

5,671,024

VARIABLE LENGTH DECODING OF MOTION VECTORS

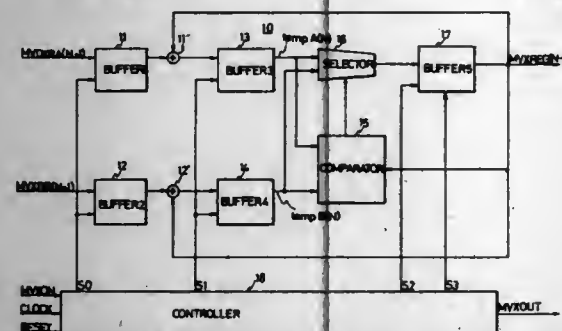
Sung Moon Chun, and Geum Ock Lee, both of Seoul, Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Kyungki-do, Rep. of Korea

Filed Mar. 15, 1995, Ser. No. 403,978

Int. Cl.⁶ H04N 7/32

U.S. Cl. 348-699

4 Claims



1. A motion vector decoding apparatus for converting a variable length coded representation of a motion vector into an original vector using a difference component of the motion vector, comprising:

- X-axis motion vector component decoding means for decoding an X-axis component of the motion vector in response to first and second X-axis motion vector difference components, said X-axis motion vector component decoding means includes:
 - a first buffer for storing temporarily the first X-axis motion vector difference component in response to a first control signal;
 - a second buffer for storing temporarily the second X-axis motion vector difference component in response to the first control signal;
 - a first adder for adding an output signal from said first buffer and the X-axis motion vector component;
 - a third buffer for storing temporarily an output signal from said first adder in response to a second control signal;
 - a second adder for adding an output signal from said second buffer and the X-axis motion vector component;
 - a fourth buffer for storing temporarily an output signal from said second adder in response to the second control signal;
 - a comparator for comparing absolute values of output signals from said third and fourth buffers with each other and outputting an absolute X-axis motion vector component in accordance with the compared result, the absolute X-axis motion vector component having a value within the range from -31 to 31;
 - a selector for selecting one of the output signals from said third and fourth buffers in response to an output signal from said comparator;
 - a fifth buffer responsive to third and fourth control signals for storing temporarily an output signal from said selector and outputting the stored signal as the X-axis motion vector component to said first and second adders; and
 - a controller for generating the first to fourth control signals and an X-axis valid signal in response to a clock signal and an X-axis difference valid signal and outputting the generated first to fourth control signals to said first to fifth buffers, said controller outputting the X-axis valid signal externally synchronously with the output of the X-axis motion vector component from said fifth buffer; and
- Y-axis motion vector component decoding means for decoding a Y-axis component of the motion vector in response to first and second Y-axis motion vector difference components.

5,671,025

DIGITAL CONVERGENCE CORRECTING METHOD AND APPARATUS ADOPTING THE SAME

Kyeong-keol Ryu, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

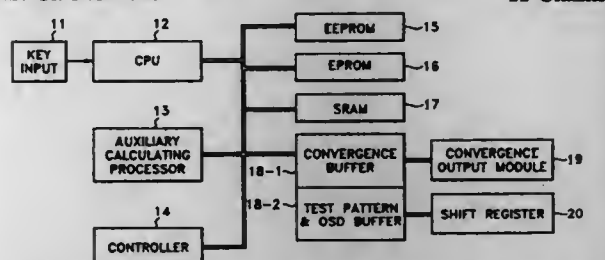
Filed Mar. 21, 1995, Ser. No. 408,037

Claims priority, application Rep. of Korea, Mar. 21, 1994, 94-5642

Int. Cl.⁶ H04N 9/28

U.S. Cl. 348-745

11 Claims



1. A digital convergence correcting method for use in a projection-type television set, said method comprising the steps of:
 - (a) interpolating an ideal seed data to produce convergence correcting data with respect to said seed data at a predetermined screen position stored in a memory;
 - (b) displaying test pattern data and on screen display (OSD) data on the screen; and
 - (c) correcting and updating the convergence correcting data produced by said step (a) with respect to said seed data at a different screen position according to an externally applied instruction.

5,671,026

LIQUID CRYSTAL DISPLAY DEVICE WITH TFT ESD PROTECTIVE DEVICES BETWEEN I/O TERMINALS OR WITH A SHORT CIRCUITED ALIGNMENT FILM

Ichiro Shiraki, Tenri; Yasushi Kubota, Sakurai, and Hiroshi Yoneda, Ikoma, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

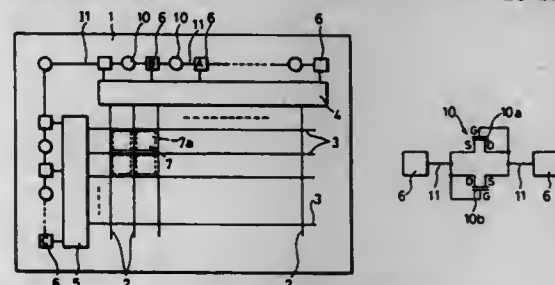
Filed Feb. 27, 1995, Ser. No. 394,626

Claims priority, application Japan, Mar. 2, 1994, 6-032612

Int. Cl.⁶ G02F 1/133; 1/136; 1/137; H01L 23/62

U.S. Cl. 349-40

16 Claims



9. A liquid crystal display device, comprising:
 - a plurality of data signal lines;
 - a plurality of scanning signal lines;
 - a picture element array wherein each picture element for displaying an image is formed so as to be surrounded by adjacent data signal lines and adjacent scanning signal lines;
 - a plurality of transistors as switching elements, each transistor driving a corresponding picture element;
 - a driving circuit for driving each picture element through each signal line and transistor, said driving circuit having a plurality of input-output terminals; and
 - a plurality of protective circuits, each protective circuit being connected across corresponding adjacent input-output terminals of said driving circuit, each protective circuit including a transistor unit, wherein said transistor unit and said transistor have different threshold voltages.

5,671,027

LCD DEVICE WITH TFTS IN WHICH PIXEL ELECTRODES ARE FORMED IN THE SAME PLANE AS THE GATE ELECTRODES WITH ANODIZED OXIDE FILMS AND BEFORE THE DEPOSITION OF THE SILICON GATE INSULATOR

Akira Sasano, Tokyo; Kazuo Shirahashi, Mobara; Yuka Matsukawa, Mobara; Hideaki Taniguchi, Mobara; Hideaki Yamamoto, Tokorozawa, and Haruo Matsumaru, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

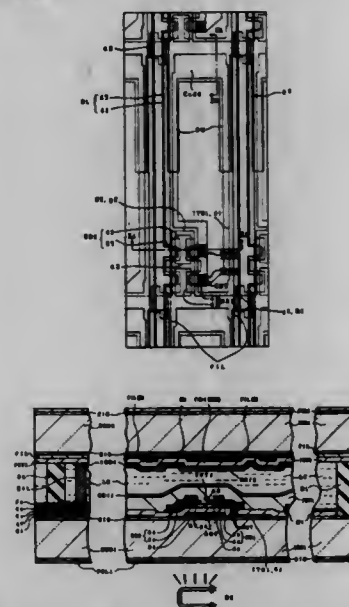
Continuation of Ser. No. 411,207, Mar. 27, 1995, Pat. No. 5,610,738, which is a division of Ser. No. 156,640, Nov. 24, 1993, Pat. No. 5,402,254, which is a division of Ser. No. 778,562, Oct. 17, 1991, abandoned. This application Aug. 1, 1995, Ser. No. 509,821

Claims priority, application Japan, Oct. 17, 1990, 2-276173; Nov. 29, 1990, 2-325995

Int. Cl.⁶ G02F 1/136; 1/134

U.S. Cl. 349-46

70 Claims



1. An active matrix display device, comprising:
 - at least one row and at least one column of picture cells provided over a transparent substrate, each picture cell being coupled to a scanning line and a video signal line, and each picture cell including a pixel electrode, a thin film transistor, having drain, source, and gate electrodes, and a storage capacitor, said pixel electrode being electrically connected to one of the source and drain electrodes of said thin film transistor and to an electrode corresponding to said storage capacitor,
 - wherein said thin film transistor is comprised of a gate electrode corresponding to a first conductive layer, a gate insulator provided on said gate electrode, a channel region provided above said gate electrode and including an amorphous silicon layer provided on said gate insulator, and the source and drain electrodes of said thin film transistor are provided at laterally opposing ends of said channel region,
 - wherein said pixel electrode is comprised of a second conductive layer,
 - wherein said storage capacitor is comprised of a first electrode, a second electrode and a dielectric insulator interposed between the first and second electrodes, and
 - wherein the gate insulator of said thin film transistor is formed of a composite insulator layer including a gate surface oxide film, formed by oxidation of said gate electrode, and a silicon nitride film thereon, said gate surface oxide film being formed to cover upper and end side surfaces of said gate electrode and said silicon nitride film being provided on the oxidized upper and end side surfaces of said first conductive layer of said gate electrode and being extended to cover an adjacent end side surface and upper corner surface of said second conductive layer of a corresponding pixel electrode, thereby to effect electrical isolation at least between said gate elec-

5,671,028

LIQUID CRYSTAL DISPLAY INCLUDING A CONTROL MEMBER FOR PROVIDING A TRANSPARENT VISUAL RANGE WITHIN A PREDETERMINED VIEWING ANGLE AND AN OPAQUE VISUAL RANGE OUTSIDE THE PREDETERMINED VIEWING ANGLE

Masanobu Okano, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

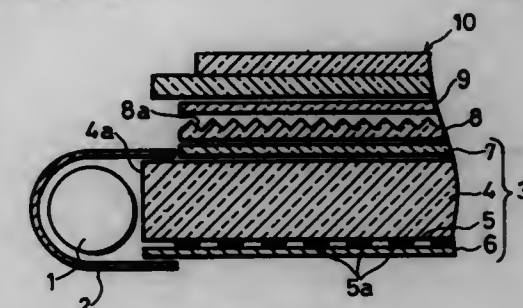
Filed May 5, 1995, Ser. No. 435,137

Claims priority, application Japan, May 11, 1994, 6-097411

Int. Cl.⁶ G02F 1/1335

U.S. Cl. 349-66

13 Claims



1. A liquid crystal display comprising:
 - a liquid crystal display panel;
 - a light-guiding plate on the back side of and in parallel with the liquid crystal display panel;
 - a light source for allowing light rays to be incident on at least one edge face of the light-guiding plate;
 - a light-converging plate for transmitting light rays released from the light-guiding plate while converging the light rays in the normal direction, the light-converging plate being positioned between the light-guiding plate and the liquid crystal display panel; and
 - a visual range control member for providing a transparent visual range with a predetermined viewing angle with respect to the normal direction as well as for providing an opaque visual range outside the predetermined viewing angle with respect to the normal direction, the visual-range control member being positioned between the light-converging plate and the liquid crystal display panel.

5,671,029

APPARATUS FOR MANUFACTURING A DISPLAY DEVICE AND A METHOD OF MANUFACTURING THE DISPLAY DEVICE

Takashi Haruki, Kashiba, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 1, 1995, Ser. No. 431,892

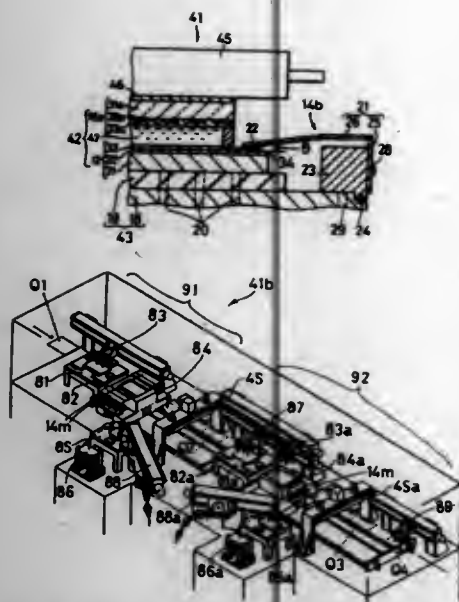
Claims priority, application Japan, May 13, 1994, 6-099395; Dec. 20, 1994, 6-317181; Feb. 23, 1995, 7-035575

Int. Cl.⁶ G02F 1/1345; 1/135

U.S. Cl. 349-96

9 Claims

1. An apparatus for manufacturing a display device, in which a polarizing film is pasted to a surface of display panel wherein a liquid crystal material is interposed between two mutually confronted substrate members each having a surface on which plurality of electrodes are formed, and a plurality of terminals through which a drive signal is supplied to the electrodes are disposed on the other not mutually confronted surfaces of the substrate members, the apparatus comprising:
 - holding means having a mounting face on which the display panel is to be mounted, for holding the display panel by attracting the display panel onto the mounting face;



short-circuit means provided in such a manner that allows contact with or separation from a region where terminals on a lower substrate of the display panel held by the holding means are directed upward with respect to the mounting face, the short-circuit means having an electrically conductive contact face in contact with the display panel;

conductive means provided in such a manner that allows contact with a region where terminals on an upper substrate of the display panel held by the holding means are directed downward with respect to the mounting face, the conductive means having an electrically conductive contact face in contact with the display panel; and

pastings means for pasting a polarizing film to the surface of the display panel.

5,671,030

LIQUID CRYSTAL PANEL HAVING A COLOR FILTER WITH PASSIVATION AND INSULATING LAYERS EXTENDING TO THE SEAL

Kenji Ohnuma, Isehara; Masaaki Suzuki, and Keishi Danjoh, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

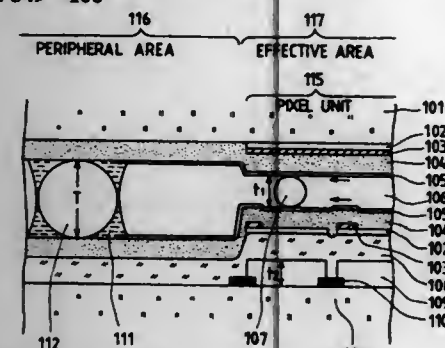
Division of Ser. No. 174,171, Dec. 29, 1993, Pat. No. 5,381,255, which is a continuation of Ser. No. 752,277, Aug. 28, 1991, abandoned. This application Oct. 21, 1994, Ser. No. 327,043

Claims priority, application Japan, Aug. 30, 1990, 2-226589; Oct. 22, 1990, 2-285260; Aug. 23, 1991, 3-235645

Int. Cl.⁶ G02F 1/1335; 1/1333

U.S. Cl. 349—106

4 Claims



1. A color liquid crystal panel comprising:
a first substrate having a color filter, a passivation layer provided on said color filter, a first transparent electrode provided on

said passivation layer, and an insulation layer provided on said transparent electrode;
a second substrate having a second transparent electrode;
a liquid crystal material located in a space formed between said first and second substrates; and
a seal for sealing said space in a peripheral area of said first and second substrates,
wherein said insulation layer prevents short-circuiting between said first and second transparent electrodes, and said passivation layer and said insulation layer extend to said peripheral area in which said seal is located.

5,671,031

REFLECTION TYPE LIQUID CRYSTAL DISPLAY DEVICE AND PERSONAL DIGITAL EQUIPMENT USING THE SAME

Kozo Nakamura, Terri; Mariko Ban, Nara; Naofumi Kimura, Nabari, and Akio Haneda, Taito-ku, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, and Toppan Printing Co., Ltd., Tokyo, both of Japan

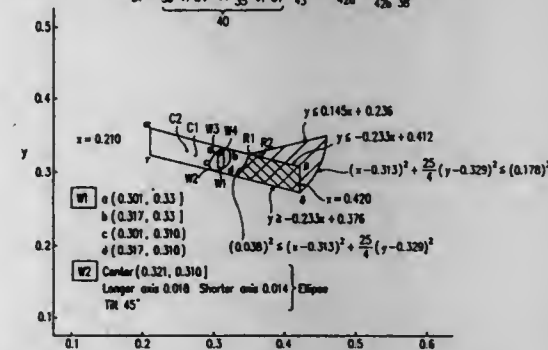
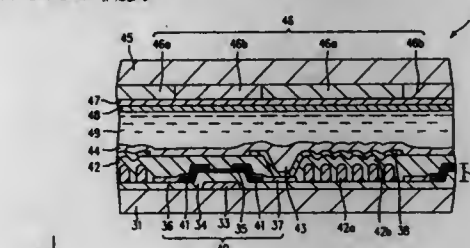
Filed Aug. 27, 1996, Ser. No. 697,591

Claims priority, application Japan, Aug. 30, 1995, 7-222419

Int. Cl.⁶ G02F 1/1335; H04N 3/14; 9/30

U.S. Cl. 349—106

12 Claims



8. A color filter including a red color filter portion and a cyan color filter portion,
wherein the cyan color filter portion transmits light having a complementary color of a color of light transmitted through the red color filter portion, and
wherein the light transmitted through the red color filter portion has a chromaticity (x, y) on an XYZ color system chromaticity diagram satisfying the following formulae under the condition of a 2° viewing angle using a standard light source D₆₅:

$$(0.038)^2 \leq (x - 0.313)^2 + (25/4)(y - 0.329)^2 \leq (0.178)^2;$$

$$y \leq 0.145x + 0.236; \text{ and}$$

$$y \geq -0.233x + 0.376.$$

5,671,032

FERROELECTRIC LIQUID CRYSTAL DEVICE FOR GRAY SCALE DISPLAY, GRAY SCALE DISPLAY APPARATUS AND METHOD ADOPTING THE SAME

Sang-rok Lee, Seongnam, Rep. of Korea, assignor to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea

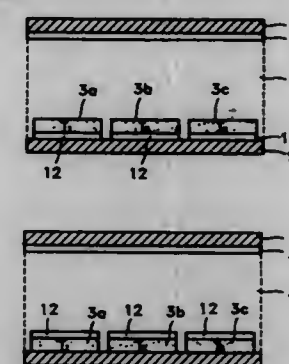
Filed Dec. 28, 1995, Ser. No. 580,421

Claims priority, application Rep. of Korea, Dec. 29, 1994, 94-38997

Int. Cl.⁶ G02F 1/1333; 1/1343; 1/13

U.S. Cl. 349—122

7 Claims



1. A ferroelectric liquid crystal display device comprising:
first and second substrates positioned in opposition with respect to one another, the first and second substrate being separated by a predetermined distance;
a first transparent electrode formed on an inner surface of said first substrate;
a plurality of second transparent electrodes formed on an inner surface of said second substrate in positions corresponding to each pixel region, each of said plurality of second transparent electrodes having a predetermined width;
a plurality of dielectric layers formed on said plurality of second transparent electrodes, said plurality of dielectric layers having the same thickness and different optical transmittances; and
a ferroelectric liquid crystal layer formed between said second substrate on which said dielectric layers are formed and said first substrate having said first transparent electrode thereon.

5,671,033

LIQUID CRYSTAL DEVICE HAVING MIXTURE OF CHOLESTERIC AND SMECTIC LIQUID CRYSTALS AND ALIGNMENT TREATMENT ON ONLY ONE SUBSTRATE

Kazuharu Katagiri, Tama; Kazuo Yoshinaga, Machida; Shinjiro Okada, Isehara, and Junichiro Kanbe, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 178,827, Jan. 7, 1994, abandoned, which is a division of Ser. No. 863,781, Apr. 6, 1992, Pat. No. 5,301,049, which is a continuation-in-part of Ser. No. 251,028, Sep. 26, 1988, Pat. No. 5,120,466, which is a continuation of Ser. No. 750,295, Jul. 1, 1985, abandoned. This application Apr. 10, 1995, Ser. No. 420,319

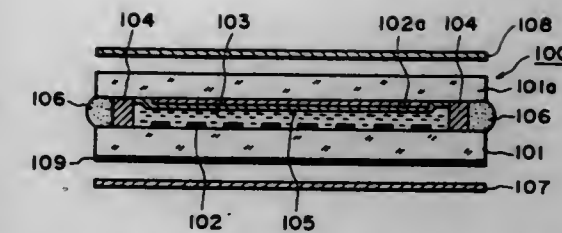
Claims priority, application Japan, Jul. 13, 1984, 59-146211; Jul. 14, 1984, 59-146498; Sep. 12, 1984, 59-190789; Sep. 12, 1984, 59-190790; Sep. 14, 1984, 59-192920

Int. Cl.⁶ G02F 1/1337; 1/13

U.S. Cl. 349—128

5 Claims

1. A liquid crystal device, comprising:
a pair of substrates, one of said substrates having a uniaxial aligning treatment and the other of said substrates having no aligning treatment; a chiral smectic liquid crystal disposed between the substrates in a layer thin enough to suppress its own helical structure; said chiral smectic liquid crystal comprising a mixture of at least one species of compound showing smectic phase and at least one species of compound showing cholesteric phase, said chiral smectic liquid crystal being placed in chiral smectic C phase by temperature decrease



from a higher temperature phase than the chiral smectic phase through smectic A phase and being aligned to form molecular axes aligned in a direction of said uniaxial aligning treatment in the smectic A phase.

5,671,034

POLARISATION DEPENDENT REFRACTIVE DEVICE EXHIBITING INDEPENDENTLY VARYING FIRST AND SECOND INDICES OF REFRACTION AND METHODS OF MANUFACTURE THEREOF

Paul May, Cambridge; Kathryn Walsh, Reading, and Gillian Margaret Davis, Oxfordshire, all of United Kingdom, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

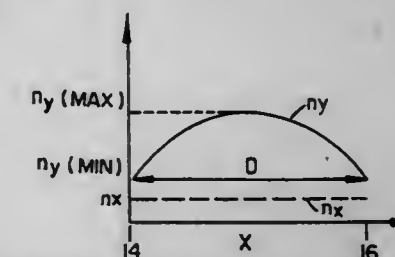
Filed Sep. 7, 1995, Ser. No. 525,917

Claims priority, application United Kingdom, Sep. 9, 1994, 9418251

Int. Cl.⁶ G02F 1/137

U.S. Cl. 349—200

26 Claims



1. A polarisation dependent refractive device, comprising a birefringent element having a first refractive index to light polarised along a first direction, which first refractive index varies as a first function of position, and a second refractive index to light polarised along a second direction, which second refractive index is a second function of position, at least one of the second refractive index and the second function being different to the respective one of the first refractive index and the first function, and wherein the second function is an independent function of the first function.

5,671,035

LIGHT INTENSITY REDUCTION APPARATUS AND METHOD

Elwood E. Barnes, Rte. 3, Box 316, Cochranville, Pa. 19330

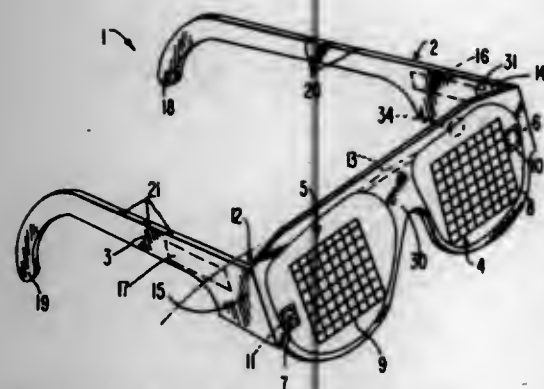
Filed Jun. 7, 1995, Ser. No. 476,421

Int. Cl.⁶ G02C 7/16; 7/12; 1/00

U.S. Cl. 351—45

56 Claims

1. A device that selectively reduces the intensity of light in the field of view, comprising:
a power source;
a light sensor capable of obtaining light direction and intensity data and of generating at least one light signal corresponding to the direction and light intensity of selected segments in the field of view;
a means for digitizing the light signal;
a light transmissive lens having a plurality of programmable shutter elements, wherein each shutter element can be independently selected and each has controllable transmission characteristics;



user controls for setting user constants; and processing circuitry, connected to the power source, to the user controls, to the light sensor and to the shutter elements, which processes the digitized light signals with respect to predetermined values and the user constants, and modifies the light transmission characteristics of certain of the shutter elements if required depending on the processing results.

5,671,036

EYEGLASS TEMPLE HAVING A SPRING

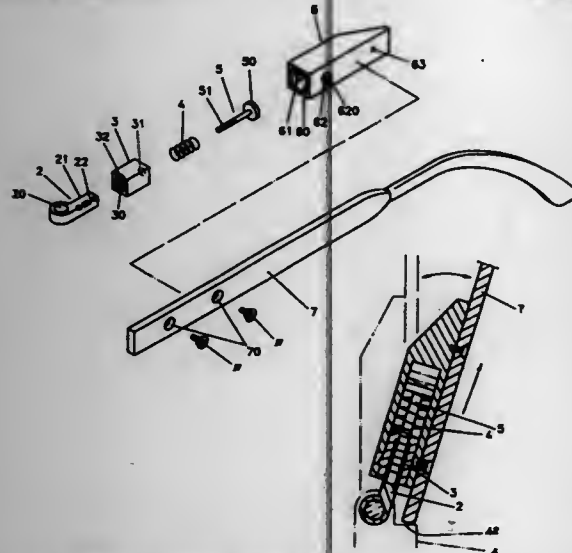
Chun-Chu Huang, P.O. Box 90, Tainan 704, Taiwan

Filed Dec. 10, 1996, Ser. No. 763,981

Int. Cl.⁶ G02C 5/16; 5/22

U.S. Cl. 351—113

1 Claim



1. A eyeglasses temple comprising:
an end connector having a position hole in a front end, a square rear portion, and threaded hole bored longitudinally in said square portion;
a position sleeve having a longitudinal square cavity in a front portion for said square portion of said end connector to fit therein, a longitudinal round hole communicating with said square cavity in a rear portion, a projection extending out from a side and having a sloped surface in a side;
a screw having a head and a body with a front threaded portion;
a coil spring fitting around said body of said screw;
a housing having a cavity in a front portion for said position sleeve to fit therein, and a fit hole in a side corresponding to the side of said projection of said position sleeve; and
characterized by said housing having a projection extending out from an opposite side of said side of said fit hole of said housing, said projection having a female threaded hole, a threaded hole in the same side of said projection, a metal temple having two holes spaced apart to correspond to said projection and said threaded hole of said housing for screws to combine said metal temple with said housing with screws

engaging with said projections and said threaded holes of said housing and said two holes of said temple.

5,671,037

HEAD MOUNTED IMAGE DISPLAY HAVING AT LEAST FOUR SUPPORTING POINTS

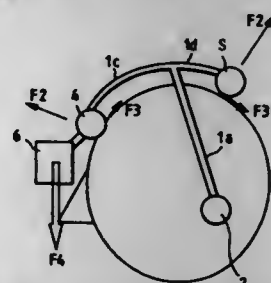
Yuji Ogasawara, Hiho; Hiroyoshi Kobayashi, Hachioji; Yoshihiro Maeda, Hachioji, and Motohiro Atsumi, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Sep. 19, 1995, Ser. No. 530,738

Claims priority, application Japan, Sep. 19, 1994, 6-223114; Sep. 19, 1994, 6-223231

Int. Cl.⁶ G02C 1/00

U.S. Cl. 351—158

15 Claims



1. A head mounted image display, comprising:
a display body having image display sections and optical systems; and
a supporting section for fixing said display body in front of eyes of an observer so that said image display sections can be viewed with the eyes of the observer, said supporting section being formed to include front stopper means to rest on a face of the observer, right-hand and left-hand side stopper means to rest on right and left temporal surfaces of the observer, and top stopper means to rest on a head crown of the observer so that said image display is held in place with an area over a middle occipital surface of the observer being free from said supporting section, said middle occipital surface being defined, on a head of the observer, as a region positioned opposite to a facial region to be covered by said display body, whereby a pushing and pulling of said image display for mounting and removing the same on and from the head of the observer being allowed to be carried out in directions normal to the face or a sincipital surface of the observer.

5,671,038

MULTIFOCAL CONTACT LENS

Menachem Porat, Kibbutz Hanita, Israel, assignor to Hanita Lenses, Kibbutz Hanita, Israel

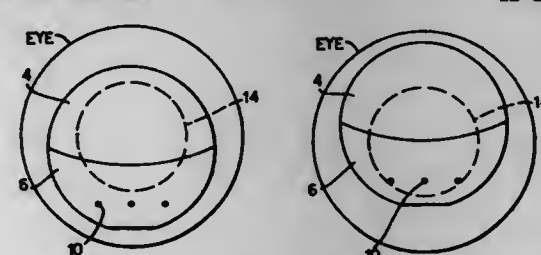
Filed Aug. 21, 1995, Ser. No. 517,123

Claims priority, application Israel, Aug. 22, 1994, 110740

Int. Cl.⁶ G02C 7/04

U.S. Cl. 351—161

12 Claims



1. A multifocal lens having a posterior surface and an anterior surface for use on an eyeball having a cornea region, comprising an upper distance vision segment for distance viewing, and a lower near vision segment for near viewing, wherein at least one hole is provided through which said posterior surface and said anterior

surface communicate with each other to prevent the generation of over- or underpressures that impair the movement of the lens relative to the eyeball, said at least one hole, or if more than one hole is present, all of said holes, being located in said near vision segment of said lens and arriving outside of said cornea region during distance viewing.

5,671,039

GLARE TESTER

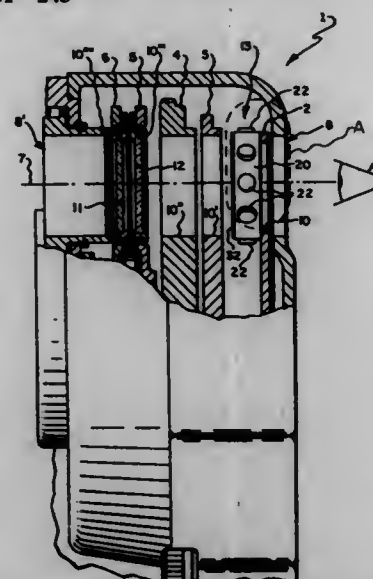
Bernard Groisman, Worcester, Mass., assignor to Leica Inc., Depew, N.Y.

Filed Oct. 19, 1992, Ser. No. 962,859

Int. Cl.⁶ A61B 3/02; 3/10

U.S. Cl. 351—243

20 Claims



1. A refractor for glare testing an eye comprising, a refractor body, a testing axis passing through said eye and body a wheel located in said body and adapted for rotation therein, an aperture positioned in said wheel and selectively positionable on said testing axis, means for subjecting said eye to glare by inundating said eye with visible illumination when said aperture is positioned on said axis, whereby the acuity of said eye may be tested with and without glare or the time for recovery of acuity after glare can be determined.

5,671,040

SOFT PAD BRIDGE OF SPECTACLES

Chen Tsai Ming, Hsin-Chu Hsien, Taiwan, assignor to Gazelle Corporation, Taipei, Taiwan

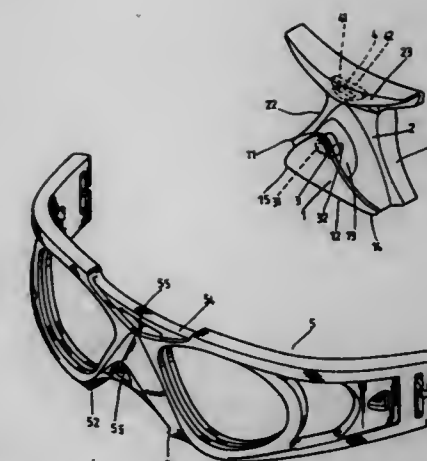
Filed Sep. 18, 1996, Ser. No. 714,297

Int. Cl.⁶ G02C 5/12

U.S. Cl. 351—138

3 Claims

1. A soft pad bridge of spectacles including two parts, as a nose saddle and a jogged clamp; wherein:
said nose saddle having a channel crossing the middle section, a saddle concave surface extending from the inner bottom end, and a first snap fastener extended from the inner front wall of said channel and the improvements comprising; said jogged clamp having two arcs at respective sides, a bend clamp extending downward from the top of a spectacle frame to cover the upper portion of said spectacle frame, and a second



snap fastener integrally formed on the inner end of said bend clamp.

5,671,041

EXPOSURE CONTROL METHOD AND APPARATUS FOR PHOTOGRAPHIC PRINTER

Yasuhiro Iwaki, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

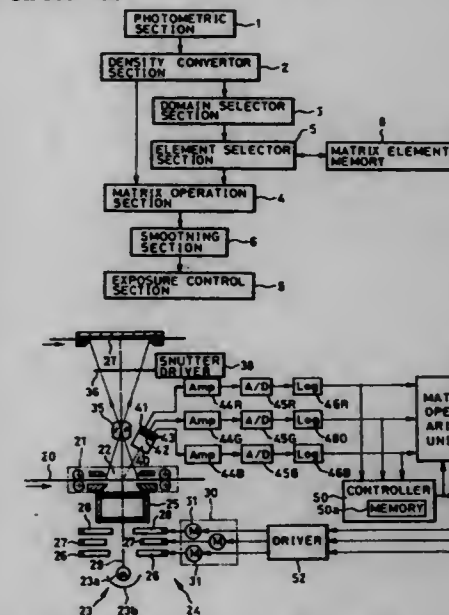
Filed Mar. 13, 1995, Ser. No. 402,373

Claims priority, application Japan, Apr. 15, 1994, 6-077569

Int. Cl.⁶ G03B 27/80

U.S. Cl. 355—38

23 Claims



12. An exposure control apparatus for a photographic printer, said photographic printer having a light source and yellow, magenta, and cyan color-correcting filters which are inserted in between said light source and a frame of developed photographic film, said photographic printer also having a controller for setting said color-correcting filters in respective filter positions to adjust three-color components of printing light from said light source, said photographic printer printing said frame on photosensitive material, said exposure control apparatus comprising:

a photometric section for measuring a frame to be printed photometrically in three-color separation, to obtain a photometric density thereof for three primary colors;
a domain selector section, provided with said photometric density of said frame, for generating a signal representing one density domain in response to said density of said frame, wherein said one density domain is selected from a plurality of preset density domains that divide a three-dimensional

density space, and wherein said density space is defined by coordinates at which respective photometric densities of said three primary colors has been taken;

a matrix element memory for storing data of matrix elements, said memory having addresses corresponding to said plurality of density domains, each of said plurality of density domains having respective ones of said matrix elements;

an element selector section, provided with said signal representing said one density domain, for accessing said matrix element memory at one of said addresses that corresponds to said one density domain, to identify selected ones of said matrix elements corresponding to said respective matrix elements of said one density domain; and

a matrix operation section for executing a matrix operation in accordance with said photometric density of said frame and with said selected ones of said matrix elements, to obtain said respective filter positions at which said printing light is optimized.

5,671,042

HOLOMOIRE STRAIN ANALYZER

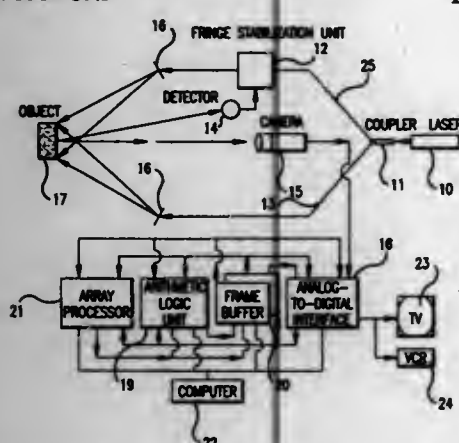
Cesar A. Sciammarella, Chicago, Ill., assignor to Illinois Institute of Technology, Chicago, Ill.

Filed Feb. 18, 1992, Ser. No. 837,852

Int. Cl.⁶ G01B 9/02

U.S. Cl. 356—35.5

16 Claims



1. A system for the measurement of strains in an object comprising:

a continuous point source illumination means for illuminating at least a portion of a surface of said object, said continuous point source illumination means producing symmetric double illumination in at least two orthogonal directions and comprising at least one continuous laser, at least three optical fibers and a coupler connecting an outlet of said laser to one end of each said optical fiber;

fringe stabilization means for compensating for vibratory motion of said object, said fringe stabilization means comprising a fringe stabilization detector receiving reflected light from said object and providing a signal to said fringe stabilization circuit, and said fringe stabilization circuit adjusting the phase of said light emitted by one of said optical fibers, maintaining a constant relationship between the phase of said light and the phase of a reference light emitted by another of said optical fibers;

detector means for capturing a holographic image of said object; compensation means for compensating for displacement of said object; and

processing means for electronically reconstructing said holographic image.

5,671,043

OPTICAL POSITION DETECTOR FOR DETERMINING THE ANGULAR POSITION OF A ROTATABLE ELEMENT

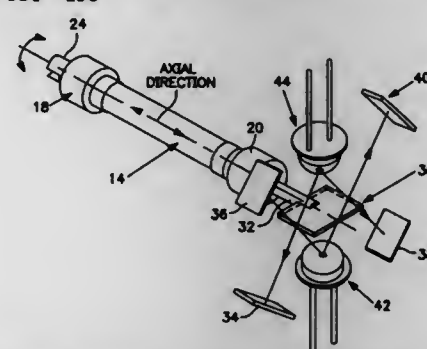
Richard Ivers, West Newton, Mass., assignor to Cambridge Technology, Inc., Cambridge, Mass.

Filed Oct. 3, 1995, Ser. No. 538,202

Int. Cl.⁶ G01D 5/34

U.S. Cl. 356—138

16 Claims



1. A position detection system for determining the angular position of a rotatable element extending in an axial direction, said system comprising:

a first light source and a second light source, each positioned proximate one end of the rotatable element; detecting means optically aligned with said first and second light sources for receiving light therefrom and for providing an output indicative of the amount of light received by said detecting means from said light sources;

means connected to said one end of the rotatable element for preventing a preselected amount of light emanating from said first and second light sources from being received by said detecting means;

said detecting means comprising four light detecting components, a first pair of said light detecting components being operably interrelated with said first and second light sources and a second pair of said light detecting components being operably interrelated with said first and second light sources, whereby said output of said detecting means is virtually unaffected by any unwanted radial movement of the rotatable element;

said means for preventing a preselected amount of light from being received by said detecting means comprising an opaque element extending in said axial direction from the rotatable element and being interposed between said first and second light sources and said four light detecting components; and means for receiving said output from said detecting means and providing a signal indicative of the angular position of the rotatable element.

5,671,044

METHOD OF EXAMINING FILM QUALITY OF A MEMBRANAL MATERIAL AND AN APPARATUS THEREFOR

Yoshinori Shimada, Yamatokoriyama, and Keiichi Tanaka, Taki-gun, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 12, 1995, Ser. No. 571,101

Claims priority, application Japan, Dec. 12, 1994, 6-307652

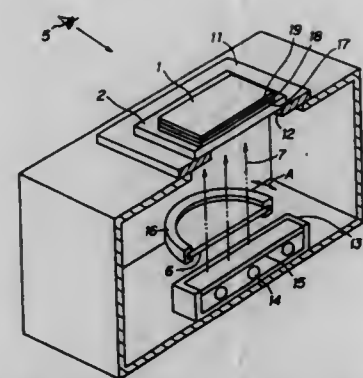
Int. Cl.⁶ G01N 21/00

U.S. Cl. 356—237

6 Claims

1. A method of examining film quality of a membranal material comprising the steps of:

radiating polarized test light created through a polarizing plate, on the rear surface of a light-transmissive substrate on which a tested membranal material is formed; rotating said polarizing plate relative to said light transmissive substrates; and



detecting film quality of said tested membranal material based on changes in a color-irregularity pattern formed on the surface of said tested membranal material during said rotating.

5,671,045

MICROWAVE PLASMA MONITORING SYSTEM FOR THE ELEMENTAL COMPOSITION ANALYSIS OF HIGH TEMPERATURE PROCESS STREAMS

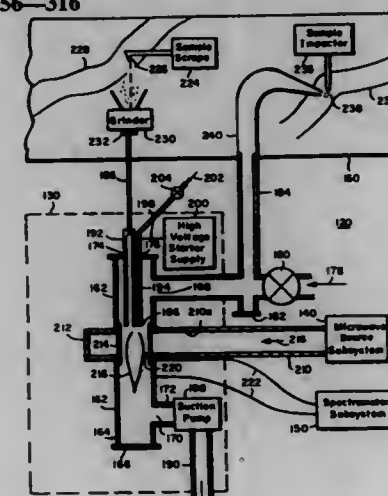
Paul P. Woskov, Bedford; Daniel R. Cohn, Chestnut Hill, both of Mass.; Charles H. Titus, Newtown Square, Pa., and Jeffrey E. Surma, Kennewick, Wash., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 141,857, Oct. 22, 1993, Pat. No. 5,479,254. This application Oct. 6, 1995, Ser. No. 540,575

Int. Cl.⁶ G01J 3/30; H01P 1/00; G01N 21/69

U.S. Cl. 356—316

47 Claims



1. An apparatus for analyzing the composition of a sample, comprising:

a shorted waveguide made of a microwave conductive material using refractory material communicating with a source of microwave energy to generate plasma, the waveguide including an aperture for the passage of the sample to be analyzed; sample flow means connected to the waveguide such that the aperture in the waveguide is aligned with the sample flow means;

means for adjusting a passage rate of the sample to be analyzed through the shorted waveguide; and a spectrometer connected to receive light from the plasma.

5,671,046

DEVICE AND METHOD FOR OPTICALLY DETECTING PARTICLES IN A FREE LIQUID STREAM

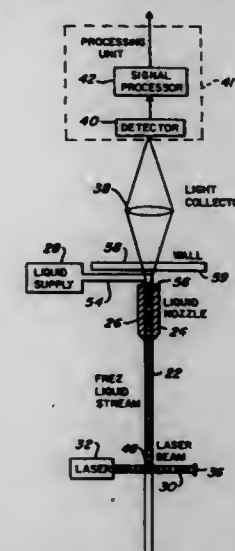
Dennis J. Knowlton, Boulder, Colo., assignor to Particle Measuring Systems, Inc., Boulder, Colo.

Filed Jul. 1, 1996, Ser. No. 674,148

Int. Cl.⁶ G01N 21/00

U.S. Cl. 356—338

32 Claims



1. A device for optically detecting particles in a free liquid stream, said device comprising:

a liquid ejector for providing a free liquid stream capable of having particles therein, said free liquid stream having predetermined first and second regions that are spaced from one another along said free liquid stream;

a light source for providing a light beam that intersects said free liquid stream at said first region so that particles in said free liquid stream at said first region cause scattering of light that travels along said free liquid stream from said first region to said second region;

a light collector for collecting light at said second region that has been scattered by particles in said free liquid stream at said first region; and

a processing unit for receiving said scattered light collected by said light collector and, responsive thereto, providing an output that is indicative of at least one of size and number of said particles in said free liquid stream causing said light scattering at said first region.

5,671,047

LASER BEAMSPLITTER FOR GENERATING A PLURALITY OF PARALLEL BEAMS

Raul Curbelo, Lexington, Mass., assignor to Bio-Rad Laboratories, Cambridge, Mass.

Filed May 15, 1995, Ser. No. 441,126

Int. Cl.⁶ G01B 9/02

U.S. Cl. 356—346

51 Claims

1. An interferometer comprising

a laser reference source,

a primary beamsplitter,

a fixed mirror,

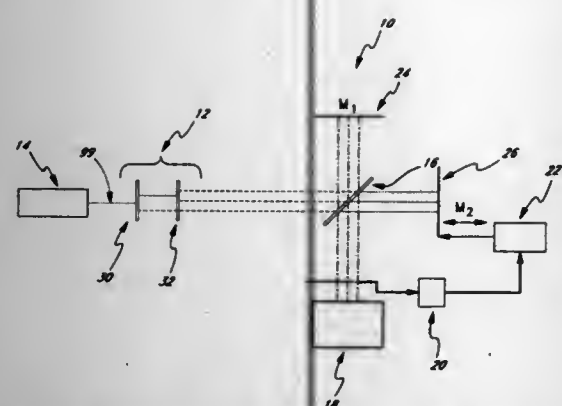
a movable mirror,

a system for detecting variations in alignment between said fixed mirror and said movable mirror including three detectors located adjacent to a laser beam output field and arranged at the vertices of a triangle,

a laser beamsplitter,

said laser beamsplitter comprising

a first beamsplitter comprising an optical flat having a first partially coated face and a second partially coated face parallel to each other,



a second beamsplitter comprising an optical flat having a third partially coated face and a fourth partially coated face parallel to each other, said first beamsplitter being positioned such that an incident beam entering said first beamsplitter is split into a first beam and a second beam parallel to each other, and said second beamsplitter being positioned relative to said first beamsplitter such that at least one of said first beam and said second beam enters said second beam splitter and is split into a third beam and a fourth beam parallel to each other and to said second beam.

5,671,048

METHOD AND APPARATUS FOR ROTARY LOAD/UNLOAD SLIDER POSITIONING

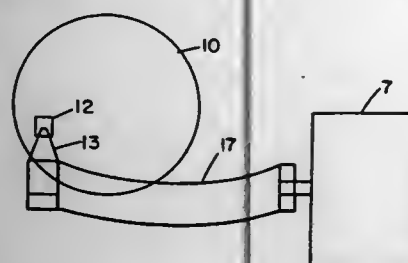
Christopher Lacey, San Diego, Calif., assignor to Phase Metrics, San Diego, Calif.

Continuation of Ser. No. 172,471, Dec. 22, 1993, Pat. No. 5,486,924, which is a division of Ser. No. 781,820, Oct. 23, 1991, Pat. No. 5,280,340. This application May 17, 1995, Ser. No. 446,906

Int. Cl.⁶ G01B 9/02

U.S. Cl. 356—357

16 Claims



1. A slider positioning apparatus for positioning a slider relative to a first plane corresponding to a surface of a disk comprising: a slider attached to a suspension near a distal end of said suspension, said suspension having a longitudinal axis; and a rotary load/unload arm having a rotation axis which is substantially parallel to said first plane about which said rotary load/unload arm rotates, wherein said suspension is mounted to said rotary load/unload arm such that said suspension longitudinal axis forms an angle with said rotary load/unload arm rotation axis and said slider is positioned adjacent said first plane at a separation distance from said first plane, said separation distance increasing as said rotary load/unload arm rotates about said rotation axis in a first direction and decreasing as said rotary load/unload arm rotates about said rotation axis in a second direction which is opposite said first direction.

5,671,049 SYSTEM AND METHOD FOR CONTACTLESSLY AND AUTOMATICALLY DETERMINING THE RETURN LOSS OF AN OPTICAL FIBER CONNECTOR

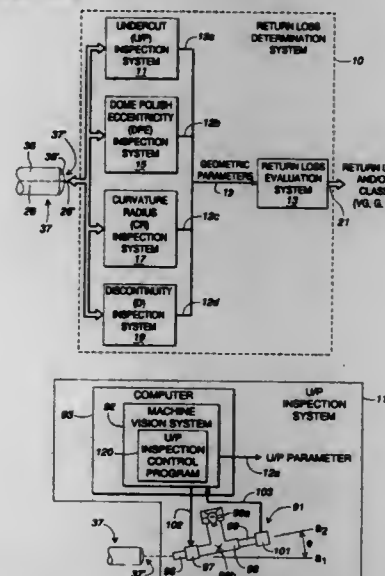
Andrei Csipkes, Columbia, Md., and John Mark Palmquist, Lilburn, Ga., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation-in-part of Ser. No. 429,999, Apr. 27, 1995, and Ser. No. 577,947, Dec. 22, 1995. This application Jun. 21, 1996, Ser. No. 668,220

Int. Cl.⁶ G01B 9/02

U.S. Cl. 356—358

25 Claims



1. A method for determining return loss of an optical fiber connector having a domed combination of an optical fiber and a surrounding support ferrule, the method comprising the steps of:

- determining an undercutoff/protrusion parameter corresponding with an offset of said fiber relative to a curvature of said ferrule along an axis of said fiber;
- determining a dome polish eccentricity parameter corresponding with a displacement in a plane perpendicular to said axis, said displacement being between a curvature center of said curvature and a fiber center of said fiber in said plane;
- determining a curvature radius parameter corresponding with a radius of said curvature relative to said curvature center;
- determining a discontinuity parameter to quantify surface discontinuities in said fiber; and
- determining a return loss of said connector based upon said parameters.

5,671,050

METHOD AND APPARATUS FOR PROFILING SURFACES USING DIFFRACTIVE OPTICS

Peter de Groot, Middletown, Conn., assignor to Zygo Corporation, Middlefield, Conn.

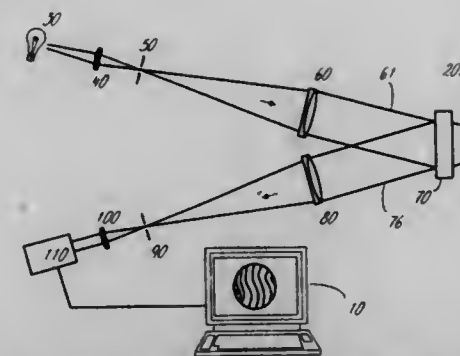
Continuation-in-part of Ser. No. 334,939, Nov. 7, 1994, Pat. No. 5,526,116. This application Dec. 28, 1994, Ser. No. 365,589

Int. Cl.⁶ G01B 9/02

U.S. Cl. 356—359

45 Claims

1. A method for profiling an object surface using desensitized interference fringes comprising the steps of illuminating a diffractive optical assembly with a source of light, dividing the source light illuminating said diffractive optical assembly into two beams which propagate in two different directions through said diffractive optical assembly, said beams exiting said diffractive optical assembly substantially overlapping adjacent said object surface with said beams impinging upon said object surface at substantially the same place at two different incident angles.



reflecting said impinging beams from said object surface back toward said diffractive optical assembly, said reflected beams passing back through said diffractive optical assembly in different directions, and

recombining said reflected beams passing back through said diffractive optical assembly to form an interference pattern representative of the surface profile of said object surface, said interference pattern having reduced sensitivity to surface deformation and surface roughness, said illuminating step comprising the step of illuminating said diffractive optical assembly with a broadband spatially incoherent light source.

5,671,051

HELICOPTER BLADE TRACKING SYSTEM

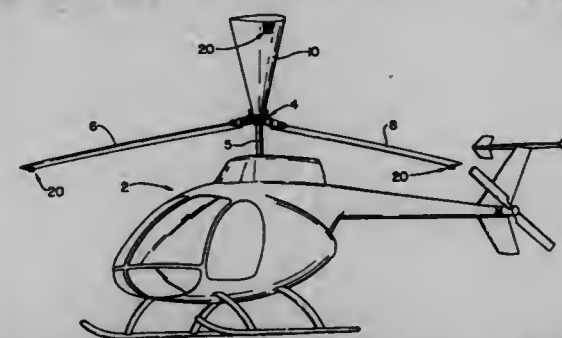
Andrew M. Wright, Jr., 2071 Rites La., N. Palm Beach, Fla. 33408

Filed Aug. 2, 1993, Ser. No. 101,547

Int. Cl.⁶ G01B 11/00

U.S. Cl. 356—372

16 Claims



1. A helicopter blade tracking system including a similar self-contained light unit on each rotor blade, each rotor blade having a tip, each self-contained light unit being matched in size and weight, means fixing each unit adjacent the tip of the blade, each self-contained matched light unit having a light device directed radially inward from the tip of the blade, each light device having a different colored light.

5,671,052

OPTICAL ENCODER

Isao Kawakubo, Hino, and Eiji Yamamoto, Ome, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Mar. 13, 1995, Ser. No. 402,637

Claims priority, application Japan, Mar. 15, 1994, 6-043656; Feb. 20, 1995, 7-030938

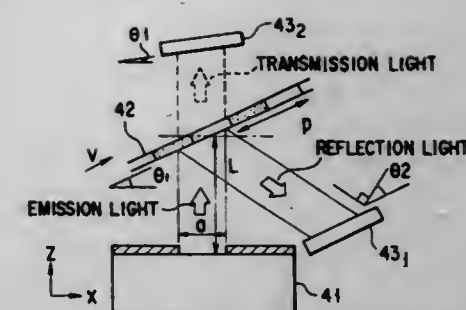
Int. Cl.⁶ G01B 11/14

U.S. Cl. 356—373

20 Claims

1. An optical encoder comprising:

a movable scale which is movable relative to a light source, a surface-emitting semiconductor laser light-source for radiating light to a part of said movable scale, without any lenses or slits provided between said movable scale and said surface-emitting semiconductor laser light-source, and



a photodetector for detecting light reflected by said movable scale or light transmitted through said movable scale.

5,671,053

METHOD OF CALIBRATING LASER PROJECTOR USING MOVING REFLECTOR

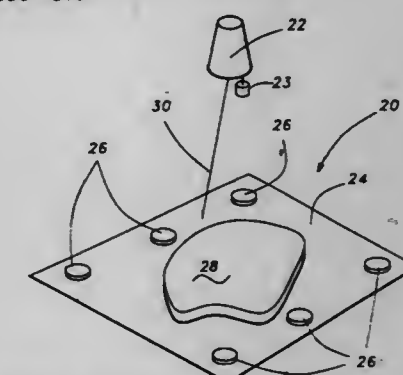
Dave Wigg, Waterloo, and Kurt Rueb, Kitchener, both of Canada, assignors to Virtek Vision Corp., Waterloo, Canada

Filed Nov. 16, 1995, Ser. No. 558,679

Int. Cl.⁶ G01B 11/00

U.S. Cl. 356—375

19 Claims



1. A method of calibrating the position of a laser projector relative to reference points comprising the steps of:

- providing a plurality of reference points;
- providing a laser projector opposite said reference points;
- directing a laser beam from said laser projector;
- moving a reflective member into the path of said laser beam such that a portion of said laser beam is reflected by said reflective member back to said laser projector;
- moving said reflective member towards one of said reference points; and
- moving said laser beam with said reflective member until said laser beam is directed adjacent said one of said reference points to begin to calibrate the position of said laser projector relative to said one reference point.

5,671,054

METHOD AND APPARATUS FOR MEASURING POSITION OF PATTERN FORMED ON A SUBSTRATE HAVING A THICKNESS

Masaya Iwasaki, Yokohama, Japan, assignor to Nikon Corporation, Japan

Filed Jan. 2, 1996, Ser. No. 581,974

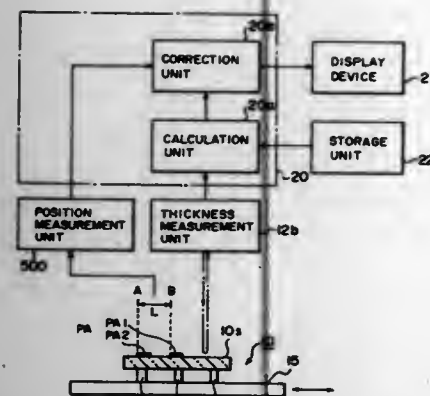
Claims priority, application Japan, Jul. 18, 1995, 7-203770

Int. Cl.⁶ G01B 11/30

U.S. Cl. 356—375

21 Claims

1. A pattern-position measuring method in which a position of a pattern formed on a substrate to be measured is measured, said method comprising the steps of:



- measuring a thickness error amount of said substrate to be measured with respect to a reference substrate;
- using an amount of displacement of the pattern caused by flexure of said reference substrate as a first correction amount and amending said first correction amount based on said thickness error amount so as to determine a second correction amount;
- measuring a position of the pattern formed on said substrate to be measured; and
- correcting said measured position of the pattern based on said second correction amount.

5,671,055

APPARATUS, SYSTEM AND METHOD FOR LASER MEASUREMENT OF AN OBJECT SHAPE

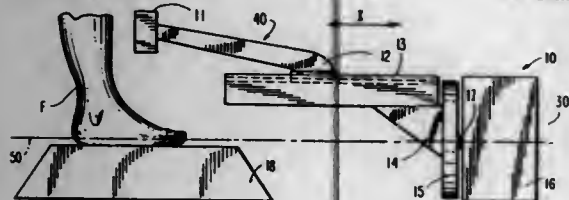
Saunders N. Whittlesey, Amherst, and Julie Harvey, Worthington, both of Mass., assignors to Acushnet Company, Fairhaven, Mass.

Filed Jan. 23, 1996, Ser. No. 589,078

Int. Cl.⁶ G01B 11/24

U.S. Cl. 356—376

34 Claims



- An apparatus for the laser measurement of an object comprising:

- a base;
- a rotatable member attached to the base and rotatable about a rotational axis;
- a linear slide having a first end and a second end, the first end being attached to and extending from the rotatable member, said rotatable member being capable of rotating the linear slide from at least a first position to a second position; and
- a laser camera slidably coupled to the linear slide for movement along the linear slide to obtain measurements of the object at a plurality of locations along the slide, wherein the rotatable member rotates the linear slide between the first and second positions to obtain measurements of the object at both positions of the slide.

5,671,056

THREE-DIMENSIONAL FORM MEASURING APPARATUS AND METHOD

Tsuyoshi Sato, Tokyo, Japan, assignor to Technology Research Association of Medical & Welfare Apparatus, Tokyo, Japan

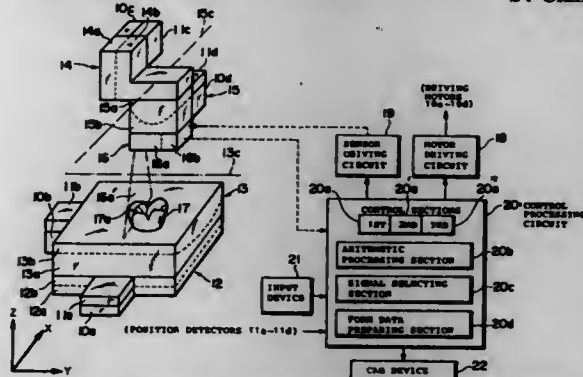
Filed May 9, 1996, Ser. No. 647,147

Claims priority, application Japan, May 11, 1995, 137344; Jun. 2, 1995, 159828; Jun. 2, 1995, 159829; Jun. 2, 1995, 159830

Int. Cl.⁶ G01B 11/24

U.S. Cl. 356—376

24 Claims



- A three-dimensional form measuring apparatus comprising:
 - an optical distance measuring equipment including an irradiating section for irradiating an object to be measured with slit-like irradiation light and a light receiving section which has a two-dimensional light receiving sensor composed of a plurality of light receiving devices arranged two-dimensionally and receives, on said two-dimensional light receiving sensor, incident reflected light from said object irradiated with the irradiation light;
 - a position setting mechanism for setting a relative positional relationship between said optical distance measuring equipment and said object;
 - a signal selecting section which detects whether or not width and maximum luminance of an optical image reflected by said object are within a predetermined range and thereby selects, as an output signal for preparing data, an output signal of said two-dimensional light receiving sensor concerning the relative positional relationship between said optical distance measuring equipment and said object set by said position setting mechanism; and
 - a form data preparing section which prepares a three-dimensional form data of said object based on the output signal of said two-dimensional light receiving sensor selected by said signal selecting section.

5,671,057

ALIGNMENT METHOD

Hidemi Kawai, Chiba-ken, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Aug. 15, 1996, Ser. No. 698,095

Claims priority, application Japan, Aug. 18, 1995, 7-210621

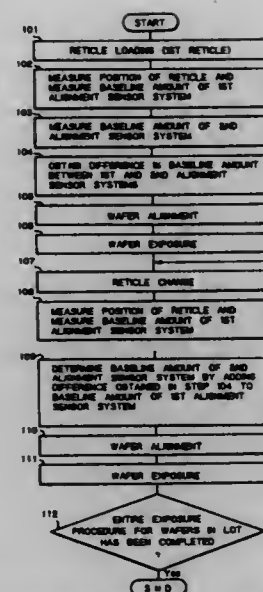
Int. Cl.⁶ G01B 11/00

U.S. Cl. 356—399

3 Claims

- An alignment method for use with an exposure apparatus including first and second alignment sensor systems using different types of sensing techniques for detecting the position of each of shot areas on a substrate, said first and second alignment sensor systems each having a detection center, wherein detection results from at least one of said first and second sensor systems are used to establish alignment between one of said shot areas on said substrate which is to be exposed and an exposure location for a pattern of a mask so as to transfer said pattern onto said shot areas; said method comprising:

- a first step for measuring a relative position of said detection center of said first alignment sensor system with respect to an exposure center of a pattern of a first mask and a relative position of said detection center of said second alignment



- sensor system relative to said exposure center of said pattern of said first mask, and obtaining the difference between said relative positions;
- a second step for using one of said first and second alignment sensor systems to measure the position of a given shot area on a first substrate so as to provide measurement results, and using these measurement results and the distance measured in said first step so as to establish alignment between said given shot area on said first substrate and said pattern of said first mask for transferring said pattern of said first mask onto said given shot area on said first substrate;
- a third step for measuring, for an exposure procedure for a pattern of a second mask, the distance between said detection center of one of said first and second alignment sensor systems which requires a shorter measurement time than the other and an exposure center of said pattern of said second mask; and
- a fourth step for using one of said first and second alignment sensor systems to measure the position of a given shot area on a second substrate so as to provide measurement results, and using these measurement results, the difference between said relative positions measured in said first step, and the distance measured in said third step so as to establish alignment between said given shot area on said second substrate and said pattern of said second mask.

5,671,058

DEVICE FOR SUPPORTING LINEARLY MOVING A MOVABLE MEMBER AND A CONTROLLING SYSTEM FOR THE DEVICE

Yoshihisa Kawaguchi, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed Mar. 6, 1995, Ser. No. 399,025

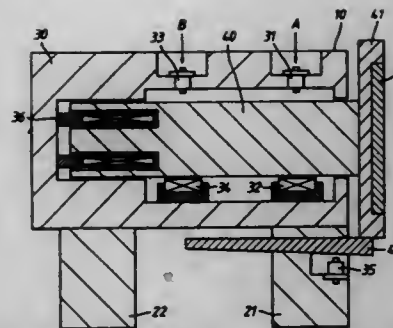
Claims priority, application Japan, Mar. 7, 1994, 6-035583; Mar. 7, 1994, 6-035584; Mar. 7, 1994, 6-035585

Int. Cl.⁶ G01B 11/00

U.S. Cl. 356—401

16 Claims

- A device for supporting and linearly moving a movable member, said device comprising:
 - first supporting means for supporting said movable member in a non-contact manner at a first position;
 - second supporting means for supporting said movable member in a non-contact manner at a second position;
 - axial moving means for linearly moving said movable member in a non-contact manner;
 - first radial position detecting means for detecting radial position of said movable member at said first position;
 - second radial position detecting means for detecting radial position of said movable member at said second position;



- a radial position processor for determining radial position of said movable member based on the radial position detected by said first radial position detecting means;
- a radial angle processor for determining radial angle of said movable member based on the radial positions detected by said first and second radial position detecting means;
- a radial position controller for controlling said first supporting means based on said radial position determined by said radial position processor to adjust said radial position of said movable member; and
- a radial angle controller for controlling said second supporting means based on said radial angle determined by said radial angle processor to adjust said radial angle of said movable member.

5,671,059

ELECTROLUMINESCENT COLOR DEVICE

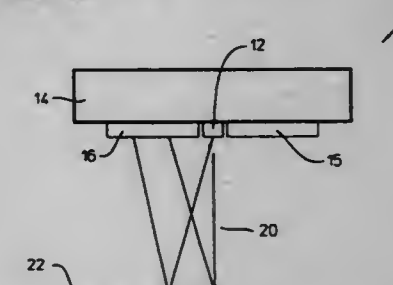
Kent D. Vincent, Cupertino, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Sep. 21, 1995, Ser. No. 531,435

Int. Cl.⁶ G01J 3/46

U.S. Cl. 356—402

10 Claims



- A colorimeter for measuring color content of a color sample, comprising:
 - a series of electroluminescent emitters, illuminating the color sample, each emitter responsive to an applied electrical signal and emitting light spanning a spectral segment wherein the visible light spectrum is substantially covered by the combination of spectral segments, the series including:
 - a substrate,
 - a first electrode layer on the substrate,
 - a second electrode layer,
 - an active layer between the first electrode layer and the second electrode layer, producing a light signal in response to the electrical signal applied across the first electrode layer and the second electrode layer,
 - a first dielectric layer adjacent to the active layer, means for tailoring the light signal into spectral segments; and
 - a broadband sensor, receiving light reflected by the color sample and producing a corresponding output signal.

5,671,060 METHOD OF ESTIMATING SPECTRAL DISTRIBUTION OF FILM AND METHOD OF DETERMINING EXPOSURE AMOUNT

Koji Takahashi, and Takaaki Terashita, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 862,505, Apr. 2, 1992, abandoned.

This application Nov. 4, 1994, Ser. No. 336,071

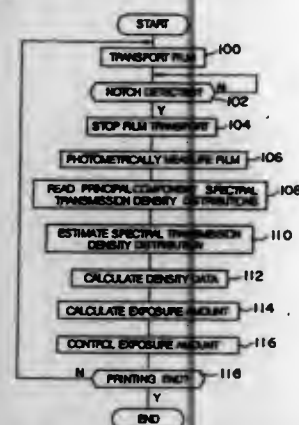
Claims priority, application Japan, Apr. 10, 1991, 3-077818;

Apr. 10, 1991, 3-077819; Apr. 10, 1991, 3-077871

Int. Cl.⁶ G01N 21/25

U.S. Cl. 356—405

18 Claims



1. A method of estimating a spectral distribution of a color film, comprising, in sequence, the steps of:

(A) determining in advance a plurality of principal-component spectral distributions (PCSD) by analyzing spectral distributions constituted of said PCSDs for a multiplicity of color sample films, wherein each of said spectral distributions is a plural-component spectral distribution obtained from one of said sample films;

(B) measuring light transmitted through the film to be estimated by spectrally diffracting the transmitted light into wavelengths of different bands or into different wavelength bands, the number of the wavelengths or wavelength bands being at least equivalent to that of the plurality of principal-component spectral distributions PCSD, whereby said measuring provides photometric values of the respective wavelengths or wavelength bands;

(C) determining coefficients for expressing the spectral distribution of the film to be estimated as a linear sum of the plurality of principal-component spectral distributions PCSD, on the basis of the photometric values of the respective wavelengths or wavelength bands and the plurality of principal-component spectral distributions; and

(D) estimating the spectral distribution of the film to be estimated, by determining the linear sum of the plurality of principal-component spectral distributions by using the coefficients obtained.

5,671,061 METHOD AND APPARATUS FOR ASSESSING THE EFFECT OF YARN FAULTS ON WOVEN OR KNITTED FABRICS

Robert Hoeller, Uster, Switzerland, assignor to Zellweger Luwa AG, Uster, Switzerland

Continuation-in-part of Ser. No. 77,682, Jun. 16, 1993, abandoned. This application Sep. 21, 1995, Ser. No. 531,485

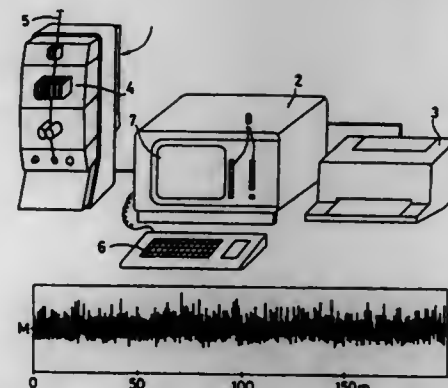
Claims priority, application Switzerland, Jun. 18, 1992, 01 926/92

Int. Cl.⁶ G06F 15/46; G01N 21/89

U.S. Cl. 356—429

36 Claims

11. An apparatus for assessing the effect of yarn faults on woven or knitted fabrics produced from the respective yarn, by a simulation of the fabric image, comprising:



a measuring member for determining parameters associated with at least one of the volume and the surface along a running length of an individual sample of the yarn;

a computer for converting said parameters into image values and for assigning the image values to image spots, each of said image spots being associated with said running length of the yarn;

at least one of a video display unit and a printer; and control means for reproducing the image spots on the video display unit or the printer in a sequence defined by said running length of the yarn for the purpose of simulating an image of a woven or knitted fabric to be produced from the yarn.

5,671,062 ZOOM LENS HAVING A LIGHT WEIGHT AND TEMPERATURE INDEPENDENT FOURTH LENS GROUP

Akira Nakamura, Tokyo, Japan, assignor to Sony Corporation, Japan

Continuation of Ser. No. 883,215, May 14, 1992, abandoned.

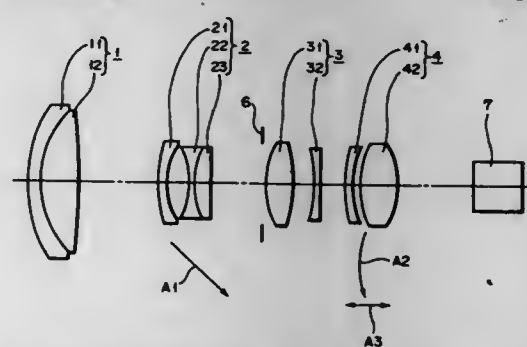
This application Oct. 11, 1994, Ser. No. 538,376

Claims priority, application Japan, May 21, 1991, 3-116150

Int. Cl.⁶ G02B 15/14

U.S. Cl. 359—687

9 Claims



1. A zoom lens comprising:

a first lens group having a positive refracting power, said first lens group consisting of two lens elements arranged along a common optical axis;

a second lens group having a negative refracting power;

a third lens group having a positive refracting power, said third lens group consisting of two lens elements arranged along said optical axis; and

a fourth lens group having a positive refracting power; said first, second, third, and fourth lens groups being successively arranged along said optical axis in the order named from an object side, said first and third lens groups being fixed in position, said second lens group being movable for varying a magnification, and said fourth lens group being movable for compensating for an image plane movement due to the varied magnification and also for focusing;

wherein said fourth lens group consists of a negative-meniscus lens element having a convex surface directed toward the object side and a positive lens element, said negative-

meniscus lens element and said positive lens element being successively arranged along said optical axis in the order named from the object side, and at least one of said negative-meniscus lens element or said positive lens element being made of a synthetic resin.

5,671,063 ERROR TOLERANT METHOD AND SYSTEM FOR MEASURING FEATURES OF ENGRAVED AREAS

Eric R. Auberry, Beavercreek; David L. Flannery, Englewood; Kenneth William Jackson, Dayton; David R. Seltz, Vandalia, and Eric J. Serenius, Springboro, all of Ohio, assignors to Ohio Electronic Engravers, Inc., Dayton, Ohio

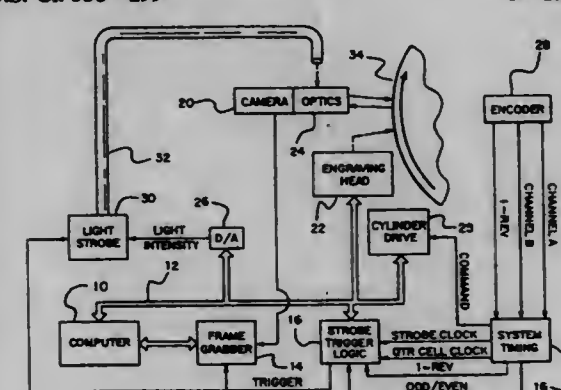
Continuation-in-part of Ser. No. 415,638, Apr. 3, 1995, which is a continuation-in-part of Ser. No. 125,938, Sep. 23, 1993, Pat. No. 5,440,398, which is a continuation-in-part of Ser. No. 22,127, Feb. 25, 1993, Pat. No. 5,424,845. This application

Apr. 27, 1995, Ser. No. 431,710

Int. Cl.⁶ B41C 1/02

U.S. Cl. 358—299

34 Claims



1. A method of imaging an engraved area on a cylinder comprising the steps of:

imaging a portion of a surface of the cylinder with an imager; and

registering said engraved area within a region of focus of said imager.

5,671,064 METHOD AND APPARATUS FOR ENGRAVING USING A MAGNETOSTRICTIVE ACTUATOR

Lester W. Buechler, Dayton, Ohio, assignor to Ohio Electronic Engravers, Inc., Dayton, Ohio

Continuation of Ser. No. 334,740, Nov. 4, 1994, Pat. No. 5,491,559. This application May 3, 1995, Ser. No. 433,083

Int. Cl.⁶ B41C 1/02; H01L 41/06

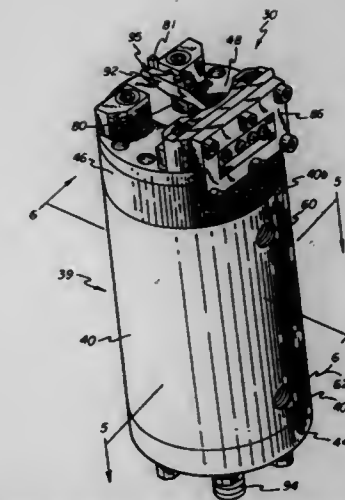
U.S. Cl. 358—299

53 Claims

1. An engraving device for engraving a workpiece comprising: an actuator; and

an engraving stylus for engraving the workpiece;

an energizer coupled to said actuator for energizing said actuator within a substantially linear range of operation and for causing said engraving stylus to oscillate to engrave a predetermined pattern on a surface of the workpiece,



wherein said actuator comprises a magnetostriuctive member for oscillating said engraving stylus in the linear range at frequencies in excess of 5 KHz.

5,671,065 PAPER CONVEYING AND AUTOMATIC CUTTING DEVICE FOR A FACSIMILE APPARATUS WHICH USES A SINGLE BI-DIRECTIONAL DRIVE MOTOR

Hyun-Jun Lee, Busanjkhal, Rep. of Korea, assignor to Sam-Sung Electronics Co., Ltd., Suwon, Rep. of Korea

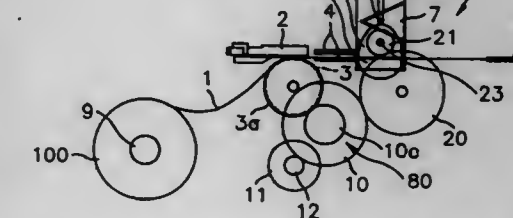
Filed Jul. 15, 1994, Ser. No. 275,673

Claims priority, application Rep. of Korea, Dec. 1, 1993, 26118/1993

Int. Cl.⁶ B41J 11/70

U.S. Cl. 358—304

23 Claims



16. A device for conveying and automatically cutting paper of a facsimile apparatus, comprising:

a stationary cutting edge;

a frame;

a motor providing rotation in both a forward direction and a reverse direction;

a driving gear rotatably driven in both of said two directions by said motor;

a doubling gear engaged to be rotated in both directions by said driving gear;

a conveyor gear rotatably engaged to be rotatably driven in both of said directions by said doubling gear, said conveyor gear containing a first clutch;

a conveyor roller attached to said conveyor gear via said first clutch, said conveyor roller rotates and conveys paper over said stationary cutting edge only when said motor is operated in said forward direction;

an idler gear rotatably engaged to be rotatably driven in both of said directions by said doubling gear;

a clutch gear rotatably engaged to be rotatably driven in both of said directions by said idler gear, said clutch gear containing a second clutch;

a cam shaft positioned on said frame, said cam shaft attached to said clutch gear via said second clutch; said cam shaft rotates only when said motor is operated in said reverse direction;

a pair of cams, each eccentrically positioned on opposite ends of said cam shaft;

a second shaft positioned on said frame parallel to and above said cam shaft, opposite ends of said second shaft resting on and in contact with corresponding ones of said pair of cams, said second shaft oscillating in a first reciprocal direction between a high position and a low position in response to the camming action of said pair of cams rotating on said cam shaft; and

a movable cutting edge positioned on said second shaft, said movable cutting edge oscillating in said first reciprocal direction with said second shaft, cutting paper resting on said stationary cutting edge when said second shaft reaches said low position.

5,671,066

APPARATUS FOR RECORDING AND REPRODUCING VIDEO SIGNALS WITH PREEMPHASIS AND DEEMPHASIS PROCESSES

Ryo Hirayama, Kamakura, Japan, assignor to Victor Company Of Japan, Ltd., Yokohama, Japan

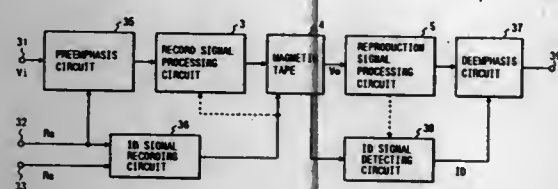
Division of Ser. No. 415,031, Apr. 3, 1995, Pat. No. 5,517,322, which is a continuation of Ser. No. 94,575, Jul. 21, 1993, abandoned. This application Feb. 29, 1996, Ser. No. 609,037

Claims priority, application Japan, Jul. 21, 1992, 4-215597; Jul. 22, 1992, 4-216337

Int. Cl. H04N 5/76

U.S. Cl. 358-335

3 Claims



1. A video signal recording apparatus for recording a video signal onto a recording medium comprising:

preephasis means for modifying said video signal prior to recording onto said recording medium, so as to increase magnitude of high-frequency components of said video signal with respect to magnitude of low-frequency components thereof;

means for providing a record start signal representing an initiation of recording of said video signal;

first identification signal recording means for generating a record start identification signal in response to said record start signal and for recording said record start identification signal onto a corresponding portion of said recording medium;

reset means for resetting said preephasis means in response to said record start signal;

means for providing a record end signal representing a termination of recording of said video signal; and

second identification signal recording means for generating a record end identification signal in response to said record end signal and for recording said record end identification signal onto a corresponding portion of said recording medium.

5,671,067

FACSIMILE APPARATUS FOR OPTICALLY RECOGNIZING CHARACTERS AND TRANSMITTING THE RECOGNIZED CHARACTERS AND COMMUNICATION SYSTEM FOR TRANSMITTING THE RECOGNIZED CHARACTERS BETWEEN A TERMINAL AND A CENTER

Ryuichi Negishi, Kawasaki; Kiyonori Sekiguchi, Tokyo; Koichi Nagoshi; Hiroshi Saza, both of Yokohama, and Kiyohiko Honda, Tokyo, all of Japan, assignors to Matsushita Graphic Communication Systems, Inc., Tokyo, Japan

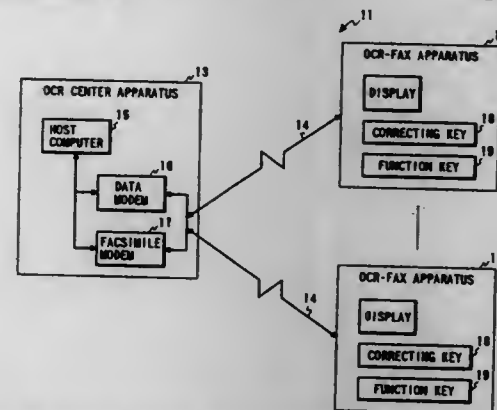
Filed Jun. 5, 1995, Ser. No. 463,539

Claims priority, application Japan, Sep. 26, 1994, 6-229523; Nov. 28, 1994, 6-292871

Int. Cl. H04N 1/00; 1/32

U.S. Cl. 358-403

22 Claims



1. A facsimile apparatus for communicating with a center apparatus, comprising:

a read only memory for storing an OCR sheet recognizing program utilized to recognize contents written in an OCR document sheet as one or more characters;

information receiving means for receiving a piece of OCR sheet specifying information transmitted from the center apparatus, the OCR sheet specifying information being utilized to specify a format of the OCR document sheet;

a static random access memory for temporarily storing the OCR sheet specifying information received by the information receiving means;

a nonvolatile memory for storing the OCR sheet specifying information stored in the static random access memory;

memory control means for transferring the OCR sheet specifying information from the static random access memory to the nonvolatile memory in cases where the OCR sheet specifying information is successfully transmitted from the center apparatus to the information receiving means and is stored in the static random access memory;

reading means for reading the contents written in the OCR document sheet; and

character recognizing means for recognizing the contents read by the reading means as one or more characters according to the OCR sheet specifying information stored in the nonvolatile memory and the OCR sheet recognizing program stored in the read only memory.

5,671,068

Patent Not Issued For This Number

5,671,069

PIXEL CLOCK GENERATOR

Kouichi Kodama, Saltama, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

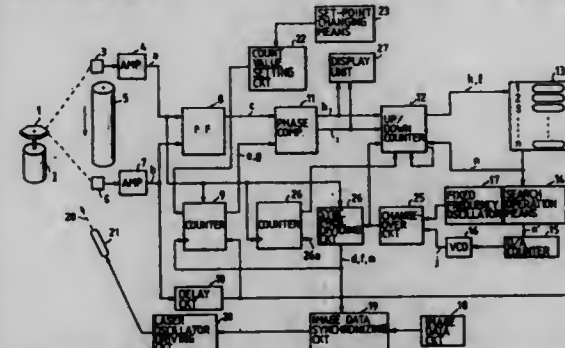
Filed Apr. 5, 1995, Ser. No. 417,252

Claims priority, application Japan, Jul. 4, 1994, 6-173161

Int. Cl. H04N 1/40; 1/36; 1/04

U.S. Cl. 358-474

4 Claims



1. A pixel clock generator in which the frequency of a pixel clock signal is changed over for every scanning face prior to start of image record scanning, said generator comprising:

first scanning time detection means for detecting scanning period of time from the start of image scanning to the end of the image scanning;

reference clock signal generation means for generating a reference clock signal to make the frequency of said reference clock signal variable;

number-of-pixel-clocks setting means for setting the number of pixel clocks corresponding to forecast scanning time;

second scanning time detection means for counting the pixel clocks generated on the basis of said reference clock signal by the number set by said number-of-pixels-clocks setting means to thereby detect the scanning time corresponding to said forecast scanning time;

comparison means for comparing the time detected by said first scanning time detection means with the time detected by said second scanning time detection means to obtain a comparison result;

correction data storage means for storing data for correcting the second scanning time for every scanning face;

renewal means for renewing said correction data of said correction data storage means in accordance with the result of said comparison result;

a correction circuit to perform variable control by correcting the frequency of the reference clock signal outputted from said reference clock signal generator in accordance with the data renewed by said renewal means; and

means for inhibiting the renewal operation of said renewal means prior to the start of image visualization.

5,671,070

TONAL CONSISTENCY IN A RADIOGRAPHIC IMAGE NETWORK

James Edward Przybylowicz; Timothy James Averion-Mahloch, both of Rochester, N.Y., and Mark Gregory Wofford, Dallas, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 981,143, Nov. 24, 1992, abandoned. This application Apr. 10, 1995, Ser. No. 420,452

Int. Cl. H04N 1/04; G06F 15/00

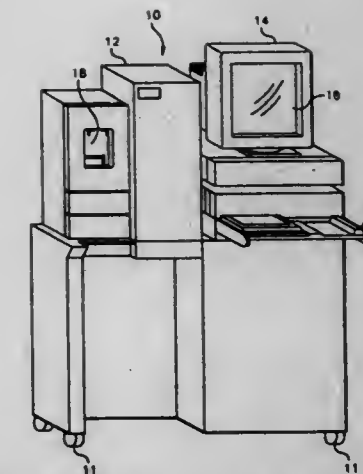
U.S. Cl. 358-487

8 Claims

1. A method of transmitting an input digital radiographic image signal over a network to insure consistent tonal matching, comprising the steps of:

producing an input digital radiographic image by a source imaging device having a source display device;

providing a source-to-density look-up-table SDL which represents the characteristic response curve for the source display



device and which is determined independently of said produced digital radiographic image;

transmitting the input digital radiographic image signal over a network to an output radiographic image visualization device along with said SDL; and

including the step of providing a normal/reverse flag for the SDL where depending upon the type of source imaging device, the normal/reverse setting implies either a) the "normal" setting implies that low digital image values=low luminance=high density=dark regions and high digital image values=high luminance=low density=light regions and the "reverse" setting implies an inversion of all the index values for the SDL; and b) the "normal" setting implies low digital image values=high luminance=low density=light regions and high digital image values=low luminance=high density=dark regions and the "reverse" setting implies an inversion of all of the index values for the SDL.

5,671,071

DRIVE DEVICE FOR PAPER FEEDER

Hey-Song Ahn, Seoul, Rep. of Korea, assignor to Hyundai Electronics Industrial Co., Ltd., Kyongki-do, Rep. of Korea

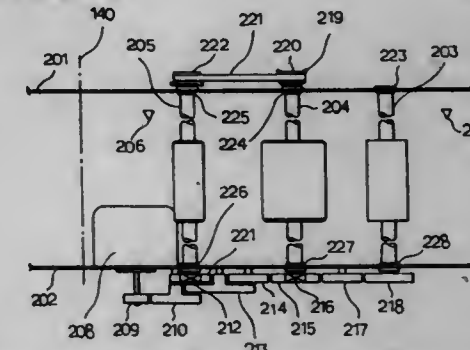
Filed Dec. 29, 1994, Ser. No. 365,700

Claims priority, application Rep. of Korea, Dec. 30, 1993, 31573/1993

Int. Cl. H04N 1/04; 1/36

U.S. Cl. 358-498

20 Claims



1. A drive device for paper feeder in a facsimiles, comprising:

a drive motor for generating a rotating force;

main transmission gears for rotating both a document separation roller and a guide roller by transmitting the rotating force of the motor to said rollers during initial rotation of the motor, and for rotating a register roller by transmitting the rotating force of the motor to said register roller during reverse rotation of the motor;

said register roller, said document separation roller and said guide roller rotatably connected to said main transmission gears; and

first auxiliary transmission means for transmitting the rotating force of said register roller to said document separation roller during the reverse rotation of the motor, wherein the rotating force of the motor is transmitted to the document separation roller and the guide roller during the initial rotation of the motor without being transmitted to the register roller, while the rotating force of the motor is transmitted to the register roller and the document separation roller during the reverse rotation of the motor.

5,671,072 **IMAGE FILM DEVELOPER FOR PRINTING CHANGED FILM IMAGE DATA AND IMAGE DATA CHANGE CONDITION**

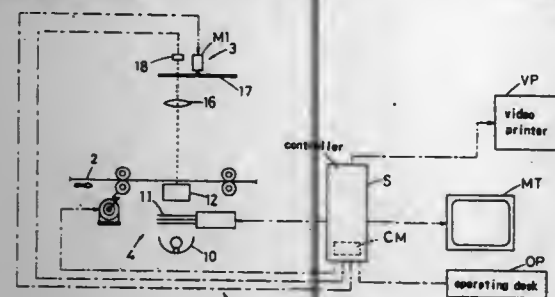
Choji Umamoto, Wakayama, Japan, assignor to Noritsu Koki Co., Ltd., Wakayama, Japan

Filed Sep. 20, 1995, Ser. No. 531,268

Claims priority, application Japan, Sep. 21, 1994, 6-226983
Int. Cl.⁶ H04N 1/50

U.S. Cl. 358—501

2 Claims



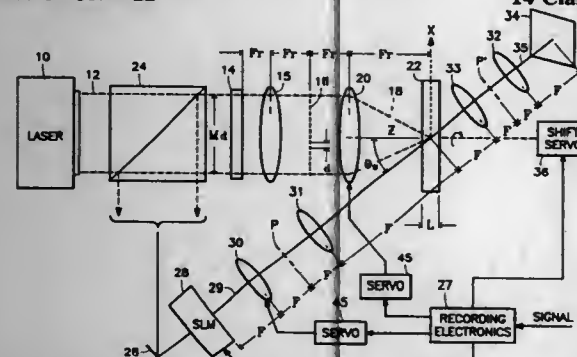
1. A film reading image developer comprising:
 - (a) reading means for reading film image data;
 - (b) means for setting a standardized condition based on a standardized image data change condition;
 - (c) correction means for correcting the standardized image data change condition;
 - (d) image data change means for changing the read film image data, based on the corrected image data change condition; and
 - (e) output means for printing the changed film image data and the image data change condition together on a sheet.

5,671,073 **HOLOGRAPHIC STORAGE USING SHIFT MULTIPLEXING**

Demetri Psaltis, Michael J. Levene, Allen Pu, and George Barbastathis, all of Pasadena, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Feb. 15, 1995, Ser. No. 389,890

Int. Cl.⁶ G03H 1/26; G11C 13/04; G11B 7/00
U.S. Cl. 359—22



1. A method of recording successive holograms in a recording medium, comprising:

providing at least a fan of M amount of waves along at least a first axis with a separation angle between adjacent waves and directing said fan of M waves as a reference beam along a reference beam path onto said recording medium; successively modulating a wave with a succession of images to produce a succession of signal beams along a signal beam path lying at a propagation angle relative to said reference beam path so that said signal and reference beams intersect at a beam intersection lying within said medium, said beam intersection having a size corresponding to beam areas of said reference and signal beams;

producing a succession of relative displacements a direction parallel to said first axis between said recording medium and said beam intersection of said signal and reference beam paths in synchronism with said succession of signal beams, each of said displacements being less than said size of said intersection whereby to record successive holograms partially overlapped along a direction of said displacements; and wherein said first axis and said signal beam path are parallel and said signal beam and said M amount of waves of said reference beam have a wavelength, said recording medium has a thickness and said separation angle of said fan of M waves is at least approximately equal to

$$\frac{\lambda}{L \tan \theta_s}$$

wherein λ is the wavelength, L is the thickness, and θ_s is the propagation angle.

5,671,074 **OPTICAL MULTIPLEX TRANSMISSION EQUIPMENT AND METHOD**

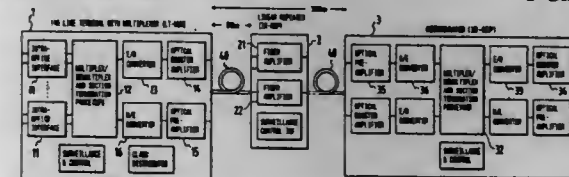
Keiji Tomooka, Yokohama; Naohiro Sakakida, Kawasaki; Shin Nishimura, Yokohama; Yoshihiro Ashi, Yokohama; Hironari Matsuda, Yokohama; Satoshi Aoki, Chigasaki; Yukio Nakano, Zama; Masahiro Takatori, Hachioji; Toru Kazawa, Kokubunji; Shinya Sasaki, Kodaira; Kyoji Takeyari, Koganei, and Hiroyuki Nakano, Asaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 44,425, Apr. 7, 1993, Pat. No. 5,555,477, which is a continuation-in-part of Ser. No. 23,546, Feb. 26, 1993, Pat. No. 5,500,756. This application Jun. 20, 1996, Ser. No. 667,213

Claims priority, application Japan, Apr. 8, 1992, 4-087247
Int. Cl.⁶ H04B 10/00

U.S. Cl. 359—163

8 Claims



5. An optical transmission equipment, comprising: a shelf with,

- a first circuit board slot for accommodating a first device which is an electric-to-optic converter circuit board for converting an electric signal to a transmission light,
- a second circuit board slot for accommodating a second device which is an optic-to-electric converter circuit board for converting received light to an electric signal,
- a third circuit board slot for accommodating a third device which is a booster optical amplifier circuit board for amplifying said transmission light from said first device and,
- a fourth circuit board slot for accommodating a fourth device which is a pre-optical amplifier circuit board for amplifying said received light before providing it to said second device;

means for operating at least one of said first device and said second device being inserted to the corresponding circuit board slot;

means for transmitting said transmission light when said first device is inserted, and the transmission distance is shorter than a predetermined length; means for receiving said received light when said second device is inserted and the received light is transmitted a distance shorter than a predetermined length; means for operating said third device being inserted to said third circuit board slot, when transmitting said transmission light a distance longer than said predetermined length; and, means for operating said fourth device being inserted to said fourth circuit board slot, when said received light is transmitted a distance longer than said predetermined length.

5,671,075

OPTICAL TRANSMISSION SYSTEM

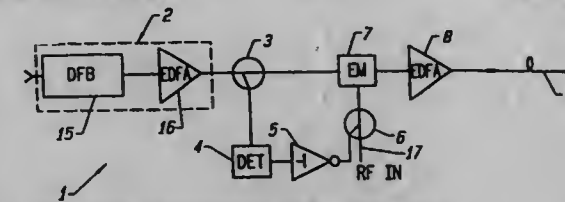
Mani Ramachandran, and Hermann Gysel, both of San Jose, Calif., assignors to Synchronous Communications, Inc., San Jose, Calif.

Continuation of Ser. No. 397,550, Mar. 1, 1995, abandoned, which is a continuation of Ser. No. 97,517, Jul. 27, 1993, abandoned, which is a division of Ser. No. 904,375, Jun. 25, 1992, Pat. No. 5,359,450. This application Oct. 25, 1995, Ser. No. 547,916

Int. Cl.⁶ H04B 10/04

U.S. Cl. 359—180

14 Claims



1. An optical transmission system comprising: a distributed feedback (DFB) laser for providing coherent radiation;
- first amplifier for amplifying radiation from the DFB;
- linearized modulating means responsive to amplified radiation from the first amplifier for modulating the amplified radiation; and
- second amplifier for amplifying modulated radiation from the linearized modulating means wherein the first and second amplifiers compensate for insertion loss in the optical transmission system caused by the linearized modulating means.

5,671,076

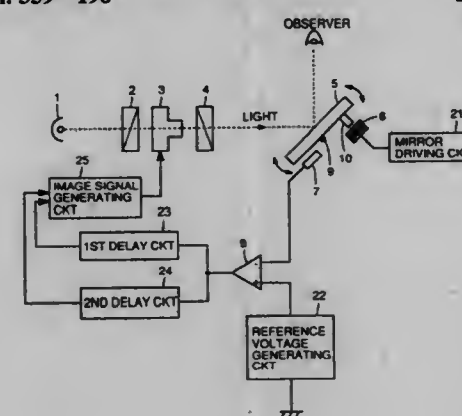
IMAGE DISPLAY DEVICE USING VIBRATING MIRROR
Ken Matsubara, Takatsuki, and Tsukasa Yagi, Kobe, both of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Sep. 25, 1995, Ser. No. 533,329

Claims priority, application Japan, Sep. 28, 1994, 6-233021
Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—196

20 Claims



1. An image display device, comprising: an image signal generating device for outputting an image signal;
- a light emitting device for outputting light as a one-dimensional image in accordance with said output image signal;
- a deflector having a movable reflecting surface for reflecting said output light as the one-dimensional image;
- a detector for detecting position of said movable reflecting surface and for outputting a position signal corresponding to the detected position;
- a comparator for comparing said position signal and a reference signal, for outputting a comparator signal; and
- a controller for controlling said image signal generating device based on said comparator signal; wherein the light as the one-dimensional image reflected by said movable reflecting surface is recognized as a two-dimensional image because of after image phenomenon on the eyes of an observer.

5,671,077

MULTI-BEAM LIGHT SOURCE DEVICE AND OPTICAL SCANNING APPARATUS USING THE MULTI-BEAM SOURCE DEVICE

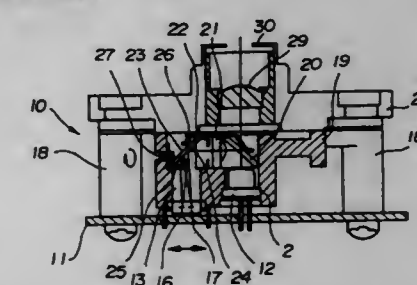
Susumu Imakawa, Katsumi Yamaguchi, both of Yokohama; Makoto Hino; Norio Michie, both of Tokyo, and Tomohiro Nakajima, Machida, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 62,575, May 17, 1993, Pat. No. 5,432,537. This application Jan. 21, 1994, Ser. No. 184,481
Claims priority, application Japan, May 18, 1992, 4-124699; Jan. 25, 1993, 5-009934; Jan. 27, 1993, 5-011602; May 26, 1993, 5-124251

Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—204

21 Claims



1. A multi-beam light source device comprising: a plurality of light emitting sources adjacent to each other, each of said light emitting sources emitting a light beam substantially in the same direction;
- a half mirror for splitting each light beam emitted by said plurality of light emitting sources into at least two split light beams;
- a light converging unit for converging one of said split light beams at a predetermined focal point;
- a plurality of light receiving elements corresponding to said light emitting sources, positioned at said predetermined focal point of said light converging unit, for receiving said one of the split light beams so that each split light beam which corresponds to the respective light beam emitted by said light emitting sources is received by corresponding one of said light receiving elements;
- a controlling circuit for controlling an output of said plurality of light emitting sources in accordance with an amount of light received by said plurality of light receiving elements so that said each light beam emitted by said light emitting sources is controlled separately; and
- an optical cross-talk suppressing unit for suppressing an optical cross-talk generated between said split light beams emitted by adjacent ones of said light emitting sources.

5,671,078 ACCURATE LASER POWER CONTROL FOR DUAL/MULTIPLE BEAMS

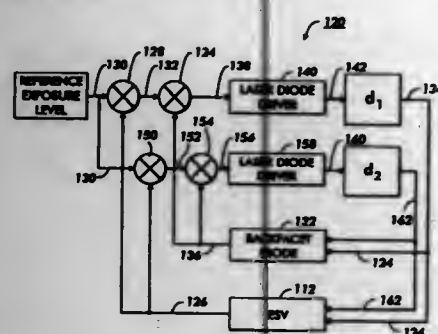
Vinod Mirchandani, Agoura, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Jul. 1, 1996, Ser. No. 673,883

Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—204

1 Claim



1. A method of individually measuring the output power of each laser diode of a multi-diode laser light source in a scanning system having a laser diode output power test mode and a latent image generation mode, the method comprising the steps of:

- switching to a laser diode output power test mode
- turning off all the laser diodes except one laser diode;
- scanning the light beam from the one laser diode onto a photoreceptor in an area prior to an area used for a latent image;
- measuring a discharged value of the photoreceptor from the scan lines scanned by the scanning light beam;
- comparing the measured discharged value to a reference exposure level;
- adjusting the output power of the one laser diode according to the result of the comparison;
- turning off the one laser diode;
- selecting a laser diode which its output has not been adjusted;
- turning the selected laser diode on;
- repeating steps c through i until there is no diode which its output has not been adjusted;
- turning on all the laser diodes and switching to a latent image generation mode where the laser diodes are responsive to image data to form a latent image on the latent image area of the photoreceptor; and
- selectively switching between the laser diode output power test mode and the latent image generation mode.

5,671,079 SCANNING LENS SYSTEM

Yasushi Nagasaka, Gamagori; Hiromu Nakamura, and Satoru Ono, both of Toyokawa, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Aug. 11, 1995, Ser. No. 514,268

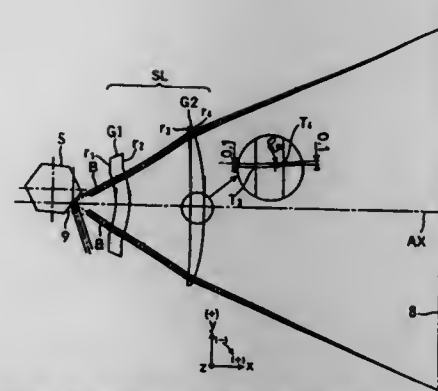
Claims priority, application Japan, Aug. 19, 1994, 6-195256
Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—205

10 Claims

1. A scanning lens system which forms a light beam deflected by a deflector into an image on a scanned surface to scan the scanned surface with the light beam, said light beam halving its object point in a main scanning direction located at a finite distance, the scanning lens system comprising:

- a first surface which is parallelly decentered in the main scanning direction relative to an axis passing the scanned surface at a center of scanning width in the main scanning direction; and



a second surface which is rotatively decentered relative to an axis parallel to subscanning direction.

5,671,080 OPTICAL SYSTEM SCANNING WITH A MIRROR FOR ELECTRONIC IMAGE PICKUP APPARATUS

Shinichi Mihara, Hino, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

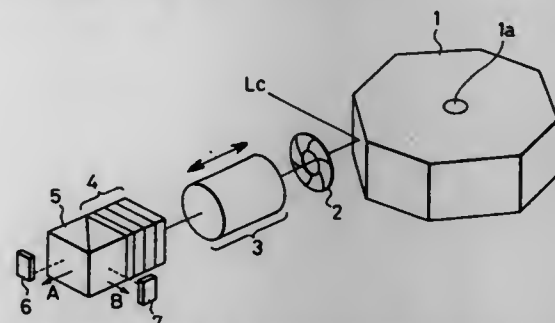
Filed Dec. 21, 1994, Ser. No. 360,432

Claims priority, application Japan, Dec. 22, 1993, 5-345551; Mar. 18, 1994, 6-049186

Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—210

7 Claims



1. An optical system for an electronic image pickup apparatus, said optical system comprising, in order from an object side: only one rotating mirror for deflecting rays coming from an object; an aperture stop; an imaging lens system which forms an image of said object while receiving rays coming from said rotating mirror, said imaging lens system comprising a plurality of lens elements movable along an optical axis thereof; and a plurality of electronic image sensors for receiving rays coming from said imaging lens system.

5,671,081 OPTICAL SCANNING APPARATUS

Fumiya Hisa, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Apr. 13, 1995, Ser. No. 421,744

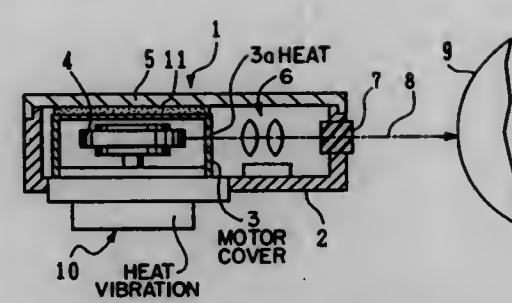
Claims priority, application Japan, Jul. 15, 1994, 6-185209
Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—216

6 Claims

1. An optical scanning apparatus wherein a beam emitted from a light source is reflected by a rotary polygon mirror attached to a rotary polygon mirror drive motor so as to be focused on a photosensitive material through a condenser lens, comprising:

- an apparatus for damping and radiating heat of a rotary polygon mirror drive motor, including:
- a motor cover for covering said rotary polygon mirror drive motor and said rotary polygon mirror;



an optical cover of an optical box in which said motor cover and said condenser lens are accommodated; and a damping member disposed between an upper surface of said motor cover and a lower surface of said optical cover.

5,671,082 SINGLE COMPARTMENT SELF-ERASING ELECTROCHROMIC DEVICE

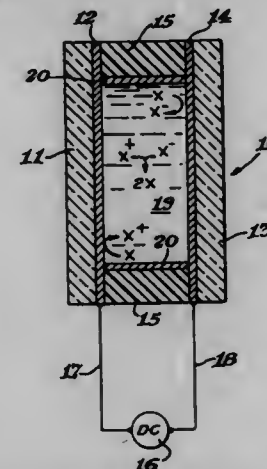
Susan J. Babinec, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Aug. 25, 1994, Ser. No. 296,299

Int. Cl.⁶ G02F 1/153

U.S. Cl. 359—272

6 Claims



1. A photostable electrochromic device comprising:

- a first electrode;
- a second electrode, the second electrode spaced apart from the first electrode so that there is a space between the first electrode and the second electrode; and
- a dispersion positioned in the space between the first electrode and the second electrode, the dispersion being in electrical contact with the first electrode and with the second electrode, the dispersion comprising a transition metal surface substituted polyoxometalate and a solvent.

5,671,083 SPATIAL LIGHT MODULATOR WITH BURIED PASSIVE CHARGE STORAGE CELL ARRAY

James L. Conner, Rowlett; Mike Overlaur, and Rohit L. Bhuvu, both of Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Feb. 2, 1995, Ser. No. 382,566

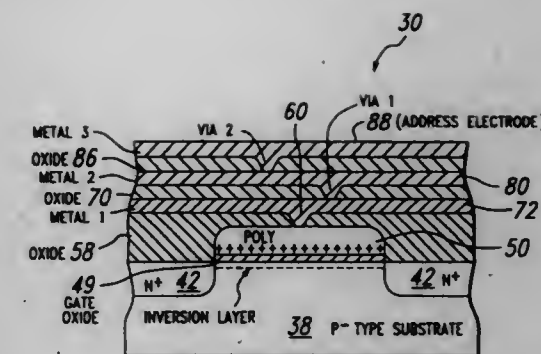
Int. Cl.⁶ G02B 26/00

U.S. Cl. 359—291

16 Claims

1. A monolithic spatial light modulator, comprising:

- a plurality of pixels; and
- control means connected to said pixels for controlling said pixels including an array of charge storage cells positioned under said pixels, each said charge storage cell comprising a



multi-layered semiconductor structure including a substrate forming a capacitor with one electrode being said substrate.

5,671,084 ILLUMINATION SYSTEM FOR A FILM SCANNER

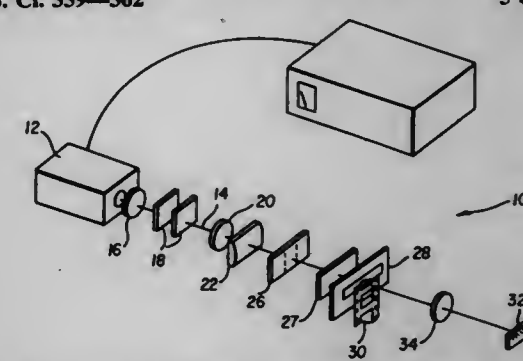
Andrew F. Kurtz, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 24, 1995, Ser. No. 409,570

Int. Cl.⁶ G02B 21/36; A61B 1/00

U.S. Cl. 359—362

5 Claims

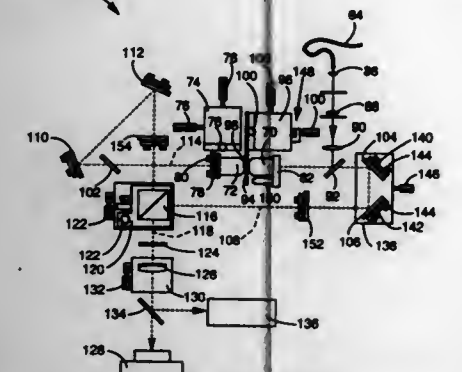


1. An illuminator system for a film scanner of the type having a linear image sensor and fill gate means, through which an area of fill to be scanned can be positioned, for defining a linear film scan region, said illuminator system comprising:

- a light source which produces a light beam;
- optical means, located between said light source and the film gate means, for directing and shaping the light beam to intercept the film gate with a linear beam configuration generally corresponding to said linear film scan region;
- illumination control means, located between said light source and said film gate means and including a plurality of discrete portions respectively having different light diffusing properties, for cooperatively redistributing the light beam so that the beam illumination at said film gate means has a predetermined radiance profile; wherein
- (i) said optical means for directing and shaping comprises a cylindrical lens means and a spherical lens means to respectively control and shape the beam and provide space for light regulating devices; and
- (ii) said illumination control means comprises first optical diffusing elements with differing light diffusing properties respectively in two planes perpendicular to the optical axis and second optical diffusing elements respectively with differing light diffusing properties at different spatial regions; whereby said illumination control means transforms the light beam to be diffused in a controlled manner for scratch suppression and in predeterminedly controlled irradiance profile for film illumination uniformity.

5,671,085
METHOD AND APPARATUS FOR THREE-DIMENSIONAL MICROSCOPY WITH ENHANCED DEPTH RESOLUTION
 Mats G.L. Gustafsson; John W. Sedat, and David A. Agard, all of San Francisco, Calif., assignors to The Regents of the University of California, Oakland, Calif.
 Filed Feb. 3, 1995, Ser. No. 384,111
 Int. Cl.⁶ G02B 21/06; 21/00
 U.S. Cl. 359—385

70 Claims

- 
1. A three dimensional optical microscopy apparatus, comprising:
- (a) first and second spaced-apart objective lenses;
 - (b) means for supporting a microscopy sample between said objective lenses;
 - (c) means for beam splitting and recombining light;
 - (d) first and second observation paths, said first observation path extending from said microscopy sample to said beam splitting and recombining means via said first objective lens, said second observation path extending from said microscopy sample to said beam splitting and recombining means via said second objective lens;
 - (e) a plurality of means for directing light, at least one of said light directing means positioned along each of said first and second observation paths to direct observed light from said microscopy sample along said first and second observation paths to said beam splitting and recombining means;
 - (f) optical path length balancing means for adjusting the optical path length of at least one of said first and second observation paths so as to make said optical path lengths of said first and second observation paths be closely equal; and
 - (g) imaging means for detecting and recording images, said imaging means positioned to detect and record all or part of said observed light, said observed light having been combined by said beam splitting and recombining means.

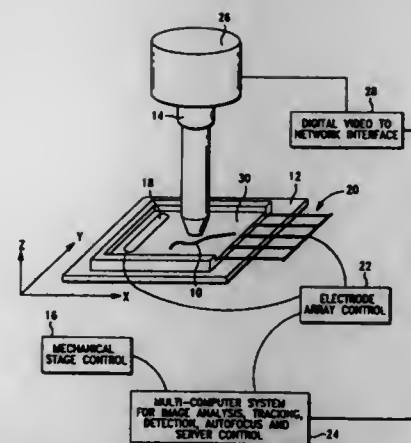
5,671,086
METHOD AND APPARATUS FOR ACCURATELY MANIPULATING AN OBJECT DURING MICROELECTROPHORESIS

Bahram A. Parvin, Hercules; Marcos F. Maestre; Richard H. Fish, both of Berkeley, and William E. Johnston, Kensington, all of Calif., assignors to The Regents, University of California, Oakland, Calif.

Filed Apr. 18, 1995, Ser. No. 423,969
 Int. Cl.⁶ G02B 21/26; 21/00; 21/36; G01N 21/01
 U.S. Cl. 359—391

12 Claims

12. An apparatus for manipulation of a nucleic acid having two ends on a microscope stage comprising:
- a microscope having a stage;
 - a chamber for holding the nucleic acid, the chamber being on the stage;
 - a plurality of electrodes coupled to the chamber for creating an electric field across the chamber, the electric field having at least one changeable parameter, the plurality of electrodes being coupled to the chamber in an array for allowing distinct manipulations of the electric field;
 - an electrode array control coupled to the plurality of electrodes for manipulating the electric field;



- at least one processing unit, the processing unit being electrically connected to the electrode array control, the electrode array control being responsive to the processing unit;
- an imaging device electrically connected to the microscope for creating an image of the chamber, the imaging device being electrically connected to the processing unit for sending the image of the chamber to the processing unit;
- the processing unit having the ability to receive the image, detect the first position of the nucleic acid in the chamber, detect the preferred second position of the nucleic acid in the chamber, and determine how to change the electrode array control for changing the electric field to move the object from the first position to the preferred second position;
- a micropositioning stage adjacent to the stage;
- a plurality of tubes positioned on top of the micropositioning stage in a predetermined order, each of the plurality of tubes having two ends, a first end of the plurality of tubes being in a position for surrounding a free end of the nucleic acid in the chamber;
- a micropositioning stage control, the micropositioning stage control being electrically connected to the micropositioning stage for manipulating the micropositioning stage, and the micropositioning stage control being electrically connected to the processing unit, the micropositioning stage control being responsive to the processing unit for directing the micropositioning stage control to position the first end of one of the plurality of tubes on the micropositioning stage to surround at least part of the nucleic acid in the chamber; and
- a substrate placed in the chamber which does not move in the electric field, the substrate being complimentary to various sites of the nucleic acid for metal coordination, for attaching to one end of the nucleic acid
- wherein when the image from the imaging device is received by the processing unit, the processing unit detects the location of the nucleic acid attached to the substrate, determines how to change the electrode array control for changing the electric field to stretch the free end of the nucleic acid away from the substrate and changes the electric field thereby stretching the nucleic acid, the processing unit then directs the micropositioning stage control to position the end of one of the plurality of tubes on the micropositioning stage to surround the free end of the nucleic acid in the chamber, thereby positioning the end of one of the plurality of tubes on the micropositioning stage to surround the free end of the nucleic acid in the chamber.

5,671,087
BINOCULAR TYPE DISPLAY SYSTEM
 Akira Kawamura, Kanagawa, Japan, assignor to Sony Corporation, Japan

Filed Mar. 6, 1995, Ser. No. 399,365
 Claims priority, application Japan, Mar. 10, 1994, 6-039620
 Int. Cl.⁶ G02B 21/20

33 Claims

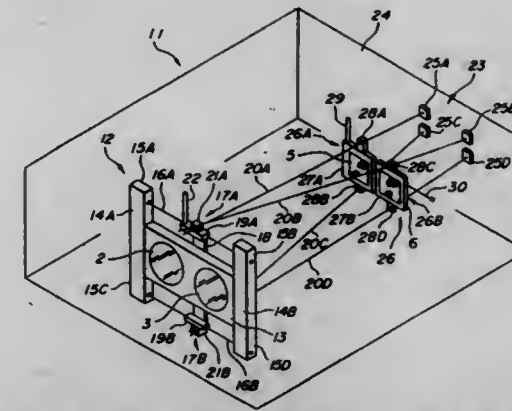
1. A display system comprising:
- a display section including left and right display panels respectively displaying left and right pictures;

5,671,089
DEVICE FOR FORMING AN AUTOSTEREOSCOPIC IMAGE

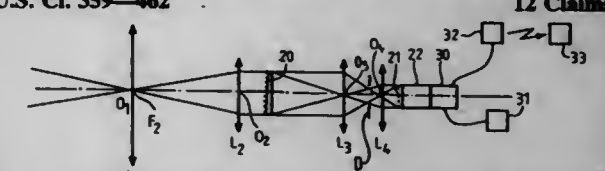
Pierre Allio, 81, rue de la Mare, 75020 Paris, France
 PCT No. PCT/FR94/00471, § 371 Date Jan. 11, 1996, § 102(e)
 Date Jan. 11, 1996, PCT Pub. No. WO94/25891, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 26, 1994, Ser. No. 537,833
 Claims priority, application France, May 5, 1993, 93 05383
 Int. Cl.⁶ G02B 27/22; H04N 13/04; 15/00; G03B 35/08
 U.S. Cl. 359—462

12 Claims



- an optical system including a left optical member for producing a left virtual image of said left picture and a right optical member for producing a right virtual image of said right picture; and
- an image adjusting means for adjusting the positions of the left and right display panels of said display section with respect to said left optical member and said right optical member so as to minimize a separation between the left and right virtual images, in response to a change in a distance between said optical system and said display section so that the left and right virtual images remain substantially coincident;
- wherein said image adjusting means includes a means for moving said left and right virtual images of said left and right pictures along at least one of a left and right direction, a far and near direction and an up and down direction; and
- wherein said left and right direction and said far and near direction are perpendicular to each other and parallel to an imaginary common axial plane containing both of a left optical axis of said left optical member and a right optical axis of said right optical member, and wherein said up and down direction is perpendicular to said common axial plane.

- 
1. A device for forming autostereoscopic images by implementing a cylindrical lens array, the device comprising in succession:
- a telecentric entrance objective having an image focal plane and an entrance pupil;
 - a lens array having diverging elementary cylindrical lenses disposed substantially in the image focal plane of the entrance objective, said lenses having a longitudinal axis, and said array having a focal length such that the image of the entrance pupil of the entrance objective has a width equal to a pitch of said lenses; and
 - a field lens to project substantially all light rays from said array towards a converging transfer objective, said transfer objective forming an orthostereoscopic real image from said light rays.

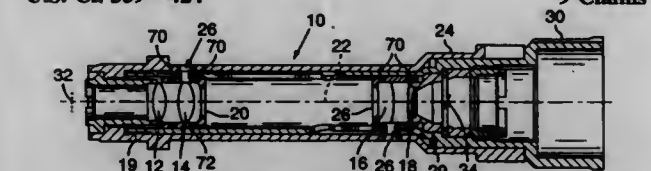
5,671,090
METHODS AND SYSTEMS FOR ANALYZING DATA
 Benjamin J. Pernick, Forrest Hills, and Nils J. Fonneland, Lake Grove, both of N.Y., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Oct. 13, 1994, Ser. No. 322,927
 Int. Cl.⁶ G02B 5/08

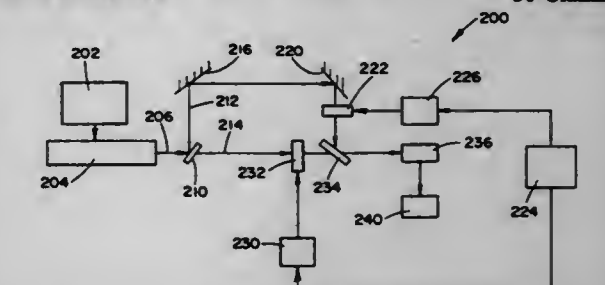
U.S. Cl. 359—561

30 Claims

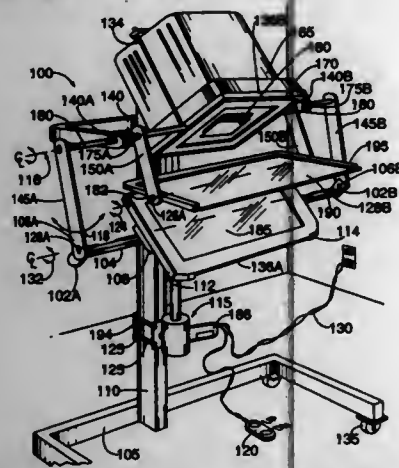
5,671,088
VARIABLE OPTICAL AIMING DEVICES
 Neil Mai; Mark Thomas, both of Beaverton, and Klaus Mahr, Portland, all of Oreg., assignors to Leupold & Stevens, Inc., Beaverton, Oreg.
 Filed Jun. 3, 1992, Ser. No. 894,054
 Int. Cl.⁶ G02B 23/00; 7/02; F41G 1/38
 U.S. Cl. 359—424



1. In a variable magnification optical device having a longitudinal axis along which an erector lens assembly and a reticle are positioned successively within the device, the erector lens assembly comprising:
- first and second erector lenses that are positioned in respective first and second lens holders, the first and second lens holders being operatively connected to a cam tube for moving the first and second lens holders along the longitudinal axis and being supported within a pivot tube that has an inner surface and an inner diameter by first and second flexible centering bearings having a plurality of ridges spaced apart from one another and defining an outer diameter of each bearing that is greater than the inner diameter of the pivot tube, the centering bearings being held under compression between the pivot tube and the first and second lens holders, respectively, the ridges being deformed by the compression so that the outer diameter defined by the ridges conforms to the inner diameter of the pivot tube, thereby providing a no-play fit between the lens holder and the pivot tube and preventing trackout.

- 
7. A method of searching a data base for a given sequence, the data base having a multitude of reference sequences stored therein, the given sequence and each of the reference sequences including a plurality of types of elements, the method comprising:
- assigning a respective one data value to each of said plurality of types of elements;
 - for each of the given and reference sequences, storing in a memory the data values assigned to each element of each of the given and reference sequences;
 - generating a first light beam having a first frequency;
 - generating a second light beam having a second frequency;
 - modulating the first light beam with acoustical signals representing the data values assigned to the elements of the reference sequences;
 - modulating the second light beam with acoustical signals representing the data values assigned to the elements of the given sequence; and
 - generating a correlation signal representing the correlation of the modulated first and second light beams.

5,671,091
VIRTUAL EASEL
 Marshall M. Monroe, Glendale; Eric C. Haseltine, Manhattan, and William G. Adamson, Pacoima, all of Calif., assignors to The Walt Disney Company, Burbank, Calif.
 Filed Apr. 15, 1994, Ser. No. 228,603
 Int. Cl.⁶ G02B 27/14; G09B 11/00; A47B 97/00; 97/04
 U.S. Cl. 359—635
 174 Claims



131. A computer graphic work station adapted for including a digitizer, an imaging device for producing an image of a drawing being drawn by a user on the digitizer, and a beam splitter for at least partially reflecting the image produced by the imaging device to the eye of the user, the work station comprising:

first means for enabling the digitizer to be variably positioned and oriented relative to the image; and
 second means for enabling the beam splitter to be variably positioned and oriented relative to the image; wherein said first and second means are operative to align the work station by causing the reflected image to appear, to the eye of the user, to be substantially coincident with the drawing.

165. A method for aligning a computer graphic work station adapted for including a digitizer, an imaging device for producing an image of a drawing being made by a user on the digitizer, and a beam splitter for at least partially reflecting the image produced by the imaging device to the eye of the user, said aligning method comprising the steps of:

varying the position and orientation of the beam splitter relative to the produced image to cause the reflected image to be seen by the user; and
 varying the position and orientation of the digitizer relative to the produced image to cause the reflected image to appear to the user to be substantially coincident with the drawing.

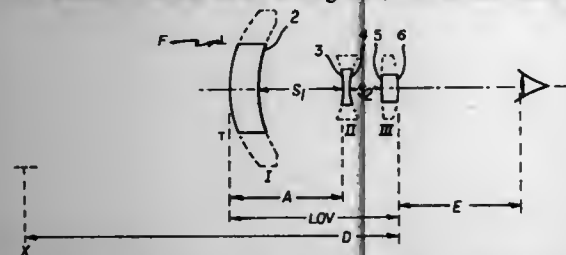
5,671,092
REVERSE GALILEAN FINDER WITH PROJECTED FRONT WINDOW

Lee R. Estelle; William B. Jones, and John D. Griffith, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 20, 1994, Ser. No. 326,557
 Int. Cl.⁶ G02B 25/00; 13/00; 9/12

U.S. Cl. 359—645
 16 Claims

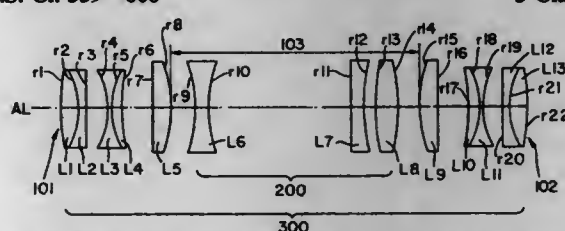
1. A reverse Galilean finder having first, second and third elements from a front object side to a rear eye side, said first element having a front vertex at the surface facing the front object side and



elements from a front object side to a rear eye side, said first element having a front vertex at the surface facing the front object side and

said third element having a rear vertex at the surface facing the rear eye side, a frame positioned on the object side of said first element substantially at the front vertex providing the entire framing function of the finder, the elements having powers and spacings which are chosen to project an apparent image of the frame away from an eye of a user such that a ratio D/LOV is greater than 2.2, where D is equal to the distance from said rear vertex to said apparent image and LOV is equal to the length of the finder from said front vertex to said rear vertex.

5,671,093
ANAMORPHIC LENS FOR A CCD CAMERA APPARATUS
 Jin-Ho Jung, D-105 National Housing, 327 Jin-r1, Icheon-gun, Kyeonggi-do, and Jong-Wung Lee, 36 Neduk-dong, Cheongju-shi, Chungcheongbuk-do, both of Rep. of Korea
 Continuation-in-part of Ser. No. 347,069, Nov. 23, 1994, abandoned. This application Mar. 4, 1996, Ser. No. 610,653
 Claims priority, application Rep. of Korea, Nov. 18, 1993, 93-24660
 Int. Cl.⁶ G02B 13/08; 3/06
 U.S. Cl. 359—668
 3 Claims



1. An anamorphic lens system for a CCD camera system for optically inspecting and measuring the size of a manufactured product comprising:

first and second spherical lens devices, said first and second spherical lens devices being identical to each other; and
 an afocal cylindrical lens device formed to generate an image having a length-wise input image-to-resulting image ratio different from a width-wise input image-to-resulting image ratio thereof; wherein

said first and second spherical lens devices are positioned face-to-face opposite each other with a predetermined space therebetween whereby image aberrations through said first and second spherical lens devices are eliminated with a magnification of 1:1, and

said afocal cylindrical lens device is positioned between said first and second spherical lens devices in said predetermined space.

5,671,094
ZOOM LENS SYSTEM IN FINITE CONJUGATE DISTANCE

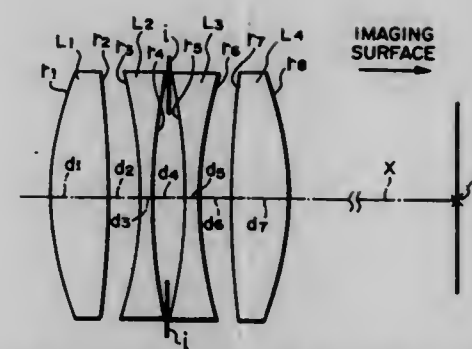
Hiromitsu Yamakawa, Omiya, Japan, assignor to Fujii Photo Optical Co., Ltd., Omiya, Japan

Filed Sep. 5, 1996, Ser. No. 706,566

Claims priority, application Japan, Oct. 6, 1995, 7-286873
 Int. Cl.⁶ G02B 15/14
 U.S. Cl. 359—679
 3 Claims

1. A zoom lens system in a finite conjugate distance, said zoom lens system comprising, successively from an object side, a first lens comprising a biconvex lens, a second lens comprising a biconcave lens, a third lens comprising a biconcave lens, and a fourth lens comprising a biconvex lens;

wherein, distance between said first lens and second lens, distance between said third lens and fourth lens, and distance between said second lens and third lens when imaging magnification is reduced or enlarged are made larger than those under real-size magnification, and wherein the whole system

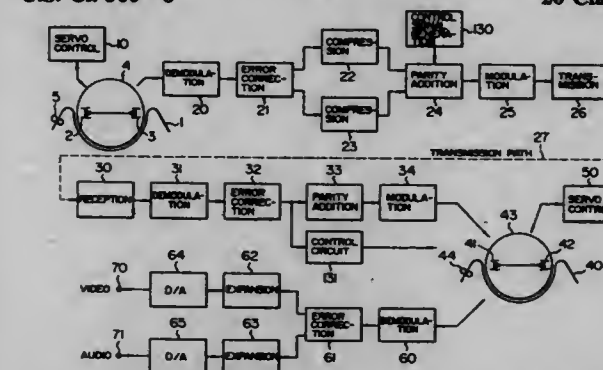


is moved while distance from an object surface to an imaging surface is held substantially constant when magnification is varied.

5,671,095
DIGITAL TRANSMISSION SIGNAL PROCESSING SYSTEM AND RECORDING/REPRODUCING SYSTEM
 Hideo Arai, Chigasaki; Hitoaki Owashi, Yokohama; Kyoichi Hosokawa, Yokohama; Keizo Nishimura, Yokosuka; Yoshizumi Watatani, Fujisawa, and Akira Shibata, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Division of Ser. No. 727,059, Jul. 8, 1991, Pat. No. 5,337,199.
 This application May 5, 1994, Ser. No. 238,528
 Claims priority, application Japan, Jul. 6, 1990, 2-177406; Jul. 20, 1990, 2-190655; Sep. 21, 1990, 2-250199
 Int. Cl.⁶ G11B 5/00
 U.S. Cl. 360—8
 26 Claims

1. A recording/reproducing system for receiving a time-base compressed, bit-compressed, parity-added, modulated and transmitted digital signal to record/reproduce the digital signal, comprising:

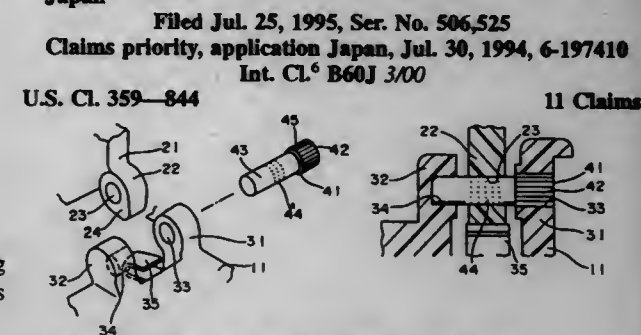
means for receiving the transmitted digital signal;
 means for demodulating the received signal;
 means for recording/reproducing the demodulated signal;
 recording control means for controlling a cylinder rotation speed and a tape speed so that the demodulated signal is recorded at a high speed by said recording/reproducing means;
 reproduction control means for controlling the cylinder rotation speed and the tape speed so that the recorded signal is reproduced at a normal speed;
 means for demodulating the reproduced signal;
 means for correcting any error in sound the demodulated reproduced signal; and
 means for bit-expanding the error-corrected signal.



1. A mirror installation suitable for mounting on a wall, including in combination:

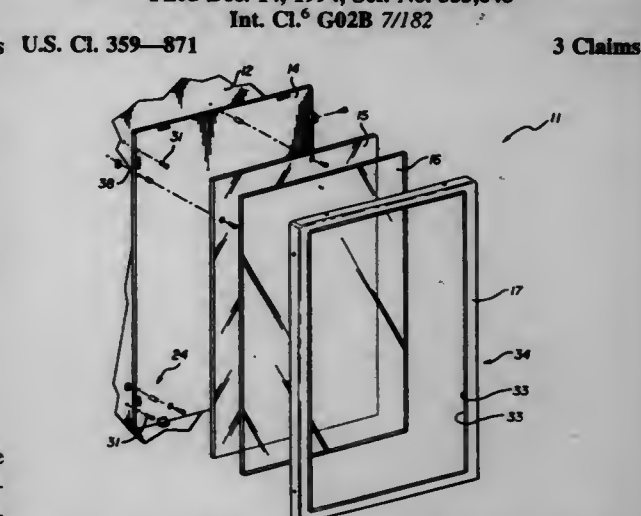
a wall mounting plate including a reflective surface and having a perimeter flange;
 a transparent reflective surface protection sheet;
 positioning means carried on said wall plate for positioning said transparent sheet over said reflective surface of said wall plate;
 frame means for attaching to said wall plate and overlying edges of said transparent sheet for clamping said transparent sheet to said wall plate over said reflective surface, with said frame means and said transparent sheet removable and replaceable without disturbing said reflective surface;
 said frame means comprising a pan with a central opening for viewing said reflective surface and a rim having a first edge for clamping engagement with said transparent sheet and a

5,671,096
VANITY MIRROR
 Yoshihide Yoshida, Shimizu, and Atsushi Yamada, Tokyo, both of Japan, assignors to Koito Manufacturing Co., Ltd., Tokyo, Japan
 Filed Jul. 25, 1995, Ser. No. 506,525
 Claims priority, application Japan, Jul. 30, 1994, 6-197410
 Int. Cl.⁶ B60J 3/00
 U.S. Cl. 359—844
 11 Claims



1. A vanity mirror for an automobile, comprising:
 a mirror body arranged with a mirror;
 a cover received by said mirror body;
 a spring member for urging said cover in at least a closing direction; and
 a shaft means for rotatably supporting said cover on said mirror body, said shaft means comprising a first part and a second part, said first part being fixedly received by one of said mirror body and said cover with said second part being rotatably received by an other of said mirror body and said cover, said second part comprising a friction surface part having an enlarged friction coefficient on a surface thereof.

5,671,097
GRAFFITI RESISTANT MIRROR
 Frank Merriweather, Jr., Carson, Calif., assignor to Bobrick Washroom Equipment, Inc., North Hollywood, Calif.
 Filed Dec. 14, 1994, Ser. No. 355,648
 Int. Cl.⁶ G02B 7/182
 U.S. Cl. 359—871
 3 Claims



1. A mirror installation suitable for mounting on a wall, including in combination:
 a wall mounting plate including a reflective surface and having a perimeter flange;
 a transparent reflective surface protection sheet;
 positioning means carried on said wall plate for positioning said transparent sheet over said reflective surface of said wall plate;
 frame means for attaching to said wall plate and overlying edges of said transparent sheet for clamping said transparent sheet to said wall plate over said reflective surface, with said frame means and said transparent sheet removable and replaceable without disturbing said reflective surface;
 said frame means comprising a pan with a central opening for viewing said reflective surface and a rim having a first edge for clamping engagement with said transparent sheet and a

second edge substantially perpendicular to said first edge for connection to said wall plate;

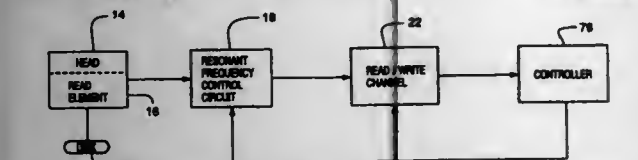
said positioning means including a plurality of screw assemblies, each of said screw assemblies including a screw with a head and a nut, with said screws passing through said wall plate into said nuts, and with said screw heads providing said positioning means for said transparent sheet, and said screw assemblies further including washers between said transparent sheet and said reflective surface for providing a space therebetween and with said screw, washer and nut clamping said reflective surface in place on said wall mounting plate while permitting said frame means and protection sheet to be removed and replaced; and

a plurality of angle mounting brackets, each mounting bracket having an outer surface coplanar with said wall plate perimeter flange, and

with said rim of said frame means overlying said wall plate perimeter flange and mounting brackets, and including screws for attaching said overlying rim to said mounting brackets.

5,671,098
ADAPTIVE PREAMPLIFIER FOR RESONANCE TUNING USEFUL IN A DISK DRIVE
 Harlan Mathews, Boulder; Michael McNeil, Nederland, and Michael A. Blatchley, Longmont, all of Colo., assignors to Maxtor Corporation, San Jose, Calif.
 Filed Jun. 1, 1995, Ser. No. 456,680
 Int. Cl.⁶ G11B 5/02

U.S. Cl. 360—67 5 Claims



1. A method for reading data from a disk in a disk drive to enhance a readback signal, comprising:

providing a disk drive that includes:

- a disk having data at a number of positions on said disk;
- a transducer selectively positioned relative to said disk and outputting a readback signal having an amplitude;
- a read/write channel including a preamplifier for processing said readback signal; and
- a resonant frequency control circuit communicating with said transducer for increasing said amplitude of said readback signal;

positioning said transducer relative to a first position on said disk with first data to be read from said disk using said transducer;

controlling said resonant frequency control circuit to provide a first capacitance;

reading said first data from said disk to generate said readback signal having a first resonant frequency based on said first capacitance;

applying said readback signal having said first resonant frequency to said read/write channel including said preamplifier after said reading said first data step;

positioning said transducer relative to a second position on said disk with second data to be read from said disk using said transducer;

decreasing said first capacitance of said resonant frequency control circuit to provide a second capacitance at said disk second position after said reading said first data step;

reading said second data from said disk to generate said readback signal having a second resonant frequency based on said second capacitance;

applying said readback signal having said second resonant frequency to said read/write channel after said reading said second data step;

positioning said transducer relative to a third position on said disk with third data to be read from said disk using said transducer;

increasing said second capacitance of said resonant frequency control circuit to provide a third capacitance at said disk third position after said reading said second data step;

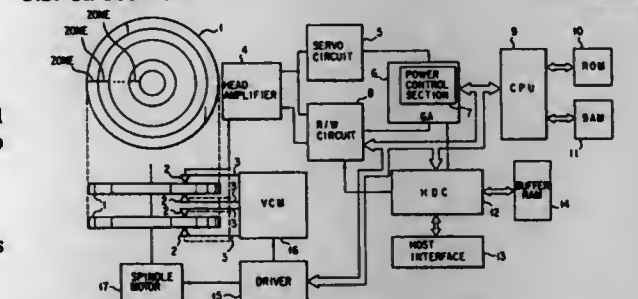
reading said third data from said disk to generate said readback signal having a third resonant frequency based on said third capacitance; and

applying said readback signal having said third resonant frequency to said read/write channel after said reading said third data step.

5,671,099
MAGNETIC RECORDING APPARATUS WITH POWER CONSERVATION FEATURE

Shuichi Ishii, and Fubito Igari, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
 Filed Sep. 19, 1995, Ser. No. 530,475
 Claims priority, application Japan, Sep. 7, 1995, 7-230123
 Int. Cl.⁶ G11B 19/02

U.S. Cl. 360—69 12 Claims



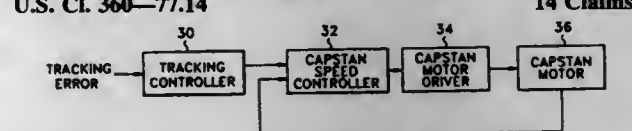
1. A magnetic recording apparatus comprising:

- a recording medium in which servo information items are provided on tracks at a predetermined interval;
- scanning means for scanning the tracks of the recording medium for recording information;
- read/write means for reading/writing data with respect to each of a plurality of recording units on the recording medium through the scanning means;
- read means for sequentially reading the servo information items supplied through the scanning means; and
- control means for performing control on the basis of the servo information items read out by the read means such that drive power is supplied to the read/write means for a predetermined time period before a time point when the read/write means starts reading/writing of data with respect to a target recording unit, and for preventing supply of the drive power to the read/write means upon completion of the reading/writing of the data by the read/write means.

5,671,100
VCR TRACKING CONTROL METHOD AND APPARATUS FOR GENERATING A CAPSTAN MOTOR DRIVE SIGNAL BASED ON THE CAPSTAN SPEED CONTROL VALVE
 Jeong-tae Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
 Filed Jul. 21, 1994, Ser. No. 278,137
 Claims priority, application Rep. of Korea, Jul. 21, 1993, 13793

Int. Cl.⁶ G11B 5/584; 15/52

U.S. Cl. 360—77.14 14 Claims



5. A tracking control apparatus of an image recorder/reproducer for converting a tracking error signal into a capstan speed control value and generating a driving signal of a capstan motor based on said capstan speed control value, said apparatus comprising:

a tracking controller for outputting a variable capstan speed command based on a tracking control value obtained by performing a predetermined gain control on said tracking error signal; and

a capstan speed controller for outputting a capstan speed control signal by performing a predetermined gain control on a capstan motor speed error obtained by comparing an actual capstan speed and the capstan speed command.

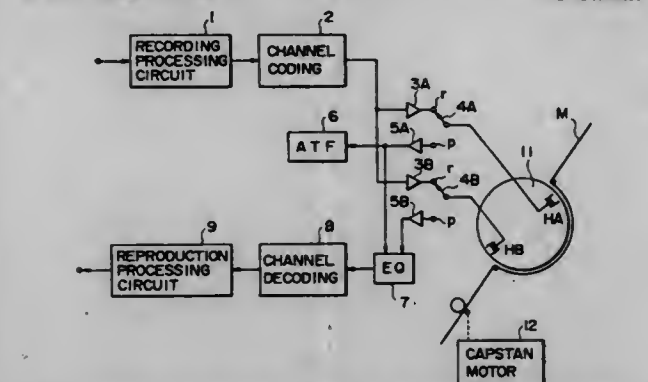
5,671,101
TRACKING CONTROL CIRCUIT FOR MAINTAINING SUBSTANTIAL BALANCE BETWEEN REPRODUCED SIGNAL LEVELS FROM PLURAL ROTARY MAGNETIC HEADS WHEN TRACKING CONTROL IS APPLIED IN RESPECT TO ONLY ONE OF THE HEADS

Yoichirou Senshu, Kanagawa, and Moriyuki Kawaguchi, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 237,159, May 3, 1994, abandoned.
 This application Dec. 21, 1995, Ser. No. 577,066

Claims priority, application Japan, May 11, 1993, 5-132803
 Int. Cl.⁶ G11B 5/588

U.S. Cl. 360—77.14 12 Claims



1. A recording and reproducing circuit for use in a recording and reproducing apparatus of the type that comprises a rotary drum with a magnetic tape wound around said rotary drum and having a magnetic orientation in a direction substantially along the length of the tape, and at least first and second magnetic heads mounted on said rotary drum and operative in recording and reproducing modes of the apparatus to record and reproduce high frequency information signals in successive first and second oblique tracks scanned by said first and second magnetic heads, respectively, as said magnetic tape is advanced in said direction along its length, with each of said first oblique tracks being next adjacent to at least one of said second oblique tracks and each of said oblique tracks extending at an angle θ with respect to said direction of magnetic orientation of the tape, said first and second magnetic heads having mutually different azimuth angles for avoiding cross-talk in respect to said information signals recorded in said next adjacent first and second oblique tracks, said first magnetic head having a magnetic gap that is inclined with respect to said direction of magnetic orientation of said magnetic tape at an angle $(\theta+\alpha)$ that is greater than said angle θ and said second magnetic head having a magnetic gap that is inclined with respect to said direction of magnetic orientation of said magnetic tape at an angle $(\theta-\beta)$ that is less than said angle $(\theta+\alpha)$, so that, in said reproducing mode of the apparatus, the level of information signals reproduced by said first magnetic head from said first oblique tracks scanned thereby is lower than the level of information signals reproduced by said second magnetic head from said second oblique tracks scanned by said second head by reason of the difference between said angles $(\theta+\alpha)$ and $(\theta-\beta)$; said recording and reproducing circuit comprising:

means operative in said recording mode for generating predetermined low frequency tracking control signals and for supplying said tracking control signals only to said second magnetic head for recording by the latter only in said second oblique tracks;

means connected only with said first magnetic head in said reproducing mode, and being then operative for detecting reproduction by said first magnetic head, in scanning one of said first oblique tracks, of said tracking control signals as cross-talk from each of said second oblique tracks which is next adjacent said one of the first oblique tracks; and

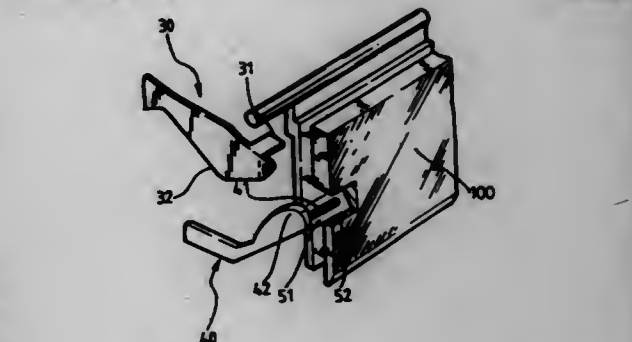
scanning control means operative in said reproducing mode for controlling only scanning by said first magnetic head in respect to said first oblique tracks in response to said tracking control signals reproduced as cross-talk only by said first magnetic head.

5,671,102
APPARATUS FOR LOCKING TAPE RECORDER DOOR
 Jae-soo Lee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
 Filed Apr. 26, 1996, Ser. No. 638,053
 Claims priority, application Rep. of Korea, Nov. 8, 1995, 95-40270

U.S. Cl. 360—96.5 5 Claims

Int. Cl.⁶ G11B 15/675

U.S. Cl. 360—96.5 5 Claims



1. An apparatus for locking a tape recorder door, comprising:

- a door through which a cassette is inserted and ejected, said door including a guide slot formed on at least one side thereof and an opening which communicates with said guide slot;
- an opening lever located on the at least one side of said door and operative to be pushed by an edge of the cassette during insertion of the cassette, said opening lever rotating to open said door when said cassette is ejected; and
- a locking lever, engaged with said opening lever, for releasing said door from a locked state when said opening lever moves, and blocking said door from opening when said opening lever does not move,

wherein said opening lever comprises an opening pin slidably positioned in said guide slot, such that when foreign objects are attempted to be inserted through the door, said opening pin freely exists through said opening formed on said door and said opening lever does not move with said door, so that said locking lever blocks said door from opening, whereas when the cassette is properly inserted, said door opens by said opening pin being pushed by the edge of the cassette being inserted thereagainst and said opening lever rotates so as to raise said locking lever which is engaged with said opening lever, and when the cassette is ejected, rotation of said opening lever allows said opening pin to slide along said guide slot and said opening lever raises said locking lever to open the door.

5,671,103

SEALED, DUST-PROOF MAGNETIC DISK DRIVE

Kozo Tada, Nagano, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

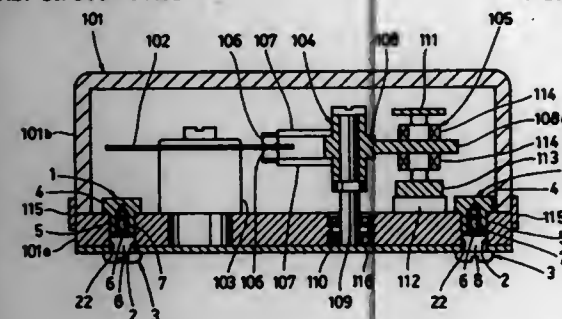
PCT No. PCT/JP94/01252, § 371 Date Jan. 25, 1996, § 102(e) Date Jan. 25, 1996, PCT Pub. No. WO95/04354, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 29, 1994, Ser. No. 583,003

Claims priority, application Japan, Jul. 30, 1993, 5-208662 Int. Cl.⁶ G11B 33/14

U.S. Cl. 360-97.01

4 Claims



1. A magnetic disk drive comprising a disk enclosure including therein a magnetic disk, a rotary driving mechanism for rotatably driving the magnetic disk, a magnetic head for reading information from and writing information on the magnetic disk, a supporting means for supporting the magnetic head, a driving means for moving the magnetic head to a position where information is read from the magnetic disk or a position where information is written on the magnetic disk, and external components mounted on an outer surface of the disk enclosure by screw members,

wherein the disk enclosure has through-holes bored in given positions thereof and extending from an interior to an exterior of the disk enclosure, and sealing members having threaded holes in which said screw members are screwed, and wherein the through-holes are sealed by the sealing members, and said external components are mounted on an outer surface of the disk enclosure by screwing said screw members into the threaded holes of the sealing members.

5,671,104

SYSTEM AND METHOD FOR LOCKING A DISK ACTUATOR IN VERTICAL AND HORIZONTAL DIRECTIONS

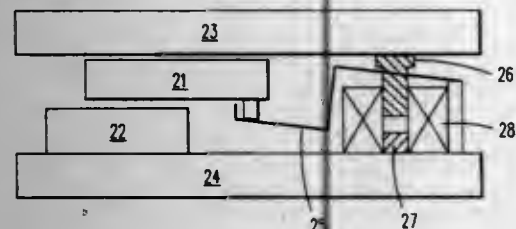
Kohji Takahashi, Sagami-hara; Hiroshi Matsuda, Zama, and Keishi Takahashi, Fujisawa, all of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 3, 1996, Ser. No. 582,292

Claims priority, application Japan, Feb. 17, 1995, 7-029810 Int. Cl.⁶ G11B 5/54

U.S. Cl. 360-105

7 Claims



1. A disk drive system comprising:
a disk recording medium;
a transducer located proximate the disk recording medium;
an actuator for moving the transducer across the surface of the disk recording medium, said actuator including an arm assembly extending from a pivot axis and a rearward section extending from said pivot axis opposite the arm assembly,

said rearward section being supported at said pivot axis for pivotal movement between an upper and lower yoke of a vcm assembly;

a lock device located between said upper and lower yokes of said vcm assembly, said lock device movable along a lock axis substantially perpendicular to the surface of the disk recording medium, for releasing said actuator when located at a first position along the lock axis and for locking said actuator when located at a second position along the lock axis;
a first magnetic-field supply for latching said lock device to the first position by the action of a first magnetic force;
a second magnetic-field supply for latching said lock device to the second position by the action of a second magnetic force; and
a lock device motor for moving said lock device between the first and second positions.

5,671,105

MAGNETO-RESISTIVE EFFECT THIN-FILM MAGNETIC HEAD

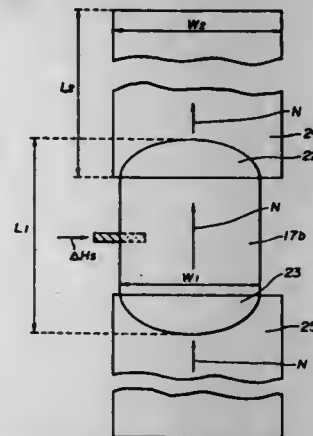
Nobuhiro Sugawara, Kanagawa; Hideo Suyama, and Akio Takada, both of Miyagi, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 28, 1995, Ser. No. 563,450

Claims priority, application Japan, Nov. 28, 1994, 6-293469 Int. Cl.⁶ G11B 5/39

U.S. Cl. 360-113

8 Claims



1. A magneto-resistive effect a-fill magnetic head comprising:
a magnetic layer exhibiting a magneto-resistive effect, said magnetic layer having a longitudinal axis and two ends positioned at opposite ends of the longitudinal axis; and
a flux guide layer of a high magnetic permeability soft magnetic material formed at and overlapping one end of the magnetic layer, said flux guide layer having two opposite ends longitudinally aligned with the longitudinal axis of the magnetic layer; wherein the improvement comprises
separate hard fills operating as permanent magnets formed on and overlapping both ends of the flux guide layer.

5,671,106

MATRIX MAGNETIC RECORDING/READING HEAD

Jean-Claude Lebeureau, Ste Genevieve des Bois, France, assignor to Thomson-CSF, Paris, France

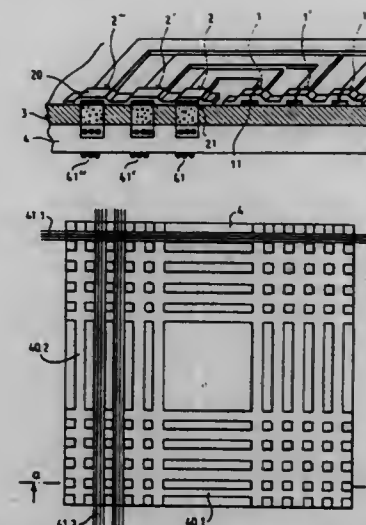
Filed Nov. 14, 1995, Ser. No. 557,823

Claims priority, application France, Nov. 25, 1994, 94 14146 Int. Cl.⁶ G11B 5/29

U.S. Cl. 360-121

11 Claims

1. A magnetic recording/reading head comprising:
a substrate made of magnetic material and having first and second faces;
at least one first magnetic circuit covered by a first layer of material of high magnetic permeability, having a gap forming a magnetic head, and including,



at least one first conductor located on the first face of the substrate; and
at least one second magnetic circuit, including,
at least one first control conductor coupled to the at least one first conductor and covered by a second layer of material having high magnetic permeability;
at least one first winding supplied with a pulsed or alternating current for producing a first magnetic flux in the at least one second magnetic circuit;
the first magnetic flux producing a current flowing in a circuit formed by the at least one first conductor coupled to the at least one first control conductor; and
the current flowing in the at least one first conductor inducing a second magnetic flux in the first magnetic circuit.

5,671,107

LARGE CAPACITY MAGNETIC DISC APPARATUS WITH A PARTICULAR RELATIONSHIP BETWEEN POLE THICKNESS, SATURATED FLUX DENSITY, AND RECORDING WAVELENGTH

Katsuya Mitsuoka; Hiroshi Fukui, both of Hitachi; Makoto Aihara, Katsuta; Masanori Tanabe; Moriaki Fuyama, both of Hitachi; Shinji Narishige, Mito; Yutaka Sugita, Tokorozawa; Yoshihiro Shiroishi, Hachioji; Hajime Aoi, Tachikawa; Yokuo Saitoh, Kanagawa-ken; Kanji Kawakami, Mito; Yoshikazu Tsuji, Kanagawa-ken; Masaaki Hayashi, and Kazuo Nakagoshi, both of Odawara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

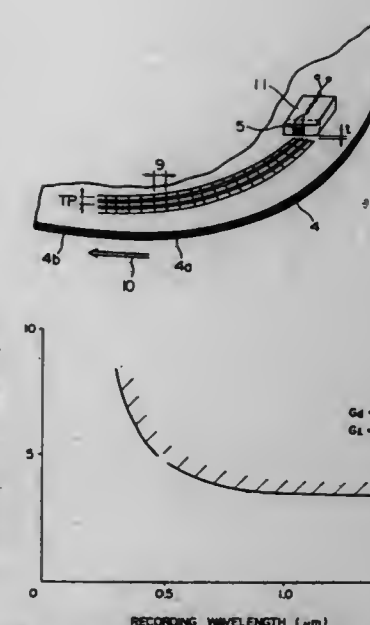
Continuation-in-part of Ser. No. 52,285, Apr. 26, 1993, abandoned, which is a continuation of Ser. No. 620,631, Dec. 3, 1990, abandoned. This application Mar. 6, 1995, Ser. No. 399,221

Claims priority, application Japan, Dec. 13, 1989, 1-321445 Int. Cl.⁶ G11B 5/012; 5/31; 5/60

U.S. Cl. 360-126

15 Claims

1. A magnetic disc apparatus comprising a plurality of discs each having a track density of 1800 tracks per inch or more and a line recording density of 70 kilobits per inch or more, a plurality of thin-film magnetic heads, means for moving said magnetic heads relative to said magnetic discs, and disc rotating means for rotating said magnetic discs, wherein a levitation space between said thin-film magnetic heads and said thin-film magnetic discs is between 0.07 μm and 0.15 μm during recording and a recording wavelength (λ) ranges from 0.3 to 0.97 μm , said thin-film magnetic discs each having a magnetic film with a coercive force in its magnetic disc of 1800 Oe or more, and said magnetic heads record information on said magnetic discs and the product of a saturated flux density (B_s)



of magnetic head cores and a pole thickness (P_T) of each of said magnetic heads satisfies the following formula in said recording wavelength:

$$P_T \cdot B_s \geq \frac{(\sqrt{\lambda} + 3.6)(10\lambda - 4\sqrt{\lambda} + 8.6)}{13(2.5\sqrt{\lambda} - 1)}$$

5,671,108

TAPE DRIVE CLEANER

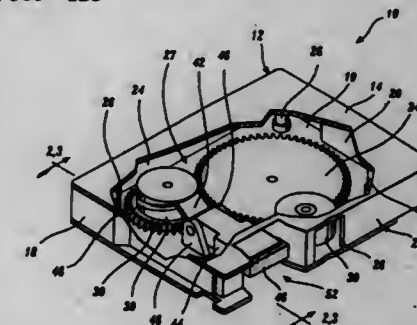
E. Clausen, Bellingham, Wash., assignor to Allsop, Inc., Bellingham, Wash.

Filed Aug. 29, 1995, Ser. No. 520,683

Int. Cl.⁶ G11B 5/41

U.S. Cl. 360-128

25 Claims



13. An apparatus for cleaning a tape drive unit having a drive element and a read and/or write head, the apparatus comprising:

(a) a housing arranged and configured to be received within a tape drive unit, said housing having top, bottom, side, forward, and rearward walls, at least one of said top and bottom walls including a first groove therein, said first groove defining a continuous, closed path having both lateral and longitudinal components, first and second pairs of points, a forward path and a return path, said forward path extending between said first pair of points and said return path extending between said second pair of points and not along said first pair of points;
(b) a reciprocating carriage including a cleaning member selectively engageable with the head of a tape drive unit when the housing is in a tape drive unit, said carriage including a first guide post engageable with said first groove to follow said path as said carriage reciprocates; and

(c) a drive mechanism engageable with a drive element of a tape drive unit and coupled to said carriage to move said carriage such that said guide post moves along said path; said guide post, said first groove, said reciprocating carriage, said drive mechanism, and said cleaning member being arranged such that when said housing is in said tape drive unit and said drive mechanism causes said guide post to move along said path, said cleaning member engages and moves along a head of the tape drive unit as said guide post moves along said forward path of said first groove, and does not engage said head of the tape drive unit as said guide post moves along said return path.

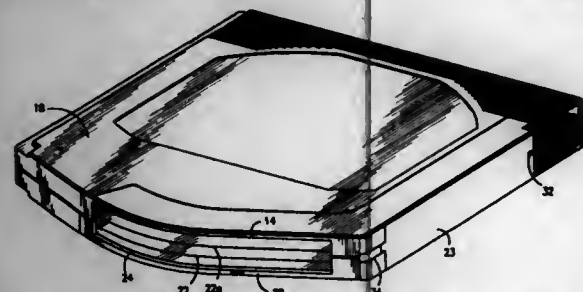
5,671,109

DISK DRIVE CARTRIDGE DOOR

Wayne A. Sumner, Ogden; Allen T. Bracken, Layton; David W. Griffith, Layton; David E. Jones, Layton, and Edward L. Rich, Ogden, all of Utah, assignors to Iomega Corporation, Roy, Utah

Continuation-in-part of Ser. No. 482,010, Jun. 7, 1995, Pat. No. 5,570,252. This application Oct. 31, 1995, Ser. No. 550,819 Int. Cl.⁶ G11B 23/03

U.S. Cl. 360—133



1. A cartridge for a drive in which read/write heads read/record data on a recording medium comprising:
a shell;
a recording medium in said shell;
an opening in said shell for access by said read/write heads from outside said shell to said recording medium;
a flexible door covering said opening when said cartridge is removed from said drive;
tracks along the front of said shell guiding said door outside of said shell, said flexible door sliding in said tracks from a closed position covering said opening, along the outside of said shell on said one side, to an open position when said cartridge is inserted into said drive;
a member rotatable about the axis of said recording medium, said member being connected to said door; and
a spring connected to said member for returning said door to said closed position when said cartridge is removed from said drive.

5,671,110

GROUND SKEW PROTECTION METHOD AND APPARATUS

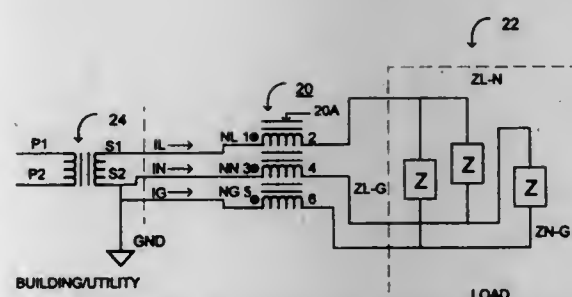
Thomas McCartney, Lake Bluff, and Laurence H. Fish, Highland Park, both of Ill., assignors to Oneac Corporation, Libertyville, Ill.

Filed Jan. 23, 1996, Ser. No. 589,980
Int. Cl.⁶ H02H 3/00

U.S. Cl. 361—42

10 Claims

1. An AC power source ground skew protection apparatus for protecting a non-isolated data communications cable against ground skew used with the AC power source comprising:
a current summing transformer coupled to the AC power source;
said current summing transformer including:
a single transformer core; and



a plurality of coils, one of said coils connected in series with each phase, neutral and ground line in the AC power source; said plurality of coils being substantially identical; each coil having an identical number of turns and an identical direction of winding on the transformer core.

5,671,111

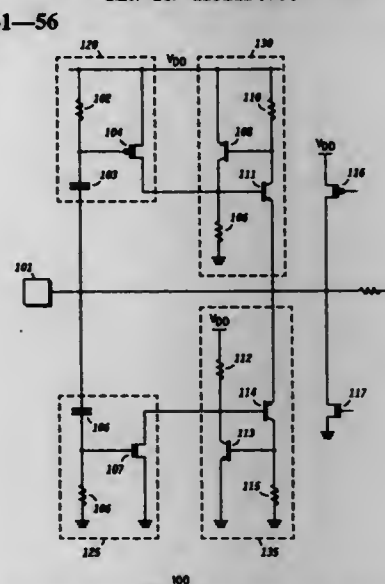
APPARATUS FOR ELECTRO-STATIC DISCHARGE PROTECTION IN A SEMICONDUCTOR DEVICE

Jerry Chen, Taipei, Taiwan, assignor to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 30, 1995, Ser. No. 550,056
Int. Cl.⁶ H02H 9/00

U.S. Cl. 361—56

7 Claims



1. A sub-micron metal oxide semiconductor (MOS) circuit comprising:
an input/output (I/O) device having a first electro-static discharge (ESD) breakdown voltage coupled to a terminal and a power supply;
a discharge circuit having a second ESD breakdown voltage greater than the first ESD breakdown voltage coupled to the terminal and the power supply for discharging an ESD voltage impinging on the terminal to the power supply; and
a trigger circuit having a third ESD breakdown voltage less than the first ESD breakdown voltage coupled to the terminal, the power supply and the discharge circuit for breaking down when the ESD voltage impinging on the terminal exceeds the third ESD breakdown voltage, and in response to breaking down providing a trigger signal to the discharge circuit causing the discharge circuit to breakdown and discharge the ESD voltage impinging on the terminal therethrough to the power supply;
wherein the trigger circuit comprises a breakdown device having a breakdown voltage which is substantially similar to the first electro-static discharge breakdown voltage of the I/O device.

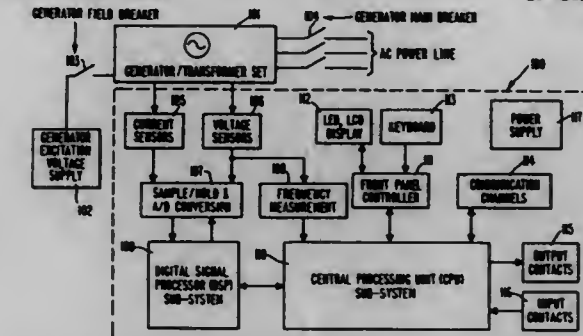
5,671,112
DIGITAL INTEGRATOR V/HZ RELAY FOR GENERATOR AND TRANSFORMER OVER-EXCITATION PROTECTION

Yi Hu, Cary; David Hart, Raleigh; Damir Novosel, Cary, all of N.C., and Robert Smith, Boyertown, Pa., assignors to ABB Power T&D Company, Inc., Raleigh, N.C.

Filed May 13, 1996, Ser. No. 647,589
Int. Cl.⁶ H02H 3/18

U.S. Cl. 361—86

19 Claims



1. A programmed protective relay system for protecting power equipment, supplied with energy from at least one power line, against overexcitation by generating an overexcitation relay signal and providing said relay signal to a circuit breaker which separates said power equipment from a source of said overexcitation, said system comprising:
a voltage sensor for sensing a voltage of said at least one power line;
frequency determining means for determining a frequency of said sensed voltage of said at least one power line;
analog to digital conversion means for sampling and digitizing said sensed voltage at a sampling frequency so as to form a digital voltage signal;
a digital integrator which integrates said digital voltage signal in a manner independent of said sampling frequency; and
processing means for calculating a voltage/frequency ratio of said at least one power line from a peak magnitude of an output of said digital integrator and said frequency determined by said frequency determining means and for generating said relay signal when said voltage/frequency ratio exceeds a predetermined operating condition value.

5,671,113

LOW WATER PROTECTOR

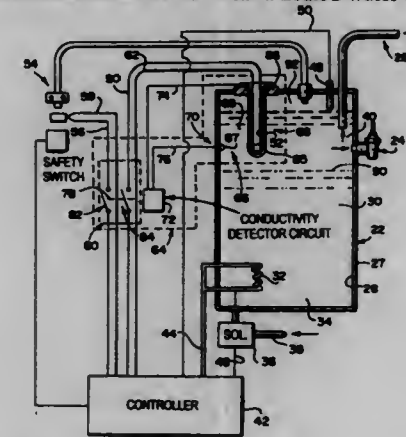
John T. Knepler, Chatham, Ill., assignor to Bunn-O-Matic Corporation, Springfield, Ill.

Filed Sep. 22, 1995, Ser. No. 532,073
Int. Cl.⁶ H02H 5/04

U.S. Cl. 361—103

4 Claims

1. A protection circuit for use with a heated water device having



a heated water reservoir defining a chamber therein, a water heater

coupled to said reservoir for heating water retained therein, said water heater being positioned in a lower section of said reservoir, and a control circuit coupled to said water heater, said protection circuit comprising:

a conductivity detector coupled to said reservoir for detecting a desired level of water in said reservoir;
a conductive sleeve of said conductivity detector extending downwardly into an upper portion of said reservoir and being vertically spaced away from said water heater, said sleeve being thermally conductive and electrically conductive for electrical conduction through water disposed in said chamber of said reservoir when said water contacts said sleeve;
a temperature sensor positioned in said conductive sleeve for sensing the temperature of said water retained in said chamber of said reservoir;
a conductive sensor of said conductivity detector positioned at a spaced apart location relative to said conductive sleeve; and
a conductivity detector circuit, said conductive sleeve and said conductive sensor being coupled to said conductivity detector circuit, said conductivity circuit including a relay coupled to said temperature sensor for automatically controlling said water heater by opening or closing the circuit of said temperature sensor for preventing said temperature sensor from sensing a selected condition and thereby preventing the operation of said water heater.

5,671,114

GAS-FILLED OVERVOLTAGE DIVERTER

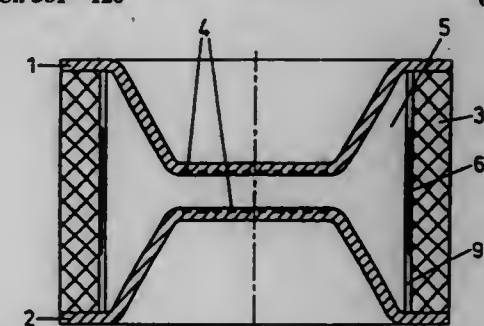
Wolfgang Däumer, and Jürgen Boy, both of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
PCT No. PCT/DE94/00589, § 371 Date Nov. 27, 1995, § 102(e) Date Nov. 27, 1995, PCT Pub. No. WO94/28607, PCT Pub. Date Dec. 8, 1994

PCT Filed May 18, 1994, Ser. No. 569,180
Claims priority, application Germany, May 26, 1993, 43 18 994.6

Int. Cl.⁶ H02H 3/22

U.S. Cl. 361—120

6 Claims



1. A gas-filled overvoltage diverter, comprising:
a hollow cylindrical insulator having a first front end, a second front end and an inner surface; a first electrode arranged at said first front end of said insulator and coated with an activation compound;
a second electrode arranged at said second front end of said insulator and coated with said activation compound;
plurality of axially running ignition strips made of graphite applied on said inner surface of said insulator; and
a plurality of coating strips applied on said inner surface of said insulator alternating with said plurality of ignition strips, each coating strip connecting said first electrode and said second electrode and being an ionization source, each coating strip being made of an electroluminescent material based on alkali halides, alkaline-earth halides, or a combination of alkali halides and alkaline-earth halides said plurality of coating strips having a thickness of approximately 50 to 500 μm.

5,671,115

CIRCUIT ARRANGEMENT FOR DRIVING A CONTACTOR

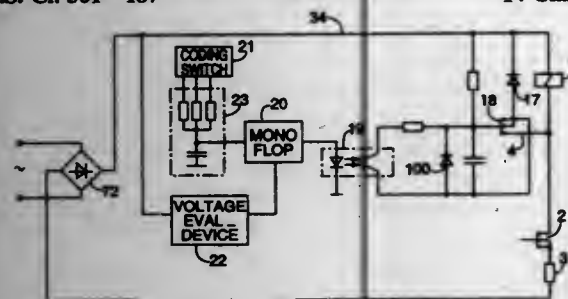
Bernhard Streich, Amberg, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
PCT No. PCT/DE94/00679, § 371 Date Dec. 22, 1995, § 102(e)
Date Dec. 22, 1995, PCT Pub. No. WO95/00966, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 16, 1994, Ser. No. 569,187
Claims priority, application Germany, Jun. 25, 1993, 43 21 252.2

Int. Cl.⁶ H01H 47/22

U.S. Cl. 361—187

14 Claims



1. A circuit arrangement for driving a contactor, comprising:
 - a controllable switching element;
 - a contactor coil; and
 - a measuring resistor coupled between and in series with said controllable switching element and said contactor coil;
 - a control voltage source coupled in series with said controllable switching element, contactor coil, and measuring resistor;
 - a regulation device coupled to said switching element such that said contactor is supplied with a starting current having a constant average value and said regulation device is coupled to a switchover device, said switchover device selecting from a plurality of different starting currents corresponding to power classes of different contactors;
 - a free-wheeling branch coupled to said contactor coil, said free-wheeling branch including a free-wheeling diode coupled to a free-wheeling switching element; and
 - a first monoflop coupled to and driving said free-wheeling switching element via a free-wheeling optocoupler and a zener diode stabilizer, such that switching times of said first monoflop are capable of being adjusted via an RC divider circuit coupled to said first monoflop, said RC divider circuit having an ohmic component that is capable of being selected via a coding switch.

5,671,116

MULTILAYERED ELECTROSTATIC CHUCK AND METHOD OF MANUFACTURE THEREOF

Anwar Husain, Pleasanton, Calif., assignor to LAM Research Corporation, Fremont, Calif.

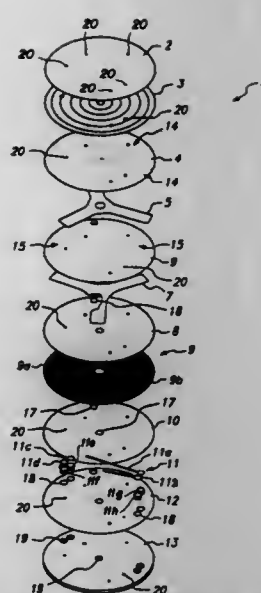
Filed Mar. 10, 1995, Ser. No. 401,524

Int. Cl.⁶ H02N 13/00

U.S. Cl. 361—234

29 Claims

1. A multilayered electrostatic chucking device, comprising:
 - a first insulating layer of an electrically insulating ceramic material;
 - a second insulating layer of an electrically insulating ceramic material;
 - an electrostatic clamping electrode between the first and second insulating layers, the clamping electrode including first and second strips of electrically conductive material;
 - a third insulating layer of electrically insulating ceramic material; and
 - a heater electrode between the second and third insulating layers, the heater electrode including discrete inner and outer



heater electrodes individually supplied with electrical power to provide for different heating effects.

5,671,117

ELECTROSTATIC CHUCK

Semyon Sherstinsky, San Francisco; Shamouil Shamouilian, San Jose; Manoocher Birang, Los Gatos; Alfred Mak, Union City, and Simon W. Tam, Milpitas, all of Calif., assignors to Applied Materials Inc., Santa Clara, Calif.

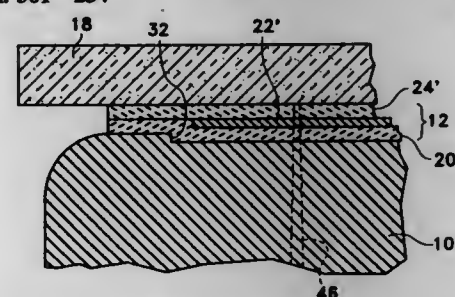
Continuation of Ser. No. 203,111, Feb. 28, 1994, abandoned.

This application Mar. 27, 1996, Ser. No. 626,667

Int. Cl.⁶ H02N 13/00

U.S. Cl. 361—234

8 Claims



1. An electrostatic chuck, comprising:
 - a pedestal having a generally flat upper surface for supporting a workpiece;
 - a laminate including an insulated electrode, attached to the pedestal, wherein the workpiece is electrostatically clamped to the laminate upon application of a voltage to the electrode; and
 - a plurality of holes extending up through the pedestal and the laminate, to carry a gas for cooling the workpiece from beneath, wherein many of the holes are positioned near the outer periphery of the workpiece;
- wherein the pedestal includes a cooling gas reservoir formed beneath the pedestal and extending across all of the holes, and a cooling gas supply passage into the reservoir;
- and wherein the laminate includes
 - a first insulating layer extending over substantially all of the upper surface of the pedestal;
 - an electrode layer extending over the first insulating layer except for a relatively small outer peripheral portion thereof; and
 - a second insulating layer extending over the electrode layer and the outer peripheral portion of the first insulating layer around a peripheral edge of the electrode layer, to provide insulation of the electrode material from a process environment.

ment in which the electrostatic chuck is installed wherein the second insulating layer presents an upper surface that is substantially planar over the entire width of the laminate, whereby contact is maintained with the workpiece beyond the outer edge of the electrode and over the entire width of the laminate, and whereby the electrode is widely separated from the effects of the process environment to increase the useful life of the electrostatic chuck; and wherein the pedestal has a recess formed in its upper surface, the recess being generally commensurate with the electrode layer.

5,671,118

HEAT SINK AND RETAINER FOR ELECTRONIC INTEGRATED CIRCUITS

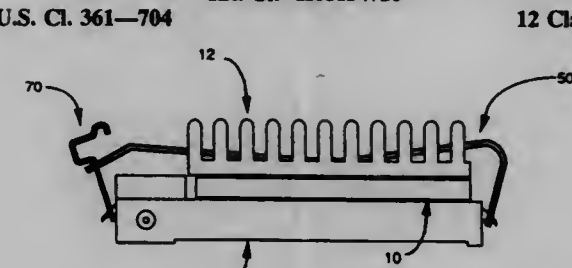
Michael L. Blomquist, 451 Constitution Ave., Unit E, Camarillo, Calif. 93010

Continuation of Ser. No. 441,274, May 15, 1995, Pat. No. 5,600,540. This application Aug. 6, 1996, Ser. No. 693,029

Int. Cl.⁶ H05K 7/20

U.S. Cl. 361—704

12 Claims



6. In a heat sink assembly providing cooling to an electronic integrated circuit device wherein the device is mounted on a socket, the socket body of generally rectangular shape having at least two opposed side walls, each wall having a lug projecting laterally outward from the wall, the device having a relatively flat rectangular upper surface, and a heat sink formed from a highly heat conductive material, the sink having a generally flat bottom surface in heat conducting engagement with the device upper surface and a plurality of fins on the upper surface defining at least one channel, the improvement comprising:
 - a single concave elongated means extending across the heat sink and received in one of said channels, said means biasing the heat sink bottom surface into heat conducting engagement with the device upper surface said biasing means having a free-end section longitudinally bifurcated so as to form two arms;

first means connected to said biasing means releasably attaching said biasing means to one lug on the socket at one end; and second means loosely supported by said two arms of the bifurcated section of said biasing means for releasably attaching said biasing means to the other lug on the socket so that said biasing means is releasably attached to said socket to force said heat sink bottom surface into heat conductive engagement with the upper surface of the device.

5,671,119

PROCESS FOR CLEANING AN ELECTROSTATIC CHUCK OF A PLASMA ETCHING APPARATUS

Yuan-Chang Huang, Hsin-Chu, and Shih-Kuei Yen, Hsin-pu, both of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

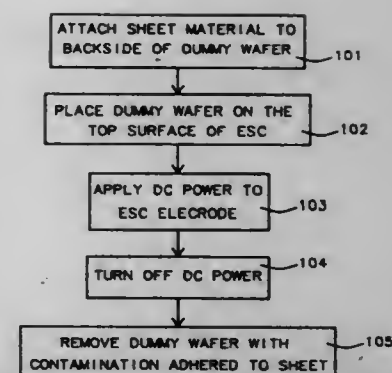
Filed Mar. 22, 1996, Ser. No. 620,184

Int. Cl.⁶ H02N 13/00

U.S. Cl. 361—234

7 Claims

1. A process for cleaning debris and contamination from the surface of an electrostatic chuck of a plasma etching apparatus having a process chamber, a source of RF power, an electrostatic wafer chuck within the process chamber, a chuck electrode, and a source of DC power connected to said chuck electrode comprising:



attaching a flexible, soft sheet of material to the backside of a dummy semiconductor wafer, placing the dummy wafer on the electrostatic wafer chuck within the process chamber with the sheet of material in direct contact with the wafer chuck,

applying a source of DC power to the chuck electrode that is sufficient to build up a high electrostatic force between the wafer and wafer chuck,

terminating the DC power to the chuck electrode, and removing the dummy wafer and contamination debris that are stuck to the sheet of material.

5,671,120

PASSIVELY COOLED PC HEAT STACK HAVING A HEAT-CONDUCTIVE STRUCTURE BETWEEN A CPU ON A MOTHERBOARD AND A HEAT SINK

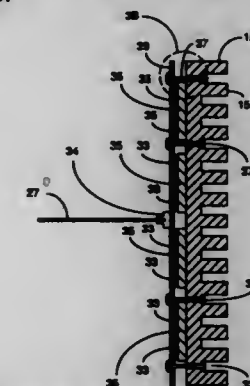
Dan Kikinis, Saratoga, Calif., assignor to Lextron Systems, Inc., Saratoga, Calif.

Filed Feb. 7, 1996, Ser. No. 600,022

Int. Cl.⁶ G06F 1/20; H05K 7/20

U.S. Cl. 361—687

17 Claims



1. A computer without mechanical cooling fans, comprising:
 - a structural plate as one external member, the structural plate having a first side internal to the computer, and a second side facing to the outside of the computer;
 - a motherboard with a bus and having a CPU mounted on a first surface and connections for ports and peripheral devices on a second surface opposite the first surface, the motherboard substantially parallel to and spaced apart from the first side of the structural plate;
 - a heat-conductive structure for transferring heat from the CPU to the structural plate, the heat-conductive structure positioned between the CPU and the first surface of the structural plate, and contacting both;
 - a riser card engaged in an edge connector on the second surface of the motherboard, providing bus connections to at least one expansion port; and
 - an enclosure enclosing the motherboard and the riser card and attached to the structural plate, with the structural plate forming one wall of the enclosure;

wherein heat generated by the CPU is transferred to the structural plate through the heat-conductive structure, and is dissipated from the second side of the structural plate.

5,671,121 KANGAROO MULTI-PACKAGE INTERCONNECTION CONCEPT

John Francis McMahon, Phoenix, Ariz., assignor to Intel Corporation, Santa Clara, Calif.

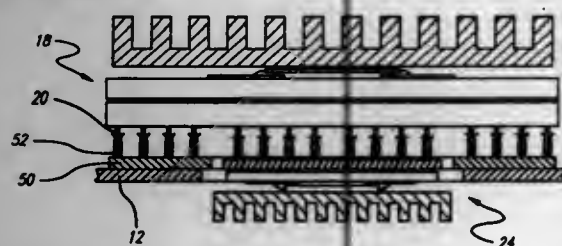
Continuation of Ser. No. 315,571, Sep. 29, 1994, abandoned.

This application Jan. 30, 1996, Ser. No. 594,334

Int. Cl.⁶ H05K 7/20

U.S. Cl. 361—719

25 Claims



11. A printed circuit board assembly, comprising:
 - a printed circuit board that has a center opening, said printed circuit board has a first surface and an opposite second surface;
 - a socket adapter that is mounted to said printed circuit board, said socket adapter having a socket and a center opening;
 - a first electronic package that is mounted to said first surface of said printed circuit board and which a plurality of pins that extend from a bottom surface of said first electronic package, wherein at least one of said first pins is mated with said socket of said printed circuit board and one of said first pins is mated with said socket of said socket adapter; and,
 - a second electronic package that is adjacent to said second surface of said printed circuit board and has a connector that extends from a top surface of said second electronic package and which is connected to at least one of said pins of said first electronic package through said center openings of said socket adapter and said printed circuit board.

5,671,122

ELECTRONIC CONTROL UNIT

Johannes Schoettl, Obertraubling, and Reinhard Lindner, Regensburg, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Division of Ser. No. 126,340, Sep. 24, 1993, Pat. No. 5,473,509.

This application May 24, 1995, Ser. No. 449,435

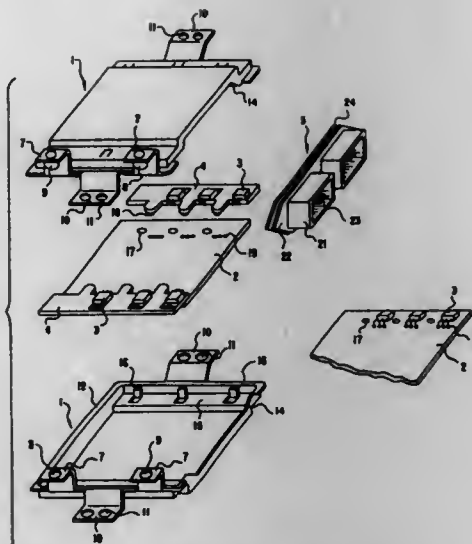
Claims priority, application Germany, Sep. 24, 1992, 42 32 048.8

Int. Cl.⁶ H05K 7/20

U.S. Cl. 361—715

5 Claims

1. A housing of an electronic control unit, comprising:
 - two identically constructed housing parts and at least one plug part fastened between said housing parts, said housing parts and said at least one plug part defining an enclosed interior;
 - a printed wiring board and power components disposed entirely inside said interior;
 - said power components being disposed directly on and being electrically connected to said printed wiring board; and said printed wiring board being in thermal contact with one of said



housing parts, for dissipating heat produced by said power components to the outside through the housing.

5,671,123

IC CARD WITH A DISCHARGE PATTERN AND A GROUND PATTERN SEPARATED FROM EACH OTHER

Makoto Omori, Katsunori Ochi, Jun Ohbuchi, and Tetsuro Washida, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 14, 1995, Ser. No. 555,706

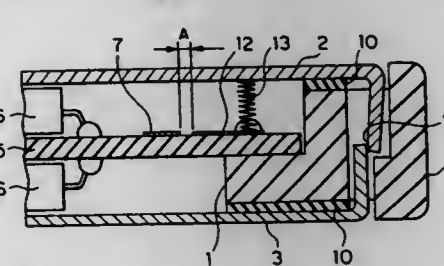
Claims priority, application Japan, Dec. 14, 1994, 6-310931

Int. Cl.⁶ H05K 1/14; 9/00

U.S. Cl. 361—737

20 Claims

100A



1. An IC card, comprising:
 - a resin frame;
 - metallic panels attached to said resin frame;
 - a card connector having a plurality of holes;
 - an electric circuit board supported by said resin frame;
 - a discharge means disposed between said electric circuit board and one of said metallic panels for discharging static electricity applied to said metallic panels; and
 - a ground means formed on said electric circuit board with said ground means separated from said discharge means by a distance necessary for said static electricity to start discharging at a given voltage for routing said static electricity to said card connector.

5,671,124

CIRCUIT BOARD LOCATING DEVICE

Hsin Chien Ho, 20F-1, 268, SEC. 1, Wen-Hua Road, Pan Chiao City, Taipei, Taiwan

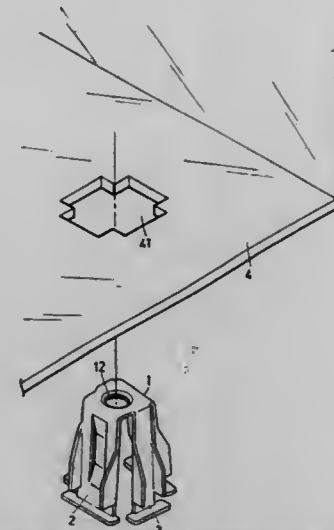
Filed Feb. 8, 1996, Ser. No. 600,097

Int. Cl.⁶ H05K 7/14

U.S. Cl. 361—758

1 Claim

1. A circuit board locating device fastened to a frame to secure a circuit board in parallel to said frame, the circuit board locating



device comprising two pairs of symmetrical flat legs outwardly extending from a top thereof at four sides and inserted through a cross slot on said frame, a screw hole at the top, a screw inserted through a through hole on said circuit board and threaded into said screw hole to secure said circuit board in place, four pairs of side boards respectively perpendicularly raised from two opposite lateral sides of each leg and stopped against said frame at one side adjacent to said circuit board, four horizontal bottom plates respectively outwardly extend from said legs at one end remote from the top and stopped against said frame at an opposite side remote from circuit board, and two inward projecting portions respectively raised from two opposite legs and stopped against the periphery of said screw to hold it in said screw hole.

5,671,125

VERTICAL PACKAGE MOUNTED ON BOTH SIDES OF A PRINTED CIRCUIT BOARD

Ernest Russell, Richmond; Daniel Baudouin, Missouri City, and James S. Wallace, Sugar Land, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

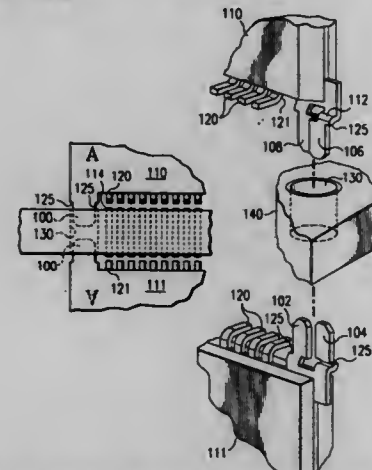
Continuation of Ser. No. 241,824, May 12, 1994, abandoned.

This application Aug. 21, 1995, Ser. No. 517,308

Int. Cl.⁶ H05K 7/02; 1/16

U.S. Cl. 361—760

11 Claims



1. A surface mounted integrated circuit structure comprising:
 - a printed circuit board having a surface, the surface having mounting apertures, a first semiconductor integrated circuit device having a first flat package encapsulating a first semiconductor chip, a plurality of first conductive leads extending from one edge of said first flat package, first guides extending from the said one edge of said first flat package and shaped to fit into said apertures of said printed circuit board for

mechanically positioning and supporting said first flat package when the first conductive leads are soldered to said printed circuit board;

a second integrated circuit device having a second flat package encapsulating a second semiconductor chip, a plurality of second conductive leads extending from one edge of said second flat package, second guides extending from the said one edge of the second flat package and shaped to fit into said same apertures as said first guides for mechanically positioning and supporting the package when said second conductive leads are soldered to said printed circuit board wherein said first and second guides having a length less than a depth of the apertures.

5,671,126

HOUSING FOR THE ACCEPTANCE OF EQUIPPED PRINTED CIRCUIT BOARDS

Markus Verding, Dorsten, and Thomas Ehm, Dortmund, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

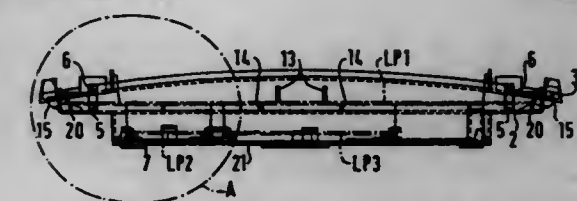
Filed Feb. 24, 1995, Ser. No. 393,828

Claims priority, application Germany, Feb. 25, 1994, 9403212 U

Int. Cl.⁶ H05K 7/14

U.S. Cl. 361—796

12 Claims



1. A housing for receiving and holding a plurality of printed circuit boards in a parallel manner, said housing comprising:
 - an opening accessible from a front side;
 - an internal frame including a seat distanced from a backplane, said seat being configured to receive and support a first printed circuit board to hold the first printed circuit board approximately parallel to the backplane;
 - a space between the seat which supports the first printed circuit board and the backplane, into which at least one second printed circuit board is insertable and accessible, each said at least one second printed circuit board being insertable into holder and guide elements that extend from the backplane and engage a lateral edge of each respective at least one second printed circuit board;
 - wherein the housing generally forms a frame including the seat to support the first printed circuit board along edges of said first printed circuit board and providing clearance for insertion of said at least one second printed circuit board, and wherein the frame is generally stepped in shape and is generally the dimensions of the first printed circuit board so that the frame cooperatively receives and limits the position of the first printed circuit board.

5,671,127

DC POWER SUPPLY DEVICE WITH HIGH VOLTAGE AND LARGE POWER HANDLING CAPABILITY

Akihiko Maezawa, and Takeshi Yoshioka, both of Kanagawa-ken, Japan, assignors to Ebara Corporation, Tokyo, Japan

Filed Mar. 6, 1996, Ser. No. 611,660

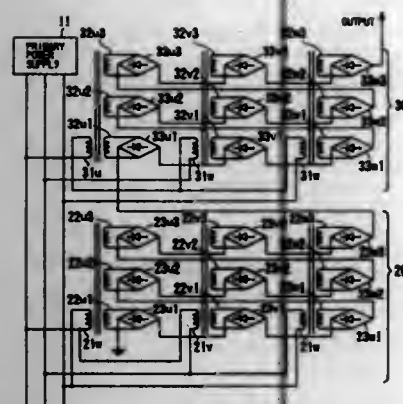
Claims priority, application Japan, Mar. 10, 1995, 7-051460

Int. Cl.⁶ H02M 7/00; H01F 30/12

U.S. Cl. 363—5

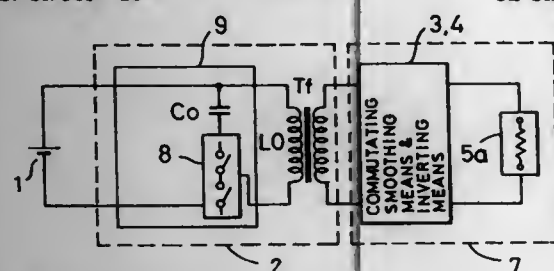
2 Claims

1. A direct-current power supply device, comprising:
 - a primary power supply for supplying three-phase alternating-current electric energy;
 - a first six-phase transformer-coupled rectifying circuit having three primary windings connected in delta;



a second six-phase transformer-coupled rectifying circuit having three primary windings connected in star; each of said six-phase transformer-coupled rectifying circuits having at least a set of three secondary windings which are transformer-coupled to said three primary windings respectively, said three secondary windings in each set being connected in open delta; and said first and second six-phase transformer-coupled rectifying circuits connected in cascade to each other for producing respective output voltages which are $\pi/6$ out of phase with each other for converting the three-phase alternating-current electric energy supplied from said primary power supply into twelve-phase rectified direct-current electric energy.

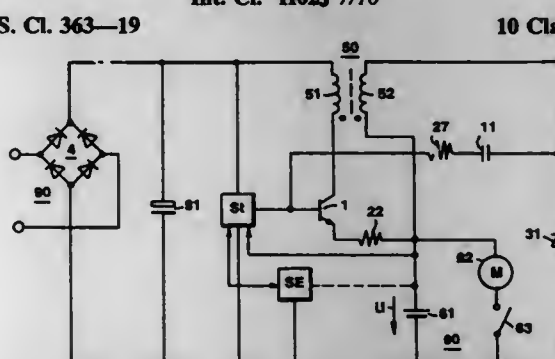
5,671,128
POWER SUPPLY APPARATUS
Toshiaki Nakamura, Haruo Nagase, and Hiroshi Shinbori, all of Kadoma, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan
Filed Feb. 12, 1996, Ser. No. 600,219
Claims priority, application Japan, Feb. 23, 1995, 7-035736; Feb. 23, 1995, 7-035740; Sep. 29, 1995, 7-254209
Int. Cl.⁶ H05B 41/24
U.S. Cl. 363—16 32 Claims



1. A power supply apparatus comprising:
a series circuit of first and second switching elements each of which permit reverse-directional current flow, said first and second switching elements being alternately turned ON and OFF;
a series circuit of a D.C. power source and a load circuit including an inductance element connected between both ends of said first switching element;
a boosting capacitor connected between both ends of said second switching element at least through said load circuit; and control means for controlling a switching frequency of the first and second switching elements to be higher than a resonance frequency of said boosting capacitor and inductance element and for controlling a voltage across the boosting capacitor to render a voltage across said series circuit of the first and second switching elements to be higher than a voltage of said D.C. power source, wherein energy is stored into said load circuit from the D.C. power source through said first switching element, said energy being stored into the boosting capacitor through said second

switching element, and energy in the boosting capacitor being supplied to the load circuit through the second switching element.

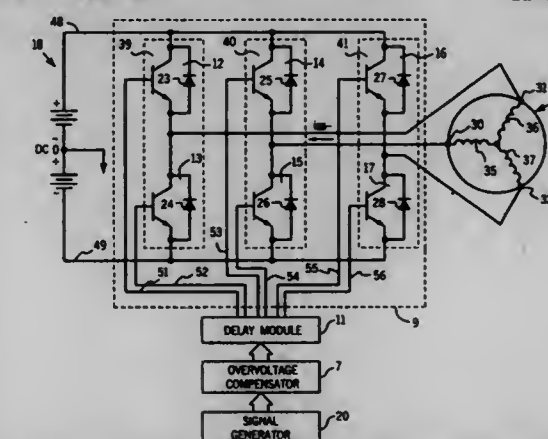
5,671,129
ELECTRONIC SWITCHED-MODE POWER SUPPLY FOR SUPPLYING POWER TO AN ACCUMULATOR
Gerhard Lang, Altwienau, Germany, assignor to Braun Aktiengesellschaft, Kronberg, Germany
PCT No. PCT/EP93/03136, § 371 Date Aug. 4, 1995, § 102(e) Date Aug. 4, 1995, PCT Pub. No. WO94/14221, PCT Pub. Date Jun. 23, 1994
PCT Filed Nov. 9, 1993, Ser. No. 428,213
Claims priority, application Germany, Dec. 5, 1992, 42 41 065.7
Int. Cl.⁶ H02J 7/10
U.S. Cl. 363—19 10 Claims



1. An electronic switched-mode power supply for supplying power to an accumulator from an input voltage source, the power supply comprising:
(1) a self-oscillating flyback converter comprising:
(a) a switching transistor having a base and a collector-emitter circuit;
(b) a first resistor;
(c) a diode;
(d) a feedback circuit;
(e) a control circuit; and
(f) a transformer with a primary winding and a secondary winding, wherein the primary winding, in a series arrangement with the collector-emitter circuit of the switching transistor and the first resistor, is connected in parallel with the input voltage source, and wherein the secondary winding is connected in series with the accumulator and the diode, with the base of the switching transistor being connected to the secondary winding through the feedback circuit in addition to being coupled to the control circuit, wherein the control circuit during operation inhibits conduction of the switching transistor when a voltage at the accumulator has increased to a switching voltage and renders the switching transistor conducting again when the voltage at the accumulator has dropped below this switching voltage; and
(2) a switching arrangement which drives the control circuit such that the switching voltage is lowered to a lower switching voltage value when, with the switched-mode power supply in a pulsed mode, a ratio of a duration of oscillation pauses to a duration of oscillation bursts exceeds a specified magnitude, the switching arrangement comprising an evaluating circuit, connected to the flyback converter, for detecting the ratio of the duration of oscillation pauses to the duration of oscillation bursts, a trigger circuit connected to the evaluating circuit and the control circuit, the evaluating circuit causing the trigger circuit to pass to a different condition when the ratio of the duration of oscillation pauses to the duration of oscillation bursts exceeds the specified magnitude, wherein, when passed to a different condition, trigger circuit drives the control circuit such that the switching volt-

age of the control circuit is lowered to the lower switching voltage value, thereby terminating a high-current charging period.

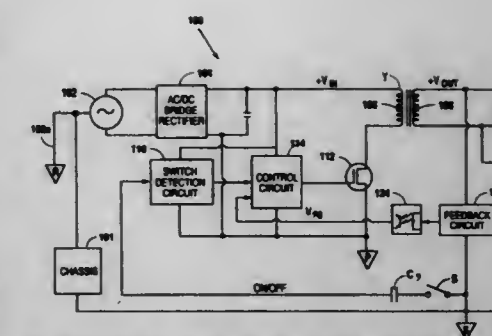
5,671,130
METHOD AND APPARATUS FOR CONTROLLING VOLTAGE REFLECTIONS USING A MOTOR CONTROLLER
Russel J. Kerkman, Milwaukee; David Leggate, New Berlin, and Gary L. Skibinski, Milwaukee, all of Wis., assignors to Allen-Bradley Company, Inc., Milwaukee, Wis.
Filed Aug. 23, 1996, Ser. No. 701,950
Int. Cl.⁶ H02M 1/12; H02P 5/28
U.S. Cl. 363—41 22 Claims



1. A method to be used with a motor controller generating firing pulses to control an inverter, the inverter providing exciting voltage to a motor corresponding to the firing pulses, the voltage having a maximum intended amplitude, the method for substantially eliminating exciting voltage greater than twice the maximum intended amplitude by modifying the firing pulses to provide modified firing pulses, the method comprising the steps of:
(a) identifying firing pulse characteristics;
(b) comparing the firing pulse characteristics to an overvoltage characteristic set known to cause greater than twice overvoltage;
(c) where the firing pulse characteristics match the overvoltage characteristic set, generating a modified firing pulse having modified characteristics that do not cause greater than twice overvoltage; and
(d) modifying subsequent firing pulses to compensate for the effect of the modified firing pulse.

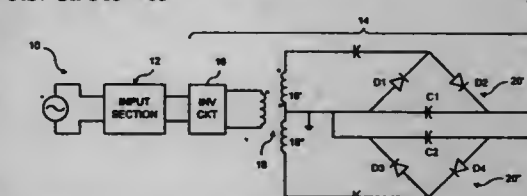
5,671,131
METHOD AND APPARATUS FOR DETECTING AN ISOLATED POWER SWITCH
Alan E. Brown, Georgetown, Tex., assignor to Dell U.S.A. L.P., Austin, Tex.
Filed Aug. 25, 1995, Ser. No. 519,499
Int. Cl.⁶ H02H 7/12
U.S. Cl. 363—56 22 Claims

13. A power supply for converting an AC signal from an AC source having a reference ground, comprising:
a rectifier circuit for coupling to the AC source for converting the AC signal to a DC input signal referenced to a primary ground;
a transformer and converter circuit coupled to said rectifier circuit for converting said DC input signal to at least one regulated output signal referenced to a secondary ground, said secondary ground for coupling to the reference ground of the AC source;
a control circuit coupled to said rectifier circuit and said transformer and converter circuit for controlling conversion of power through said transformer;



an operator-accessible power switch having an on and an off state coupled to said secondary ground;
an isolation capacitor having a first side coupled to said power switch and a second side; and
a switch detection circuit referenced to said primary ground and coupled to said second side of said isolation capacitor, to said rectifier circuit and to said control circuit that detects the state of said power switch through said isolation capacitor and correspondingly turns on and off the power supply by turning on and off said control circuit.

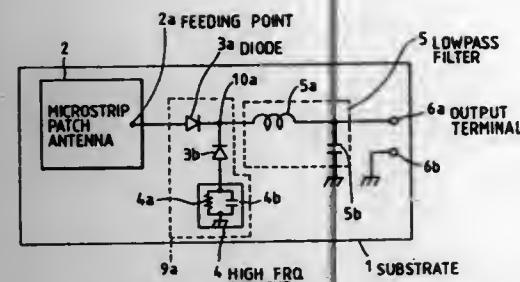
5,671,132
HIGH VOLTAGE BIPOLAR CT SCANNER POWER SUPPLY
Cliff Scapellati, Sayville, N.Y., assignor to Spellman High Voltage Company, Hanpage, N.Y.
Filed Mar. 13, 1996, Ser. No. 614,996
Int. Cl.⁶ H02M 7/02
U.S. Cl. 363—63 10 Claims



1. A bipolar high-voltage power supply system comprising:
an input module for connection to a line voltage for generating intermediate power; and
an output module for receiving said intermediate power and generating in response an output power of a predetermined nominal value P, said output module including a plurality of diodes arranged in one of a first configuration wherein said diodes generate a bipolar output of nominal voltage $\pm V_o$, or a second configuration in which said diodes define a unipolar output of $+V_o$ or $-V_o$; wherein said input module and said output module with said diodes in said first configuration define a first power supply; and wherein said first input modules and two output modules having said diodes arranged in said second configurations cooperate to define a second power supply having a different power rating than said first power supply.

5,671,133
ELECTRIC POWER RECEIVING AND SUPPLYING CIRCUIT
Suguru Fujita, and Makoto Hasegawa, both of Tokyo, Japan, assignors to Matsushita Electrical Industrial Co., Ltd., Japan
Filed Jan. 18, 1995, Ser. No. 374,096
Claims priority, application Japan, Feb. 10, 1994, 6-016315
Int. Cl.⁶ H02M 7/06
U.S. Cl. 363—126 16 Claims

1. An electric power receiving and supplying circuit comprising:



an antenna, including a feeding point, for receiving a transmitted microwave signal and supplying an electric power from the received microwave signal;

a rectifying circuit, comprising: a first diode including an anode, connected to said feeding point, and a cathode, for effecting a first half-wave rectifying of said electric power; a second diode including a cathode, connected to said cathode of said first diode through a junction point, and an anode; and a high frequency grounding circuit including a resistor and a capacitor connected in parallel, for high-frequency-grounding said anode of said second diode, said second diode effecting a second half-wave rectifying of said electric power through said high frequency grounding circuit, said rectifying circuit supplying the first half-wave rectified electric power and the second half-wave rectified electric power as a full-wave rectified electric power from said junction point; and

a lowpass filter for low-pass filtering said full-wave rectified electric power to supply a dc supply power.

5,671,134

INVERTER UNIT AND INVERTER APPARATUS

Toshihiro Nomura, Kunihiko Karube, Masaaki Hisamoto, and Koji Awatani, all of Kanagawa, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

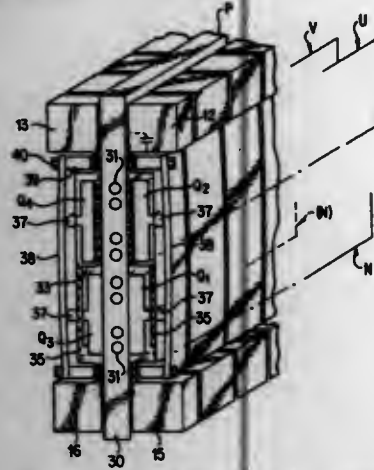
Filed Sep. 5, 1995, Ser. No. 523,215

Claims priority, application Japan, Sep. 13, 1994, 6-218448

Int. Cl.⁶ H02M 7/38; 1/00

U.S. Cl. 363-132

9 Claims



1. An inverter unit for converting a DC current to a high frequency AC current comprising:

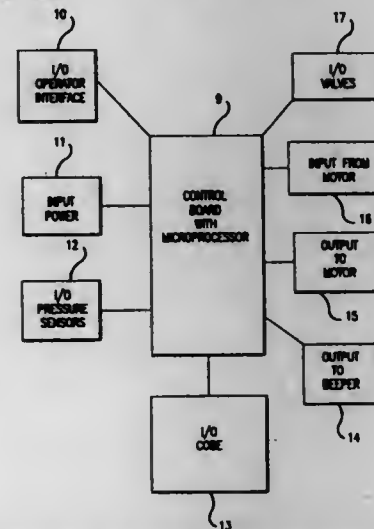
a metal conductor base plate connected to a positive terminal of a DC power supply; and

two arm pairs arranged on both surfaces of the base plate for constituting a single phase bridge circuit, each arm pair being situated on each surface of the base plate and including an upper arm, a lower arm, two switching elements, and one conductor for connecting the two switching elements together in series, one of the switching elements being directly connected to the base plate and the other of the switching elements contacting the base plate through an electric insulator and being connected to a negative terminal of the DC power supply.

5,671,135
PROGRAMMABLE CONTROLLER MODULE
Glen Jorgensen, Marlboro, and Don Barry, Norwood, both of Mass., assignors to ZymeQuest, Inc., Mass.
Filed Jun. 7, 1995, Ser. No. 477,422
Int. Cl.⁶ G05B 11/01

U.S. Cl. 364-181

12 Claims



1. A programmable control module for automatically performing an operation using a host instrument having a switch subject to manual operation, comprising the following elements:

- a host instrument interface comprising an electromagnetic relay connected in parallel with a switch contact on the host instrument;
- an operator interface; and
- a programmable microprocessor;

wherein the microprocessor may be programmed by an operator via the operator interface such that the switch of the host instrument may be actuated automatically via the electromagnetic relay comprised in the host instrument interface, as if the switch were being manually operated, thereby automatically performing the operation, wherein the host instrument is a cell washing apparatus.

5,671,136

PROCESS FOR SEISMIC IMAGING MEASUREMENT
AND EVALUATION OF THREE-DIMENSIONAL
SUBTERRANEAN COMMON-IMPEDANCE OBJECTS

Louis E. Willhoit, Jr., 30 Papworth Ave., Metairie, La. 70005

Filed Dec. 11, 1995, Ser. No. 570,294

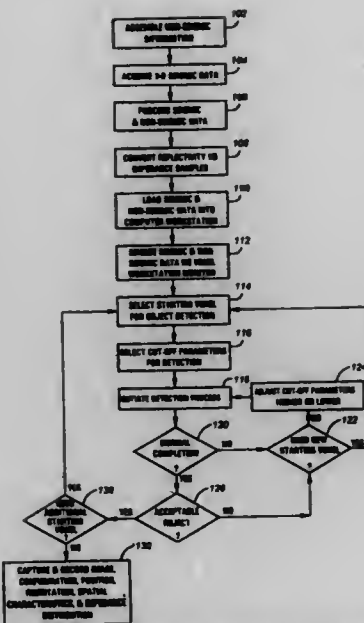
Int. Cl.⁶ G06F 19/00

U.S. Cl. 364-421

16 Claims

1. A method of forming an image of a subsurface earth feature of interest based on geophysical measurements, comprising the steps of:

- obtaining signals representative of a subsurface area of interest in the earth;
- dividing the subsurface area of interest into a number of individual volume elements;
- forming a measure of the acoustic impedance of the individual volume elements;
- comparing the acoustic impedance of the individual volume elements with a reference level;
- assembling as a volumetric model these individual volume elements having an acceptable acoustic impedance as a result of said step of comparing; and



forming an output display of the assembled volumetric model as an image of the subsurface feature of interest.

5,671,137

RESPONSE CONTROL SYSTEM FOR HYDROSTATIC-
MECHANICAL TRANSMISSIONS

Tsutomu Ishino, Osaka; Ryoichi Maruyama, Kanagawa, and Shingo Ota, Osaka, all of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

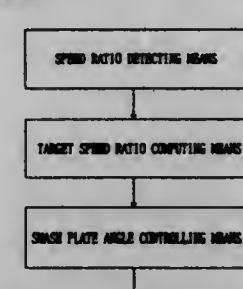
Filed Feb. 15, 1995, Ser. No. 389,167

Claims priority, application Japan, Feb. 18, 1994, 6-21573

Int. Cl.⁶ F16D 31/02

U.S. Cl. 364-424.09

6 Claims



1. A response control system for a hydrostatic-mechanical transmission equipped with a mechanical transmission unit actuated through an input shaft connectable to a power source; a hydrostatic transmission unit which is connectable to the input shaft and comprises a pump and motor having their respective discharge controlling swash plates, the angle of at least either of the swash plates being variable; and a differential unit, having an output shaft, for actuating both the mechanical transmission unit and the hydrostatic transmission unit, the control system comprising:

- speed ratio detecting means for detecting, in digging/moving operation, an actual speed ratio that is the ratio of the revolution speed of the output shaft to the revolution speed of the power source in order to determine if the actual speed ratio is equal to a specified value or less;
- target speed ratio computing means, operably coupled to the speed ratio detecting means, for computing a target speed ratio that is a target value for the ratio of the revolution speed of the output shaft to the revolution speed of the power source, wherein the target speed ratio computing means limits the amount of change in the target speed ratio per unit time when the actual speed ratio detected by the speed ratio detecting means is equal to the specified value or less; and

(c) swash plate angle controlling means, operably coupled to the target speed ratio computing means, for controlling the angle of at least either of the discharge controlling swash plates according to the target speed ratio computed by the target speed ratio computing means.

5,671,138

FUZZY CONTROLLER FOR ACOUSTIC VEHICLE
TARGET INTERCEPT GUIDANCE

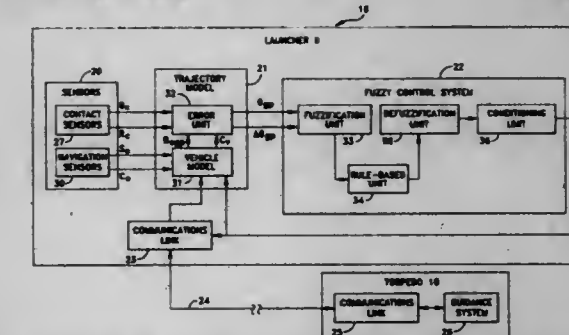
Anthony F. Bessacini, Narragansett, and Robert F. Pinkos, Saunderson, both of R.I., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 6, 1995, Ser. No. 498,810

Int. Cl.⁶ G06F 165/00

U.S. Cl. 364-424.032

11 Claims



1. A system for guiding a steerable object from a first site toward a second site wherein the steerable object includes an acoustic homing device characterized by a center point and by defining a guidance point externally to the steerable object and leading the steerable object as it moves toward the second site, said system comprising:

- sensing means for generating bearing and range signals representing the bearing and range from the first site to the second site;
- model means for generating signals representing the bearing from the guidance point of the steerable object to the second site and course, speed and position of the steerable object;
- error signal generating means responsive to the signals from said sensing means and said model means for generating a first sensed variable signal based upon the bearing from the guidance point of the steerable object to the second site and the course of the steerable object and a second sensed variable signal based upon the rate of change of the first sensed variable signal;
- fuzzy control means responsive to said first and second sensed variable signals for generating a guidance command for controlling the steerable object in response to a plurality of logical rules;
- conditioning means for conditioning the guidance command in response to a selected one of said signals generated by the model means; and
- means for transferring the conditioned guidance command to the steerable object.

5,671,139

HIERARCHICAL FUZZY CONTROLLER FOR BEAM
RIDER GUIDANCE

Anthony F. Bessacini, 83 Birchwood Dr., Narragansett, R.I. 02882, and Robert F. Pinkos, 201 Indian Trail, Saunderson, R.I. 02874

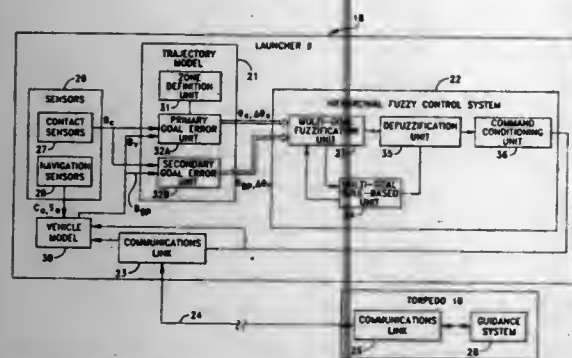
Filed Jul. 6, 1995, Ser. No. 498,811

Int. Cl.⁶ G06F 165/00

U.S. Cl. 364-424.032

32 Claims

1. A hierarchical control system for guiding a steerable object from a launching vehicle toward a target in response to any of



competing sets of multiple goal control rules based upon signals from sensing means corresponding to bearings from the launching vehicle to the steerable object and to the target, said hierarchical control system comprising:

- first error means for generating first goal sensed variable signals in response to the signals from said sensing means;
- second error means for generating second goal sensed variable signals in response to the signals from said sensing means;
- sensed variable membership means including a plurality of sensed variable membership functions for converting the first and second sensed variable signals based on the corresponding first and second sensed variable membership functions into at least first and second sensed linguistic variables;
- control output membership means for producing a plurality of control output membership functions;
- multi-goal rule based means including competing multiple output control rules interposed between said sensed variable membership means and said control output membership means for selecting at least one of said control output membership functions in accordance with one of the competing multiple output control rules selected by said multi-goal rule based means in response to the first goal sensed variable signals;
- guidance command generating means for generating a guidance command in response to the selection by said multi-goal rule based means; and
- a guidance command transfer means for transferring the guidance command to the steerable object, thereby guiding the steerable object from the launching vehicle toward the target.

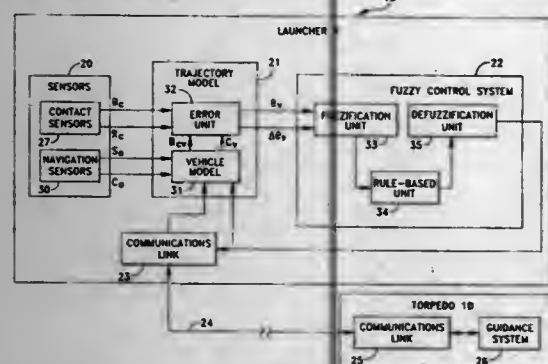
5,671,140 FUZZY CONTROLLER FOR TARGET INTERCEPT GUIDANCE

Anthony F. Bessacini, Narragansett, and Robert F. Pinkos, Saunderstown, both of R.I., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 6, 1995, Ser. No. 498,812
Int. Cl.⁶ G06F 65/00

U.S. Cl. 364-424.032

30 Claims



1. A system for guiding a steerable object on a minimum time and minimum distance path trajectory launched from a first moving site toward a second site comprising:

- sensing means for generating bearing and range signals at said first site representing the bearing and range from said first site to the second site;
- steerable object model means for generating signals based upon the signals from said sensing means representing the bearing, course, speed and position of the steerable object;
- error signal generating means responsive to the signals from said sensing means and steerable object model means for generating a first sensed variable signal based upon the bearing from said steerable object to said second site and the course of said steerable object and a second sensed variable signal based upon the rate of change of the first sensed variable signal;
- fuzzy control means responsive to said first and second sensed variable signals for generating a guidance command at said first site for remotely controlling said steerable object in response to a plurality of fuzzy logic rules; and
- means for transferring the guidance command to said steerable object.

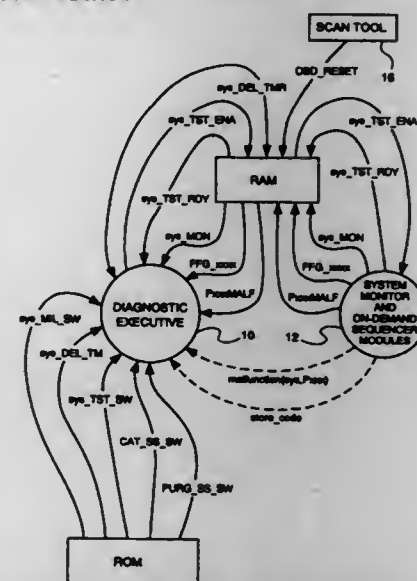
5,671,141 COMPUTER PROGRAM ARCHITECTURE FOR ONBOARD VEHICLE DIAGNOSTIC SYSTEM

Paul Frederick Smith, Dearborn Heights; John Frederick Armitage, Dearborn, and Eric Blaine Ferch, Westland, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Apr. 5, 1993, Ser. No. 43,192
Int. Cl.⁶ G01M 15/00

U.S. Cl. 364-424.034

17 Claims



- 1. A computer program architecture for a motor vehicle on-board diagnostic system including a computer having read only, random access, and keep alive memory, comprising:
- a plurality of monitor modules for monitoring respective ones of a plurality of vehicle systems or components and for issuing a malfunction subroutine call upon detecting and verifying a system or component malfunction,
- an executive program module interfaced with said monitor modules and including a diagnostic scheduler module for controlling and coordinating a sequence of enablement of said monitor modules, a malfunction indicator light (MIL) controller module for issuing a store code subroutine call and illuminating a light in response to a malfunction subroutine call, a codes module responsive to said store code subroutine call for storing a fault code in said keep alive memory,
- wherein said scheduler module disables said monitor modules and enables and controls the sequence of running of a plurality of on-demand self test routines in response to a self test command, and

wherein said self test routines include an engine running test, an engine off test, and an output test mode, said scheduler suspending execution of any monitor module test in response to said self test command and returning to the suspended test upon completion of the self test.

5,671,142 APPARATUS AND METHOD FOR CONTROLLING DAMPING FORCE EXHIBITED IN VEHICULAR DAMPING FORCE VARIABLE SHOCK ABSORBER

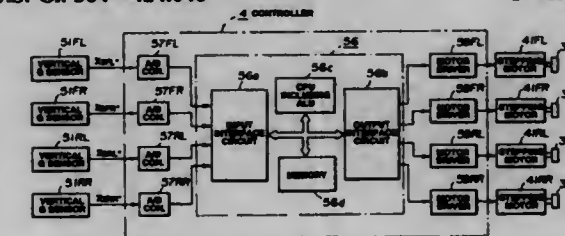
Takahisa Tatarazako, Mooka, Japan, assignor to Nissan Motor Co., Ltd., Kanagawa, Japan

Filed Aug. 23, 1995, Ser. No. 518,513

Claims priority, application Japan, Aug. 23, 1994, 6-198636
Int. Cl.⁶ B60G 17/015

U.S. Cl. 364-424.046

17 Claims



- 1. A control apparatus for an automotive vehicle, comprising:
- a) determining means for determining a behavior of a vehicle body and outputting a signal related to a sprung mass vertical velocity with respect to the vehicle body;
- b) controlling means, responsive to the signal derived from said determining means, for calculating a damping force according to a magnitude and direction of the output signal from said determining means and for outputting a control signal corresponding to the calculated damping force;
- c) actuating means, responsive to said control signal output from said controlling means, for actuating a valve body associated with said actuating means to rotate from a position through an angle to a target position determined according to a magnitude and direction of the control signal output from said controlling means;
- d) damping means, interposed between a sprung mass member of the vehicle and an unsprung mass member of the vehicle and having the valve body, a piston assembly, and upper and lower working fluid chambers defined by said piston assembly, for providing a target damping force at least either of extension or compression phase determined according to the rotated target position of said valve body and whether said target damping force is exhibited at either of the extension phase or compression phase being dependent upon a vertical movement of the piston assembly with respect to the vehicle body;
- e) dead zone setting means for setting positive and negative dead zone threshold values defining a dead zone in which said controlling means does not output said control signal to said actuating means according to the magnitude and direction of the output signal of said determining means so that said valve body is not rotated from said position and each of the damping forces at both extension and compression phases emanated from said damping means gives a minimum damping force;
- f) positive and negative sprung mass vertical velocity upper and lower limit threshold value setting means for setting positive and negative sprung mass vertical velocity upper and lower limit threshold values, whose absolute values are larger than those of said positive and negative dead zone threshold values, said controlling means outputting the control signal to said actuating means so that said valve body is rotated to a maximum target position so as to provide a maximum damping force at either of said extension or compression phase

depending on at least a direction of the output signal from said determining means when said output signal of said determining means becomes equal to or exceeded said either of positive or negative sprung mass vertical velocity upper or lower limit threshold value; and

- g) dead zone threshold value changing means for reducing an absolute value of at least either of said positive or negative dead zone threshold value by a predetermined value when said output signal of said determining means becomes equal to or exceeded either of said positive or negative sprung mass vertical velocity upper or lower limit threshold value.

5,671,143 DRIVING STABILITY CONTROLLER WITH COEFFICIENT OF FRICTION DEPENDENT LIMITATION OF THE REFERENCE YAW RATE

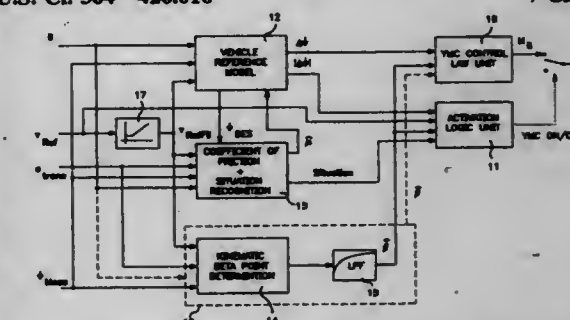
Johannes Gräber, Eschborn, Germany, assignor to ITT Automotive Europe GmbH, Frankfurt, Germany

Division of Ser. No. 475,389, Jun. 7, 1995. This application Jun. 7, 1995, Ser. No. 474,682

Claims priority, application Germany, Nov. 25, 1994, 44 41 958.9

Int. Cl.⁶ B60T 8/58
U.S. Cl. 364-426.016

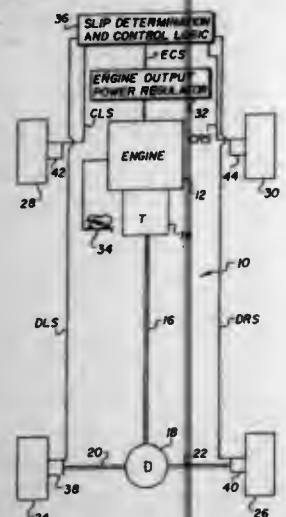
7 Claims



- 1. Apparatus for improving the driving behavior of an automotive vehicle tending to oversteering or understeering, the vehicle having a plurality of wheels, each wheel having a brake, said apparatus comprising:

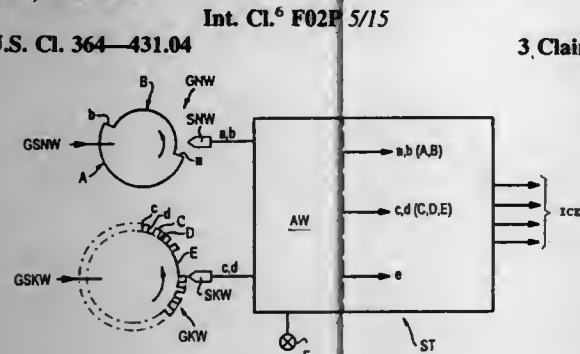
- a plurality of sensors for generating signals representing a steering angle, a velocity, a lateral acceleration and a measured yaw rate of the vehicle;
- coefficient of friction recognition means, responsive to the velocity, the lateral acceleration, the measured yaw rate and the steering angle, for determining an instantaneous coefficient of friction that is less than or equal to a maximum coefficient of friction;
- vehicle model means responsive to the steering angle, the velocity and the coefficient of friction for determining a yaw rate limit and a desired yaw rate that is less than or equal to a yaw rate limit;
- comparing means for comparing the measured yaw rate and the desired yaw rate to determine a difference therebetween;
- yawing moment control means responsive to the difference for determining a moment that is applied to the vehicle, so that the measured yaw rate is adjusted towards the desired yaw rate; and
- means responsive to the yawing moment control means for determining pressure adjustments that are applied to each brake, individually, to generate the moment.

5,671,144
**COMBINED POWER LIMITING AND POWER
 DISTRIBUTING TRACTION CONTROL SYSTEM FOR
 IMPROVING VEHICLE PERFORMANCE IN TURNS**
 Thomas B. Ryan, Webster; Robert K. Holzwarth, Scottsville,
 and Kenneth A. May, Churchville, all of N.Y., assignors to
 Zexel Torsen Inc., Rochester, N.Y.
 Filed May 1, 1995, Ser. No. 432,950
 Int. Cl.⁶ B60K 28/16
 U.S. Cl. 364—426.029



1. A traction control system for improving vehicle performance in turns comprising:
 a power limiting system that regulates drive power to a pair of drive wheels and having a plurality of operating modes for responding to changing vehicle operating conditions;
 a power distributing system that divides the drive power between the drive wheels and resists relative rotation between the drive wheels for unevenly dividing drive torque between the drive wheels;
 sensors for detecting states of (a) vehicle turning, (b) relative rotation between the drive wheels, and (c) wheel slipping of at least one drive wheel; and
 a logic system responsive to a combination of a detection of vehicle turning and a lack of detection of wheel slipping by altering an operating mode of said power limiting system in accordance with a detected state of relative rotation between the drive wheels.

5,671,145
**METHOD FOR EMERGENCY CONTROL OF AN
 INTERNAL COMBUSTION ENGINE**
 Stefan Krebs, Regensburg, and Wolfgang Reupke, Nittendorf-
 Zeller, both of Germany, assignors to Siemens Aktiengesell-
 schaft, Munich, Germany
 Filed May 17, 1995, Ser. No. 442,794
 Claims priority, application European Pat. Off., May 17,
 1994, 94107646
 Int. Cl.⁶ F02F 5/15
 U.S. Cl. 364—431.04

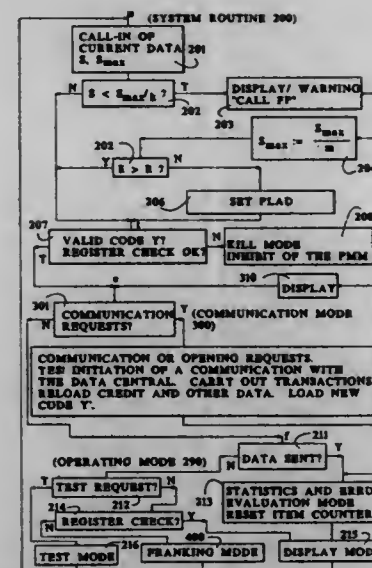


39 Claims

1. In a method for controlling an internal combustion engine including:
 a crankshaft, a crankshaft transducer being associated with the crankshaft for supplying segment edge signals and having a stationary sensor and a crankshaft transducer disk with crankshaft segments, for ascertaining certain positions of the crankshaft;
 a camshaft, a camshaft transducer being associated with the camshaft for supplying segment edge signals and having a stationary sensor and a camshaft transducer disk with camshaft segments, for ascertaining certain positions of the camshaft; and
 a microprocessor-controlled engine control unit for receiving said edge signals from said crankshaft and camshaft transducers and controlling the engine based on the crankshaft signals, the method which comprises:
 storing a total number of teeth and angle lengths of the segments disposed on the crankshaft transducer disk in nonvolatile memory;
 ascertaining and storing crankshaft positions a', b' corresponding to respective certain camshaft segment edges, relative to a predetermined reference crankshaft position in nonvolatile memory, under predetermined operating conditions of the internal combustion engine;
 ascertaining angle lengths of at least a certain portion of the segments disposed on the camshaft from the stored crankshaft positions a', b', and ascertaining a ratio of the length of each segment to at least a part of a previous segment from the angle lengths and storing the length ratio in nonvolatile memory;
 ascertaining counted clock pulses (I_N , I_{N-1}) for transit times of respective segments (N , $N-1$) by the camshaft sensor by counting with a clock signal of predetermined frequency, in an event of a failure of the crankshaft sensor, wherein said failure is determined when no crankshaft sensor signal is detected;
 interpolating a number of pulses for a current segment (N) from a number (I_{N-1}) of clock pulses counted in a preceding segment ($N-1$) in accordance with a formula $I_N = I_{N-1} * (L_N / L_{N-1})$ wherein L_N and L_{N-1} are respective angle lengths;
 determining a number of clock pulses for a simulated crankshaft signal in advance for the current segment from the quotient I_{N-1} / L_{N-1} ; and
 subsequently simulating crankshaft signals and the crankshaft reference signal upon appearance of the camshaft edge signal, beginning with one of the ($a' * (I^* KW)$)th pulse and the ($b' * (I^* KW)$)th pulse, referenced to the previous reference signal, by:
 forming a signal at each ($R * (I^* KW)$)th pulse of the clock signal, wherein R is the space between two pulses in $^* KW$, and
 forming a crankshaft reference signal at each ($360 * (I^* KW)$)th pulse of the clock signal.

5,671,146
**METHOD FOR IMPROVING THE SECURITY OF
 POSTAGE METER MACHINES**
 Harald Windel; Frank Reisinger; Claus Freytag; Ralf Kubatzki; Enno Bischoff; Andreas Wagner; Peter Rieckhoff;
 Marcus Hansel, and Stephan Günther, all of Berlin, Ger-
 many, assignors to Francotyp-Postalia GmbH, Birkenwer-
 der, Germany
 Filed Nov. 30, 1994, Ser. No. 346,909
 Claims priority, application Germany, Dec. 21, 1993, 43 44
 476.8
 Int. Cl.⁶ G07B 17/04
 U.S. Cl. 364—464.2

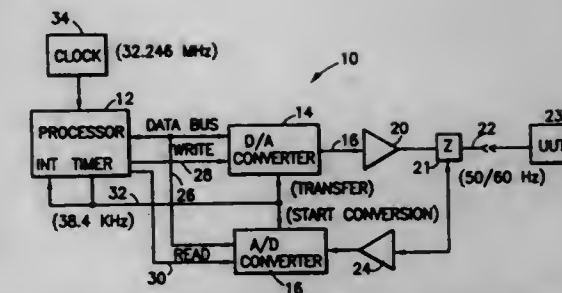
1. A method for improving the security of a postage meter machine which is capable of communication with a remote central data station, said postage meter machine being openable and containing a microprocessor which controls the execution of a system routine, said method comprising the steps of:



establishing a first communication link between a user and said central data station;
 establishing a second communication link between said postage meter machine and said central data station and communicat-
 ing data between said central data station and said postage meter machine which permits said postage meter machine to determine if a subsequent opening of said machine is authorized or unauthorized;
 upon any opening of said housing of said postage meter machine, automatically causing said microprocessor to conduct a routine, employing said data communicated to said postage meter machine from said central data station, to determine whether said opening is authorized or unauthorized;
 if said opening was authorized and said housing is closed, permitting said system routine to enter into said franking mode;
 if said opening was unauthorized and said housing is closed, preventing said system routine from entering into said franking mode;
 reporting an intent to conduct an authorized opening of said postage meter machine by making a request for opening at said central data station after establishment of said communication link;
 communicating a new code word to said postage meter machine from said central data station upon approval of said request for opening, as part of said data communicated between said postage meter machine and said central data station; and
 automatically transferring said postage meter machine into a first mode for effectively shutting said postage meter machine off if said postage meter machine is opened and said new code word is absent from said postage meter machine.

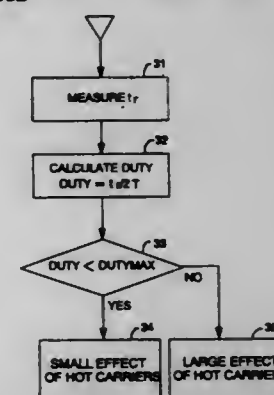
5,671,147
**AC MAINS TEST SYSTEM FOR MEASURING CURRENT
 HARMONICS AND VOLTAGE VARIATIONS**
 James B. McKim, Jr., Blairstown, and John F. Kenny, Jr.,
 Calif., both of N.J., assignors to Hewlett-Packard Com-
 pany, Palo Alto, Calif.
 Filed Aug. 11, 1995, Ser. No. 514,197
 Int. Cl.⁶ G06F 17/40

1. A digital system for measuring cyclic disturbance signals induced on an electrical line by a connected unit under test (UUT), said digital system comprising:
 digital to analog (D/A) conversion means for receiving and converting a first train of digital signals to a cyclic analog test signal and for applying said cyclic analog test signal to said electrical line, said D/A conversion means having a synchro-



nizing input which, in response to a synch pulse input, operates to convert a digital input to an analog signal level;
 analog to digital (A/D) conversion means for receiving and converting an analog cyclic disturbance signal on said electrical line to a second train of digital signals, said A/D conversion means having a synchronizing input which, in response to a synch pulse input, operates to convert an analog cyclic disturbance signal level to a digital signal;
 synch generator means for generating a train of synch pulses and concurrently applying said synch pulses to said synchronizing input of each of said D/A conversion means and said A/D conversion means, such that said second train of digital signals is produced in frequency synchronism with said cyclic analog test signal that is applied to said electrical line; and
 processor means coupled to said D/A conversion means and said A/D conversion means, for outputting said first train of digital signals to said D/A conversion means and for receiving said second train of digital signals from said A/D conversion means, and for subjecting a portion of said second train of digital signals to signal analysis, said portion representative of at least an integer number of half cycles of said analog cyclic disturbance signal.

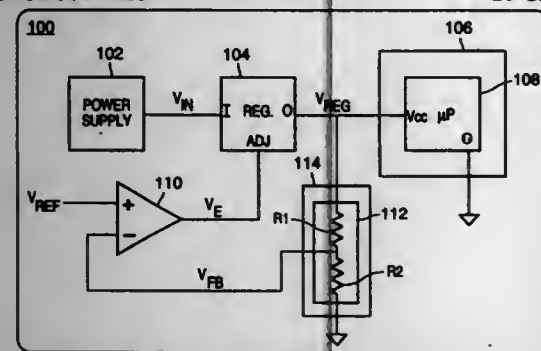
5,671,148
**APPARATUS AND METHOD FOR CHECKING LOGIC
 CIRCUIT**
 Maho Urano, and Miho Yokota, both of Tokyo, Japan, assign-
 ors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed Nov. 27, 1995, Ser. No. 562,846
 Claims priority, application Japan, Jul. 11, 1995, 7-174910
 Int. Cl.⁶ H03K 17/60
 U.S. Cl. 364—482



1. An apparatus for checking logic circuit comprising:
 means for measuring rising transition time t_r (or falling transition time t_f) of signal generated by logic element comprising one portion of the logic circuit;
 means for calculating a ratio (DUTY) of rising transition time t_r (or falling transition time t_f) and operation period T of the signal; and
 means for comparing said DUTY with maximum allowable duty wherein, if the comparison result is $DUTY < DUTY_{MAX}$, it is judged that hot carriers give a small effect on the logic

element, and if the comparison result is DUTY>DUTYMAX, it is judged that hot carriers give a large effect on the logic element.

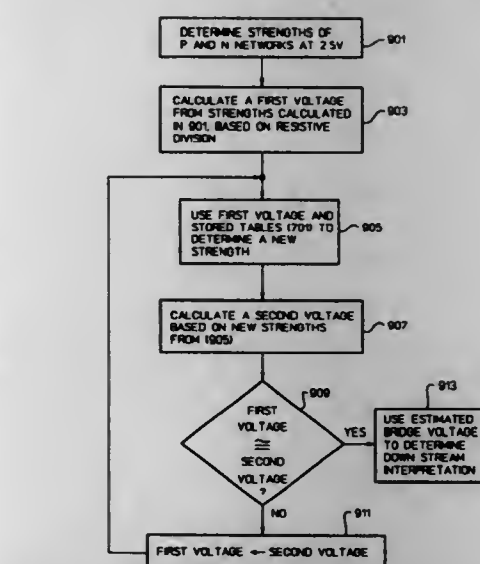
5,671,149
PROGRAMMABLE BOARD MOUNTED VOLTAGE REGULATORS
Alan E. Brown, Georgetown, Tex., assignor to Dell USA, L.P., Round Rock, Tex.
Filed Jan. 11, 1995, Ser. No. 371,234
Int. Cl. G05B 11/01
U.S. Cl. 364-483 20 Claims



1. An electronic device comprising: a system board for mounting and electrically connecting electronic devices; a socket mounted to said system board for receiving and replaceably connecting a selected one of a plurality of devices; means for providing a source voltage; a regulator mounted to said system board receiving said source voltage and receiving an error signal, the regulator for providing an operating voltage to said replaceably connected one of a plurality of devices; means for providing a reference voltage; an error amplifier receiving said reference voltage and receiving a feedback signal, the error amplifier for providing said error signal; and a modifiable resistive network coupled to said regulator and coupled to said error amplifier, the resistive network being modified in conjunction with and depending upon the selected replaceable one of a plurality of devices, the resistive network for sensing said operating voltage and providing said feedback signal to maintain said operating voltage at a determined optimum level.

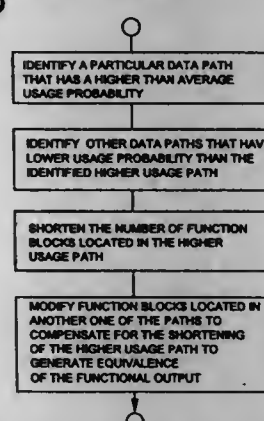
5,671,150
SYSTEM AND METHOD FOR MODELLING INTEGRATED CIRCUIT BRIDGING FAULTS
Peter C. Maxwell, Sunnyvale, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Oct. 13, 1994, Ser. No. 322,649
Int. Cl. G06F 17/50
U.S. Cl. 364-488 7 Claims

1. A method for simulating bridging faults, wherein a bridge fault occurs at a node having n type transistors grounding the node and p type transistors driving the node to a reference voltage, comprising: (a) storing strengths of n and p transistor circuits relative to strength of a reference device as a function of voltage level in tables; (b) determining an equivalent circuit of p devices equivalent to the structure driving a bridge fault to the reference voltage; (c) determining an equivalent circuit of n devices equivalent to the structure grounding a bridge fault; (d) using said tables to determine a first ratio of the strength of the equivalent n circuit to the strength of the equivalent p circuit; and



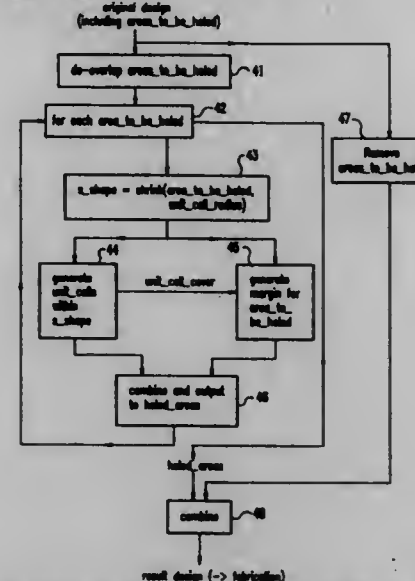
(e) determining, based upon said first ratio, how down-stream gates interpret said bridge fault.

5,671,151
SELF-TIMED LOGIC CIRCUIT HAVING ZERO-LATENCY OVERHEAD AND METHOD FOR DESIGNING SAME
Ted E. Williams, Santa Clara County, Calif., assignor to Hal Computer Systems, Inc., Campbell, Calif.
Division of Ser. No. 42,459, Apr. 5, 1993, Pat. No. 5,513,132, which is a continuation of Ser. No. 782,844, Oct. 24, 1991, abandoned, which is a continuation of Ser. No. 595,350, Oct. 10, 1990, Pat. No. 5,121,003. This application Nov. 14, 1994, Ser. No. 339,473
Int. Cl. G06F 17/50
U.S. Cl. 364-489 19 Claims



1. A method for implementing an asynchronous combinatorial logic apparatus that propagates data forward at the speed of a raw combinatorial logic array for generating a final functional output signal and having a minimum expected value of data propagation delay, said apparatus includes a plurality of data paths, and each of said paths receives at least one functional input signal and generates an intermediate functional output signal in response to said at least one functional input signal, said method comprising the steps of: identifying a particular data path that has higher than average usage probability, compared to other of said plurality of data paths, based on knowledge of the probabilistic distribution of data values; and modifying said particular data path connecting circuit devices located in said identified higher usage path so that said path that is known to have a higher usage is made faster so that said expected value of said data delay is less than the average of all data value delays.

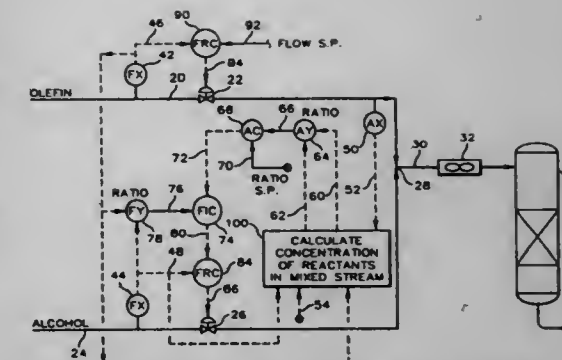
5,671,152
EFFICIENT GENERATION OF NEGATIVE FILL SHAPES FOR CHIPS AND PACKAGES
Mark A. Lavin, Westchester County, and Lars W. Liebmann, Dutchess County, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 19, 1995, Ser. No. 444,471
Int. Cl. G06F 17/50
U.S. Cl. 364-490 6 Claims



1. A computer-implemented method for modifying an integrated circuit chip or package design by adding negative fill shapes to the design comprising the steps of: inputting an original design, including areas to which negative fill shapes are to be added, as a data file; deoverlapping areas to which negative fill shapes are to be added and fracturing the deoverlapped areas to which negative fill shapes are to be added into geometric shapes; determining a maximum set of unit cells, each containing one or more negative fill shapes, that fit within borders of the fractured areas to which negative fill shapes are to be added and generating areas with the negative fill shapes; subtracting the areas to which negative fill shapes are to be added from the original design; and combining the generated areas with the negative fill shapes with the original design minus the areas to which negative fill shapes are to be added to produce a resultant design for fabrication.

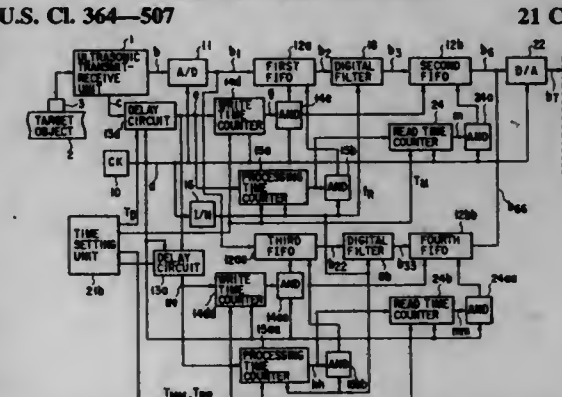
5,671,153
CHEMICAL REACTOR FEED CONTROL
Francis M. Brinkmeyer; Steven D. Bridges; Ronald E. Miranda, all of Bartlesville, Okla., and Mike L. Facker, Sugar Land, Tex., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Filed Feb. 24, 1995, Ser. No. 393,768
Int. Cl. G06G 7/58;775
U.S. Cl. 364-502 14 Claims

1. Apparatus comprising: a reactor; a mixer for combining two fluid streams; means for supplying a first feedstream containing a first reactant to an inlet of said mixer, wherein said first reactant is subject to variations in concentration in said first feedstream; means for supplying a second feedstream containing a second reactant to said inlet of said mixer, wherein said second reactant is essentially stable in concentration in said second feedstream; means for supplying a mixed feedstream from an outlet of said mixer to the feed inlet of said reactor;



- means for establishing a first signal representative of the actual flow rate of said first feedstream;
- means for establishing a second signal representative of the actual flow rate of said second feedstream;
- means for establishing a third signal representative of the ratio of said first signal to said second signal;
- means for establishing a fourth signal representative of the actual concentration of said first reactant in said first feedstream;
- a computer programmed for calculating the concentration of said first reactant and said second reactant in said mixed feedstream based on said first signal, said second signal and said fourth signal, and wherein said computer establishes a fifth signal inferentially representative of the concentration of said first reactant in said mixed feedstream, and a sixth signal inferentially representative of the concentration of said second reactant in said mixed feedstream;
- means for establishing a seventh signal inferentially representative of the ratio of said fifth signal to said sixth signal; and
- means for manipulating the flow rate of said second feedstream in response to said third signal and said seventh signal, to thereby maintain a desired concentration ratio of said first reactant to said second reactant in said mixed feedstream.

5,671,154
SIGNAL PROCESSING METHOD AND SIGNAL PROCESSING DEVICE FOR ULTRASONIC INSPECTION APPARATUS
Yukinori Iizuka; Hidekazu Horigome; Akira Murayama, and Shin Nakazawa, all of Tokyo, Japan, assignors to NKK Corporation, Tokyo, Japan
PCT No. PCT/JP94/00916, § 371 Date Jan. 26, 1995, § 102(e) Date Jan. 26, 1995, PCT Pub. No. WO94/29714, PCT Pub. Date Dec. 22, 1994
PCT Filed Jun. 7, 1994, Ser. No. 374,777
Claims priority, application Japan, Jun. 7, 1993, 5-135562
Int. Cl. G01N 29/04;29/10
U.S. Cl. 364-507 21 Claims



1. A signal processing method for an ultrasonic inspection apparatus in which an ultrasonic pulse is transmitted to a target object at a predetermined period, and a flaw present in said target object is detected on the basis of a high-frequency echo signal output from

an ultrasonic transmit-receive unit for receiving a reflected wave, comprising the steps of:

- converting the echo signal into a digital signal at a predetermined sampling frequency;
- designating a measurement time interval in the predetermined period;
- sequentially storing, at a write frequency equal to the sampling frequency, sampling data, in the measurement time interval, of the echo signal converted into the digital signal;
- sequentially reading out the stored sampling data at a read frequency lower than the write frequency;
- performing a frequency discrimination process to the sequentially readout echo signal by a digital filter; and
- determining the presence/absence of the flaw on the basis of the echo signal to which the frequency discrimination process is performed.

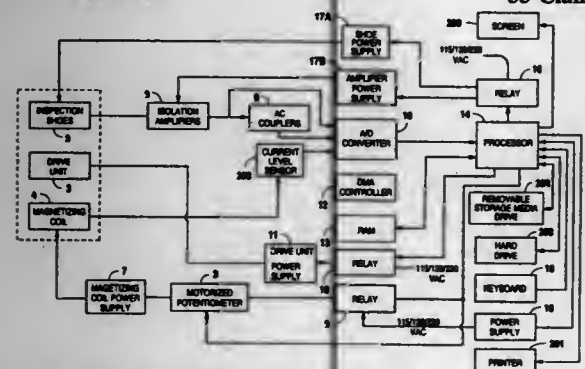
5,671,155

METHOD AND APPARATUS FOR DETECTING AND DISPLAYING IRREGULARITIES IN FERROUS PIPE
 Brian Wade Edens, and Chester Wayne Pape, both of San Antonio, Tex., assignors to Oilfield Equipment Marketing, Inc.

Filed Aug. 30, 1995, Ser. No. 521,406
 Int. Cl.⁶ G01N 27/00

U.S. Cl. 364—507

33 Claims



1. An apparatus for detecting irregularities in a ferrous pipe, comprising:

- means for inducing a magnetic field in the ferrous pipe;
- means for measuring changes in the induced magnetic field and for producing signals representative of those changes;
- means for processing said signals according to frequency to classify said signals by type of irregularity in the ferrous pipe; and
- means for displaying said frequency processed signals according to type of irregularity in the ferrous pipe.

5,671,156

TRANSMISSION METHOD AND SYSTEM FOR JPEG IMAGES

Vijitha Weerackody, Watchung, and Yong Zhou, Washington Township, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Mar. 31, 1995, Ser. No. 422,409

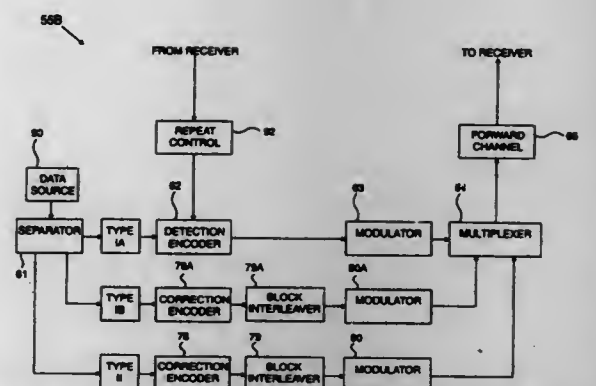
Int. Cl.⁶ G06K 15/00; H04L 1/18; H04B 1/02

U.S. Cl. 364—514 R

42 Claims

5. A transmitter for transmitting a JPEG image over a communication medium to a receiver with unequal error protection, comprising:

- an error detection encoder for encoding Type-I information of the JPEG image with an error detection code;



a modulator for modulating the error detection encoded Type-I information and for modulating Type-II information of the JPEG image for transmission over a forward channel of the communication medium to the receiver; and

a repeat controller for re-transmitting the error detection encoded Type-I information in response to a retransmission request from the receiver transmitted over a feedback channel of the communication medium.

5,671,157

METHOD AND SYSTEM FOR DISPLAYING THREE DIMENSIONAL IMAGES

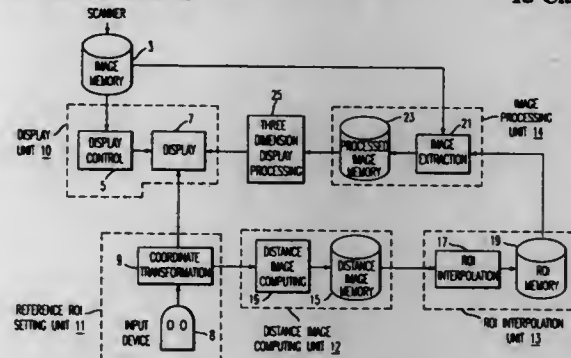
Kazuyo Saito, Tochigi-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Feb. 22, 1995, Ser. No. 392,323

Claims priority, application Japan, Feb. 22, 1994, 6-024216
 Int. Cl.⁶ G06T 17/00

U.S. Cl. 364—514 R

18 Claims



1. A system for displaying a three dimensional image, the system comprising:

- a display;
- an image memory for storing a plurality of slice images, each of said slice images are successively arranged;
- a reference image selection means for selecting at least two reference images between which is interposed at least one additional image;
- reference ROI selecting means for selecting at least one reference ROI on each of said at least two reference images; and
- additional ROI decision means for selecting an additional ROI of the interposed additional image based on both the sizes of said references ROI selected on each of said reference images and a distance between one of said at least two reference images and said at least one additional image.

5,671,158

APPARATUS AND METHOD FOR EFFECTING WIRELESS DISCOURSE BETWEEN COMPUTER AND TECHNICIAN IN TESTING MOTOR VEHICLE EMISSION CONTROL SYSTEMS

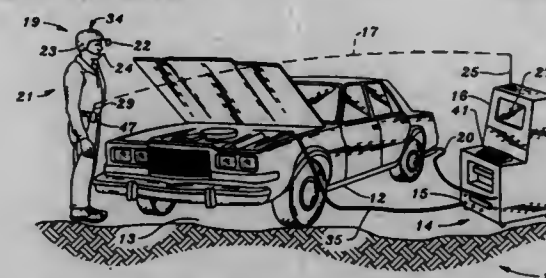
Thomas J. Fournier; Bruce R. Kohn; Samuel Chu Lee, and Glenn E. Mitchell, all of Tucson, Ariz., assignors to Envirotech Systems Corp., Tucson, Ariz.

Filed Sep. 18, 1995, Ser. No. 529,843

Int. Cl.⁶ H04H 3/00

U.S. Cl. 364—514 R

33 Claims



1. An apparatus for effecting wireless discourse between a computer and a technician/user in testing and inspecting the emission control systems of a motor vehicle located within a work area, said apparatus comprising:

- a computer having a data base and software for testing and inspecting emission control systems of motor vehicles, said computer further having an output for video data, an output for computer audio data, and an input for technician audio data and commands;
- a computer console video transmitter connected to said video output;
- a computer console audio transmitter connected to said audio output;
- a computer console audio receiver connected to said audio input; and,
- a user interface located within the work area, said interface including: an interface video receiver responsive to said console video transmitter; a video display connected to an output of said video receiver; an interface audio receiver responsive to said computer console audio transmitter; an audio transducer connected to an output of said audio receiver; a microphone; and, an interface audio transmitter connected to said microphone, said console audio receiver being responsive to said interface audio transmitter, whereby in a location remote from said computer, the technician may view said video data and hear said computer audio data, and the technician may voice audio data and commands to said computer.

5,671,159

FIRE DETECTING APPARATUS

Toshikazu Morita, Tokyo, Japan, assignor to Nohmi Bosai Ltd., Tokyo, Japan

Filed Nov. 22, 1994, Ser. No. 346,229

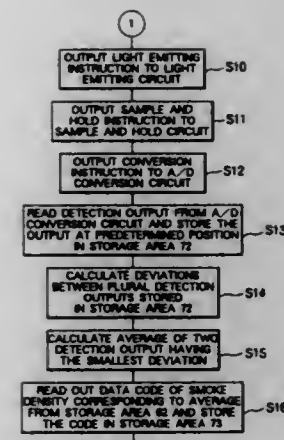
Claims priority, application Japan, Nov. 25, 1993, 5-295668
 Int. Cl.⁶ G08B 17/00; 29/18

U.S. Cl. 364—550

9 Claims

1. A fire detecting apparatus comprising:

- detection means for repeatedly detecting a physical quantity of a fire phenomenon and successively outputting corresponding detection outputs according to a predetermined number of detecting operations;
- storage means for successively storing a predetermined number of most recent detection outputs from said detection means;
- deviation calculation means for obtaining all combinations of any two of said predetermined number of detection outputs stored in said storage means and for calculating either a deviation value or a ratio between said two detection outputs in each of said combinations;
- determination means for determining which of said combinations of two detection outputs obtained by said deviation



calculation means have either the smallest deviations or smallest ratios therebetween;

calculation means for calculating a detection value based on said combinations of two detection outputs determined by said determination means; and

sending means for sending the detection value calculated by said calculation means as information denoting the physical quantity of the fire phenomenon.

5,671,160

POSITION SENSING SYSTEM

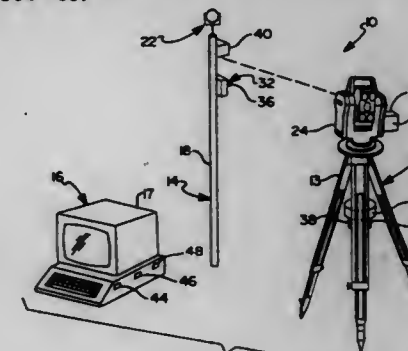
Charles F. Julian, Holly, Mich., assignor to GCS Properties, Waterford, Mich.

Filed Jun. 5, 1995, Ser. No. 465,254

Int. Cl.⁶ G01C 3/00; 5/00

U.S. Cl. 364—559

20 Claims



1. A system for three-dimensional position sensing comprising:

- at least one target station comprising means for transmitting data;
- at least one reference station comprising:
 - means for measuring the distance of the at least one target station from the at least one reference station to obtain a distance measurement;
 - means for measuring the height of the at least one target station relative to the height of the at least one reference station to obtain a height measurement;
 - means for measuring the azimuth angle of the at least one target station to obtain an azimuth angle measurement; and
 - means for transmitting the distance measurement, the height measurement, and the azimuth angle measurement to a means for correcting for tilt;
- means for defining a floating point;
- means for measuring rotation of the at least one target station about the floating point;
- means for correcting for tilt of the target station in response to the measurements received from the means for transmitting; and

wherein the target station measurements received by the means for correcting for tilt of the target station are stored therein; further wherein data containing measurements taken by the means for measuring rotation of the at least one target station about the floating point are transmitted to the means for correcting for tilt of the target station and further are stored therein; and

wherein measurements taken by the means for measuring the distance of the at least one target station from the at least one reference station, the means for measuring the height of the at least one target station relative to the height of the at least one reference station, and the means for measuring the azimuth angle of the at least one target station are adjusted by the means for correcting for tilt of the target station according to measurements taken by the means for measuring the rotation of the at least one target station about the floating point.

5,671,161

SWITCH WITH DIAGNOSTIC CAPABILITY

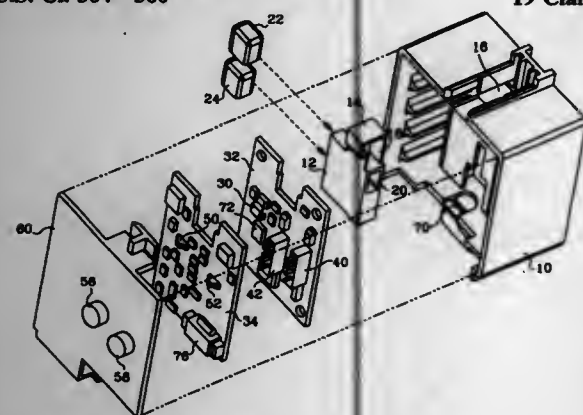
Ronika A. Bennet, Freeport; Jeffrey S. Hall, Rockford; Perry A. Holman, Jr.; Lyle D. Johnsen, both of Freeport, all of Ill., and Matthew D. Kirkwood, Monroe, Wis., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 19, 1995, Ser. No. 574,803

Int. Cl.⁶ H01L 43/06

U.S. Cl. 364—560

19 Claims



1. A switch, comprising:
 - a housing structure;
 - an actuator which is movable relative to said housing structure in response to an external force exerted upon it;
 - a magnet structure attached to said actuator, said magnet structure being movable along a path within said housing structure in response to movement of said actuator;
 - a magnetically sensitive component attached to said housing structure and disposed proximate said path, said magnetically sensitive component having an analog output signal which is representative of the position of said magnet structure along said path;
 - means, connected in signal communication with said magnetically sensitive component, for determining the position of said actuator relative to said housing structure as a function of said analog output signal;
 - means, connected in signal communication with said magnetically sensitive component, for determining the magnitude of movement of said actuator relative to a predetermined position; and
 - means for calculating the velocity of said actuator when said magnet structure moves along said path.

5,671,162 DEVICE FOR RECORDING DESCENT DATA FOR SKYDIVING

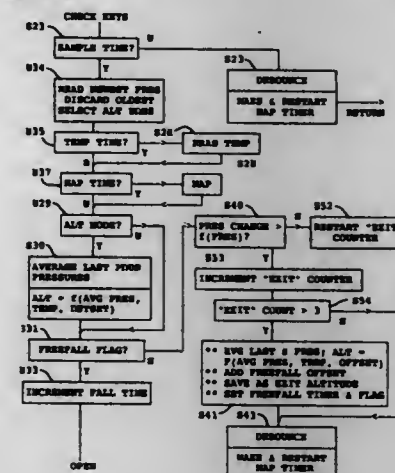
Roy Geoffrey Werbin, 32F Village Green, Budd Lake, N.J. 07828

Filed Oct. 23, 1995, Ser. No. 546,684

Int. Cl.⁶ G01B 7/00

U.S. Cl. 364—561

46 Claims



1. A device for recording descent data for successive skydiving jumps, comprising:
 - a pressure transducer for providing a pressure signal signifying ambient pressure;
 - a display means for displaying descent data; and
 - a processing means coupled to said display means and said pressure transducer, including:
 - trigger means for sensing a rate of change in the pressure signal from said pressure transducer and for providing a trigger signal in response to the rate of change of the pressure signal crossing a predetermined threshold; and
 - recording means for recording for each jump in response to the trigger signal an altitude datum corresponding to the pressure signal, each altitude datum being held for at least a predetermined number of succeeding jumps for subsequent display on said display means.

5,671,163

PAPER FEED CONTROL SYSTEM IN PRINTING UNIT

Kazuhiko Iida, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Jun. 21, 1995, Ser. No. 493,393

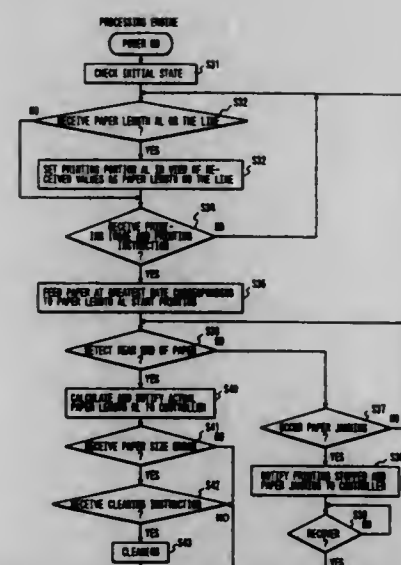
Claims priority, application Japan, Jun. 21, 1994, 6-138918; Jun. 21, 1994, 6-138919

Int. Cl.⁶ G01B 21/00; G03G 21/00

U.S. Cl. 364—562

6 Claims

1. A paper feed control system in a printing unit using cut sheets of paper, each having a respective actual length, said system comprising:
 - a controller for receiving data necessary for printing from a host computer, and for analyzing said received data to provide analyzed results thereof, said analyzed results including a calculated paper length and image data,
 - a printing portion for receiving said analyzed results, for feeding one of said cut sheets of paper, and for printing thereon an image in accordance with said image data, and
 - a video interface for interfacing between said controller and said printing portion;
 wherein said controller includes:
 - calculation means for calculating said calculated paper length based on a specified paper size from said received data, and
 - notifying means for notifying said printing portion of said calculated paper length; and
 - wherein said printing portion includes executing means for executing said feeding of said cut sheets of paper, and



assumes, for purposes of detecting a first sheet paper jam, that a first one of said cut sheets of paper has said calculated paper length as said respective actual length thereof.

5,671,164

SIGNAL MEASUREMENT METHOD AND SIGNAL MEASUREMENT APPARATUS

Masayoshi Kanno, and Mariko Okumura, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

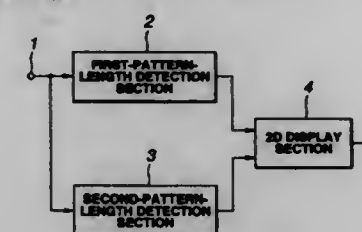
Filed Aug. 26, 1996, Ser. No. 702,990

Claims priority, application Japan, Aug. 29, 1995, 7-220578

Int. Cl.⁶ G01R 23/16

U.S. Cl. 364—569

12 Claims



STRUCTURAL VIEW OF SIGNAL MEASUREMENT APPARATUS

1. A signal measurement method comprising the steps of:
 - detecting a first pattern length which corresponds to an interval between first edges of digital binary-coded data;
 - detecting a second pattern length which corresponds to an interval between second edges; and
 - performing 2D display such that the first pattern length is made to be input to the X axis and the second pattern length is made to be input to the Y axis.

5,671,165

METHOD OF DETERMINING POSITION OFFSET OF A PATTERN

Yoshikatsu Tomimatsu, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 14, 1996, Ser. No. 615,764

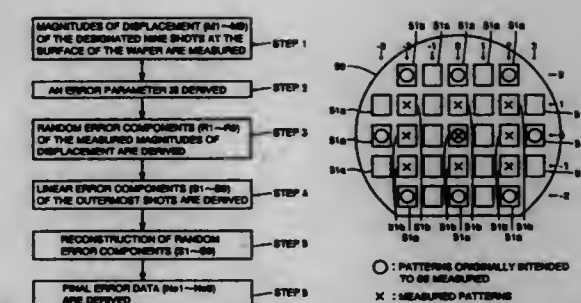
Claims priority, application Japan, Sep. 18, 1995, 7-238365

Int. Cl.⁶ G01B 11/03; G03F 9/00

U.S. Cl. 364—571.01

10 Claims

1. A method of determining position offset of a substrate to be processed having a plurality of unit patterns arranged on a main surface thereof, comprising the steps of:



- measuring position offset data at a plurality of predetermined unit patterns other than the unit patterns located outermost on said processed substrate;
- calculating a predetermined error parameter based on said position offset data measured;
- calculating a first linear error component of the unit pattern for which said position offset data is measured based on said error parameter;
- calculating a first random error component of the unit pattern for which said position offset data is measured by subtracting said measured first linear component from said position offset data measured corresponding thereto;
- calculating a second linear error component of the unit pattern located outermost on said processed substrate based on said error parameter;
- calculating a second random error component corresponding to said second linear error component based on said first random error; and
- calculating error data by adding each said second linear error component and said second random error component corresponding thereto.

5,671,166

BARREL SHIFTER FOR COMBINING PIECES OF DATA INTO A PIECE OF COMBINED DATA AND SHIFTING THE COMBINED DATA

Kazuyuki Omote, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 991,300, Dec. 15, 1992, abandoned.

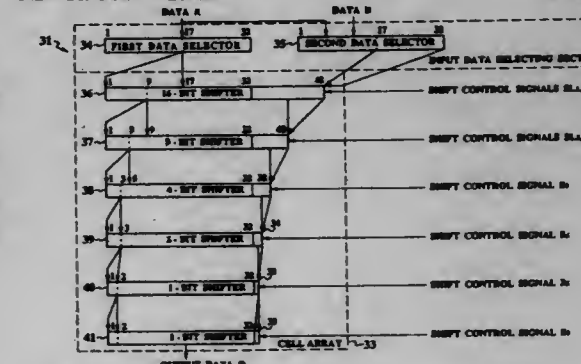
This application Nov. 14, 1994, Ser. No. 340,486

Claims priority, application Japan, Dec. 16, 1991, 3-332143

Int. Cl.⁶ G06F 7/00

U.S. Cl. 364—715.08

8 Claims



1. A barrel shifter comprising:
 - a first data selector configured to hold first input data of at most N bits;
 - a second data selector configured to hold second input data of at most N bits; and
 - a plurality of shifters connected in a series arrangement and configured to carry out a shift operation of one of a plurality of shift amounts, said plurality of shifters including a top shifter of 3N/2 bits being directly connected to said first and second data selectors and configured to receive said first and second input data, each of remaining said plurality of shifters performing a necessary shift operation by selecting bit posi-

tions of a preceding one of said plurality of shifters in said series arrangement from which data is received in accordance with a respective shift control signal corresponding to said one of a plurality of shift amounts;

said top shifter operating in one of a first, second and third mode in accordance with said respective shift control signal for said top shifter, said top shifter outputting first output data of $3N/2$ bits such that, in the first mode, the least significant $N/2$ bits of said first input data is output as the most significant $N/2$ bits of said first output data and said N bits of said second input data is output as the least significant N bits of said first output data, in the second mode, the N bits of said first input data is output as the most significant N bits of said first output data and the most significant $N/2$ bits of said second input data is output as the least significant $N/2$ bits of said first output data, and in the third mode, the least significant $N/2$ bits of said first input data is output as the intermediate $N/2$ bits located between the most significant $N/2$ bits and the least significant $N/2$ bits of said first output data and the least significant $N/2$ bits of said second input data is output as the least significant $N/2$ bits of said first output data;

wherein said plurality of shifters further comprise:

a first shifter directly connected to said top shifter and configured to provide a first shift amount greater than or equal to 0 bits and less than or equal to $N/4$ bits to said first output data, said first shifter outputting second output data as a result thereof, wherein an amount of said first shift amount provided by said first shifter is based on said respective shift control signal received by said first shifter;

a second shifter directly connected to said first shifter and configured to provide a second shift amount greater than or equal to 0 bits and less than or equal to $N/8$ bits to said second output data, said second shifter outputting third output data as a result thereof, wherein an amount of said second shift amount provided by said second shifter is based on said respective shift control signal received by said second shifter;

a third shifter directly connected to said second shifter and configured to provide a third shift amount greater than or equal to 0 bits and less than or equal to $N/16$ bits to said third output data, said third shifter outputting fourth output data as a result thereof, wherein an amount of said third shift amount provided by said third shifter is based on said respective shift control signal received by said third shifter;

a fourth shifter directly connected to said third shifter and configured to provide a fourth shift amount greater than or equal to 0 bits and less than or equal to $N/32$ bits to said fourth output data, said fourth shifter outputting fifth output data as a result thereof, wherein an amount of said fourth shift amount provided by said fourth shifter is based on said respective shift control signal received by said fourth shifter; and

a fifth shifter directly connected to said fourth shifter and configured to provide a fifth shift amount greater than or equal to 0 bits and less than or equal to $N/32$ bits to said fifth output data, said fifth shifter outputting sixth output data as a result thereof, wherein an amount of said fifth shift amount provided by said fifth shifter is based on said respective shift control signal received by said fifth shifter;

wherein each of said respective shift control signals for said top shifter and said first through fifth shifters include a right shift control signal and a left shift control signal, each of which can be ON or OFF; and

wherein said first shifter operates in one of a first, second and third mode in accordance with said respective shift control signal for said first shifter, said first shifter outputting said second output data of $5N/4$ bits such that, in the first mode, the least significant N bits of said first output data received from said top shifter is output as the least significant N bits of said second output data, in the second mode, the most significant $5N/4$ bits of said first output data received from said top shifter is output as the $5N/4$ bits of said second output data in said second mode, and in the third mode, the least significant $N/4$ bits of said first output data received from said top shifter is output as the least significant $N/4$ bits of said second output

data and the third least significant group of $N/4$ bits of said first output data received from said top shifter is output as the second least significant group of $N/4$ bits of said second output data.

5,671,167

METHOD AND APPARATUS FOR FORMING A MODEL FOR USE IN FINITE ELEMENT METHOD ANALYSIS

Nobutaka Ito; Kanako Murakami, and Shuichi Nakajima, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

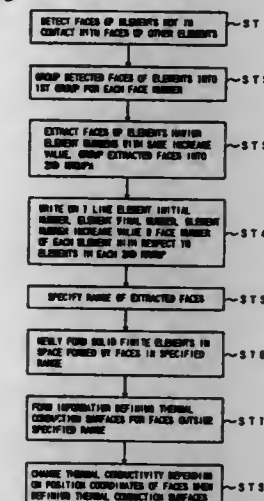
Filed Oct. 6, 1995, Ser. No. 540,187

Claims priority, application Japan, Mar. 20, 1995, 7-061319

Int. Cl.⁶ G06F 17/50

U.S. Cl. 364—578

28 Claims



1. A method of forming an analyzing model for use in finite element method analysis, said method comprising the steps of:

(a) detecting faces of elements of the analyzing model which do not make contact with faces of other elements, based on information related to the analyzing model which is used in the finite element method analysis and describes a target unit which is to be analyzed;

(b) grouping the faces of the elements detected in said step (a) into first groups for each of face numbers which are assigned with respect to each of the faces;

(c) out of the elements having the faces included in each of the first groups obtained in said step (b), extracting elements having element numbers with the same increase number and grouping the extracted elements in second groups, where the element numbers are assigned with respect to each of the elements;

(d) storing storage information with respect to the elements included in each of the second groups obtained in said step (c), where said storage information includes an element initial number, an element final number, an element number increase value and a face number included in the element;

(e) specifying a range of the faces formed by the elements extracted in said step (c) with respect to said storage information;

(f) newly forming solid finite elements in a space which is formed by the faces in the range specified by said step (e);

(g) forming information which defines boundary conditions at faces outside the range specified by said step (e); and

(h) changing conditions values depending on position coordinates of the faces in the definition of said boundary conditions of the faces.

5,671,168 DIGITAL FREQUENCY-DOMAIN IMPLEMENTATION OF ARRAYS

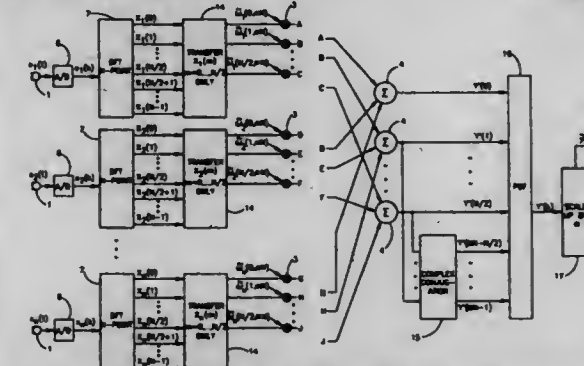
Chen Liu, Tianjin, China, and Samuel Sideman, Haifa, Israel, assignors to Technion Research & Development Foundation Ltd., Israel

Filed Jul. 6, 1995, Ser. No. 498,846

Int. Cl.⁶ G06F 17/10; 15/00

U.S. Cl. 364—724.18

47 Claims



1. A method for the digital frequency domain implementation of receiving arrays which offers improved resolution in both direction and frequency determination without necessitating sampling rates of the received signal much higher than the Nyquist rate, said receiving arrays having receiving elements, each receiving element defining a channel, said method comprising the steps of:

transforming a discrete time input signal in each channel into N spectral components using an N-point discrete Fourier transform;

removing, in each channel, redundant spectral components, whereby only non-redundant spectral components remain in each channel;

deriving for said non-redundant spectral components in each channel a set of weights comprising weights that are scaled both in amplitude and in phase, so that said set of weights corresponds to αN spectral components, where α is an integer power of 2;

computing products of said non-redundant spectral components in each channel with said derived scaled weights for each channel;

calculating from the so-computed products a first set of spectral sums;

deriving from said first set of spectral sums a second set of spectral sums; and

converting said first and second sets of spectral sums to the discrete time domain, using an inverse discrete Fourier transform based on a pruned decimation-in-frequency structure fast Fourier transform, thereby obtaining a discrete time output signal.

5,671,169

APPARATUS FOR TWO-DIMENSIONAL INVERSE DISCRETE COSINE TRANSFORM

Po-Chuan Huang, Hsinchu, Taiwan, assignor to United Microelectronics Corporation, Taipei, Taiwan

Filed Jun. 23, 1995, Ser. No. 494,597

Int. Cl.⁶ G06F 17/14

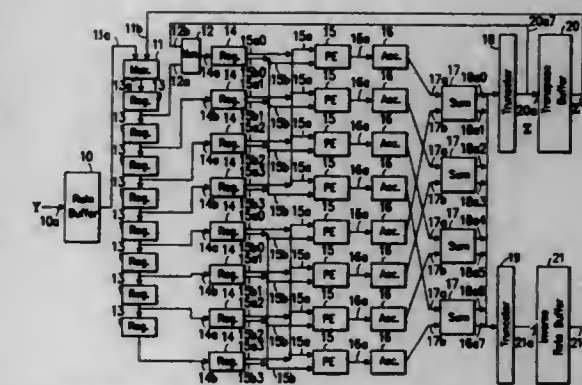
U.S. Cl. 364—725

11 Claims

1. An apparatus for real time two-dimensional inverse discrete cosine transform (IDCT) comprising:

a rate buffer for inputting $N \times N$ data at a first rate and outputting the data at a second rate;

a first multiplexer for providing first and second data paths for data transmission, the first data path being provided for data from the rate buffer during a first 1-D IDCT process, and the second data path being provided for transposed data during a second 1-D IDCT process;



N first registers connected in series, one of the first registers being connected to the first multiplexer for sequentially writing the data provided by the first multiplexer to a next of the first registers;

a second multiplexer for providing third and fourth data paths, the third data path being provided for data from the first register which is connected to the first multiplexer and the fourth data path being provided for feedback data;

N second registers for storing data from the first registers and the feedback data;

N parameter extractors for generating parameters from the data stored in the second registers;

N accumulators for accumulating the parameters extracted by the parameter extractors;

$N/2$ summing elements connected to the accumulators for generating transformed results and the feedback data;

a transpose buffer for transposing the transformed results from the summing elements, wherein the transposed data is generated by the transpose buffer and is stored therein during the first 1-D IDCT process; and

an inverse rate buffer for acquiring data from the summing elements, during the second 1-D IDCT process, at the second rate, and outputting an $N \times N$ data at the first rate.

5,671,170

METHOD AND APPARATUS FOR CORRECTLY ROUNDING RESULTS OF DIVISION AND SQUARE ROOT COMPUTATIONS

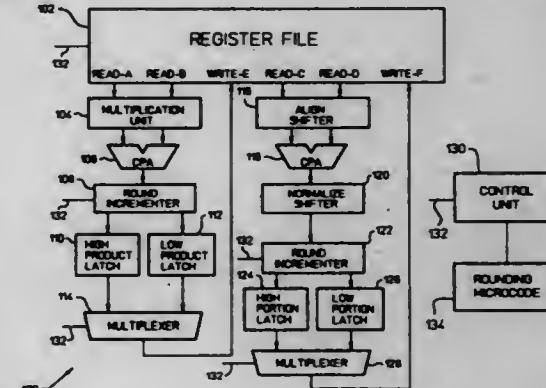
Peter Markstein, Woodside, and Alan H. Karp, Palo Alto, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 058,164, May 5, 1993, Pat. No. 5,341,321. This application Jul. 1, 1994, Ser. No. 270,203

Int. Cl.⁶ G06F 7/38

U.S. Cl. 364—748

18 Claims



1. A floating point arithmetic unit for performing at least one of a division operation to divide a dividend by a divisor to produce a correctly rounded quotient and a square root operation of a value to produce a correctly rounded square root, said arithmetic unit comprising:

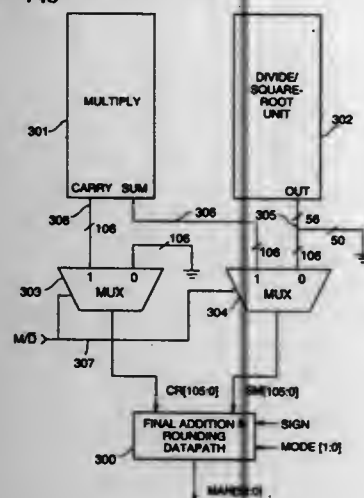
a multi-ported storage device for storing data; arithmetic means for multiplying two numbers to produce a product and for adding two numbers to produce a sum; approximation means for providing an approximated result for at least one of the divide and square root operations on said value; rounding microcode containing procedures for correctly rounding the approximated result of at least one of the divide and square root operations using a Tuckerman test; and a control unit for controlling said floating point arithmetic unit; wherein said rounding microcode correctly rounds the approximated result to produce a correctly rounded result by insuring that the approximated result is underestimated, and by early termination of the Tuckerman test.

5,671,171
SHARED ROUNDING HARDWARE FOR MULTIPLIER AND DIVIDERS/SQUARE ROOT UNIT USING CONDITIONAL SUM ADDER

Robert K. Yu, Newark, and Grzegorz B. Zyner, San Jose, both of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 5, 1995, Ser. No. 498,093
Int. Cl.⁶ G06F 7/552

U.S. Cl. 364-748



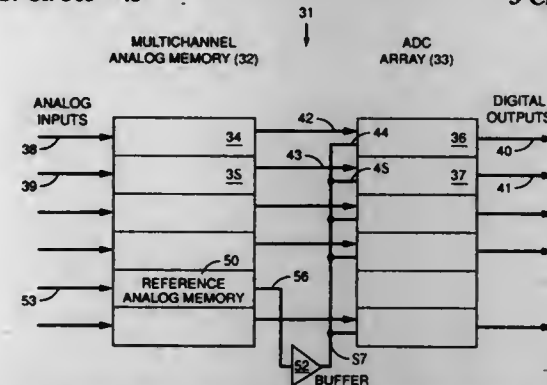
1. An apparatus that produces a rounded mantissa output, the apparatus comprising:
 - a first mantissa processing unit capable of producing a second mantissa;
 - a multiplexor that takes the first and second mantissa as inputs and that produces a selected mantissa as output, such that the selected mantissa is equivalent either to the first mantissa or to the second mantissa; and
 - a rounding unit that takes the selected mantissa as input and produces the rounded mantissa output, wherein the first mantissa is in carry-save format such that the first mantissa includes a first carry portion and a first sum portion.

5,671,172
METHOD OF PEDESTAL AND COMMON-MODE NOISE CORRECTION FOR SWITCHED-CAPACITOR ANALOG MEMORIES

Charles L. Britton, Alcoa, Tenn., assignor to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.
Division of Ser. No. 316,193, Sep. 30, 1994, Pat. No. 5,590,104.
This application Oct. 29, 1996, Ser. No. 738,626
Int. Cl.⁶ G11C 27/00

U.S. Cl. 365-45

3 Claims



1. In a multichannel array of switched-capacitor analog memories wherein each analog memory is connected to an associated analog-to-digital converter, a method of correcting common-mode noise and pedestal noise comprising the steps of:
 - dividing the analog memories into groups based on the commonality of their noise source inputs;
 - providing a single differential element for each of said groups of analog memories;
 - generating differential common-mode correction signals in said single differential elements for correcting the noise source inputs of each of said groups of analog memories; and
 - applying said correction signals to the reference inputs of each of said analog-to-digital converters.

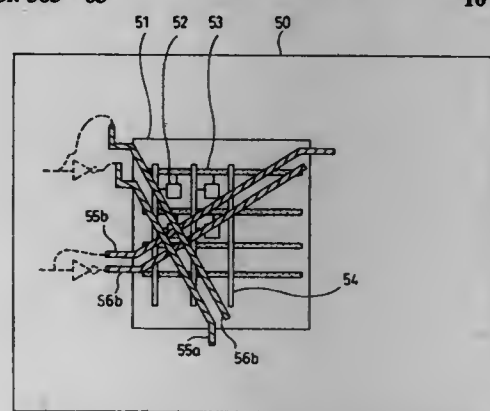
5,671,173
SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE WITH OBLIQUE METALLIZATION LINES OVER MEMORY BIT AND WORD LINES

Yasuhiro Tomita, Hyogo, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Continuation of Ser. No. 489,113, Jun. 9, 1995, abandoned.
This application Jan. 27, 1997, Ser. No. 789,124

Claims priority, application Japan, Jun. 10, 1994, 6-128943
Int. Cl.⁶ G11C 5/06

U.S. Cl. 365-63

10 Claims



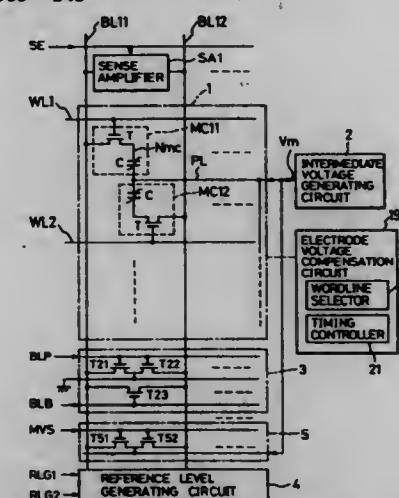
1. A semiconductor integrated circuit device comprising:
 - a semiconductor substrate;
 - a memory module formed on said semiconductor substrate, said memory module comprising a plurality of memory cells each of which has a corresponding word line and bit line;

a plurality of functional circuits formed on said semiconductor substrate; and an over-memory wire formed on said semiconductor substrate, said over-memory wire operative for connecting two functional circuits of said plurality of functional circuits with each other, said two functional circuits forming a first pair of functional circuits, wherein said over-memory wire passes over said memory module and extends obliquely across both said word lines and said bit lines.

5,671,174
FERROELECTRIC MEMORY DEVICE
Hiroki Koike, and Tohru Kimura, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Dec. 19, 1995, Ser. No. 575,078
Claims priority, application Japan, Dec. 27, 1994, 6-324558
Int. Cl.⁶ G11C 11/22

U.S. Cl. 365-145

16 Claims



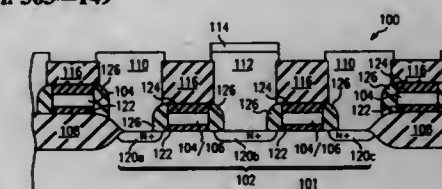
1. A ferroelectric memory device comprising:
 - (A) at least one memory cell array, said memory cell array including (a) a plurality of memory cells arranged in row and column directions, each of said memory cells having a capacitive element and a transistor, said capacitive element comprising a ferroelectric film interposed between electrodes facing to each other, storing and retaining binary data in accordance with polarization of said ferroelectric film, one of a source and a drain of said transistor being electrically connected to one of said electrodes of said capacitive element, (b) a plurality of word lines each associated with each row of said memory cells, each of said word lines being electrically connected to gates of transistors included in memory cells disposed in a respective row, each of said word lines reducing said memory cells into a selected condition at a selection level, (c) a plurality of bit lines each associated with each column of said memory cells and being electrically connected to the other of a source and a drain of said transistors included in memory cells disposed in a respective column, (d) a plate line being electrically connected to the other of said electrodes of said capacitive elements included in said memory cells;
 - (B) plate line voltage supplying means for supplying said plate line with an intermediate voltage which corresponds to a level intermediate between high and low levels among logic levels of said binary data;
 - (C) precharging means for precharging said bit lines to a voltage which corresponds to one of said high and low levels among logic levels of said binary data before certain word lines are reduced into a selection level in response to an external address signal;

- (D) a plurality of sense amplifiers for comparing a signal read out of a selected memory cell to a bit line precharged by said precharging means with a reference level, and amplifying a difference therebetween;
- (E) bit line voltage retaining means for retaining said bit lines to be said intermediate voltage after amplification by said sense amplifiers has been completed; and
- (F) electrode voltage compensating means for reducing a voltage at a junction of said transistor and said capacitive element to be said intermediate voltage by reducing a certain word line into a selected level and activating a transistor of a memory cell connected to said certain word line while said bit lines are being retained to be said intermediate voltage by said bit line voltage retaining means.

5,671,175
CAPACITOR OVER BITLINE DRAM CELL
Jiann Liu, Irving, and Clarence W. Teng, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Jun. 26, 1996, Ser. No. 670,079
Int. Cl.⁶ G11C 11/24

U.S. Cl. 365-149

16 Claims



8. A DRAM comprising an array of DRAM cell pairs, each DRAM cell pair comprising:
 - a moat region;
 - an isolating structure surrounding and defining said moat region;
 - a first and a second pass transistor located in said moat region each having a wordline gate and a first source/drain region, wherein said first and second pass transistors share a common second source/drain region;
 - an interlevel dielectric layer located above said first and second pass transistors and said isolating structure;
 - three polysilicon plugs each extending through said interlevel dielectric layer to one of said first and second source/drain regions; and
 - a first offset connecting piece extending from one of said three polysilicon plugs to over a portion of said isolating structure, wherein said offset connecting piece extends over said isolating structure and is separated from said isolating structure by said interlevel dielectric layer.

5,671,176
SEMICONDUCTOR MEMORY DEVICE INCLUDING PROGRAM INHIBITION CAPACITORS AND METHOD FOR CONTROLLING PROGRAM-DISTURB OF NON-SELECTED MEMORY CELLS

Dong-soo Jang, and Jung-dal Choi, both of Kyungki-do, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

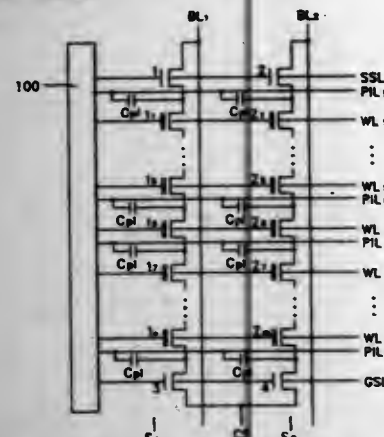
Filed Sep. 19, 1996, Ser. No. 715,077

Claims priority, application Rep. of Korea, Sep. 19, 1995, 30679/1995

Int. Cl.⁶ G11C 16/06

U.S. Cl. 365—185.02

26 Claims



1. An integrated circuit memory device comprising: a plurality of wordlines; a plurality of program inhibition lines; a plurality of serially connected memory cell transistors wherein each of said memory cell transistors includes a control gate connected to a respective one of said wordlines; and a plurality of program inhibition capacitors wherein each of said program inhibition capacitors has a first terminal connected to a respective one of said memory cell transistors and a second terminal connected to a respective one of said program inhibition lines.

5,671,177
NON-VOLATILE SEMICONDUCTOR STORAGE APPARATUS

Hiroshi Ueki, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 460,681, Jun. 2, 1995, abandoned.

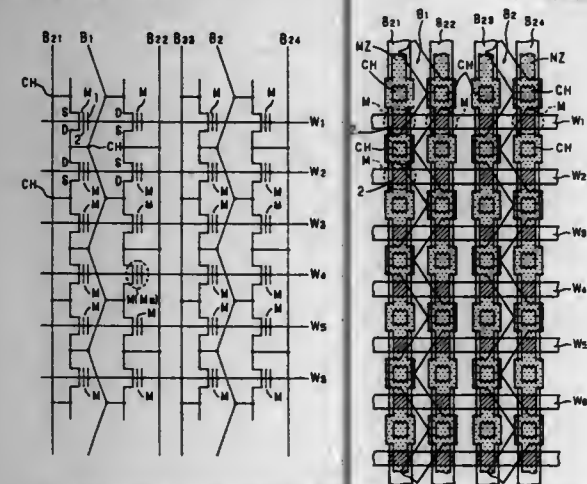
This application Oct. 15, 1996, Ser. No. 731,388

Claims priority, application Japan, Jul. 26, 1994, 6-174516

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—185.11

7 Claims



1. A non-volatile semiconductor memory device comprising:

- a number of memory cell transistors arranged in row and column directions;
- word lines connected to the control gates of a plurality of memory cell transistors arranged in the row direction;
- a word line decoder for selecting at least one of said word line;
- a word line potential supplying means for supplying a first potential for the word line selected by said word line decoder during a first operating mode of the memory device, a second potential different from said first potential for the same during a second operating mode of the memory device, and a third potential different from said first and second potentials for the same during a third operating mode of the memory device;
- source lines connected to diffusion areas of memory cell transistor groups in the column direction, each of said memory cell transistor groups arranged in the column direction, each of said memory cell transistor groups having a predetermined number of the memory cell transistors whose control gates are connected to one of said word lines;
- a source line decoder for selecting at least one of said source lines; and
- a source line potential supplying means for supplying a fourth potential for the source line selected by said source line decoder during said first operating mode of the memory device, and a fifth potential different from said fourth potential for the same during said second or third operating mode of the memory device.

5,671,178
ERASE VERIFYING CIRCUIT FOR A NONVOLATILE SEMICONDUCTOR MEMORY WITH COLUMN REDUNDANCY

Jong-wook Park, Seoul, and Young-bo Lim, Kyungki-do, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Duwon, Rep. of Korea

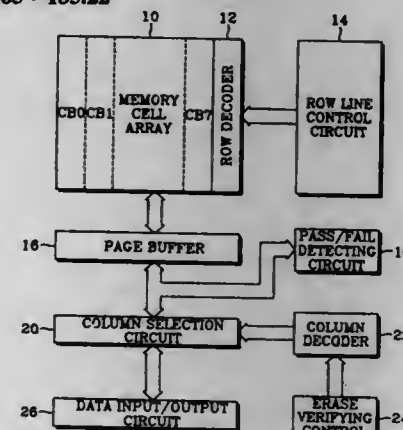
Filed Feb. 5, 1996, Ser. No. 597,891

Claims priority, application Rep. of Korea, Feb. 4, 1995, 95-2007

Int. Cl.⁶ G11C 16/06

U.S. Cl. 365—185.22

4 Claims



1. A nonvolatile semiconductor memory comprising: an array of rows and columns of floating gate type normal and redundant memory cells;
- a plurality of normal bit lines each connected to a plurality of said normal memory cells in a corresponding column of said array;
- a plurality of redundant bit lines each connected to a plurality of said redundant memory cells in a corresponding column of said array;
- a page buffer connected to said normal and redundant bit lines for sensing and storing pass data and fail data read-out from selected normal memory cells in a desired row during an erase verifying operation of said memory after erasure of said selected normal memory cells, said pass data representing

- successful erasure of said selected normal memory cells and said fail data associated with at least one defective normal bit line; and
- a data changing circuit connected to said page buffer for changing said fail data stored in said page buffer into said pass data.

5,671,179
LOW POWER PULSE GENERATOR FOR SMART VOLTAGE FLASH EEPROM

Jahanshir J. Javanifard, Sacramento, Calif., assignor to Intel Corporation, Santa Clara, Calif.

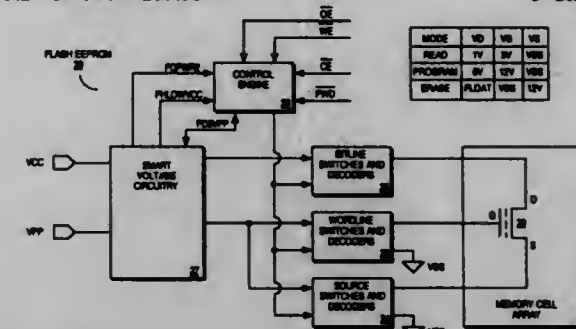
Continuation of Ser. No. 326,703, Oct. 19, 1994, abandoned.

This application Dec. 11, 1996, Ser. No. 764,666

Int. Cl.⁶ G11C 13/00

U.S. Cl. 365—185.33

3 Claims



1. A nonvolatile memory device comprising: an array of memory cells;
- an internal power supply coupled to the memory cells;
- a pulse generator circuit coupled to the internal power supply, the pulse generator circuit generating a pulse for periodically enabling the internal power supply when the nonvolatile memory device is operating in a reduced power mode, the pulse generator circuit comprising: a first oscillator for generating a first signal having a first frequency; and a second oscillator coupled to receive the first signal, the second oscillator for outputting a second signal having a second frequency that is greater than the first frequency, the second signal being fed back to the second oscillator, wherein the second oscillator is enabled to output the second signal in response to a rising edge of the first signal and disabled from outputting the second signal in response to a falling edge of the second signal such that the second oscillator circuit periodically outputs the pulse.

5,671,180
SEMICONDUCTOR MEMORY DEVICE WITH FUNCTION OF PREVENTING LOSS OF INFORMATION DUE TO LEAK OF CHARGES OR DISTURBING

Mitsuo Higuchi, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Division of Ser. No. 593,270, Jan. 29, 1996, Pat. No. 5,586,074, which is a continuation of Ser. No. 141,101, Oct. 26, 1993, abandoned. This application Sep. 9, 1996, Ser. No. 709,724

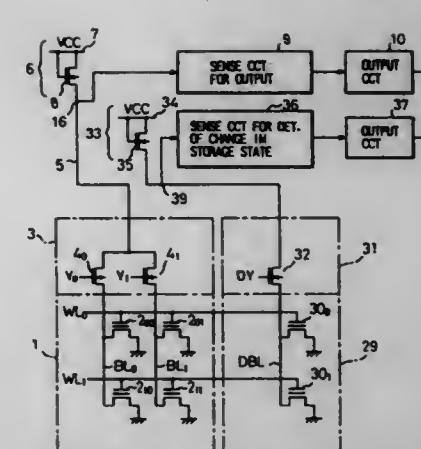
Claims priority, application Japan, Oct. 27, 1992, 4-288826

Int. Cl.⁶ G11C 29/00

U.S. Cl. 365—185.21

4 Claims

1. An electrically erasable and programmable read-only semiconductor memory device comprising: a first cell array portion formed by arranging in matrix a plurality of memory cell portions each having a cell transistor for storing information;
- a second cell array portion formed by arranging in matrix a plurality of memory cell portions each including a memory state change detection cell transistor for detecting the change of the memory state of said cell transistor for storing the information;



- means for selecting cell transistors for storing information in said first cell array portion;
- a first sense circuit for reading out the stored information of said cell transistor for storing information selected; and
- a second sense circuit having a threshold level different from that of said first sense circuit, for reading out the stored information of said memory state change detection cell transistor when said memory state change detection cell transistor in said second cell array portion is selected.

5,671,181
DATA READ CIRCUIT USED IN SEMICONDUCTOR STORAGE DEVICE

Tsuguyasu Hatsuda, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

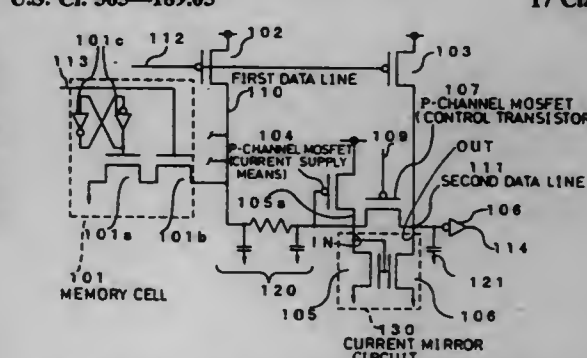
Filed Dec. 15, 1995, Ser. No. 573,146

Claims priority, application Japan, Dec. 16, 1994, 6-313400; Dec. 26, 1994, 6-322489

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—189.05

17 Claims



third and fourth sensing nodes;
 low sensing circuitry for coupling a second voltage node associated with a second voltage source to one of said third or fourth sensing nodes responsive to a voltage differential between said third or fourth sensing nodes during said read portion of said read-modify-write cycle;
 coupling circuitry connected to said third and fourth sensing nodes for coupling a source of write data to said sense amp during a write portion of said read-modify-write cycle; and
 pause circuitry for selectively decoupling at least one of said voltage nodes from its respective voltage source prior to coupling said write data in order to prevent a low impedance connection between the voltage sources when said write data is coupled to said sense amplifier during said write portion of said read-modify-write cycle.

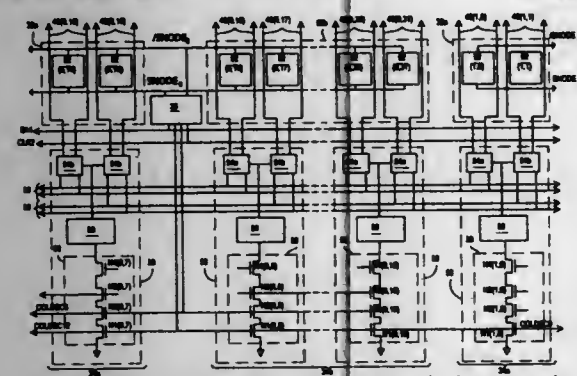
5,671,188
RANDOM ACCESS MEMORY HAVING SELECTIVE
INTRA-BANK FAST ACTIVATION OF SENSE
AMPLIFIERS

Vipul C. Patel, San Jose, and Chitranjan N. Reddy, Los Altos Hills, both of Calif., assignors to Alliance Semiconductor Corporation, San Jose, Calif.

Filed Jun. 26, 1996, Ser. No. 670,912
 Int. Cl.⁶ G11C 7/00

U.S. Cl. 365-205

21 Claims



1. In a random access memory having at least one array of memory cells, wherein a particular row of memory cells is coupled to a plurality of bit lines by activating selected word lines, a data sensing circuit, comprising:

an array of sense amplifiers coupled to the bit lines for receiving memory cell data from the particular row of memory cells; each sense amplifier of said array of sense amplifiers being operable in a first mode in response to a first mode signal and a second mode in response to a second mode signal; sense amplifier decoding means for generating a first mode signal for a portion of the sense amplifier array in response to a first timing signal and at least a first decoding signal; and the first decoding signal is generated in response to at least one memory address input signal.

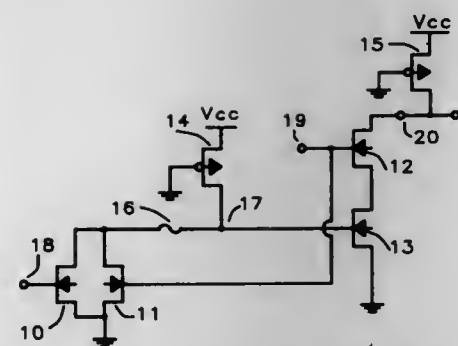
5,671,189
LOW STANDBY POWER REDUNDANCY CIRCUIT
 Tah-Kang Joseph Ting, Hsinchu; Bor-Doou Rong, Chupel, and Jun-Wei Luo, Chutung Hsinchu, all of Taiwan, assignors to Etron Technology, Inc., Hsin-Chu, Taiwan

Filed May 28, 1996, Ser. No. 654,519
 Int. Cl.⁶ G11C 7/00

U.S. Cl. 365-229

14 Claims

1. A low standby power redundancy circuit for CMOS memories comprising:
 (a) a plurality of circuit paths arranged in parallel and having at least two sections of paths,
 (b) each section of paths consisting of multiple addressing paths connected to an output of a select circuit,



(c) each section of paths maintained in low standby power state when not activated or selected,
 (d) said select circuit being activated by rendering a first fuse device in said select circuit non-conductive,
 (e) signal means to select each section when fuse device is rendered non-conductive and producing a signal at select circuit output,
 (f) said select circuit output connected to a set of multiple addressing paths,
 (g) each addressing path containing a second fuse device connected in series with the output of the select circuit,
 (h) said second fuse device when rendered conductive or non-conductive providing the value of a bit in the address of a failing memory location.

5,671,190
METHOD AND DEVICE FOR MEASURING THE
DISTANCE OF AN OBJECT FROM AN ULTRASONIC
TRANSMISSION/RECEPTION UNIT

Nils Kroemer, Hohenstein-Ernstthal, and Martin Vossiek, München, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE94/00670, § 371 Date Dec. 18, 1995, § 102(e) Date Dec. 18, 1995, PCT Pub. No. WO95/00862, PCT Pub. Date Jan. 5, 1995

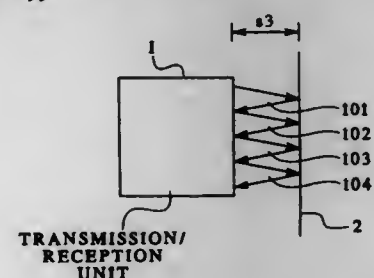
PCT Filed Jun. 15, 1994, Ser. No. 571,856

Claims priority, application Germany, Jun. 22, 1993, 43 20 698.0

Int. Cl.⁶ G01S 15/08

U.S. Cl. 367-99

10 Claims



1. A method for measuring the distance of an object from an ultrasonic transmission/reception unit, comprising the steps of:
 emitting an ultrasound pulse from an ultrasonic transmission/reception unit toward an object whose distance from the ultrasonic transmission/reception unit is to be measured and thereby producing multiple, successive ultrasound echoes from said object;
 registering a time t_{e1} at which a first of said ultrasound echoes from said object is registered at said ultrasonic transmission/reception unit; and
 if said first of said ultrasound echoes is registered at said ultrasonic transmission/reception unit within a predetermined time interval after emission of said ultrasound pulse, registering a time t_{e2} at which a second of said ultrasound echoes from said object following said first of said ultrasound echoes is received at said ultrasonic transmission/reception unit, and

determining said distance of said object from said ultrasonic transmission/reception unit from a time difference $t_{e2}-t_{e1}$.

5,671,191
VARIABLE COUPLER FIBER OPTIC SENSOR
HYDROPHONE

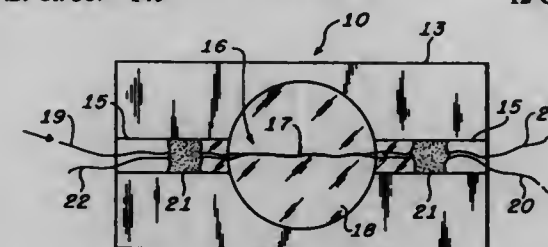
David William Gerdt, Charlottesville, Va., assignor to Sperry Marine Inc., Charlottesville, Va.

Filed Jul. 6, 1989, Ser. No. 376,342

Int. Cl.⁶ H04R 23/00

U.S. Cl. 367-140

12 Claims



1. An acoustic sensing device comprising
 a rigid plate having a high inertial mass and an aperture completely disposed therethrough,
 a fiber optic coupler encapsulated in said aperture having a plurality of input optical fibers each having a core, said cores of said optical fibers being merged and fused in a waist region to form a common optical core wherefrom a plurality of output optical fibers emerge, said fiber optic coupler for distributing light energy incident to one of said input optical fibers between said plurality of output optical fibers, and
 encapsulate means for encapsulating said common optical core in said aperture, said encapsulant means having refractive index variable with stress applied thereto, such that said incident light energy is distributed between said plurality of output optical fibers as a function of stress applied to said encapsulant means,
 said rigid plate having a substantially higher inertial mass than said encapsulant means with said common optical core encapsulated therein,
 a member having a well therein or positioned with respect to said rigid plate so that said well is adjacent said aperture, and
 a low bulk modulus material filling said well and abutting said encapsulant means.

5,671,192
RADIO-CONTROLLED CLOCKWORK
 Fritz Schaffel, Schleissheimer Strasse 12, D-85386, Eching, Germany

PCT No. PCT/EP93/02983, § 371 Date Apr. 26, 1995, § 102(e) Date Apr. 26, 1995, PCT Pub. No. WO94/10612, PCT Pub. Date May 11, 1994

PCT Filed Oct. 27, 1993, Ser. No. 424,308

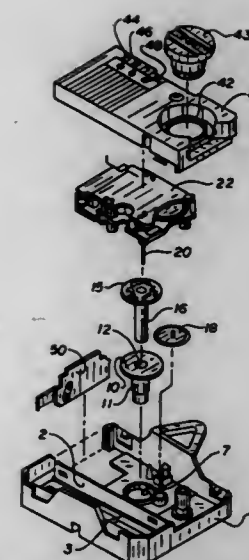
Claims priority, application Germany, Oct. 31, 1992, 42 36 903.7

Int. Cl.⁶ G04C 11/02

U.S. Cl. 368-47

19 Claims

1. A radio-controlled analog display clockwork with:
 at least two pointers,
 a current source,
 a driving arrangement (24), driving the pointers,
 a mechanical pointer setting arrangement (43, 44, 46) for bringing the pointers into a predetermined starting position, corresponding to a certain time,
 a control device (55) supplying control signals for controlling said driving arrangement,
 a radio receiver arrangement (52), receiving time signals from a time transmitter and passing them on to the control device



(55), said current source, said driving arrangement, said control device and said radio receiving arrangement being arranged in one common housing,
 characterized in that
 said mechanical pointer setting arrangement is to be actuated by the user,
 and thereafter the control device applies control signals to the driving arrangement on the basis of said predetermined starting position, resulting in an increased pointer speed, until a pointer position corresponding to the instantaneous time is reached.

5,671,193
ROTARY POLYGONAL MIRROR AND METHOD OF
MANUFACTURING THE SAME

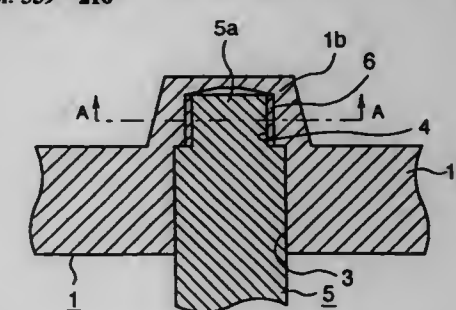
Masaaki Kuroda, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 10, 1995, Ser. No. 401,979

Claims priority, application Japan, Mar. 11, 1994, 6-067535
 Int. Cl.⁶ G02B 26/08; B29D 11/00

U.S. Cl. 359-216

17 Claims



1. A rotary polygonal mirror comprising:
 a regular prism-shaped main body portion including a resin material;
 a projecting portion which projects from an upper surface of a central portion of said main body portion, said projecting portion having the same resin material as the resin material of said main body portion; and
 a reflection film formed on side surfaces of said main body portion,
 wherein said main body portion and said projecting portion are integrally molded by injection molding or injection compression molding, and a gate portion in the molding is provided to said projecting portion.

first detecting means for detecting a tracking error signal, using an output from the light-receiving element corresponding to said main spot or using outputs from the light-receiving elements corresponding to the three spots of said main spot, said first subspot, and said second subspot, if there is a tracking guide groove in said optical information recording medium; and

second detecting means for detecting a tracking error signal, using an output from the light-receiving element corresponding to said first subspot and an output from the light-receiving element corresponding to said second subspot, if there is no tracking guide groove in said optical information recording medium.

5,671,200

METHOD FOR DETECTING THE MOVEMENT OF A LIGHT BEAM AND OPTICAL INFORMATION REPRODUCTION APPARATUS USING THE SAME

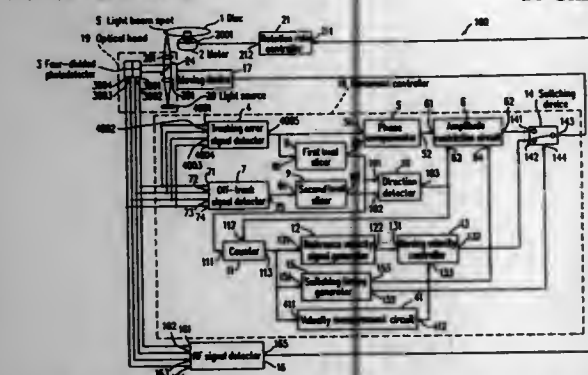
Osamu Yamaguchi, Hirakata; Mitsuro Moriya, Ikoma; Hiroyuki Yamaguchi, Hirakata; Yoshihiro Kanda, Osaka, and Hiromichi Ishibashi, Ibaraki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Aug. 7, 1995, Ser. No. 512,190

Claims priority, application Japan, Aug. 12, 1994, 6-190777
Int. Cl. G11B 7/09

U.S. Cl. 369-44.28

16 Claims



1. An optical information reproduction apparatus for reproducing information from a disc having a plurality of tracks storing the information in the form of pits, the apparatus comprising:

radiation means for radiating a light beam toward the disc to form a light spot on the disc;

moving means for moving the radiation means to move the light spot in a direction crossing the plurality of tracks in a radial direction of the disc;

light detection means having a detecting plane for receiving the light beam reflected by the disc, the detecting plane being divided into four detection areas at least in a direction parallel to a tangent of the tracks and in a direction perpendicular to the tangent of the tracks, the four detection areas generating light intensity signals corresponding to the intensities of the light beam which is received;

positional offset detection means for detecting a positional offset of the light spot with respect to one of the tracks based on the light intensity signals generated by the light detection means and outputting the detection result as a positional offset signal;

signal processing means for performing processing of the light intensity signals including logic operation to obtain an operation signal; and

direction detection means for detecting a direction in which the light spot moves with respect to a target track based on the positional offset signal and the operation signal during the movement of the light spot toward the target track,

wherein the operation signal is an exclusive OR of signals obtained by adding the light intensity signals together generated by two sets of detection areas of the light detection

means the two sets of detection areas each including two detection areas diagonally positioned to each other.

5,671,201

PULLING-IN CIRCUIT FOR PLL CIRCUIT, PULLING-IN METHOD FOR PLL CIRCUIT, PLL CIRCUIT DEVICE AND APPARATUS FOR REPRODUCING OPTICAL DISC

Hiroshi Yokota; Ryuichi Naito; Hiroyuki Hirano; Katsumi Ishii; Shinichi Naozawa; Yoshifumi Tsukada, all of Tokorozawa, and Kanya Matsumoto, Tokyo-to, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo-to, Japan

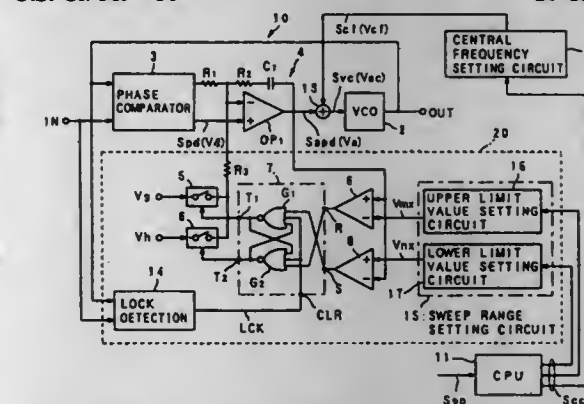
Division of Ser. No. 540,982, Oct. 11, 1995. This application

Oct. 29, 1996, Ser. No. 740,386

Claims priority, application Japan, Oct. 14, 1994, 6-249873
Int. Cl. G11B 7/00

U.S. Cl. 369-50

16 Claims



1. A pulling-in circuit for a PLL circuit to which an input signal is inputted, said PLL circuit comprising: a voltage controlled oscillator for outputting an output signal; a control voltage generation circuit for generating a control voltage to lock phases of the input and output signals by a loop, and outputting the generated control voltage to a control input terminal of said voltage controlled oscillator; and a central frequency setting circuit for setting a central frequency, to which a frequency of the output signal is to be pulled-in, to said control voltage generation circuit, said pulling-in circuit comprising:

a sweep range setting circuit for setting a sweep range, where the frequency of the output signal is to be pulled-in to the set central frequency, on the basis of the set central frequency;

a lock detector for detecting whether or not a pulling-in operation is completed in said PLL circuit, and outputting a lock signal when the pulling-in operation is detected to be completed; and

a sweep range control circuit for controlling said control signal generation circuit to generate the control signal to repeatedly sweep the frequency of the output signal through the set sweep range during the pulling-in operation until the lock signal is supplied thereto.

5,671,202

APPARATUS AND METHOD FOR DATA SECURITY IN AN OPTICAL DISK STORAGE SYSTEM

Scott Alan Brownstein; Joseph Paul Lentz; Thomas Richard Cushman, and Patrick Joseph Kline, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 999,626, Dec. 31, 1992, Pat. No.

5,489,768, which is a continuation-in-part of Ser. No. 810,976,
Dec. 20, 1991, Pat. No. 5,430,281. This application May 1,

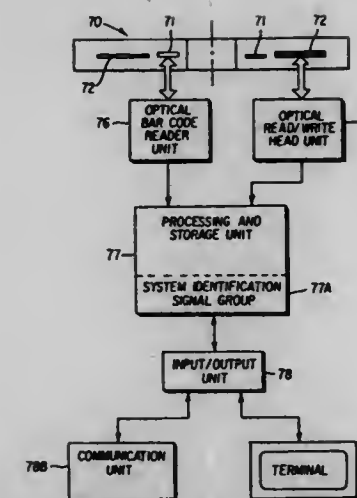
1995, Ser. No. 432,039

Int. Cl. G11B 5/09; G06K 7/10

U.S. Cl. 369-58

4 Claims

1. A writable optical storage disk for use with an interaction system capable of interacting with said optical storage disk, said



interaction system including reading means for converting optically dependent regions on said optical storage disk into electrical signals, said interaction system including processing means for processing said electrical signals, said optical storage disk comprising:

a storage layer, said storage layer including at least one file stored thereon, said one file having optically dependent regions which said reading means converts into a first electrical signal group; and

a support layer supporting and protecting said storage layer, said support layer having optically dependent regions which said reading means converts into a second electrical signal group; wherein said support layer optically dependent regions have a different format than said storage layer, said first and said second electrical signal group being determined by said processing means of said interaction system to be equivalent when said optical storage disk has not been compromised;

wherein said optically dependent regions of said support layer are in an optical bar code format centered on a radius of said optical disk and said characters in said bar code format have a thickness on an arc of constant disk radius which is proportional to said constant disk radius; and

wherein a third electrical signal group associated with said interaction system is transferred to the signal processing means of said interaction system which compares said third electrical signal group with at least one of said first and second electrical signal groups and continues interaction between said interaction system and said writable optical disk only when said comparison is positive.

5,671,203

SIGNAL RECORDING LAYER RECOGNITION METHOD IN DIGITAL DISK AND APPARATUS THEREOF

Jun-ho Ra, Ansan-city, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Apr. 10, 1996, Ser. No. 630,533

Claims priority, application Rep. of Korea, Apr. 10, 1995,
95-8292

Int. Cl. G11B 7/00

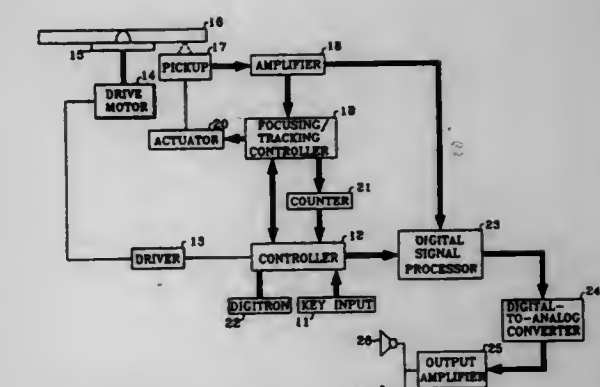
U.S. Cl. 369-58

16 Claims

1. A method of recognizing a signal recording layer in a disk loaded in a digital disk player capable of using disks with one recording layer and disks with multiple recording layers, said signal recording layer recognition method comprising:

a) performing an initial focusing operation of a pickup by transmitting a laser from said pickup, said focusing operation determined on the basis of a position corresponding to a focus position;

b) converting an optical signal transmitted via the pickup in step a) into an electrical pulse signal, said pulse signal having a number of pulses in a predetermined interval of time accord-



ing to the number of the signal recording layers of a disk loaded in said digital disk player;

c) counting the number of pulses in the electrical pulse signal in said predetermined interval of time and generating a counted value; and

d) determining whether the loaded disk has a multiple or a single recording layer structure based on said counted value.

5,671,204

VARIABLE TRANSFER RATE DATA REPRODUCTION APPARATUS

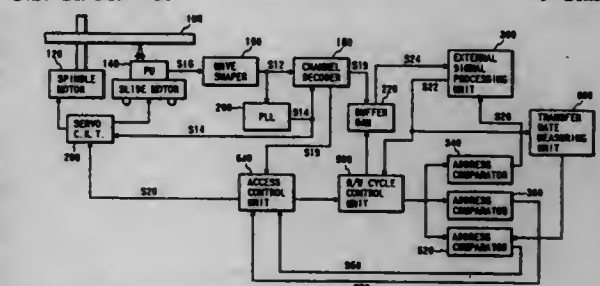
Kentaro Yokouchi; Shigeru Nemoto, both of Yokohama, and Kazumi Iwata, Yokosuka, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed May 25, 1995, Ser. No. 450,759

Claims priority, application Japan, May 25, 1994, 6-135197;
Jun. 15, 1994, 6-156548; Jun. 15, 1994, 6-158110
Int. Cl. G11B 5/09

U.S. Cl. 369-60

9 Claims



9. A data reproduction apparatus comprising:

data reproducing means for reproducing data, which is recorded on a recording medium at a variable transfer rate, at intermittent cycles and providing a signal indicative thereof;

data storage means, responsive to the signal from said data reproducing means, for storing therein the data reproduced by said data reproducing means;

decoding means for decoding the data reproduced by said data reproducing means to provide a reproduction signal in sequence;

reproduction controlling means for controlling operations of said data storage means and said decoding means, said reproduction controlling means transferring the reproduced data stored in said data storage means to said decoding means so as to allow said decoding means to provide the reproduction signal in sequence;

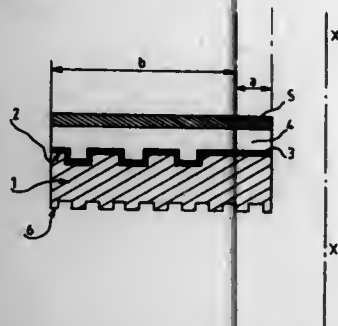
said reproduction controlling means controlling a data reproduction operation of said data reproducing means so as to hold an amount of the reproduced data stored in said data storage means within a given range required for said decoding means to decode the reproduced data continuously,

data storage monitoring means for monitoring the amount of the reproduced data stored in a memory installed in said data storage means to compare the monitored amount of the reproduced data with an upper storage level, a middle storage level, and lower storage level and providing a signal indicative

thereof, said reproduction controlling means being responsive to the signal from said data storage monitoring means to inhibit the reproduced data stored in the memory from being read therefrom when the amount of the reproduced data stored in the memory is lower than the lower storage level, to inhibit the data reproduced by said data reproducing means from being stored in the memory when the amount of the reproduced data stored in the memory exceeds the upper storage level, and to allow the data reproduced by said data reproducing means to be stored in the memory when the reproduced data stored in the memory is decreased below the middle storage level, and

middle storage level changing means for changing the middle storage level, said middle storage level changing means detecting a transfer rate of the reproduced data read out of the memory to change the middle storage level to a higher level when the transfer rate is greater than a given threshold value and to change the middle storage level to a lower level when the transfer rate is smaller than the given threshold value.

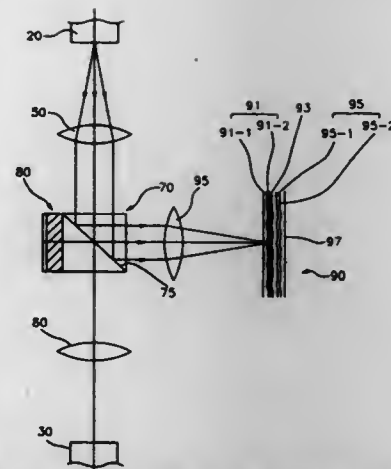
5,671,205
COMPACT DISC COMPRISING AN ANTIPIRACY MARKING METHOD AND METHOD OF PROVIDING COMPACT DISCS WITH AN ANTIPIRACY MARKING
 Jean Ledieu, Crespières, France, assignor to Digipress, Caen, France
 Filed Sep. 27, 1995, Ser. No. 533,989
 Claims priority, application France, Sep. 28, 1994, 94 11589
 Int. Cl.⁶ G11B 7/00; B29D 11/00
 U.S. Cl. 369—103 10 Claims



1. A compact disc comprising a substrate having first and second opposing sides, the first side including program micropits representative of information to be read by a compact disc player, the second side including micropits and/or microreliefs reflecting wavelengths of visible light, the micropits and/or microreliefs being representative of an antipiracy marking pattern and constituting an optical grating.

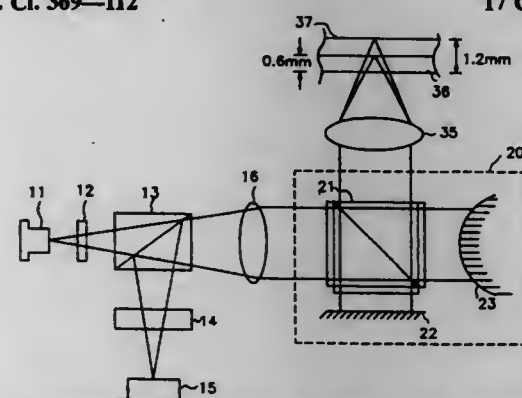
5,671,206
OPTICAL PICKUP DEVICE
 Yang-Oh Choi, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea
 Filed Sep. 7, 1995, Ser. No. 528,645
 Claims priority, application Rep. of Korea, Oct. 26, 1994, 94-27373
 Int. Cl.⁶ G11B 7/00 7 Claims

1. An optical pickup device comprising: first and second laser beam sources which are opposite to each other and from which first and second laser beams are generated have a same wavelength and a same polarization in order to record/reproduce information recorded on an optical disk; a beam splitter means for totally reflecting or totally transmitting said first and second laser beams depending on the polarization of said beams, said beam splitter means being located on optical paths of said first and second laser beams;



a polarization converting means located on an optical path of said second laser beam totally reflected by said beam splitter means, the polarization converting means reflecting said second laser beam to be returned to the beam splitter and converting a polarization of said second laser beam so that the second laser beam of which the polarization is converted can be transmitted through said beam splitter; and
 a condensing means for focusing onto said optical disc the first laser beam which is reflected and the second laser beam which is transmitted when said laser beams proceed toward said optical disc via said splitter means, wherein polarizing states of the first and second laser beams are determined so that said laser beams which are incident onto the beam splitter before passing through said polarization converting means are totally reflected from said beam splitter means due to polarizing states thereof, and thereafter said second laser beam after passing through said polarization converting means is totally transmitted through said beam splitter means due to a converted polarizing state.

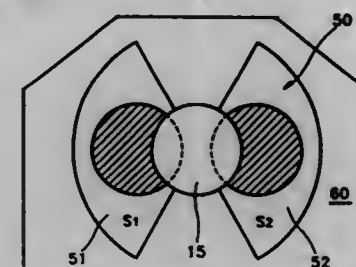
5,671,207
OPTICAL PICKUP APPARATUS FOR PERFORMING MULTI-FOCUSING
 Song-Chan Park, Kyungki-do, Rep. of Korea, assignor to LG Electronics, Inc., Seoul, Rep. of Korea
 Filed Dec. 27, 1995, Ser. No. 579,143
 Claims priority, application Rep. of Korea, Feb. 23, 1995, 3563/1995; Mar. 3, 1995, 4328/1995
 Int. Cl.⁶ G11B 7/00 17 Claims



1. An optical pickup apparatus for multi-focusing comprising: laser emitting means for radiating a linearly-polarized laser beam; a diffraction grating for forcing said beam radiated from said laser emitting means into a main beam and two sub-beams;

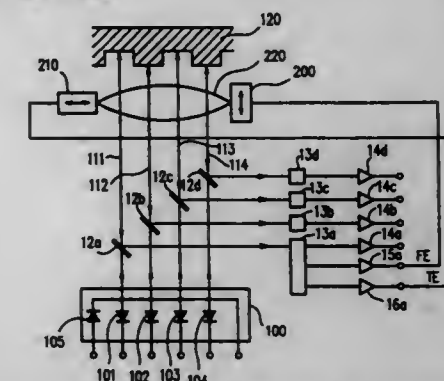
a collimator lens for changing said main beam and two sub-beams into parallel beams;
 an objective lens fixed with respect to a reference plane;
 beam separating means for separating said parallel beams into a first set of sub-beams and a second set of sub-beams wherein said first set of sub-beams having a first focal location and said second set of sub-beams having a second focal location measured from the reference plane when passed through said objective lens, respectively, and each focal location is associated with a disk of a different thickness;
 photodetector means for providing a control signal to enable reproduction of information from said focused first set of sub-beams and second set of sub-beams as reflected by the disk.

5,671,208
PHOTODETECTOR DISPOSED ON BOTH SIDES OF AN OBJECTIVE LENS FOR RECEIVING ± 1ST ORDER DIFFRACTIVE LIGHT
 Byeong-ho Park, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
 Filed Dec. 29, 1995, Ser. No. 581,334
 Int. Cl.⁶ G11B 7/00 4 Claims



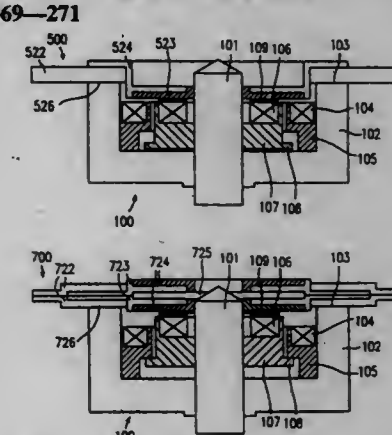
1. An optical pickup comprising:
 a light source for radiating light;
 an objective lens disposed on an optical path between said light source and a disc, which is an optical recording medium, for focusing the light radiated from said light source on the optical disc;
 means for diverting an optical path disposed between said light source and said objective lens to prevent the light reflected from the disc from reflecting back to said light source; and
 a photodetector for receiving the light reflected from the disc and detecting a tracking error signal and a focusing error signal,
 wherein said photodetector comprises:
 a first photodetector having a plate divided into at least two pieces for detecting light passing through said optical path diverting means after the light is reflected from said disc; and
 a second photodetector including a plate divided into at least first and second pieces which are disposed on opposite sides of said objective lens and fixed to said objective lens to move together with said objective lens, wherein said first and second pieces of said divided plate of said second photodetector receive +1st order diffractive light and -1st order diffractive light, respectively, which is diffracted by and reflected from said disc and which does not pass through said objective lens.

5,671,209
FOCUSING TIME PERIOD AND POWER CONTROL OF A MULTILASER DIODE ARRAY
 Yuichi Kamioka, Takatsuki; Kenji Koishi, Sanda; Daisuke Ogata, Amagasaki, and Shigeru Furumiya, Himeji, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
 Filed Nov. 15, 1995, Ser. No. 559,432
 Claims priority, application Japan, Nov. 17, 1994, 6-283410
 Int. Cl.⁶ G11B 7/09; 7/125 12 Claims



1. A method for controlling intensities of a plurality of laser beams respectively emitted on a track of an optical disk by a plurality of laser diodes, the method comprising a step of: performing focusing servo control for focusing one of the plurality of laser beams emitted by one of the plurality of laser diodes onto the track, and concurrently controlling an intensity of the laser beam emitted by each of the plurality of laser diodes to be within a predetermined range by comparing a signal which is in accordance with an intensity of the laser beam emitted by that laser diode with a reference signal, wherein a period during which the one of the plurality of laser diodes used for the focusing does not emit the one of the plurality of laser beams to provide for controlling of the intensities of the laser beams emitted by the other of the plurality of laser diodes is shorter than a response time of the focus servo control.

5,671,210
MAGNET TYPE CLAMPING MECHANISM AND DISC DRIVING APPARATUS USING THE SAME
 Yoshikazu Goto, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
 Filed Feb. 9, 1996, Ser. No. 599,139
 Claims priority, application Japan, Feb. 15, 1995, 7-027087
 Int. Cl.⁶ G11B 25/04 17 Claims



1. A magnet type clamping mechanism, comprising:
 a turn table for mounting and securing a recording medium thereon;
 a first magnet fixed at a prescribed position on the turn table; and

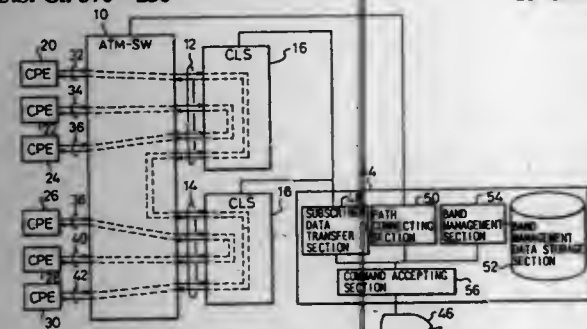
forwarding message cells transmitted via the active path and the alternate path of the respective path pair to respective outputs of the end switching network, and continuously and separately but simultaneously counting a number of message cells arriving via the active path and via the alternate path; and if the number of message cells arriving via the alternate path is higher than the number of message cells arriving via the active path by a defined value, the message cells arriving via the alternate path are forwarded but the message cells arriving via the active path are discarded.

5,671,216 METHOD AND APPARATUS FOR CONTROLLING TRANSMISSION BANDWIDTH BETWEEN CONNECTIONLESS SERVERS

Chammika Subasingha, and Yoshihiro Watanabe, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Feb. 7, 1995, Ser. No. 385,147
Claims priority, application Japan, Mar. 17, 1994, 6-047299
Int. Cl.⁶ H04L 12/26

U.S. Cl. 370—230 18 Claims



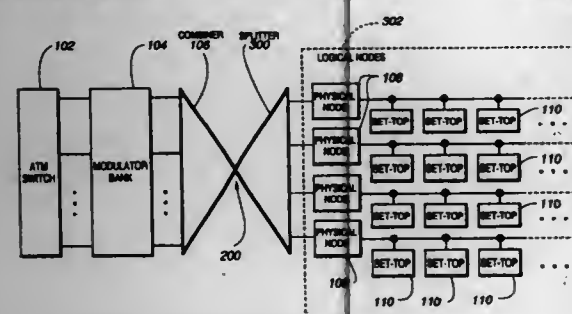
1. A method of controlling data transmission between a plurality of connectionless servers to which terminals requesting a connectionless service are allocated, comprising the steps of:
determining allocation of the terminals so that the sum of the transmission rates requested by the terminals allocated to each connectionless server is substantially equal among the connectionless servers; and
setting up a virtual path between each connectionless server and each of the terminals allocated thereto.

5,671,217 SCALABLE COMMUNICATIONS NETWORK EMPLOYING SHARED LOGICAL NODES

Michael B. Adams, Castle Rock, and Louis D. Williamson, Denver, both of Colo., assignors to Time Warner Entertainment Co. L.P., Stamford, Conn.

Filed Dec. 14, 1995, Ser. No. 572,142
Int. Cl.⁶ H04J 1/16

U.S. Cl. 370—233 9 Claims



1. A scalable communication system comprising:
at least one source for providing a plurality of program streams;

at least one logical node, each logical node coupled to a corresponding source for receiving a corresponding set of program streams, wherein subscribers are allocated to the at least one logical node according to an expected peak subscriber usage constraint;

each logical node including at least one physical node, each physical node including at least one subscriber, wherein the at least one physical node is allocated among the logical nodes so as to satisfy the expected peak subscriber usage constraint; the at least one source comprising a first source and a second source respectively corresponding to a first logical node and a second logical node, wherein at least one physical node in the first logical node is shiftable to the second logical node so as to satisfy the expected peak subscriber usage constraint.

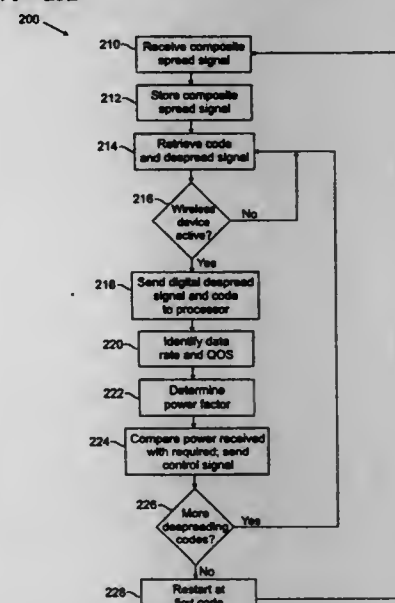
5,671,218

CONTROLLING POWER AND ACCESS OF WIRELESS DEVICES TO BASE STATIONS WHICH USE CODE DIVISION MULTIPLE ACCESS

Chih-Lin I, Manalapan, and Krishan Kumar Sabnani, Berkeley Heights, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 28, 1994, Ser. No. 234,757
Int. Cl.⁶ H04B 7/216; H04J 13/02

U.S. Cl. 370—252 24 Claims



1. A base station for controlling the power transmitted by a plurality of wireless devices of mixed types comprising:

a transmitting antenna;

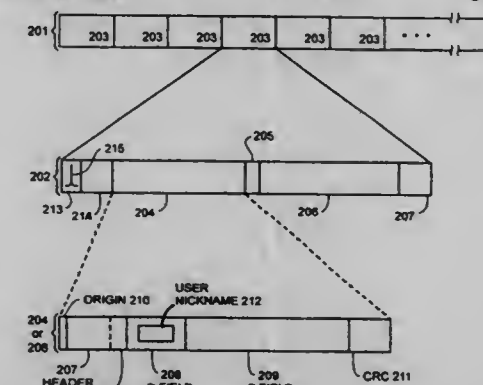
a receiving antenna; and
a processor for receiving a signal from the receiving antenna, for recognizing the type of a particular wireless device which is transmitting the signal, wherein the type of the particular wireless device is at least partially defined by the data rate of the particular wireless device, and for producing a control signal which is sent to and transmitted by the transmitting antenna, the control signal containing control data based on the recognized type of the particular wireless device which may be utilized by the particular wireless device to control the power transmitted to the base station by the particular wireless device.

5,671,219 COMMUNICATION PROTOCOL FOR SPREAD SPECTRUM COMMUNICATION

Ryan N. Jensen; Claude M. Williams, both of Colorado Springs, and Logan Scott, Breckenridge, all of Colo., assignors to Omnipoint Corporation, Colorado Springs, Colo.
Continuation of Ser. No. 284,053, Aug. 1, 1994, which is a continuation-in-part of Ser. No. 215,306, Mar. 21, 1994, abandoned, which is a continuation-in-part of Ser. No. 146,496, Nov. 1, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 473,746

Int. Cl.⁶ H04J 3/12

U.S. Cl. 370—280 31 Claims



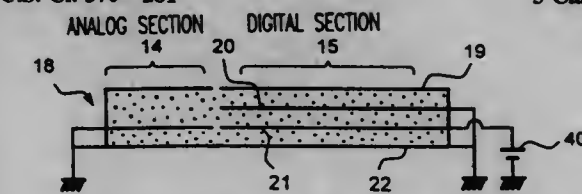
1. A communication protocol for time division multiple access communication comprising
a major time frame divided into a plurality of minor time frames, said minor time frames collectively capable of supporting a plurality of communication links between a base station and a plurality of user stations,
a control pulse interval in a first one of said minor time frames, whereby a control pulse is transmitted to said base station from a user station in communication with said base station, means in said base station for measuring a received signal quality of said control pulse,
a base transmission interval in said first minor time frame, whereby a base-to-user spread spectrum signal is transmitted from said base station to said user station using an antenna selected in response to said received signal quality, said base-to-user spread spectrum signal comprising a power adjustment command,
a user transmission interval in said first minor time frame, whereby a user-to-base spread spectrum signal is transmitted from said user station to said base station at a power level determined in response to said power adjustment command.

5,671,220 SATELLITE CHANNEL INTERFACE IN INDOOR UNIT USED FOR SATELLITE DATA COMMUNICATION

Fumio Tonomura, Shiga, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 30, 1995, Ser. No. 497,248
Claims priority, application Japan, Jul. 12, 1994, 6-160161
Int. Cl.⁶ H04B 1/10; 1/26

U.S. Cl. 370—281 3 Claims



1. A satellite channel interface of an indoor unit used in a Very Small Aperture Terminal (VSAT) for communication satellite-based bi-directional data transmission, constituted by an analog section having a multiplexer unit connected to an outdoor unit of

said VSAT and a down converter unit for frequency-converting a high frequency signal supplied from said outdoor unit through said multiplexer, and a digital section having a modulator-demodulator unit for demodulating the output of said down converter unit and for modulating a digital data signal into an analog signal for transmission through said multiplexer and said outdoor unit, said satellite channel interface comprising:

a single multi-layered printed circuit board including at least three mutually insulated conductive layers each having first and second portions electrically separated from each other and respectively assigned to said analog section and said digital section to allow all of said units to be formed thereon;
a rectangular shielding member mounted onto said multi-layered printed circuit board defining said first portion; and
a shield cover for shielding an opening portion of said rectangular shielding member,
wherein first and second conductive layers of said first portion of said multi-layered printed circuit board as counted from a bottom of said multi-layered printed circuit board form grounding electrodes for facilitating the isolation between said analog section and said digital section.

5,671,221

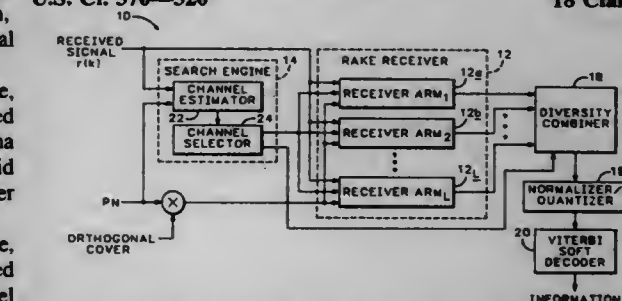
RECEIVING METHOD AND APPARATUS FOR USE IN A SPREAD-SPECTRUM COMMUNICATION SYSTEM

Jin Yang, Vancouver, Wash., assignor to Sharp Microelectronics Technology, Inc., Wash., and Sharp Kabushiki Kaisha, Japan

Filed Jun. 14, 1995, Ser. No. 490,193

Int. Cl.⁶ H04J 13/00

U.S. Cl. 370—320 18 Claims



1. A receiving apparatus for use in a code division multiple access (CDMA) communication system wherein a spread-spectrum signal containing information bits is transmitted within an environment tending to produce multipath components, the receiving apparatus comprising:

a channel estimator configured to estimate channel coefficients corresponding to such multipath components for use in selecting multipath components;
a channel selector configured to select one or more of the multipath components based on said channel coefficients, said channel selector producing time delay signals representing the time delay between such selected multipath components and producing weighting factors for each selected multipath component based on said channel coefficients;
one or more diversity branches configured to operate on the spread-spectrum signal using time-delayed versions of a user-correlation signal to present said selected multipath components on said diversity branches, said time-delayed versions being determined by said time delay signals;
a combiner configured to combine said diversity branches in a predetermined manner to produce a combined signal; and
a decoder configured to extract the information bits from said combined signal.

5,671,222

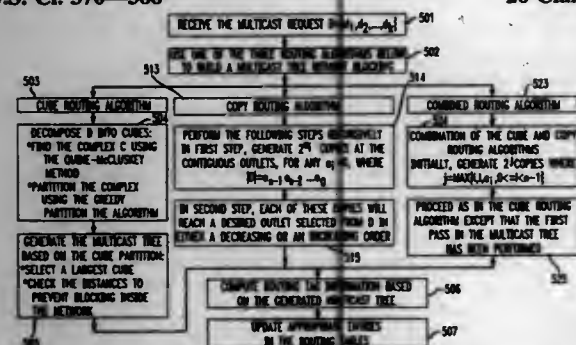
MULTICAST ROUTING IN SELF-ROUTING
MULTISTAGE NETWORKSXiaoqiang Chen, Eatontown, and Vijay Pochampalli Kumar,
Freehold, both of N.J., assignors to Lucent Technologies Inc.,
Murray Hill, N.J.

Filed Jun. 6, 1994, Ser. No. 254,089

Int. Cl.⁶ H04L 12/56

U.S. Cl. 370—388

26 Claims



1. A method for multicasting an inlet data cell, received as part of an original multicast request D, through a self-routing multistage network apparatus, having $n = \log N$ stages, where N is the number of inlets/outlets of the network to a plurality of desired outlets, the method comprising the steps of

decomposing the original multicast request D, defining a set of desired outlets, received by a single self-routing multistage network into a plurality of intermediate multicast requests, each intermediate multicast request being a unique subset of the original multicast request and including a 2n routing tag which enables a non-blocking, self-routing distribution to a subset of the desired outlets of the original multicast request in one or two passes through the network, and generating a non-blocking multicast tree based on the intermediate multicast requests and routing the received inlet data cell to the desired outlets by recirculation of at least one intermediate multicast request through the network.

5,671,223

MULTICHANNEL HDLC FRAMING/DEFRAMING
MACHINEBoaz Shachar, Gyvatalim; Rozen Nahum, Natanya; Yeivin Yoram, Petah Tikva, and Eliezer Weitz, Hulon, all of Israel,
assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 30, 1995, Ser. No. 566,444

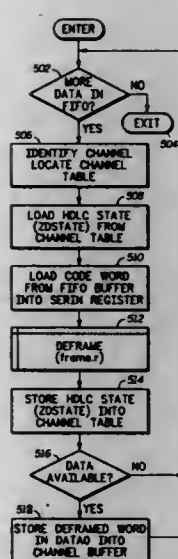
Int. Cl.⁶ H04J 13/00; H04Q 11/04

U.S. Cl. 370—395

42 Claims

1. A method for deframing HDLC data multiplexed onto a plurality of high speed Time Division Multiplexed (TDM) channels, said method comprises the steps of:

- (A) receiving an ordered series of fixed length code words;
- (B) selecting a first of the ordered series of fixed length code words as a selected code word;
- (C) selecting as a selected channel a logical channel that corresponds to the selected code word;
- (D) loading a current HDLC state for the selected channel from a corresponding channel table stored in a Memory into a first register;
- (E) deframing the selected code word utilizing the current HDLC state resulting in an updated HDLC state;
- (F) selecting a next code word in the ordered series of fixed length code words as the selected code word; and



(G) repeating steps (C) to (F) as a loop, each repetition of the loop selecting a next of the ordered series of fixed length code words as the selected code word.

5,671,224

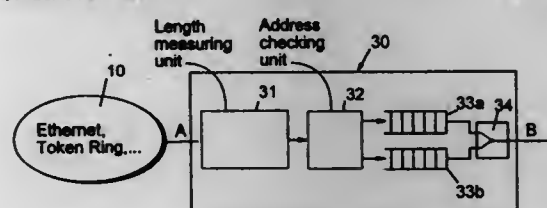
METHOD FOR INTERCONNECTING LOCAL AREA
NETWORKS OR NETWORK SEGMENTS AND A LOCAL
AREA NETWORK BRIDGESeppo Pyhälä, Olli-Pekka Lintula, both of Helsinki, and
Antti Kokkinen, Kirkkonummi, all of Finland, assignors to
Nokia Telecommunications Oy, Espoo, FinlandPCT No. PCT/FI93/00394, § 371 Date May 15, 1995, § 102(e)
Date May 15, 1995, PCT Pub. No. WO94/08412, PCT Pub.
Date Apr. 14, 1994

PCT Filed Oct. 1, 1993, Ser. No. 416,682

Claims priority, application Finland, Oct. 5, 1992, 924480;
Oct. 5, 1992, 924481Int. Cl.⁶ H04L 12/28; H04B 7/12; H04J 3/16

U.S. Cl. 370—401

6 Claims



6. A method for providing routing network services, comprising: interconnecting a plurality of customer-specific local area networks and a public network via a respective plurality of transmission lines, including connecting each local area network to the respective said transmission line by a respective bridge, and providing respective customer-specific routers for said transmission lines, each on the public network side of the respective bridge; and for each said local area network, receiving local area network frames in the respective bridge and forwarding each across the respective bridge only if its destination address refers to the respective local area network; classifying each frame to be forwarded, as to its length, into a respective one of two different length categories; and using the respective obtained length classifications in the transmission of the frames, for assigning priority to at least some of the frames which are shorter over at least some of the remaining frames which are longer, a frame classified as short being assigned priority over other frames if there does not simultaneously occur a frame which has no priority and

which is transmitted from a same transmitting party to a same receiving party as said frame classified as short.

5,671,225

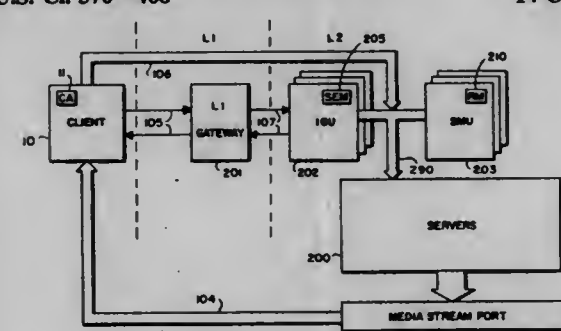
DISTRIBUTED INTERACTIVE MULTIMEDIA SERVICE
SYSTEMDonald F. Hooper, Shrewsbury; Dave M. Tongel, Worcester,
and Michael B. Evans, Upton, all of Mass., assignors to
Digital Equipment Corporation, Maynard, Mass.

Filed Sep. 1, 1995, Ser. No. 522,966

Int. Cl.⁶ H04J 3/16

U.S. Cl. 370—468

14 Claims



1. A distributed interactive multimedia service system, comprising:

- a session manager, in response to receiving an attach request from a customer premises set-top box connected to the session manager via a network, generating an resource allocation request and a create media stream port request;
- a resource manager, in response to the resource allocation request, allocating resources of a plurality of multimedia servers;
- a media stream manager, in response to the create media stream port request, creating a media stream port;
- the session manager, in response to the allocation of resources and the creation of the media stream port, launching a selected service of a plurality of multimedia services in the plurality of multimedia servers, the selected service to provide multimedia information to the set-top box via the media stream port connected to the network.

5,671,226

MULTIMEDIA INFORMATION PROCESSING SYSTEM
Tokumichi Murakami; Kazuhiko Matsuzaki; Yoshiaki Kato,
and Hideo Ohira, all of Kanagawa, Japan, assignors to
Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 5, 1995, Ser. No. 462,519

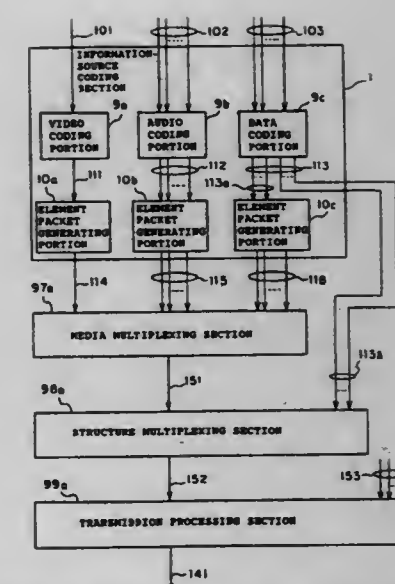
Claims priority, application Japan, Feb. 9, 1995, 7-021699

Int. Cl.⁶ H04L 12/56

U.S. Cl. 370—474

23 Claims

1. A multimedia information processing system executing transmission and/or storage of multimedia information from a respective media unit, the system comprising:
information-source coding means for inputting media information, coding the media information from the respective media unit, adding sub-information pertaining to media identification, packet synchronization and synchronization between elements that form the media information, and generating element packets constructed in signal forms that have interchangeability with other systems;
packet multiplexing means for executing speed matching and multiplexing of the element packets for the respective media unit which said information-source coding means outputs, and generating multiplexed streams in signal forms that have interchangeability between systems; and



transmitting processing means for converting said multiplexed streams in accordance with transmission media and/or storage media and outputting transmission signals.

5,671,227

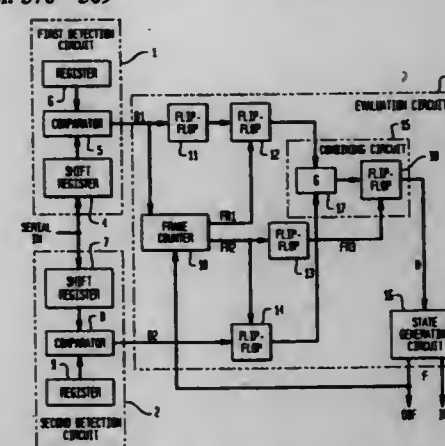
TRANSMISSION SYSTEM FOR TRANSMITTING AND
DETECTING THE BEGINNING OF THE FRAME OF A
FRAME SYNCHRONIZED SIGNALHans-Georg Keller, Nürnberg, and Karl Hönig, Postbauer-
Heng, both of Germany, assignors to Lucent Technologies
Inc., Murray Hill, N.J.

Filed Aug. 10, 1995, Ser. No. 513,316

Claims priority, application Germany, Aug. 20, 1994, 44 29
595.2Int. Cl.⁶ H04L 7/00; H04J 3/00

U.S. Cl. 370—509

8 Claims



1. System for detecting the beginning of the frame of a frame synchronized signal, comprising a first detection circuit (1) for setting a first detection signal (D1) to a first state upon detection of a first bit sequence located at the beginning of the frame of the signal,
a second detection circuit (2) for setting a second detection signal (D2) to a first state upon detection of a second bit sequence located at a specific frame position of the signal and an evaluation circuit (3) which
includes a frame counter (10) for keeping track of a current frame position, the frame counter being reset by the first detection signal (D1) to an initial value, and
includes a combining circuit (15) for forming a frame state signal (R), which signal has a first state only when the first state of the first detection signal (D1) occurs during the initial

value and the first state of the second detection signal (D2) occurs during a specific frame value of the frame counter (10).

5,671,229 SYSTEM FOR DETECTING NON-COINCIDENCE OF CODES

Noriaki Nagashima, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

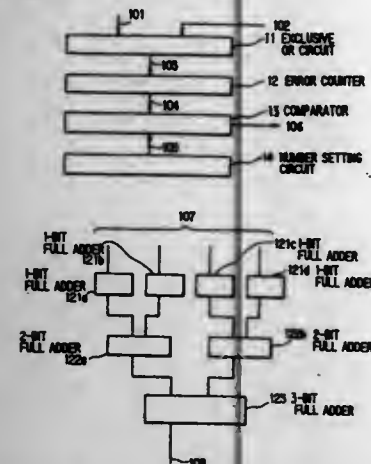
Filed Nov. 15, 1995, Ser. No. 559,271

Claims priority, application Japan, Nov. 15, 1994, 6-304220

Int. Cl.⁶ G06F 11/00

U.S. Cl. 371—5.1

12 Claims



1. A system for detecting non-coincidence of codes, comprising: means for comparing an input coded signal having a plurality of bits and a predetermined coded signal having a plurality of bits, each bit of the predetermined coded signal corresponding to a different bit of said input coded signal to form a corresponding bit pair for comparison on a bit-by-bit basis to generate a non-coincidence signal including correct and error bits for each corresponding bit pair compared;
- means for counting a plurality of said correct and error bits to determine a number of said error bits included in said non-coincidence signal, thereby generating an error bit count signal for indicating said number of said error bits included in said non-coincidence signal, said means for counting comprising a plurality of adding circuits having a hierarchical configuration; and
- means for detecting non-coincidence between said input coded signal and said predetermined coded signal by checking that said number of said error bits indicated by said error bit count signal is greater than or equal to a predetermined number of tolerable errors.

5,671,229 FLASH EEPROM SYSTEM WITH DEFECT HANDLING

Eliyahu Harari, Los Gatos; Robert D. Norman, San Jose, and Sanjay Mehrotra, Milpitas, all of Calif., assignors to SanDisk Corporation, Sunnyvale, Calif.

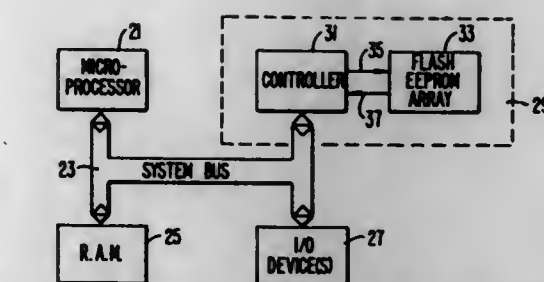
Continuation of Ser. No. 963,837, Oct. 20, 1992, abandoned, which is a division of Ser. No. 337,566, Apr. 13, 1989, abandoned. This application May 25, 1994, Ser. No. 249,049

Int. Cl.⁶ G06F 11/00

U.S. Cl. 371—10.2

26 Claims

1. A fault-tolerant memory system, comprising: an array of flash EEPROM Cells; redundant cells within the array; a memory controller coupled to the array for controlling memory operations of the array;



error detection means operated with said memory controller during use of the memory, for detecting a defect and its address within the array; a defect map maintained by said memory controller during use of the memory and stored within the array for storing the address of said detected defect; and defective cell substituting means operated with said memory controller responsive to said defect map for substituting said detected defect with a corresponding number of redundant cells.

5,671,230

Patent Not Issued For This Number

5,671,231 METHOD AND APPARATUS FOR PERFORMING CACHE SNOOP TESTING ON A CACHE SYSTEM

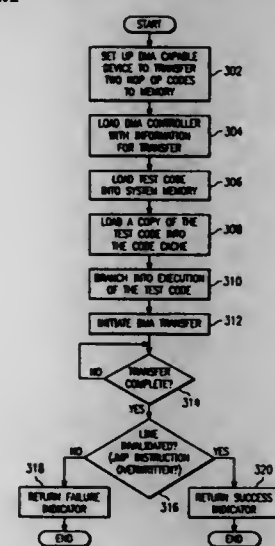
Steve Cooper, Cedar Park, Tex., assignor to Dell USA, L.P., Austin, Tex.

Filed Jul. 7, 1994, Ser. No. 271,616

Int. Cl.⁶ G01R 31/28; G06F 11/00; 9/26

U.S. Cl. 371—22.1

21 Claims



20. A method for performing cache snoop testing on a computer comprising a CPU, a cache, and a system memory such that the cache is coupled between the CPU and the system memory, the method comprising: loading a test code sequence into the system memory and cache, making changes to a part of the test code sequence located in the system memory, and executing the test code sequence in the cache to determine if the cache snooped the changes in the system memory.

5,671,232 SECOND HARMONIC GENERATION METHOD AND APPARATUS

Hang-woo Lee, Kunpo; Sang-hak Lee, Seoul; Joseph Kilhoan Chee, Songtan; Young-mo Hwang, Seoul, all of Rep. of Korea; Yuri V. Tsvetkov, Moscow, U.S.S.R.; Alexander V. Semenenko, Moscow, U.S.S.R., and Ivan I. Kuratov, Moscow, U.S.S.R., assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

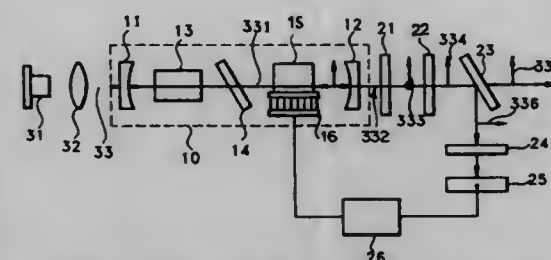
Filed Aug. 29, 1995, Ser. No. 520,392

Claims priority, application Rep. of Korea, May 7, 1995, 95-11290

Int. Cl.⁶ H01S 3/10

U.S. Cl. 372—22

6 Claims



5. A second harmonic generation apparatus comprising: a resonator provided with an input mirror and an output mirror; a non-linear birefringent crystalline element and a gain medium provided on an optical axis placed in said resonator; a temperature control device controlling the temperature of said non-linear birefringent crystalline element; a beam splitter provided on the path of the second harmonic transmitted from said output mirror, and reflecting part of the second harmonic to an other path; a polarization element provided in between the output mirror and said beam splitter, and transmitting the light polarized in a specific direction; an optical detector provided on a path of said second harmonic reflected by said beam splitter; and a control circuit controlling said temperature control device with the signal emitted from said optical detector.

5,671,233 INTEGRATED CIRCUIT INCORPORATING A TEST CIRCUIT

Takehiro Kamada, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

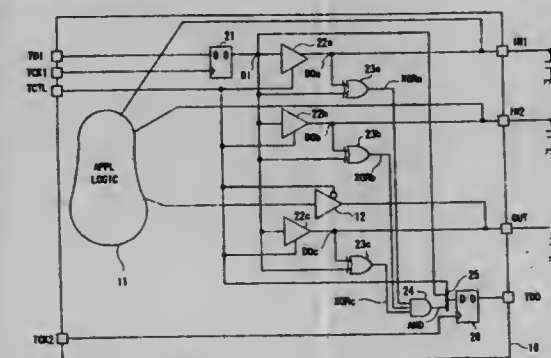
Filed May 8, 1996, Ser. No. 646,564

Claims priority, application Japan, May 9, 1995, 7-110432

Int. Cl.⁶ G06F 11/00

U.S. Cl. 371—22.1

18 Claims



1. An integrated circuit to be mounted on a printed circuit board, comprising: a plurality of signal terminals to be electrically connected to wires on said printed circuit board;

first circuit means for charging, through said plurality of signal terminals, stray capacitances of said wires on said printed circuit board; and

second circuit means for checking said plurality of signal terminals for proper electrical connection to said wires on said printed circuit board, based on a difference in stray capacitances charged by said first circuit means.

5,671,234 PROGRAMMABLE INPUT/OUTPUT BUFFER CIRCUIT WITH TEST CAPABILITY

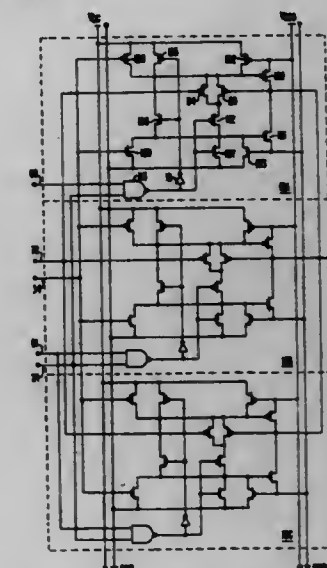
Christopher E. Phillips, San Jose; Michael G. Ahrens, Sunnyvale; Joseph G. Nolan, III, and Laurence H. Cooke, both of San Jose, all of Calif., assignors to Crosspoint Solutions, Inc., Milpitas, Calif.

Division of Ser. No. 718,677, Jun. 21, 1991, Pat. No. 5,221,865. This application Jun. 17, 1993, Ser. No. 78,692

Int. Cl.⁶ G01R 31/28

U.S. Cl. 371—22.3

12 Claims



1. A CMOS circuit for driving a signal on an input terminal onto an output terminal, said circuit comprising:

a first pair of complementary transistors, a first transistor of said first pair having a gate electrode, a source electrode connected to a first voltage supply at a nominal first voltage, a drain electrode connected to said output terminal, a second transistor of said first pair having a gate electrode, a source electrode connected to a second voltage supply at a nominal second voltage, a drain electrode connected to said output terminal; a second pair of complementary transistors for alternately turning one of said transistors of said first pair on at a time responsive to a signal on said input terminal, a first transistor of said second pair having a source electrode connected to a third voltage supply, a gate electrode to said input terminal and a drain electrode connected to said gate electrode of said first transistor of said first pair, a second transistor of said second pair having a source electrode connected to a fourth voltage supply, a gate electrode connected to said input terminal and a drain electrode connected to said gate electrode of said second transistor of said first pair, said third power supply at said nominal first voltage but not electrically connected to said first power supply, said fourth power supply at said nominal second voltage but not electrically connected to said second power supply; and

a third transistor having a source electrode connected to said gate electrode of said second transistor of said first pair, a drain electrode connected to said fourth voltage supply and a gate electrode connected to said source electrode of said second transistor of said first pair;

whereby said output terminal is substantially immune from voltage spikes in said second voltage supply.

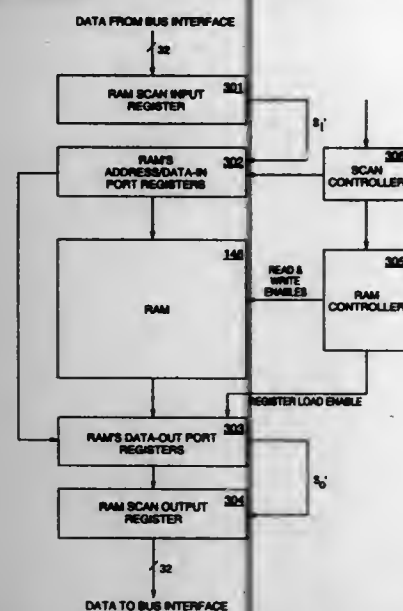
5,671,235
SCAN CHAIN FOR SHIFTING THE STATE OF A PROCESSOR INTO MEMORY AT A SPECIFIED POINT DURING SYSTEM OPERATION FOR TESTING PURPOSES

Derek Bosch, San Jose, and Susan Carrie, Mountain View, both of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.

Filed Dec. 4, 1995, Ser. No. 567,082
 Int. Cl.⁶ G01R 31/28

U.S. Cl. 371—22.3

17 Claims



1. In a semiconductor device having a processor for processing digital data and a memory for storing the digital data, an apparatus for accessing digital data stored in the memory at a particular point of execution of the semiconductor device, comprising:
 a stall controller for stalling the semiconductor device when the particular point of execution is reached;
 a plurality of test registers coupled to the memory;
 a memory controller coupled to the memory, wherein the memory controller instructs the memory to load the test registers with data corresponding to a memory address;
 a scan chain coupled to the test registers for sequentially outputting bits of data stored in the test registers, wherein the digital data stored in the memory at the particular point of execution is determined by examining a scan chain output signal.

5,671,236
APPARATUS AND METHODS FOR USE IN TRANSMITTING AND RECEIVING A DIGITAL SIGNAL, AND A RECORD CARRIER OBTAINED BY A TRANSMISSION APPARATUS OR METHOD

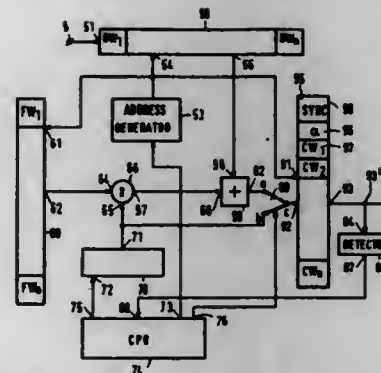
Adrianus J. M. Denissen, and Ludovicus M. G. M. Tolhuizen, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 9, 1995, Ser. No. 401,760
 Claims priority, application European Pat. Off., Mar. 9, 1994, 94200590

Int. Cl.⁶ G11B 20/18; H03M 7/00; H04L 25/497
 U.S. Cl. 371—37.1

29 Claims

28. An apparatus for processing a digital data signal for transmission via a transmission medium, the apparatus comprising:
 error protection encoding means for carrying out an error protection encoding on a digital signal so as to obtain an error



protection encoded digital signal by carrying out error protection encoding of packets of p m-bit digital words included in the digital signal so as to obtain error protection encoded packets of n m-bit digital words making up the error protection encoded digital signal, where n, m and p are integers larger than 1, and n>p; and

channel encoding means for converting the error protection encoded digital signal into a channel encoded digital signal by converting the error protection encoded packets of n digital words into converted packets of digital words to form the channel encoded digital data signal, the channel encoding means including:

generator means for supplying a fixed auxiliary packet having the length of n digital words, and
 calculation means for calculating in a Galois field GF(2^m) a converted digital word in accordance with a formula which at least includes DW_i+α.FW_i, where DW_i is the binary value corresponding to the i-th digital word in the packet to be converted, FW_i is the fixed binary value corresponding to the i-th digital word in the fixed auxiliary packet, α is the binary value of a multiplier word including more than one bit, and the converted digital word is the i-th converted digital word in the converted packet of digital words, where i is an integer value running from 1 to n;

wherein the calculation means determines at least a value α_{def} for each packet of digital words converted into a converted packet of digital words, and the channel encoding means combines α_{def} with the converted digital words obtained by the Galois field GF(2^m) calculation in accordance with the formula so as to obtain the converted packet of digital words.

5,671,237
CYCLICAL REDUNDANCY CHECK METHOD AND APPARATUS

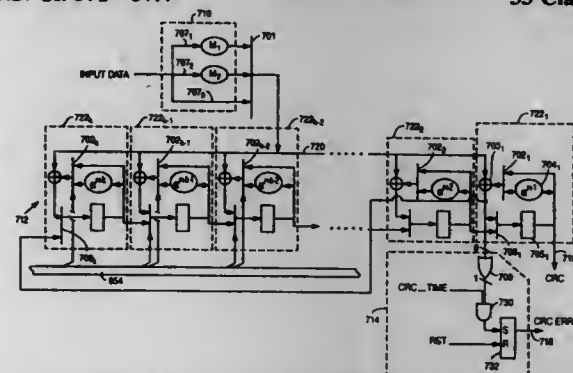
Christopher P. Zook, Longmont, Colo., assignor to Cirrus Logic, Inc., Fremont, Calif.

Continuation of Ser. No. 147,865, Nov. 4, 1993. This application Oct. 18, 1994, Ser. No. 325,717

Int. Cl.⁶ G06F 11/10; G11B 20/18; H03M 13/00; 13/22

U.S. Cl. 371—37.4

33 Claims



6. A cyclical redundancy check (CRC) generator which generates CRC information for error checking purposes, comprising:

an interleaving circuit for dividing an input stream of data and producing a plurality of interleaves;
 a circuit which forms a linear combination of the plurality of interleaves and operates upon the linear combination in order to generate the CRC information;

wherein the circuit which forms a linear combination of the plurality of interleaves and operates upon the linear combination in order to generate the CRC information comprises a plurality of sub-circuits, each sub-circuit comprising:

an adder, the adder having a first input port, a second input port, and an output port, the first port of the adder having the plurality of interleaves multiplexed thereto;
 a multiplier, the multiplier having an output port thereof selectively connected to the second input port of the adder;
 a register for storing CRC information, the register having an input port connected to the output port of the adder and an output port selectively connected to the second input port of the adder.

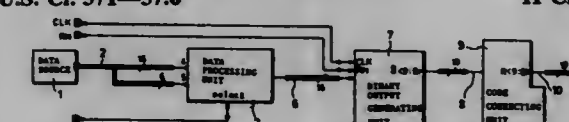
5,671,238
METHOD AND CIRCUITRY FOR GENERATING R-BIT PARALLEL CRC CODE FOR AN L-BIT DATA SOURCE
 Kim-Joan Chen, Chia-Yi Hsien, and Ching-Long Chang, Yun-Lin Hsien, both of Taiwan, assignors to National Science Council of R.O.C., Taipei, Taiwan

Filed Oct. 31, 1995, Ser. No. 550,574

Int. Cl.⁶ H03M 13/00

U.S. Cl. 371—37.6

11 Claims



5. A universal parallel CRC generating circuitry for generating an r-bit parallel CRC code for an L-bit data source, the L-bit data source being grouped into successive at least one p-bit parallel data group and a q-bit parallel data group, the number q being less than the number p, said parallel CRC generating circuitry comprising:

a data processing unit having an output side and an input side which is adapted to be connected electrically to said data source and which is adapted to receive successively said p-bit parallel data group and said q-bit parallel data group, said data processing unit reflecting one of said p-bit parallel data groups at said input side to said output side when said one of said p-bit parallel data groups is present at said input side, said data processing unit adding a bit string to said q-bit parallel data group such that sum of the number q and number of bits in said bit string is equal to the number p, said data processing unit presenting said q-bit parallel data group and said bit string at said output side when said q-bit parallel data group is present at said input side;

a binary output generating unit connected electrically to said output side of said data processing unit and operating in response to data at said output side of said data processing unit to produce an r-bit parallel initial CRC code according to a predefined generating polynomial function; and

a code correcting unit connected electrically to said binary output generating unit and receiving said r-bit parallel initial CRC code therefrom, said code correcting unit operating in response to said r-bit parallel initial CRC code to produce an r-bit parallel final CRC code according to a predefined code correcting function.

5,671,239
SEMICONDUCTOR MEMORY OF XN TYPE HAVING ERROR CORRECTING CIRCUIT BY PARITY
 Masaaki Higashitani, and Masatomo Hasegawa, both of Kawasaki, Japan, assignors to Fujitsu Limited, Tokyo, Japan

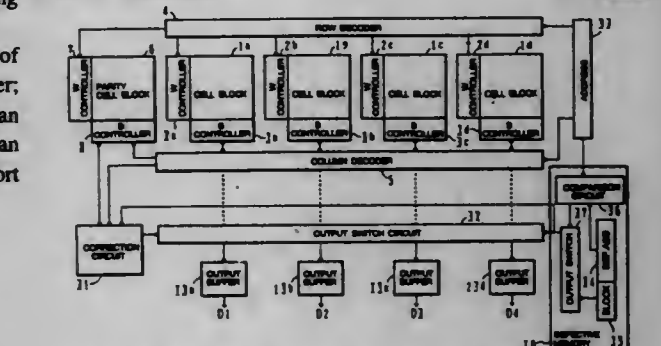
Continuation of Ser. No. 307,421, Sep. 19, 1994, abandoned. This application Jan. 19, 1996, Ser. No. 588,693

Claims priority, application Japan, Sep. 20, 1993, 5-233956; Nov. 10, 1993, 5-281436

Int. Cl.⁶ G11C 29/00

U.S. Cl. 371—51.1

12 Claims



1. A semiconductor memory device having a memory cell array divided into a plurality of cell blocks, comprising:
 n memory cell blocks, for storing n-bit data, one bit of the n-bit data being stored per one memory cell block at a same address thereof;
 a parity memory unit for storing a parity of said n-bit data at an address corresponding to the address where said n-bit data is stored;
 a defective output memory unit for storing defective block data indicating a defective memory cell block among said n memory cell blocks; and
 a data correction circuit for correcting data in said defective memory cell block by calculating an exclusive OR of (n-1) bits of said n-bit data and the parity, the (n-1) bits being stored in said memory cell blocks at the same address except for one memory cell block indicated by said defective output memory unit, the parity being stored in said parity memory unit at the corresponding same address.

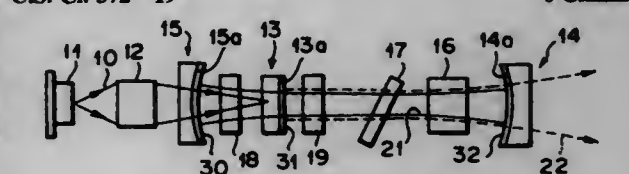
5,671,240
SOLID STATE LASER
 Yoichi Okazaki, Kanagawa-ken, Japan, assignor to Fujl Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 17, 1995, Ser. No. 560,121

Claims priority, application Japan, Nov. 18, 1984, 6-285029
 Int. Cl.⁶ H01S 3/11

U.S. Cl. 372—19

6 Claims



1. A solid state laser in which a solid state laser medium is pumped with a pumping source to produce a laser beam, comprising:

a laser resonator which causes said laser beam to oscillate therein at an oscillation mode;
 a twisting apparatus, disposed in said laser resonator, to produce a twisted mode of said oscillating laser beam such that generation of adjacent resonator modes of said oscillating laser beam are suppressed; and
 a wavelength selector element, disposed in said laser resonator, which selects a wavelength of said oscillating laser beam so

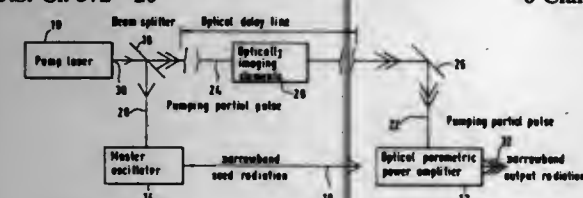
as to suppress generation of another resonator mode of said oscillating laser beam;
the combination of said twisting apparatus and wavelength selector element thereby produce a substantially singlemode laser beam.

5,671,241 TUNABLE SOURCE OF NARROWBAND COHERENT RADIATION

Uwe Stamm, Göttingen, and Peter Lokai, Bovenden, both of Germany, assignors to Lambda Physik Gesellschaft Zur Herstellung Von Lasern MGH, Germany
Filed Jun. 5, 1996, Ser. No. 658,716
Int. Cl.⁶ H01S 3/10

U.S. Cl. 372—20

6 Claims



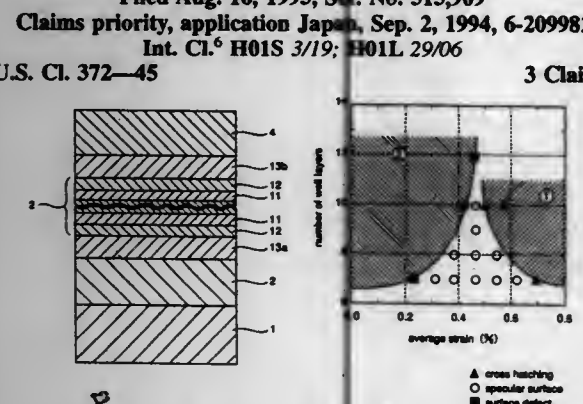
1. A tunable source of narrowband coherent radiation, comprising:

- a pulsed pump laser for the generation of pump pulses;
- an optical parametric oscillator or optical parametric power amplifier with at least one crystal from an optically non-linear material;
- a master oscillator for the generation of a tunable narrowband radiation which is injected as seed radiation into the optical parametric oscillator or power amplifier;
- a beam splitter for separating the pump pulses into first and second partial pulses, with the first partial pulses pumping the master oscillator and the second partial pulses pumping the optical parametric oscillator or the power amplifier after having travelled through an optical delay line; and
- an optical imaging element arranged in the beam path between the pump laser and the optical parametric oscillator or power amplifier, said optical imaging element configured to image the spatial beam profile of the second partial pulses from the output of the pump laser with respect to amplitude and phase into the crystal of the optical parametric oscillator or the optical parametric power amplifier.

5,671,242
STRAINED QUANTUM WELL STRUCTURE
Tohru Takiguchi, and Katsuhiko Goto, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 16, 1995, Ser. No. 515,909
Claims priority, application Japan, Sep. 2, 1994, 6-209982
Int. Cl.⁶ H01S 3/19; H01L 29/06

U.S. Cl. 372—45

3 Claims



1. A semiconductor device comprising:
a substrate having a lattice constant a_s ; and

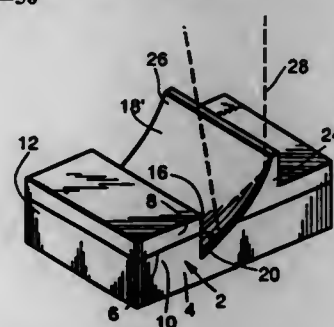
a stress compensation strained quantum well layer having an average strain $\epsilon_{average}$ and comprising a plurality of compressively strained layers, each compressively strained layer having a lattice constant a_1 larger than a_s and a thickness t_1 , to which a strain ϵ_1 ($\epsilon_1 > 0.001$) that is equal to $(a_1 - a_s)/a_s$ is applied, and a plurality of tensively strained layers, each tensively strained layer having a lattice constant a_2 smaller than a_s and a thickness t_2 , to which a strain ϵ_2 ($\epsilon_2 > 0.001$) that is equal to $(a_2 - a_s)/a_s$ is applied, said compressively strained layers and said tensively strained layers being alternatingly laminated on the substrate, wherein the average strain $\epsilon_{average}$ of the stress compensation strained quantum well layer that is equal to $(\epsilon_1 t_1 + \epsilon_2 t_2)/(t_1 + t_2)$ is in a range from +0.2% to +0.6%.

5,671,243 SURFACE EMITTING LASER WITH LARGE AREA DEFLECTING MIRROR

Daniel Yap, Thousand Oaks, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.
Continuation of Ser. No. 394,087, Feb. 24, 1995, abandoned, which is a division of Ser. No. 18,845, Feb. 17, 1993, Pat. No. 5,492,607. This application Sep. 19, 1996, Ser. No. 715,710
Int. Cl.⁶ H01S 3/19

U.S. Cl. 372—50

18 Claims



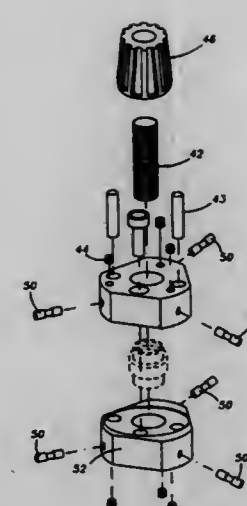
1. A surface emitting laser system, comprising:
a substrate,
a laser formed on said substrate to emit a divergent laser beam over the substrate, said laser comprising an active lasing layer between a pair of cladding layers and including an upper surface, and a turning mirror formed on said substrate in the path of said laser beam, said mirror comprising a body with (a) an active lasing layer in-line with the laser's active lasing layer, (b) a pair of cladding layers in-line with the laser's cladding layers, and (c) an extension that extends beyond the upper surface of said laser, said body having a surface at a reflective angle to said laser, and a reflective coating on said body surface to reflect a beam from said laser, said mirror body surface and reflective coating extending substantially to said laser at said substrate.

5,671,244
MIRROR MOUNT
Dennis Reeder, South Jordan, Utah, assignor to Spectra-Physics Lasers, Inc., Mountain View, Calif.
Continuation of Ser. No. 527,564, Sep. 13, 1995, Pat. No. 5,590,149. This application Jul. 31, 1996, Ser. No. 691,806
Int. Cl.⁶ H01S 3/08

U.S. Cl. 372—107

13 Claims

1. A mirror mount assembly, comprising:
a base plate positioned at one end of a laser resonator;
a movable plate spaced from and positioned substantially parallel to the base plate; and
a spring coupled between the base plate and the moveable plate to provide tip and tilt of the movable plate away from or towards the base plate;



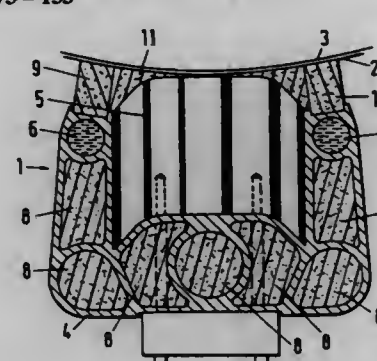
a bushing made of an elastic material, the bushing including a threaded interior side, a longitudinal axis and at least three elastic dimples formed in the bushing circumferentially in a plane substantially perpendicular to the bushing longitudinal axis, wherein the dimples are dimensioned to be smaller than a screw thread and configured to permit rotation of the bushing and screw relative to each other to advance and retract the screw along the longitudinal axis and provide a selected adjustment of the screw along the bushing's longitudinal axis with reduced mechanical hysteresis of the screw.

5,671,245 MAGNETIC YOKE HAVING CARRIER BODY AND INSULATING BODY

Bernard Nacke, Lünen; Christoph Aundrup, Dortmund, and Manfred Mertens, Selm, all of Germany, assignors to ABB Patent GmbH, Mannheim, Germany
Filed Jun. 7, 1995, Ser. No. 484,521
Claims priority, application Germany, Jun. 14, 1994, 9409470 U

U.S. Cl. 373—153

14 Claims



1. In an induction crucible furnace having a furnace coil with furnace axis, a magnetic yoke, comprising:
a bar-shaped core stack for conducting magnetic flux generated by the furnace coil, said core stack being formed of a multiplicity of individual, mutually electrically insulated single laminations with edges, said core stack having a principal surface facing the furnace coil and three principal surfaces not facing the furnace coil, said principal surface facing the furnace coil having a shape being subdivided threefold, defining a central region of said core stack to be positioned very near the furnace coil and two lateral regions of said core stack adjacent said central region, and defining a distance between said edges of said single laminations of said core stack and the furnace coil to be increased towards said edge in said two

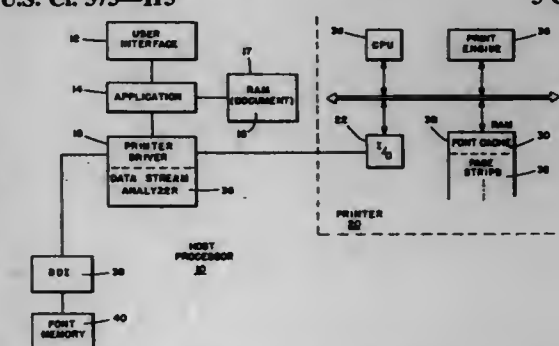
lateral regions of said core stack, forming acute-angled, lamination-free sectors parallel to the furnace axis in two peripheral regions of the magnetic yoke and to be directed towards the furnace coil;
an insulating body formed of an electrically insulating and vibration-damping material;
a carrier body having lateral walls at which said insulating body is mounted, said carrier body enclosing said three principal surfaces of said core stack not facing the furnace coil; and
said insulating body extending surface-wide from one to another of said lateral walls of said carrier body, and said lateral walls of said carrier body and said core stack pressing the magnetic yoke surface-wide through said insulating body against the furnace coil.

5,671,246 METHOD AND APPARATUS FOR ADAPTIVE ADJUSTMENT OF CACHE ALLOCATION FOR STORAGE OF FONT DATA

C. Kevin McIntyre, Boise, Id., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Apr. 22, 1996, Ser. No. 636,458
Int. Cl.⁶ G06K 15/00

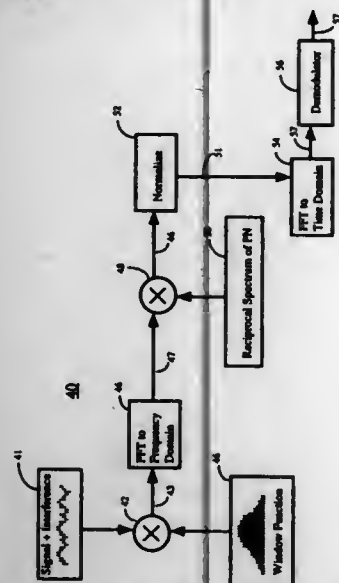
U.S. Cl. 375—115

5 Claims



1. A method for adaptively allocating memory in a printer for storage of font data, said printer connected to a host processor, said host processor performing the method comprising the steps of:
a) controlling said printer to allocate an initial portion of cache memory for storage of font data and to maintain track of allocations of said cache memory by said printer;
b) analyzing a current data segment to be sent to the printer to determine if said current data segment is indicative of a font character to be printed or graphics data or raster data;
c) if said current data segment is found to be indicative of a font character, determining if said printer includes corresponding font character data, and if said printer does not include said corresponding font character data and does not have sufficient cache memory remaining for storage of said corresponding font character data indicated by said current data segment, instructing said printer to allocate an additional memory portion for storage of at least said corresponding font character data; and
d) further instructing said printer to re-allocate portions of said memory allocated to storage of font character data if either graphics-related data or raster image data are determined to be sent to the printer and to cause said printer to reduce the cache memory allocated to storage of font data to make a portion of said cache memory available for said graphics related data or raster image data if insufficient memory is available therefor.

5,671,247
METHOD AND APPARATUS FOR INTERFERENCE SUPPRESSION IN SPREAD SPECTRUM SIGNALS
 Slim Souissi, Fort Worth, and John B. Gehman, Trophy Club, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.
 Filed Oct. 24, 1995, Ser. No. 547,354
 Int. Cl.⁶ H04B 15/00; H04K 1/00; H04L 27/30
 U.S. Cl. 375—200

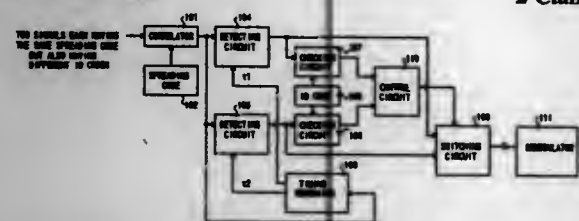


1. A method of interference removal from data in a spread spectrum signal that has been encoded and transmitted by modulating a repeating noise sequence with the data, comprising the steps of:

at a receiver:

- receiving the spread spectrum signal along with interference;
- multiplying the spread spectrum signal along with interference by a window function providing a multiplied spread spectrum signal;
- converting the multiplied spread spectrum signal into the frequency domain providing a received signal with a phase information portion and a magnitude information portion;
- removing interference from the magnitude information portion by applying a prestored function of the repeating noise sequence to the magnitude information portion; and
- extracting substantially interference free data from the phase information portion.

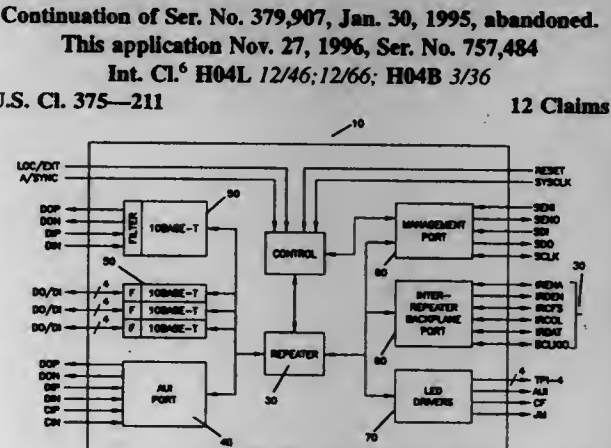
5,671,248
SPREAD SPECTRUM COMMUNICATION EQUIPMENT
 Kising Chau, Chiba, and Yoshimi Takahashi, Tokyo, both of Japan, assignors to Uniden Corporation, Chiba, Japan
 Filed Dec. 14, 1994, Ser. No. 355,773
 Claims priority, application Japan, Apr. 21, 1994, 6-105011
 Int. Cl.⁶ H04J 11/00; H04B 1/06; 5/00; 7/00
 U.S. Cl. 375—208



1. A spread spectrum communication equipment comprising: a correlator for detecting a correlation between a received PN code include in a received signal and an internally provided reference PN code, and, in response, outputting a correlation output signal;

- a timing generator for generating at least one timing signal in response to a correlation peak value existing in said correlation output signal;
- a plurality of detectors each detecting information of said correlation output signal based on one of said timing signals generated by said timing generator;
- a plurality of ID checking means each receiving information detected by said detector and checking whether the information coincides with a previously stored ID code;
- a demodulator for receiving and demodulating output signals of said plurality of detectors;
- a switch provided between said plurality of detectors and said demodulator for selecting connection or disconnection between said plurality of detectors and said demodulator; and
- a controller responsive to outputs of said plurality of ID checking means for selecting connection or disconnection by said switch.

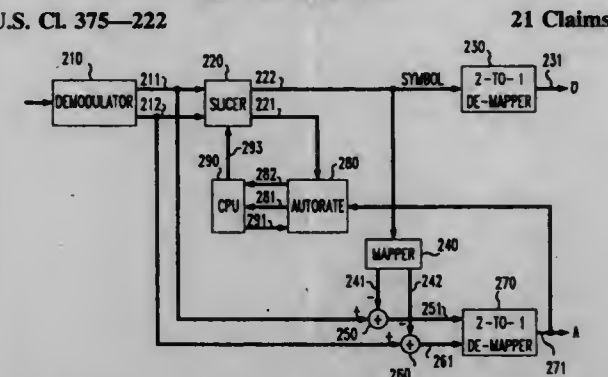
5,671,249
INTER-REPEATER BACKPLANE WITH SYNCHRONOUS/ASYNCHRONOUS DUAL MODE OPERATION
 Ralph E. Andersson, Grass Valley; Joseph E. Heideman, Orangevale; David T. Chan, Fair Oaks, and Haim Shafir, Sacramento, all of Calif., assignors to Level One Communications, Inc., Sacramento, Calif.
 Continuation of Ser. No. 379,907, Jan. 30, 1995, abandoned.
 This application Nov. 27, 1996, Ser. No. 757,484
 Int. Cl.⁶ H04L 12/46; 12/66; H04B 3/36
 U.S. Cl. 375—211



11. A method for transmitting data between a plurality of repeaters over an inter-repeater backplane bus, the method comprising the steps:

- selecting the mode of data transmission, a first mode being synchronous data transmission and a second mode being asynchronous data transmission;
- recovering data from a data packet received by a first of the plurality of repeaters;
- regenerating a preamble for the recovered data;
- framing the recovered data;
- providing a system timing signal;
- transmitting the recovered data synchronously with respect to the system timing signal from the first repeater to a second repeater for retransmission in response to the first mode of data transmission being selected, the data being retransmitted by the second repeater synchronously with the system timing signal; and
- transmitting the recovered data from the first repeater to the second repeater for retransmission by the second repeater according to an independent repeater clock in response to the second mode of data transmission being selected, the second repeater retiming the data to the independent repeater clock before retransmission by the second repeater.

5,671,250
AUTORATE METHOD FOR SIMULTANEOUS TRANSMISSION OF VOICE DATA
 Gordon Bremer; Kenneth David Ko, both of Clearwater; Luke J. Smithwick, New Port Richey, and Edward Sigmund Zuranski, Largo, all of Fla., assignors to Paradyne Corporation, Largo, Fla.
 Continuation of Ser. No. 76,525, Jun. 14, 1993, abandoned.
 This application Dec. 8, 1994, Ser. No. 352,297
 Int. Cl.⁶ H04L 5/16
 U.S. Cl. 375—222

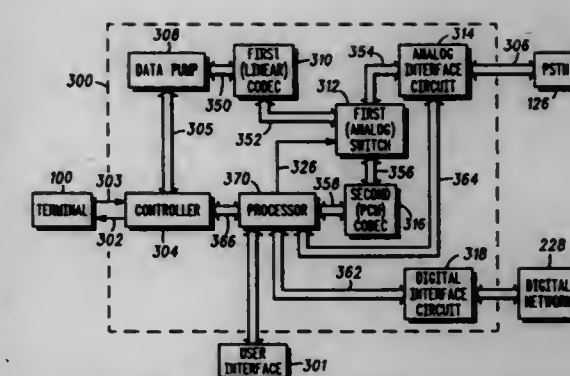


1. A method for autorating for use in data communications equipment, where the data communications equipment is coupled to a distant endpoint through a communications channel, the method comprising the steps of:

- receiving a signal from the communications channel, where the signal represents a sequence of signal points;
- generating an error signal that is a function of the difference between each one of the received sequence of signal points and a respective one of a number of signal points from a signal space;
- evaluating the error signal during at least one time interval to provide an estimate of the ambient noise of the communications channel, where the occurrence of the at least one time interval is a function of an enabling signal;
- changing the data bit rate over the communications channel as a function of said ambient noise estimate; and
- wherein the received signal includes portions of a data signal and a voice signal, and the enabling signal is an estimate of the presence of the voice signal in any time interval in such a way that the error signal is evaluated only when the enabling signal provides an estimate that the voice signal is not present.

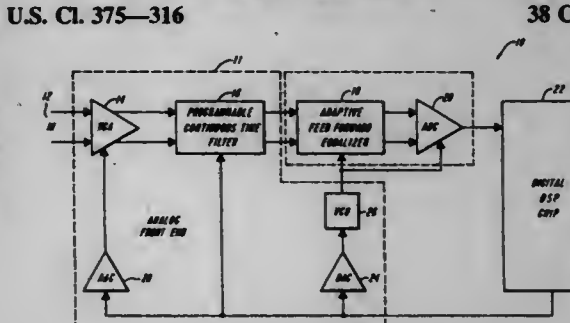
5,671,251
APPARATUS AND METHOD FOR A DATA COMMUNICATIONS DEVICE TO SELECTIVELY OPERATE AS AN ANALOG MODEM, AS A DIGITAL MODEM, AND AS A TERMINAL ADAPTER
 Steven R. Blackwell; John Timothy Pearson, both of Huntsville, Ala., and C. C. Fridlin, Boca Raton, Fla., assignors to Motorola, Inc., Schaumburg, Ill.
 Filed Feb. 28, 1995, Ser. No. 395,332
 Int. Cl.⁶ H04L 1/22; H04B 1/38
 U.S. Cl. 375—222

33. A method of selectively operating a data communications device in a digital operating mode or in an analog operating mode, the digital operating mode or the analog operating mode having been selected to form the selected operating mode, the data communications device coupleable to a terminal and to a communications network of a plurality of communications networks for transferring data between the terminal and the communications network, the plurality of communications networks including a digital communications network and an analog communications network, the method comprising:

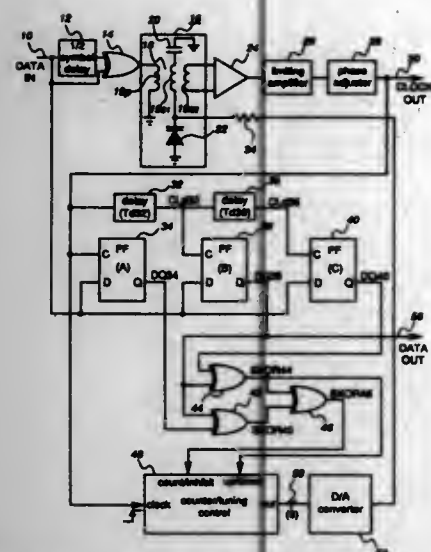


- (a) transferring data between the terminal and the data communication device to form received data;
- (b) modulating the received data to form an analog modem signal;
- (c) routing the analog modem signal to the analog communications network when the selected operating mode is the analog operating mode; and
- (d) digitally encoding the analog modem signal and routing the digitally encoded analog modem signal to the digital communications network when the selected operating mode is the digital operating mode.

5,671,252
SAMPLED DATA READ CHANNEL UTILIZING CHARGE-COUPLED DEVICES
 Janos Kovacs, N. Andover, and Scott C. Munroe, Carlisle, both of Mass., assignors to Analog Devices, Inc., Norwood, Mass.
 Filed Sep. 21, 1994, Ser. No. 310,050
 Int. Cl.⁶ H04L 27/06
 U.S. Cl. 375—316



- 1. A sampled data read channel for use in a data processing device, comprising:
- analog signal processing circuitry operable for receiving data in the form of an input analog signal, and preconditioning said input signal in accordance with selected parameters so as to generate a preconditioned analog input signal;
- a first charge transfer device (CTD) signal equalizer which initially transforms said preconditioned analog input signal into a corresponding charge domain analog signal, said first CTD performing waveform shaping of said charge domain analog signal in accordance with a predetermined signal response template;
- a second CTD analog-to-digital converter operable for converting said charge domain analog signal into a corresponding digital signal; and
- a digital signal processor operable for recovering a digital bit stream from said digital signal which is indicative of said data.



means for providing a digital signal in response to the incoming signal, the frequency of said digital signal being the clock frequency;

a resonant circuit for oscillation at a variable frequency in response to said digital signal;

output means, coupled to said resonant circuit, for deriving a clock output signal from said resonant circuit; and

control means for controlling the oscillation frequency of said resonant circuit, thereby making the oscillation frequency higher or lower in a case where the clock output signal is delayed or advanced with reference to a desired timing.

5,671,260

DIGITAL PROCESSING APPARATUS USING TWO SYNCHRONIZATION SIGNALS

Elji Yamauchi, Katano; Kiyokazu Hashimoto, Matsubara; Hidemi Oka, Hirakata; Takao Kashiro, Kadoma; Iwao Hidaka, Higashiosaka, and Yoshiki Yamamoto, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

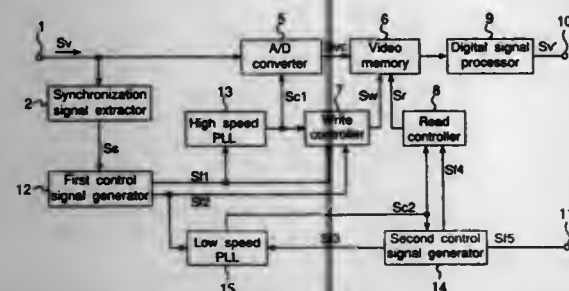
Filed Sep. 27, 1995, Ser. No. 534,512

Claims priority, application Japan, Sep. 28, 1994, 6-232890; Dec. 16, 1994, 6-313215; Mar. 27, 1995, 7-067740

Int. Cl.⁶ H04L 7/00; 5/04; 9/44

U.S. Cl. 375—372

13 Claims



8. A digital processing apparatus for processing an analog source signal including a first synchronization signal having a first predetermined frequency and a second synchronization signal having a second predetermined frequency smaller than said first predetermined frequency comprising:

a clock signal generation means for generating a first clock signal and a second clock signal whose respective phases are locked on said first synchronization signal and on said second synchronization signal, respectively;

an analog to digital convertor means for sampling said analog source signal with respect to said first clock signal to generate a digitized source signal;

a memory means for storing at least one field of said digitized source signal;

a write control means for controlling said memory means, to store said digitized source signal, based on said first synchronization signal and said first clock signal; and

a read control means for controlling said memory means, for reading said stored digitized source signal from said memory means, based on said second synchronization signal and said second clock signal.

5,671,261

METHOD AND APPARATUS FOR ATTACHING A LIFTING BAR TO A LOAD BEARING WATER ROD IN A NUCLEAR FUEL ASSEMBLY

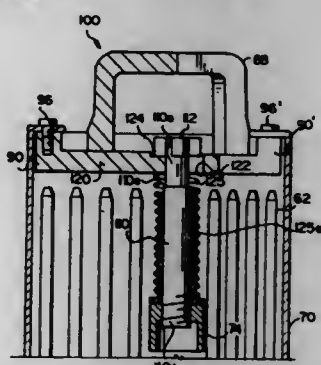
Christian D. Frederickson, Wilmington, N.C., assignor to General Electric Company, Schenectady, N.Y.

Filed Mar. 19, 1996, Ser. No. 616,477

Int. Cl.⁶ G21C 3/33

U.S. Cl. 376—446

19 Claims



13. A fuel assembly for a boiling water nuclear reactor, comprising:

a water rod;

a plurality of fuel rods surrounding said water rod;

a lifting assembly removably secured to said water rod, the lifting assembly comprising:

a connecting member rigidly secured to said water rod and including a connecting member engaging portion, said connecting member engaging portion having one of a male engaging portion and a female receiving portion, and

a lifting member positively and axially engageable with said connecting member and including the other of the male engaging portion and the female receiving portion shaped corresponding to said connecting member engaging portion, wherein said positive engagement is effected by the corresponding shapes of said male engaging portion and said female receiving portion; and

a channel surrounding said water rod, said fuel rods, and said lifting assembly.

5,671,262

METHOD FOR COUNTING AND DISPENSING TABLETS, CAPSULES, AND PILLS

Joseph H. Boyer, and James P. Boyer, both of Johnson City, N.Y., assignors to Innovation Associates, Inc., Johnson City, N.Y.

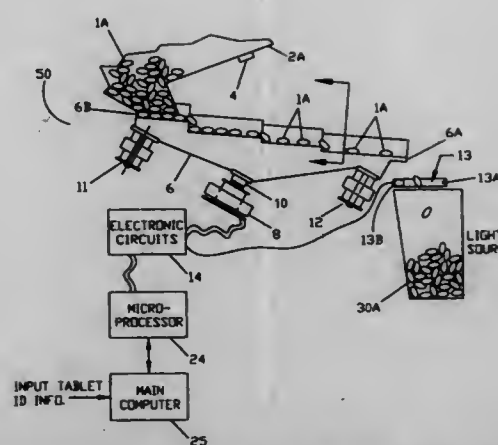
Filed May 6, 1996, Ser. No. 643,676

Int. Cl.⁶ G06M 11/04

U.S. Cl. 377—11

11 Claims

1. A processor-controlled method for counting and dispensing tablets, capsules, or pills of different sizes and shapes, the steps comprising:



- loading a platform with tablets, capsules, or pills of different sizes and shapes, said platform having an upper end for receiving said tablets, capsules or pills and a lower end for dispensing singulated tablets, capsules, or pills to a counting means;
- imparting vibratory pulses to said platform in order to cause singulation of said tablets, capsules, or pills along said platform, said vibratory pulses having parameters of vibration that are dependent upon tablet, capsule, or pill characteristics;
- supporting said platform at said upper end and said lower end with a spring constant at said upper end that is higher than the spring constant at said lower end, in order to cause said platform to vibrate more strongly at said lower end; and
- counting said tablets, capsules, or pills, as they drop from said platform one at a time.

5,671,263

MOTION ARTIFACT SUPPRESSION FILTER FOR USE IN COMPUTED TOMOGRAPHY SYSTEMS

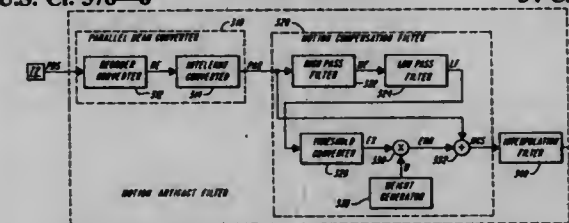
Lai Ching-Ming, Wakefield, Mass., assignor to Analogic Corporation, Peabody, Mass.

Filed Mar. 13, 1996, Ser. No. 614,623

Int. Cl.⁶ A61B 6/03

U.S. Cl. 378—8

34 Claims



1. In a computed tomography system for generating an image of a portion of an object positioned within an imaging field, the system including scanning means for generating data from a plurality of projections at a corresponding plurality of projection angles of a scan, including projection angles that are 180N degrees apart, wherein N is one or more whole integers, so as to provide at least pairs of opposing projections, an artifact suppression filter comprising:

comparison means for comparing, for each of said pairs of opposing projections, the data from opposing projections so as to determine if artifact errors exist between the two projections of each pair and providing an indication if the comparison indicates a difference between said data above a predetermined amount; and

means for adjusting the data for at least one of the opposing projections if the comparison means indicates the difference between the data is above the predetermined amount so as to compensate for such artifact errors.

21. In a computed tomography system for generating an image of an object, the system including scanning means for generating a plurality of projections at a corresponding plurality of projection

angles, each of the projections including a plurality of projection data signal measurements respectively representative of the density of mass occupying a corresponding volume of space during the measuring time associated with the projection, an artifact suppression filter comprising:

- high pass filter means, responsive to said plurality of projection data signal measurements, for generating a plurality of high frequency signal measurements, each of said high frequency signal measurements being a function of a group of the projection data signal measurements, each group of the projection data signal measurements including a first measurement and a second measurement, the volume associated with the first measurement being proximal to the volume associated with the second measurement, the first measurement being generated at a first projection angle and the second measurement being generated at a second projection angle; and
- correction means for generating a plurality of correction signal measurements, each correction signal measurement having an associated one of the projection data signal measurements and an associated one of the high frequency signal measurements, each correction signal measurement being generated by shifting its associated one projection data signal measurement by a portion of its associated high frequency signal measurement the portion increasing as the projection angle corresponding to the one associated projection data signal measurement approaches a starting angle and the portion decreasing as the corresponding projection angle approaches an intermediate angle.

5,671,264

METHOD FOR THE SPATIAL FILTERING OF THE NOISE IN A DIGITAL IMAGE, AND DEVICE FOR CARRYING OUT THE METHOD

Raoul Florent, Valenton, and Claude Mequie, Villejuif, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

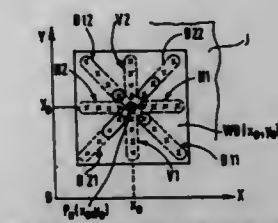
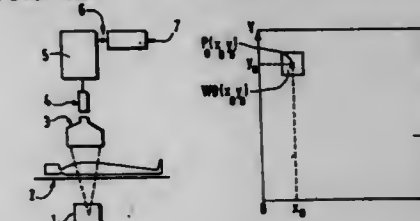
Filed Jul. 22, 1996, Ser. No. 681,100

Claims priority, application France, Jul. 21, 1995, 95 06893

Int. Cl.⁶ H05G 1/64

U.S. Cl. 378—98

20 Claims



1. A method for spatial filtering of noise in an image (I) in the form of a matrix of pixels $P(x,y)$ having noisy digitized intensity values $I(x,y)$, which method comprises the steps of:

- selection, in a sliding window $[WD(x_0,y_0)]$ centered around an instantaneous pixel, of a number $(N \neq 0)$ of random oriented elementary filters $[F_1, F_2, \dots, F_N]$ having supports with an axis of orientation axis $[P_{0Z_1}, P_{0Z_2}, \dots, P_{0Z_N}]$ passing through the instantaneous pixel and having characteristics, one or several of which have random values, and
- combination of the intensities of pixels on said supports individually, yielding an elementary intensity, and combination of the elementary intensities, yielding a filtered intensity $[R_0(x_0,y_0)]$ to be applied to the instantaneous pixel.

5,671,265 EVIDENTIAL RECONSTRUCTION OF VESSEL TREES FROM X-RAY ANGIOGRAMS WITH A DYNAMIC CONTRAST BOLUS

Keith Michael Andress, Plainsboro, N.J., assignor to Siemens Corporate Research, Inc., Princeton, N.J.

Filed Jul. 14, 1995, Ser. No. 502,353

Int. Cl.⁶ A61B 6/03

U.S. Cl. 378—98.11

20 Claims

1. A system for evidential reconstruction of vessel trees from x-ray angiograms with a dynamic contrast bolus comprising: x-ray angiographic equipment means capable of producing x-ray angiograms; and, computer means connected to said x-ray angiographic equipment means; wherein said computer means comprises: acquisition means connected to said x-ray angiographic equipment means; reconstruction means connected to said acquisition means; and, display/measurement means connected to said reconstruction means.

5,671,266 X-RAY EXAMINATION APPARATUS

Claus Linhart, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

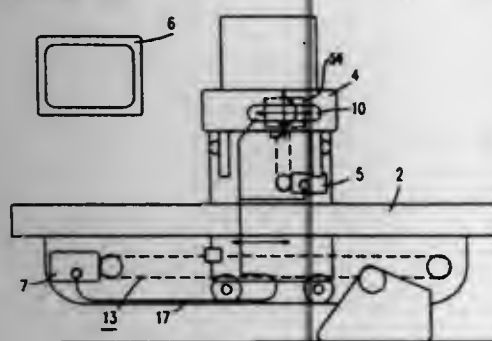
Filed Sep. 15, 1995, Ser. No. 529,183

Claims priority, application Germany, Sep. 16, 1994, 44 33 036.7

U.S. Cl. 378—175

Int. Cl.⁶ G03B 42/04

12 Claims



12. An X-ray examination apparatus comprising a patient table and an X-ray spotfilm device which is moveable relative to the patient table to and fro in each of first and second spatial directions, corresponding to at least four feasible directions of movement, as well as sensors which can be activated by an operating grip of the X-ray spotfilm device in order to activate one or more servomotors of the X-ray spotfilm device, wherein the sensors are arranged relative to the operating grip in such a manner that when a force is applied to the operating grip in different ones of the at least four feasible directions of movement, a different combination of at least two of the sensors is activated for each of the at least four feasible directions of movement, and wherein the sensors are constructed as foil pressure sensors.

5,671,267 INTERACTIVE SYSTEM FOR COMMUNICATIONS BETWEEN A CORDLESS TELEPHONE AND A REMOTELY OPERATED DEVICE

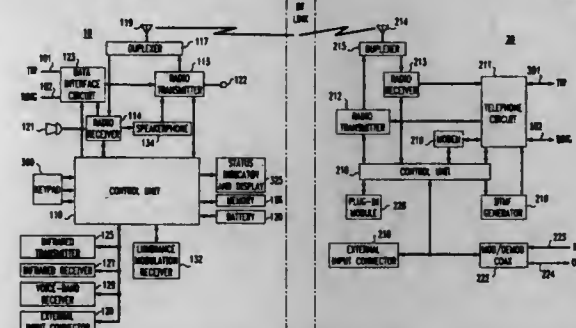
Katherine Grace August, Matawan; Charles David Caldwell, Cliffwood Beach; Anthony James Grewe, Holmdel; Steven M. Herbst, Bernardsville; Howard M. Singer, Marlboro, and Theodore Sizer, II, Little Silver, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 30, 1994, Ser. No. 367,409

Int. Cl.⁶ H04Q 7/32

U.S. Cl. 379—61

23 Claims



1. In a cordless telephone, a handset unit for communicating with a base unit connectable to a telephone line, the handset unit communicating with the base unit over a telecommunication channel and comprising: means for establishing communications with said base unit for two-way transmission of voice and data over the telecommunication channel; means for communicating with a remotely operated television set for receiving subliminal luminance data from a screen of said television set and for controlling the configuration of said television set; and means responsive to receipt of an incoming signal from said base unit for modifying an audio signal emanating from said remotely operated television set by a predetermined amount.

5,671,268 TELEPHONE ANSWERING MACHINE

Jean-Luc Flipo, Bry sur Marne, France, assignor to France Telecom, Paris, France

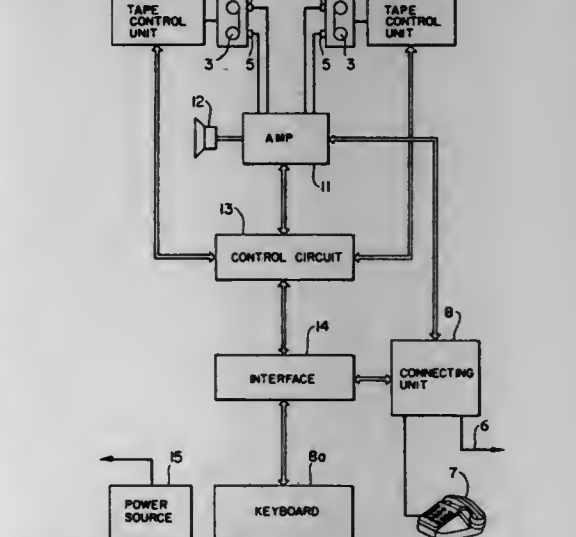
Filed Apr. 12, 1995, Ser. No. 422,543

Claims priority, application France, Apr. 12, 1994, 94 04319

Int. Cl.⁶ H04M 1/64

U.S. Cl. 379—68

15 Claims



1. A telephone answering machine comprising:

at least two tapes, a first of the two tapes for recording a subscriber's outgoing universal message (OGM) to all callers and a second of the two tapes for recording callers' sequential incoming messages from callers; control means for detecting a tone code defined by, chosen, and selectively entered by a caller in conjunction with recording one of the messages as a message from the caller; means for rewinding the second tape and playing back the recorded caller's message to the subscriber; keyboard means enabling the subscriber to input the code and record a response to the recorded caller's message on the first tape along with the universal message; the control means detecting the code being re-entered by the caller if the caller has called again in search of the response recorded by the subscriber which corresponds to the code; the control means further searching for the code in the first tape in conjunction with the response recorded by the subscriber in response to the caller having re-entered the code; and the rewinding and playback means playing back to the caller only the response recorded by the subscriber which corresponds to the code.

5,671,269 TELEPHONE COMMUNICATION APPARATUS INCLUDING REPLY APPARATUS FOR RESPONDING TO AN INCOMING TELEPHONE CALL

Alistair Egan, Orndard, Calif., and Thomas S. Tullis, Easton, Mass., assignors to Canon Kabushiki Kaisha, Tokyo, Japan

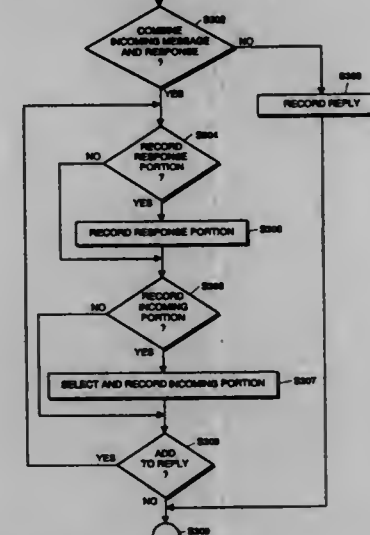
Continuation of Ser. No. 317,464, Oct. 4, 1994, abandoned.

This application Sep. 27, 1996, Ser. No. 720,071

Int. Cl.⁶ H04M 1/64; 1/27; 1/57

U.S. Cl. 379—88

39 Claims



1. A telephone communication apparatus comprising: computing equipment programmed to permit a user to send and receive telephone calls over a telephone line; a call detector connected to said computing equipment for detecting, on the telephone line, an incoming telephone call which includes at least an incoming voice message from a remote terminal having a telephone number associated with the remote terminal; a communication board connected to said computing equipment and responsive to program control from said computing equipment, said computing equipment being responsive to detection of the incoming telephone call by said call detector to connect the telephone line to said computing equipment; recording means for recording a reply message which includes at least a reply voice message from the user, wherein the user controls said recording means to record the reply message by selectively retrieving from a storage means portions of the

incoming voice message such that the retrieved portions of the incoming voice message are interleaved in the recorded reply message with the recorded reply voice message from the user, said computing equipment including a data storage means, a processor for receiving the incoming telephone call and recording the telephone number of the remote terminal in said data storage means without intervention by the user at said apparatus, and a reply apparatus for sending a reply telephone call including the recorded reply message to the remote terminal in accordance with the recorded telephone number; and designating means, operative by the user after termination of the incoming telephone call, for designating a reply time, wherein said reply apparatus is adapted to send the reply telephone call at the reply time.

5,671,270 COMMUNICATION APPARATUS HAVING OPTIONAL PROCEDURE SIGNAL FUNCTIONALITY

Takehiro Yoshida, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

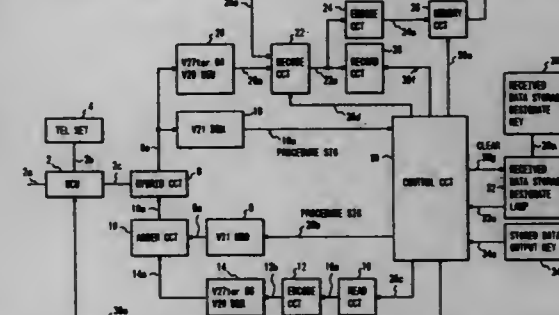
Filed Mar. 23, 1995, Ser. No. 409,053

Claims priority, application Japan, Mar. 24, 1994, 6-078025; May 12, 1994, 6-123127; Jun. 21, 1994, 6-162753; Jun. 21, 1994, 6-162754

Int. Cl.⁶ H04M 11/00

U.S. Cl. 379—100

65 Claims



1. A communication apparatus having a first procedure function for communicating a plurality of standard procedure signals and a second procedure function for communicating a plurality of optional procedure signals, said apparatus comprising: reception means for receiving, from a destination, a first standard procedure signal indicating that the destination has the second procedure function; and transmission means responsive to the first standard procedure signal for transmitting, to the destination, a second standard procedure signal including information indicating communication of the optional procedure signals, and a first optional procedure signal for the second procedure function.

5,671,271 DIALER PROGRAMMING SYSTEM AND DEVICE WITH INTEGRATED PRINTING PROCESS

Daniel A. Henderson, 623 40th Ave., San Francisco, Calif. 94121, and Darren Townsley, 20 Cedar Pointe Loop, #211, San Ramon, Calif. 94583

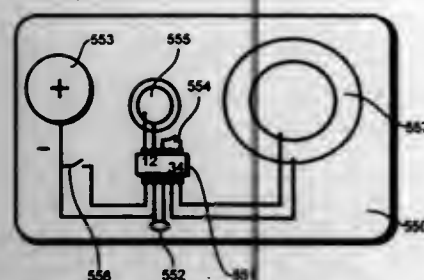
Filed May 25, 1995, Ser. No. 450,518

Int. Cl.⁶ H04M 1/00

U.S. Cl. 379—355

11 Claims

1. An autodialer and printing/programming system, comprising: an autodialer, including: (a) a housing, including at least one planar surface; (b) a DTMF generation circuit located within said housing; (c) an audio output device coupled to said DTMF generation circuit for receiving signals therefrom and generating audible dial tones;



- (d) operator-actuable means for initiating the successive generation of:
- (1) a uniform DTMF access number, and
 - (2) a unique DTMF account number; and
- a combination printing/programming system, including:
- (a) means for programming said autodialer with said uniform DTMF access number;
 - (b) means for imprinting said at least one planar surface of said autodialer with at least variable data; and
 - (c) means for automatically confirming accurate programming of at least said unique DTMF account number.

5,671,272

CURRENT MODE RING TRIP DETECTOR

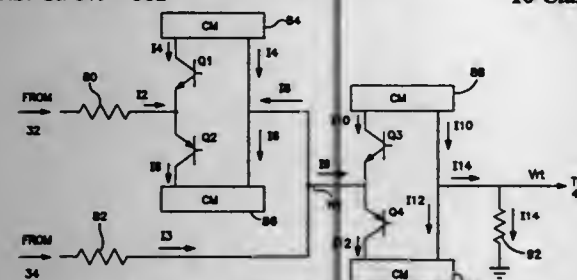
Gerald Michael Cotreau, Melbourne, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed Jan. 30, 1995, Ser. No. 380,409

Int. Cl.⁶ H04M 3/02

U.S. Cl. 379—382

16 Claims



1. A circuit for sensing when a telephone has been answered in a telephone system in which an answer is indicated when a dc component of a ring signal across a resistor exceeds a reference current, the circuit comprising:

- combining means for combining first and second currents sensed at first and second terminals of the resistor to provide a third current that includes the dc component;
- filter means for separating the dc component from said third current so that the dc component can be compared to the reference current; and
- means for clamping one of said first and second currents to ground when the ring signal is present and a telephone is not being rung.

5,671,273

NETWORK INTERFACE DEVICE HAVING SWITCH

Todd C. Lanquist, Watauga, Tex., assignor to Siecor Corporation, Hickory, N.C.

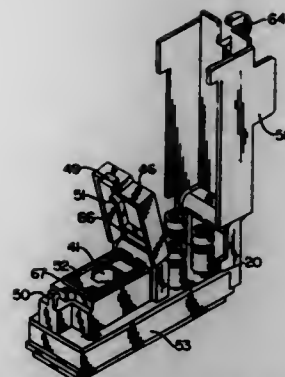
Division of Ser. No. 111,323, Aug. 23, 1993, Pat. No. 5,414,765. This application Dec. 27, 1994, Ser. No. 364,159

Int. Cl.⁶ H04M 1/00; H01R 13/52

U.S. Cl. 379—399

5 Claims

1. A sealed jack comprising:
- a jack having a jack opening sized to receive a plug therein, the jack having a top surface around the jack opening;
- a rib around the jack opening that extends upward from the top surface of the jack;



- a repeatedly closable jack door removably attachable to the jack to close over the jack opening and the rib, the jack door having an underside; and
- a perimeter seal disposed on the underside of the jack door and about the perimeter of the door to correspond to the location of the rib on the jack such that when the door is closed over the jack and rib, the rib contacts the seal to provide a seal around the jack opening.

5,671,274

LID MECHANISM FOR ELECTRONIC EQUIPMENT OR THE LIKE

Hiroshi Kotaka, Chiba, Japan, assignor to Sony Corporation, Japan

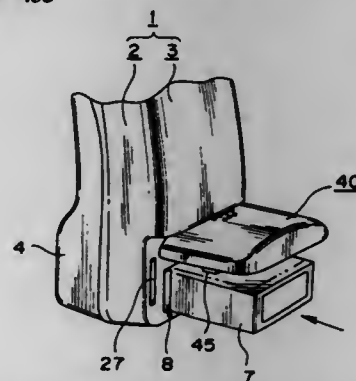
Filed Aug. 30, 1995, Ser. No. 521,408

Claims priority, application Japan, Sep. 9, 1994, 6-215696

Int. Cl.⁶ H04M 1/00

U.S. Cl. 379—433

13 Claims



1. A lid mechanism for a telephone device including a casing having a housing section, an aperture communicating with the housing section, and a lid for closing the aperture, comprising:
- a linear guide and stop means provided on the inner surfaces of the casing; the stop means having first and second stop means the lid for opening or closing the aperture, said lid being movable along a guide direction of said linear guide;
- catch means for holding said lid in a closed position, said catch means having an engagement portion provided on one of said lid and the casing, and a mating engagement portion provided on the other of the casing and the lid, respectively; and
- a slide member concealingly enclosed within the casing, said slide member having a first end and a second end, said slide member sliding along said linear guide between a first fully retracted position and a second fully extended position wherein the second end of the slide member is extend beyond a portion of the casing, said slide member respectively engaging the first and second stop means in the first and second positions; wherein
- said lid is pivotally connected to the second end of said slide member and is moved, in response to said slide member sliding along the linear guide from the first fully retracted position to the second fully extended position, from the closed position in which the lid closes the aperture and wherein the

engagement portion and the mating engagement portion are engaged with each other, to an open position wherein engagement between the engagement portion and the mating engagement portion is released and wherein said lid is pivotal about the second end of said slide member in a manner which uncovers the aperture, said slide member bearing against said second stop means in the second position.

5,671,275

PROTECTION OF SOFTWARE PROGRAMS STORED IN READ-ONLY MEMORY FROM UNAUTHORIZED ACCESS

Hiroshi Ezuriko, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

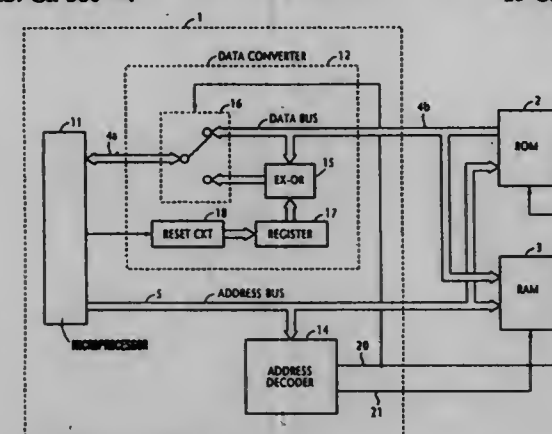
Filed Apr. 28, 1995, Ser. No. 430,375

Claims priority, application Japan, Apr. 28, 1994, 6-111675

Int. Cl.⁶ H04L 9/00

U.S. Cl. 380—4

15 Claims



1. A controller comprising a microprocessor;
- a read-only memory for storing converted program data words; and
- a data converter connected between said microprocessor and said read-only memory, said data converter including a register storing a predetermined keyword for reconvert the converted program data words from the read-only memory according to the stored predetermined keyword into a replica of original program data words which can be processed by the microprocessor, wherein said data converter provides said replica of original program data words to said microprocessor for operating said controller.

5,671,276

METHOD AND APPARATUS FOR IMPULSE PURCHASING OF PACKAGED INFORMATION SERVICES

Mark K. Eyer, San Diego, and Allen Shumate, Poway, both of Calif., assignors to General Instrument Corporation of Delaware, Chicago, Ill.

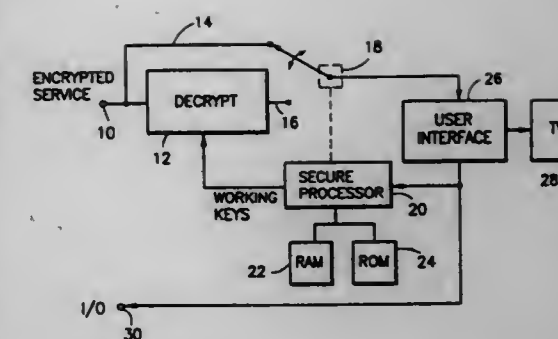
Filed Jul. 21, 1995, Ser. No. 493,364

Int. Cl.⁶ H04L 9/00; H04N 7/16

U.S. Cl. 380—4

22 Claims

13. Receiver apparatus for allowing consumers to purchase individual information services or packages comprising selected ones of said services via an information network on an impulse basis, said selected services being associated with a cryptographic key, said apparatus comprising:
- interface means for allowing a consumer to purchase at least one of said individual services and said packages of services;
- means responsive to said interface means for opening a package record upon the purchase of one of said packages, said package record containing data that is unique to said purchased package;



- said package record including at least a portion of a cryptographic package key; and
- secure processor means responsive to (i) said interface means, (ii) said package record and (iii) access data communicated with said desired service, for providing access to services available via said purchased package only during a defined time period over which said package is valid and on a conditional basis according to at least a portion of said associated cryptographic key and said portion of said cryptographic package key.

5,671,277

IMAGE FORMING APPARATUS AND COPY MANAGEMENT SYSTEM

Yoshikazu Ikenoue, Hideo Kumashiro, and Munehiro Nakatani, all of Toyohashi, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 84,408, Jun. 29, 1993, abandoned.

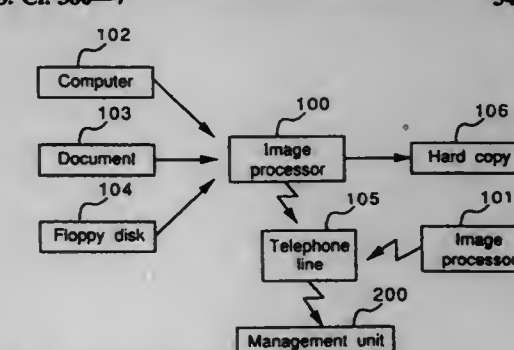
This application Oct. 21, 1994, Ser. No. 327,223

Claims priority, application Japan, Jun. 30, 1992, 4-172617; Jun. 30, 1992, 4-172621; Jun. 30, 1992, 4-172659; Jun. 30, 1992, 4-172672; Jun. 30, 1992, 4-172680

Int. Cl.⁶ H04N 7/16; H04L 9/00

U.S. Cl. 380—7

54 Claims



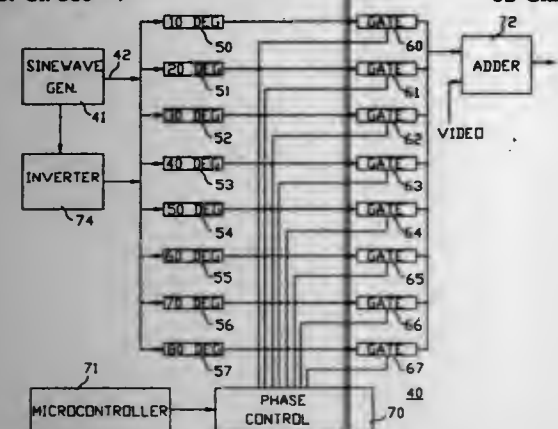
40. A copy management system comprising:
- a printer for producing a copy; and
- a management device which manages a situation of copies produced by said printer;
- said printer comprising:
- an image reader which reads a copy of a document, the copy being formed of data including image data of the document and additional data embedded in the image data of the document, the additional data comprising a plurality of pixels having a density different from pixels of said image data and embedded in said image data in a prescribed format to indicate information by distances between pixels of said plurality of additional data pixels, said additional data including data which indicates a starting position of said additional data embedded in said image data;
- an extraction device which extracts the additional data from the image data read by said image reader; and
- an image forming device which forms an image according to the image data read by said image reader,

said management device storing the additional data extracted by said extraction device and managing said printer according to the additional data.

5,671,278
VIDEO SCRAMBLING WITH VARIABLE FUNCTION GENERATOR
H. George Pires, 47H Valley Rd., Hampton, N.J. 08827
Filed May 19, 1995, Ser. No. 444,850
Int. Cl.⁶ H04N 7/167

U.S. Cl. 380-7

32 Claims



1. A system for supplying video information contained in a video signal from a sending station exclusively to a receiving station authorized to receive the video information, the system comprising:

a scrambling system, coupled at an input thereof to the sending station for receiving the video signal, for distorting at least a portion of the video signal to produce a distorted video signal which is distorted in accordance with a selected one of a plurality of distortion modes, each distortion mode corresponding to a respective one of a plurality of predetermined angular phase variations of a predetermined video distortion characteristic to produce a corresponding distortion in said distorted video signal;

security code encoder means coupled to said scrambling system for encoding in a portion of the video signal security data which identifies said selected one of said plurality of distortion modes being applied to the video signal to produce said distorted video signal;

security code decoder means coupled to the receiving station for decoding said video signal security data; and

a descrambling system, coupled to the receiving station for receiving the distorted video signal and to said security code decoder means, for restoring the video signal in response to said video signal security data received from said security code decoder means, whereby said selected one of said plurality of distortion modes is reversed to produce a corresponding correction in said distorted video signal.

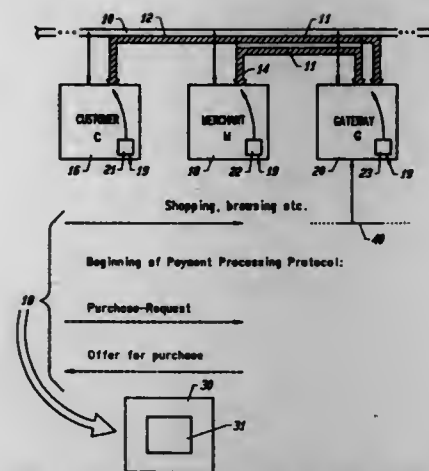
5,671,279
ELECTRONIC COMMERCE USING A SECURE COURIER SYSTEM
Taher Elgarni, Palo Alto, Calif., assignor to Netscape Communications Corporation, Mountain View, Calif.
Filed Nov. 13, 1995, Ser. No. 555,976
Int. Cl.⁶ H04K 1/00

U.S. Cl. 380-23

36 Claims

1. A system for implementing electronic commerce over a public network, comprising:

a secure transport layer including a channel security mechanism comprising a keyed message digest computation, wherein said secure transport layer supports data privacy and integrity for



communications between any two network nodes, such that two secure channels are provided, where there is one channel between a customer and a merchant and another channel between said merchant and an acquirer gateway such that said merchant and said acquirer are authenticated to each other and to said customer; and

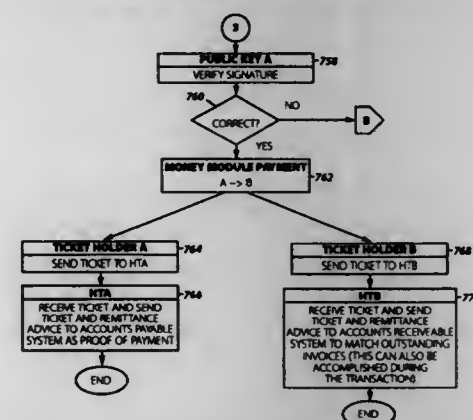
a secure courier message for implementing an electronic payment protocol that provides at least any of signature, non-repudiation, and secondary encryption terms wherein node-to-node authentication, privacy, and data integrity are automatically achieved by said secure transport layer.

5,671,280
SYSTEM AND METHOD FOR COMMERCIAL PAYMENTS USING TRUSTED AGENTS
Sholom S. Rosen, New York, N.Y., assignor to Citibank, N.A., New York, N.Y.
Filed Aug. 30, 1995, Ser. No. 521,262
Int. Cl.⁶ H04L 9/00

U.S. Cl. 380-24

16 Claims

Commercial Money Module Payment (Cont.)



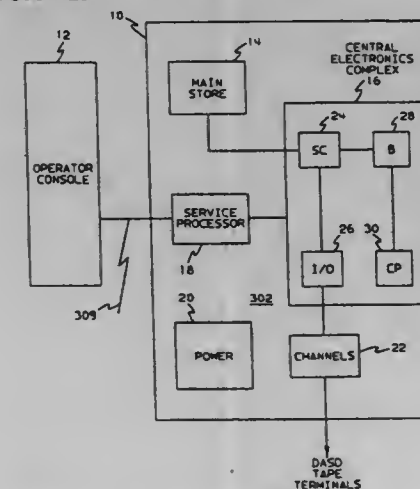
1. A system for electronic commercial payment comprising:
a customer trusted agent;
a first money module associated with said customer trusted agent that securely communicates with said customer trusted agent;
a merchant trusted agent that establishes a first secure session with said customer trusted agent by using cryptographic means;
a second money module associated with said merchant trusted agent that securely communicates with said merchant trusted agent, and that establishes a second secure session with said first money module by using cryptographic means;
where said customer trusted agent provides a remittance advice information signal to said merchant trusted agent, and said

merchant trusted agent provides a commercial payment ticket signal to said customer trusted agent;
where upon receiving said commercial payment ticket signal, said customer trusted agent initiates a transfer of electronic money from said first money module to said second money module.

5,671,281
SELF MODIFYING ACCESS CODE FOR ALTERING CAPABILITIES
John Edward Campbell, Hurley, N.Y.; Michael James Chan, Raleigh, N.C.; Steven Frank Hajek, West Hurley, and Paul Leonard Wiltgen, Hurley, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 85,216, Jun. 30, 1993, Pat. No. 5,365,587, which is a continuation-in-part of Ser. No. 29,856, Mar. 11, 1993, abandoned. This application Aug. 10, 1994, Ser. No. 288,100
Int. Cl.⁶ H04L 9/32; 9/00

U.S. Cl. 380-25

36 Claims



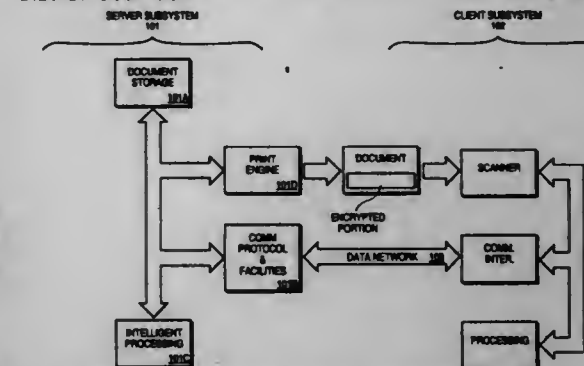
36. A method for altering the parameters of a data processing system, comprising the steps of:

entering an access code and an initial parameter code to a secure portion of said data processing system, said initial parameter code defining a plurality of parameters for said system;
entering an access attempt code to said system;
initializing an access attempt counter value to a zero value;
transmitting a unique identification signal and a function code to said system;
comparing said access attempt counter value to said access attempt code and, if said access attempt counter value is less than said access attempt code, performing the steps of:
i) comparing said unique identification information signal to said access code;
ii) altering a predetermined sub-plurality of said plurality of parameters based on said function code if there is a match between said unique identification information and said access number and, if there is not a match then incrementing said access counter value then
iii) repeating said step of transmitting and said comparing said access attempt counter value to said access attempt code and, if said access attempt counter value is less than said access attempt code, performing the steps (i)-(iii).

5,671,282
METHOD AND APPARATUS FOR DOCUMENT VERIFICATION AND TRACKING
Gregory J. Wolff, Mountain View; David G. Stork, Stanford, and K. Venkatesh Prasad, Cupertino, all of Calif., assignors to Ricoh Corporation, Menlo Park, Calif., and Ricoh Company, Ltd., Japan
Filed Jan. 23, 1995, Ser. No. 376,861
Int. Cl.⁶ H04L 9/00

U.S. Cl. 380-25

30 Claims

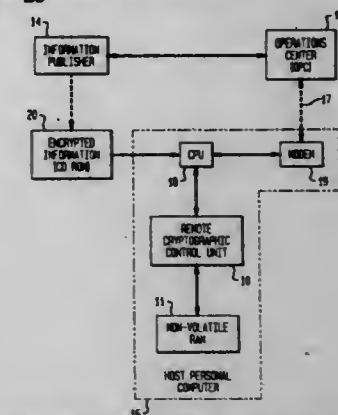


1. A document processing system comprising:
a server subsystem storing an electronic version of information corresponding to a document containing human readable information and machine readable information that corresponds, at least in part, to the human readable information;
a client subsystem that scans both the human readable information and the machine readable information in response to receipt of the document and interprets the machine readable information, wherein the client subsystem uses information in the document to contact the server subsystem to request verification of information in the document; and
a communications network coupled to the server subsystem and the client subsystem for exchanging information therebetween,
wherein the server subsystem verifies the information on the document based on a comparison between a portion of the information on the document provided by the client subsystem and the electronic version and, thereafter provides an authentication indication to the client subsystem once verification has been concluded.

5,671,283
SECURE COMMUNICATION SYSTEM WITH CROSS LINKED CRYPTOGRAPHIC CODES
John R. Michener, Neshanic Station, and Gregory J. Kazmierczak, Plainsboro, both of N.J., assignors to Wave Systems Corp., New York, N.Y.
Filed Jun. 8, 1995, Ser. No. 488,624
Int. Cl.⁶ H04L 9/00; 9/06

U.S. Cl. 380-25

44 Claims



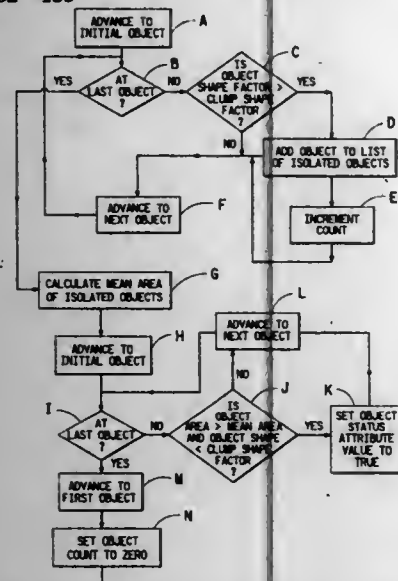
23. In a cryptographic communication system including first and second terminals, said first and second terminals being connected

setting a belt area along the lane which encompasses the aimed bands of biopolymer;
 scanning the belt area a plurality of times in directions crossing the lane with sufficiently small spacing so as to scan every band present within the belt area, said scanning being performed on the digital data and said directions being in parallel with each other, to detect relationships of location and density on the digital data in the direction of the lane within the belt area;
 preparing one dimensional data showing location and density of a series of the bands in the direction of the lane; and
 determining location and density of the aimed bands from the one dimensional data.

5,671,290
METHOD AND SYSTEM OF SEPARATELY IDENTIFYING CLUMPED HOMOGENEOUS OBJECTS IN AN IMAGE

Akhileswar Ganesh Vaidyanathan, Hockessin, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del. Division of Ser. No. 767,339, Sep. 27, 1991, Pat. No. 5,481,620. This application Jul. 29, 1994, Ser. No. 283,482

Int. Cl. G06K 9/00
 U.S. Cl. 382-133 29 Claims



1. A method of separately identifying each clumped homogeneous object in an image comprising at least one clump of homogeneous objects, comprising the steps of:

- identifying at least one candidate clump, wherein the candidate clump has an area greater than a first predetermined area of an isolated homogeneous object and a shape factor less than a predetermined clump shape factor;
- creating a distance buffer, wherein the distance buffer comprises a plurality of distance values representing the distance of each perimeter point of the candidate clump to the center of mass of the candidate clump, the distance values including a plurality of peaks and valleys;
- searching the buffer for a first valley using a hysteresis-based, valley-finding algorithm;
- shifting the distance buffer by a distance equal to the distance to the first valley from a first distance value as defined by a first predetermined point on the perimeter of the candidate clump;
- counting the number of peaks in the shifted buffer using a hysteresis-based, peak-finding algorithm to calculate a first value for the number of homogeneous objects in the clump; and
- associating each perimeter point corresponding to a given peak in the shifted distance buffer with a homogeneous object

in the clump, thereby separately identifying each homogeneous object in the image.

5,671,291
PROCESS AND DEVICE FOR CHARACTER RECOGNITION, IN PARTICULAR FOR STANDARDIZED CHARACTER TYPE E-13B

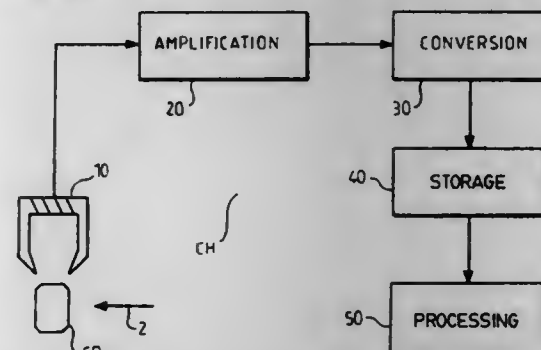
Jean-Philippe Ruault, Versailles, and Richard Besson, Voisin Le Bretonneux, both of France, assignors to Dassault Automatismes et Telecommunications, Plaisir Cedex, France

Filed Jan. 27, 1995, Ser. No. 379,783

Claims priority, application France, Feb. 3, 1994, 9401232

Int. Cl. G06K 9/00

U.S. Cl. 382-139 10 Claims



I. A method for character recognition comprising the steps of:

- in a learning phase:
 - scanning K reference characters for obtaining K waveforms which are respectively representative of the K reference characters;
 - sampling the K waveforms at a predetermined sampling frequency for obtaining N sampled signals for each of the K reference characters;
 - determining a numerical value corresponding to an amplitude for each of the N sampled signals of each of the K reference characters;
 - storing the numerical values corresponding to the respective amplitudes of each of the N sampled signals of each of the K reference characters;

in a storage phase:

- scanning a character to be recognized for obtaining a waveform which is representative of the character to be recognized;
- sampling the waveform representing the character to be recognized at the predetermined sampling frequency for obtaining N sampled signals of the character to be recognized;
- determining a numerical value corresponding to an amplitude of each of the N sampled signals of the character to be recognized;
- storing the numerical value corresponding to the amplitude of each of the N sampled signals of the character to be recognized;

in a decoding phase:

- calculating an absolute value of a difference between the numerical value for each of the N sampled signals of the character to be recognized and a corresponding numerical value of each of the N sampled signals of each of the K reference characters, for establishing K lists, each list having N absolute values and being associated with a unique reference character; and
- selecting a list from the K lists based on the absolute values of the selected list having an approximately constant value within the selected list, the character to be recognized being determined to be the reference character associated with the selected list, and

wherein the method further comprises, in the learning phase, the steps of:

assessing the numerical values of the N sampled signals of each of the K reference character signals; and
 isolating from the N assessed numerical values of each reference character at least two successive numerical values which are greater than a predetermined threshold for obtaining a decoding window for each of the K reference characters.

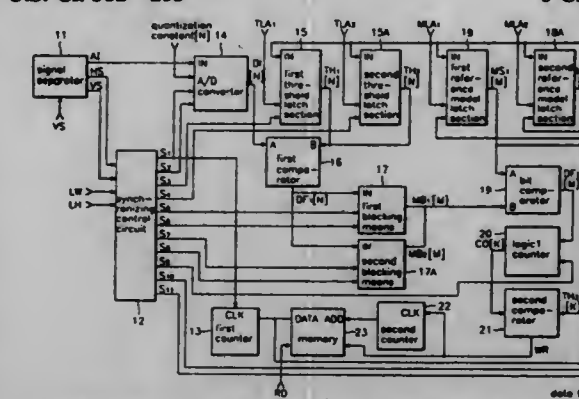
5,671,292
HIGH SPEED DIGITAL IMAGE PATTERN MATCHING CIRCUIT

Young Lee, and Nam-Soo Moon, both of Kyonggi-do, Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Rep. of Korea

Filed Jan. 7, 1995, Ser. No. 473,337

Claims priority, application Rep. of Korea, Dec. 30, 1994, 94-39526

Int. Cl. G06K 9/62
 U.S. Cl. 382-218 6 Claims



1. A high speed digital image pattern matching circuit comprising:

- a signal separator for separating an analog image signal into an analog luminance signal, a horizontal synchronization signal and a vertical synchronization signal;
- a synchronizing control circuit for generating synchronizing control signals according to the horizontal synchronization signal and the vertical synchronization signal separated by the signal separator, a frame horizontal size signal and a frame vertical size signal;
- a first counter for counting the synchronizing control signal and for generating a location value for a pattern being used for matching;
- an A/D converter for converting the analog luminance signal separated by the signal separator into a digital image signal using a quantization constant;
- a first threshold latch section and a second threshold latch section for storing and generating thresholds for modelling the digital image signal;
- a first comparator for sequentially comparing the bits of the digital image signal and the thresholds stored in the first threshold latch and the second threshold latch during one cycle of the synchronizing control signal and for generating an image modelling signal comprising the compared results sequentially generated by the first comparator;
- a first blocking means and a second blocking means for blocking the image modelling signal to have the same size as a reference model;
- a first reference model latch section and a second reference model latch section for storing and generating reference models;
- a bit comparator for performing a logical exclusive-OR function between the output signals of the first and second blocking means and the reference models of the first and second reference model latches;

a logical 1 counter for counting the number of logical 1 bits output from the bit comparator;
 a second comparator for comparing a matching threshold with the output signal of the logical 1 counter and for generating a writing control signal when the matching threshold is larger than the output signal;
 a second counter for counting the writing control signal of the second comparator; and
 a memory for storing the output signal of the first counter in an address designated by the second counter according to the writing control signal (WR).

5,671,293
PATTERN RECOGNIZING METHOD AND APPARATUS

Toru Niki, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

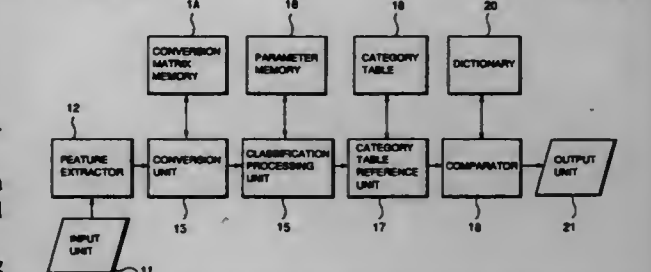
Continuation of Ser. No. 202,075, Feb. 25, 1994, abandoned.

This application Aug. 21, 1996, Ser. No. 700,828

Claims priority, application Japan, Feb. 26, 1993, 5-038208;

Feb. 10, 1994, 6-016377

Int. Cl. G06K 9/62
 U.S. Cl. 382-224 12 Claims

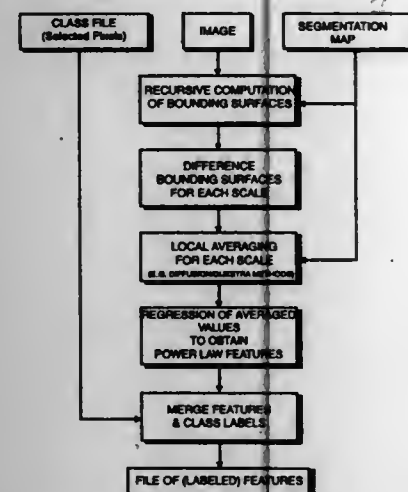


1. A pattern recognizing apparatus for selecting at least one category of pattern recognition candidates for an input pattern, the at least one category being selected from plural categories of pattern recognition candidates, the apparatus comprising:

- feature vector extracting means for extracting a feature vector of an input pattern;
- converting means for converting the feature vector into a converted feature vector with a conversion matrix, wherein the conversion matrix is chosen such that it converts an intra-mean covariance matrix into a unit matrix, with the intra-mean covariance matrix determined from plural covariance matrices, each of the plural covariance matrices representing covariance between the pattern recognition candidates in one of the plural categories of pattern recognition candidates and a mean vector for that category;
- classification processing means for determining an inner product between the converted feature vector and plural basic vectors, wherein each basic vector is a proper vector of the intra-mean covariance matrix determined when choosing the conversion matrix; and
- category selecting means for selecting the at least one category of pattern recognition candidates from a category table on the basis of the inner product, wherein the category table indicates whether regions of a hyperplane defined by the basic vectors overlap onto categories converted by the conversion matrix.

5,671,294
SYSTEM AND METHOD FOR INCORPORATING SEGMENTATION BOUNDARIES INTO THE CALCULATION OF FRACTAL DIMENSION FEATURES FOR TEXTURE DISCRIMINATION
 George W. Rogers; Carey E. Priebe, both of King George; Jeffrey L. Solka, Fredericksburg; Richard A. Lorey, Dahlgren, and Erik G. Julin, Fredericksburg, all of Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
 Filed Sep. 15, 1994, Ser. No. 308,112
 Int. Cl.⁶ G06K 9/52; 9/74

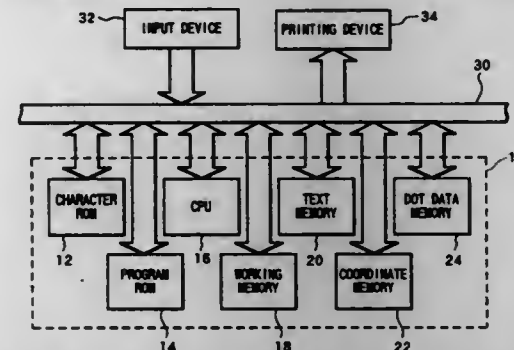
U.S. Cl. 382—228 15 Claims
SUPERVISED FEATURE GENERATION



1. A method for distinguishing and classifying textures of an image in a supervised feature generation system, said method comprising the steps of:
 generating a digitized image representative of said image;
 reading and storing a digitized image file in dependence upon said digitized image;
 reading and storing texture classification information representative of selected pixels within said image;
 reading and storing a segmentation map representative of segmentation boundaries within said image;
 recursively computing bounding areas within said image as a function of scale in dependence upon said digitized image file and said segmentation map;
 computing intensity differences among bounding areas for each scale;
 determining local area averages for each said scale in dependence upon said intensity differences and said segmentation map;
 computing power law features;
 merging said power law features and said texture classification information to produce a file of distinct and labeled features;
 building a probability density function of said image using adaptive mixtures, by estimating a probability density function for each class of texture within said image and then determining class discriminant boundaries in dependence upon a maximum likelihood ratio; and
 determining texture classes within a new digital image by comparing the probability density function of each pixel within said new digital image to previously determined discriminant boundaries and then labeling said texture classes within said new digital image with a probabilistic ranking based on probability density functions previously determined from known texture classes.

5,671,295
APPARATUS FOR CONVERTING IMAGE OUTLINE DATA INTO DOT DATA REPRESENTATIVE OF DOTS TO BE FORMED
 Keiji Miyake, Gifu-ken, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
 Filed Oct. 18, 1995, Ser. No. 544,547
 Claims priority, application Japan, Oct. 20, 1994, 6-282788
 Int. Cl.⁶ G06K 9/36

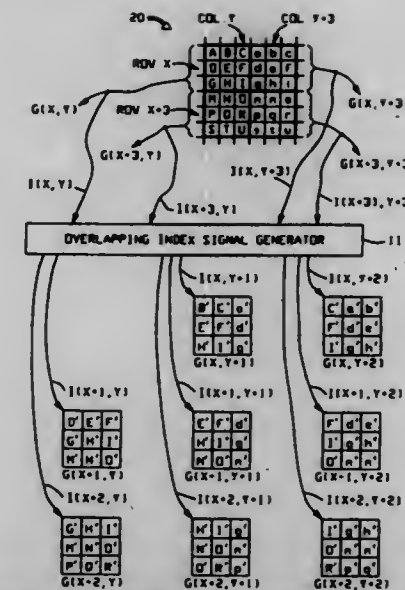
U.S. Cl. 382—242 15 Claims



1. A data converting apparatus for converting a batch of outline data representative of an outline of an image such as a letter, a symbol and a graphical representation, into a batch of dot data which is indicative of whether a dot is to be formed in each of picture elements positioned in a coordinate system in which the outline data is defined, said apparatus comprising:
 coordinate calculating means for calculating coordinate values of intersections between outlines of an image in the coordinate system and a plurality of parallel pixel lines superimposed on the outlines in the coordinate system;
 coordinate storing means for storing the coordinate values calculated by the coordinate calculating means such that the coordinate values for each of the pixel lines are arranged in order of the magnitude of the values;
 picture element judging means for retrieving, from the coordinate storing means, a pair of coordinate values constructed from adjacent two values of the ordered values and for judging whether at least one picture element is located between the pair of coordinate values;
 dot data preparing means for, when at least one picture element is located between the pair of coordinate values, preparing a batch of dot data such that successive bits of the dot data corresponding to all of the at least one successive picture elements positioned between the pair of coordinate values are set at one time such that each of the successive bits indicates a dot to be formed in the corresponding picture element; and
 dot data correction means for, when no picture element is located between the pair of coordinate values, searching status of dot data on at least one picture element located at a portion close to the pair of coordinate values and for preparing dot data for the pair of coordinate values based on the searched status.

5,671,296
METHOD OF ELECTRONICALLY PROCESSING A QUANTIZED IMAGE
 Roger William Call, Salt Lake City, and Dennis Carl Pulsipher, Farmington, both of Utah, assignors to Unisys Corporation, Blue Bell, Pa.
 Continuation of Ser. No. 551,691, Nov. 1, 1995, abandoned, which is a continuation of Ser. No. 196,604, Feb. 15, 1994, abandoned. This application Dec. 12, 1996, Ser. No. 763,922
 Int. Cl.⁶ G06K 9/36; 9/40

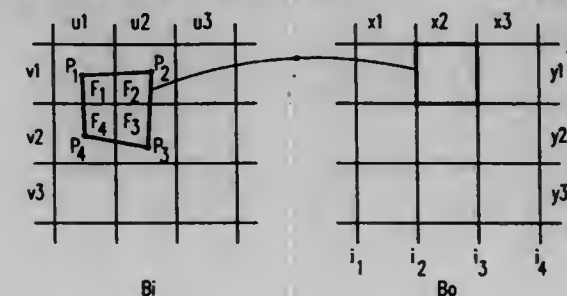
U.S. Cl. 382—251 13 Claims
 1. A method of electronically processing an input image which is comprised of a row-column array of pixels, said method including two initial steps a1-a2 and four subsequent steps b1-b4 of:



a1) forming, from a predetermined set of several quantized pixel groups, all possible pairs of said quantized pixel groups, where each quantized pixel group is rectangular with rows of P_R pixels per row and columns of P_C pixels per column;
 a2) storing in a memory, output index signals for each of said pairs of said quantized pixel groups; where each output index signal represents an overlapping pixel group which consists of selected pixels from the corresponding pair of quantized pixel groups that have been requantized together; and thereafter,
 b1) partitioning said array of pixels from said input image into rectangular non-overlapping quantized pixel groups $G(X,Y)$ which are aligned to a row X and a column Y , where each quantized pixel group $G(X,Y)$ is selected from said set and is represented by an input index signal $I(X,Y)$;
 b2) selecting two input index signals such that the two quantized pixel groups which the selected input index signals represent are adjacent to each other in said array;
 b3) forming an address signal with said two selected input index signals; and
 b4) reading from said memory via said address signal, the output index signals that are stored therein for said two selected input index signals.

5,671,297
METHOD FOR DISTORTION CORRECTION OF X-RAY IMAGES, AND DEVICE FOR CARRYING OUT THE METHOD
 Reiner H. Koppe, Hamburg, and Erhard P. A. Klotz, Hodorf, both of Germany, assignors to U.S. Philips Corporation, New York, N.Y.
 Continuation of Ser. No. 246,027, May 19, 1994, abandoned.
 This application Mar. 4, 1996, Ser. No. 612,006
 Claims priority, application Germany, May 19, 1993, 43 16 847.7

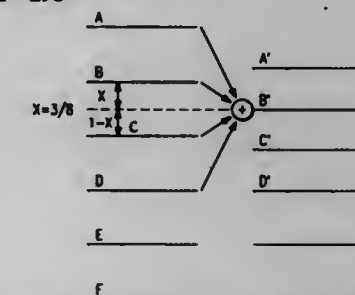
U.S. Cl. 382—293 4 Claims
 Int. Cl.⁶ G06K 9/32



1. A method for transforming a distorted input image (B_i) produced by an X-ray exposure and composed of pixels defined by their positions and their respective input image values, into a substantially distortion-free output image (B_o) composed of pixels each having a periphery defined by corner points interconnected by edges, said pixels being defined by their position in said array and their output image value, wherein the positions of corner points of the pixels of the output image in the input image such that there is a different polygon in the input image associated with each pixel in the output image, each polygon covering fractions of one or more pixels in the input image, each pixel of the output image being assigned an output image value which corresponds to the sum of the products of the input image values times the fraction of input pixel area covered by the associated polygon.

5,671,298
IMAGE SCALING USING CUBIC FILTERS
 Vishal Markandey, Dallas; Robert John Gove; Kazuhiro Ohara, both of Plano, and Dennis J. Tobin, Carrollton, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 30, 1994, Ser. No. 297,999
 Int. Cl.⁶ G06K 9/00 3 Claims



1. A method of providing a video scaling filter in a video interlace system with odd and even fields such that a first plurality of video input lines is converted to a second plurality of video output lines comprising the steps of:
 determining the line space distance of each of the closest odd field input lines to a given one of said odd field output lines that are less than two odd field line spaces from the odd field output line;
 computing a first coefficient value for each of said closest odd field input lines according to cubic interpolation using said line space distances less than two line spaces from said given one of said odd field output lines;
 multiplying said closest odd field input lines by said first coefficient value for that closest odd field input line to provide signals representing first coefficient weighted odd field input line values;
 combining said signals representing first coefficient weighted odd field input line values closest to said given one of said odd field output lines to form said given one of said odd field output lines;
 determining the line space distance of each of the closest even field input lines to a given one of said even field output lines that are less than two even field line spaces from the even field output line;
 computing a second coefficient value for each of said closest even field input lines according to cubic interpolation using said line space distances less than two line spaces from said given one of said even field output lines;

detecting the secondary light in the optical waveguide; and reflecting a portion of the incident light beam which passes through the binding site back toward the binding site to enhance an illumination thereof.

12. A molecular detection apparatus comprising:

an optical waveguide having a surface proximate to a binding site, the binding site to receive an incident light beam applied along an axis transverse to the surface; and

a waveguide detector coupled to the optical waveguide;

wherein secondary light is formed when the incident light beam impinges an optical indicator at the binding site, the secondary light being coupled into the optical waveguide for detection by the waveguide detector; and

a reflective member which reflects a portion of the incident light beam passing through the binding site back toward the binding site to enhance an illumination thereof.

5,671,304

TWO-DIMENSIONAL OPTOELECTRONIC TUNE-SWITCH

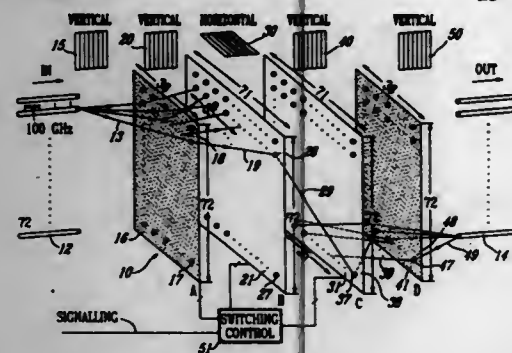
Michel A. Duguay, Sainte-Foy, Canada, assignor to Université Laval, Quebec, Canada

Filed Dec. 21, 1995, Ser. No. 576,364

Int. Cl.⁶ G02B 6/28

U.S. Cl. 385-17

23 Claims



1. A communications switch comprising:

a first two-dimensional array of lasers repeating signals from an array of n horizontal rows by m vertical columns of input electrical signals;

a first two-dimensional array of n horizontal rows by m' vertical columns of photodetectors receiving light from said first lasers;

first controllable means for spatially directing said light from each member of each horizontal row of said first array of lasers onto a member of the corresponding horizontal row of said first array of photodetectors, said light being switched only horizontally between columns in same rows;

a second two-dimensional array of n horizontal rows by m' vertical columns of lasers repeating signals from said first photodetectors;

a second two-dimensional array of n' horizontal rows by m' vertical columns of photodetectors receiving light from said second lasers;

second controllable means for spatially directing said light from each member of each vertical column of said second array of lasers onto a member of the corresponding vertical column of said second array of photodetectors, said light being switched only vertically between rows in same columns;

a third two-dimensional array of n' horizontal rows by m' vertical columns of lasers repeating signals from said second photodetectors;

a third two-dimensional array of n' horizontal rows by m' vertical columns of photodetectors receiving light from said third lasers and generating output electrical signals;

third controllable means for spatially directing said light from each member of each horizontal row of said third array of lasers onto a member of each corresponding horizontal row of

said third array of photodetectors, said light being switched only horizontally between columns in same rows; and switch control means connected to said first, second and third controllable means for establishing a switching path through said switch connecting said input signals to selected ones of said third array of photodetectors, whereby n by m input signals can be switched to n' by m' output signals.

5,671,305

OPTICAL BRANCHING AND COUPLING DEVICE USING AN ASPHERICAL LENS

Haruo Tanaka, and Naotaro Nakata, both of Kyoto, Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

Continuation of Ser. No. 120,430, Sep. 14, 1993, abandoned.

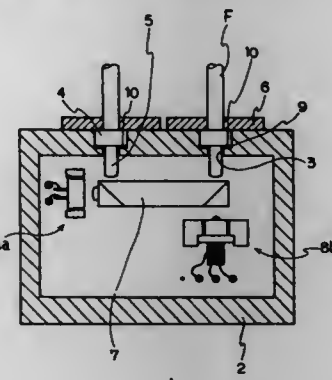
This application Mar. 7, 1995, Ser. No. 400,514

Claims priority, application Japan, Sep. 22, 1992, 4-253178

Int. Cl.⁶ G02B 6/32

U.S. Cl. 385-33

9 Claims



1. An optical branching and coupling device comprising:

a housing provided with an aperture;

optical instruments, associated with the housing, for branching, coupling, transmitting and receiving optical information input to the device;

an aspherical lens having a rear end formed with a collar portion which is formed continuously and integrally with a remaining portion of said aspherical lens, said collar portion being wider in width than said remaining portion of said aspherical lens, said aspherical lens is inserted into the aperture and said collar portion being fixed to a portion of said aperture by hermetic sealing with a glass material;

at least one optical fiber placed on an end face of the collar portion; and

a mirror block, provided within said housing, for switching a course of an optical signal input from said at least one optical fiber or for separating input light of different wavelengths into light having an individual wavelength.

5,671,306

LIGHTING STRUCTURE FOR INTENSELY ILLUMINATING NARROW LINEAR REGION

Allan Brent York, Langley; Grant William Roland Harlow, Vancouver, and George Everett Matheson, North Vancouver, all of Canada, assignors to TIR Systems Ltd., Burnaby, Canada

Filed Dec. 21, 1994, Ser. No. 361,133

Int. Cl.⁶ G02B 6/34

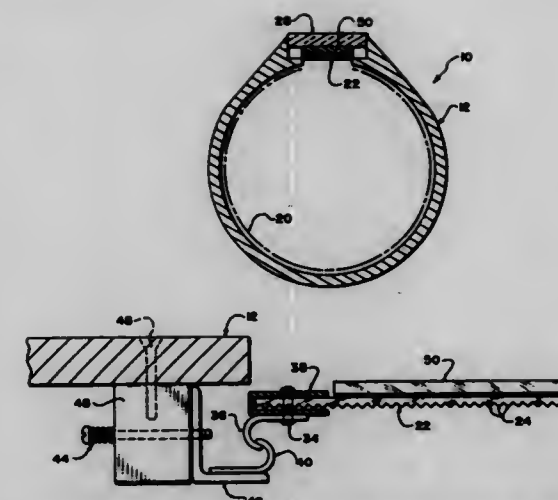
U.S. Cl. 385-36

10 Claims

8. A lighting structure for intensely illuminating a narrow linear region, said structure comprising:

(a) a hollow, elongate light guide having a longitudinal axis;

(b) a light source for emitting light into an end of said light guide;



(c) a longitudinal slit light-emitting aperture extending through an external wall of said light guide substantially parallel to said axis;

(d) a lens mounted in said slit aperture, said lens bearing a plurality of prisms extending substantially perpendicular to said slit on an inwardly directed face of said lens; and

(e) a diffuser mounted outwardly of said lens, said diffuser bearing a plurality of thin striations extending transversely relative to said longitudinal slit aperture.

5,671,307

USE OF A TEMPERATURE GRADIENT TO IMPOSE A CHIRP ON A FIBRE BRAGG GRATING

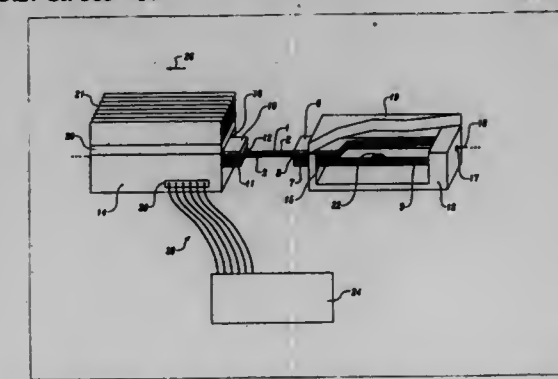
Jocelyn Lauzon, Saint-Augustin-de-Desmaures, Canada, and François Ouellette, Dulwich Hill, Australia, assignors to Université Laval, Quebec, Canada

Filed Apr. 10, 1995, Ser. No. 419,990

Int. Cl.⁶ G02B 6/34

U.S. Cl. 385-37

10 Claims



1. Apparatus for imposing a tunable chirp on a fibre Bragg grating comprising:

an optical fibre having a Bragg grating;

heat conductive means for holding the fibre in contact with the holding means along the length of the grating;

means for selectively applying heat to, and dissipating from, a first localized portion of the holding means adjacent at least one end of the fibre Bragg grating and separate means for selectively applying heat to, and dissipating heat from, a second localized portion of the holding means adjacent an other end of the fibre Bragg grating;

temperature sensing means for determining the longitudinal spatial temperature gradient along the length of the fibre Bragg grating; and,

means for selectively controlling the application and dissipation of heat applied to the holding means adjacent each end of the

fibre Bragg grating whereby to induce a controllable longitudinal spatial temperature gradient along the length of the grating.

5,671,308

OPTICAL WAVEGUIDE HAVING DIFFRACTION GRATING AREA AND METHOD OF FABRICATING THE SAME

Akira Inoue; Yasuji Hattori, both of Yokohama; Katsuya Yamashita, Mito; Fumio Ohtsuki, Mito, and Yutaka Katsuyama, Mito, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, and Nippon Telegraph and Telephone Corporation, Tokyo, both of Japan

Division of Ser. No. 170,297, Dec. 30, 1993, Pat. No.

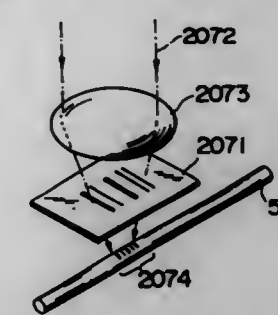
5,506,674. This application Jan. 19, 1996, Ser. No. 605,265

Claims priority, application Japan, May 1, 1992, 4-112797; May 1, 1992, 4-112804; May 1, 1992, 4-112805; May 1, 1992, 4-112806; May 1, 1992, 4-112818; May 1, 1992, 4-112820; May 1, 1992, 4-112822

Int. Cl.⁶ G02B 6/34

U.S. Cl. 385-37

9 Claims



1. An optical wave guide having at least one diffraction grating area, said diffraction grating area being formed by irradiating light on a mask pattern to magnify a light pattern passing through said mask-pattern with an optical system, thereby projecting a magnified light pattern on said optical wave guide, wherein a refractive index of said diffraction grating area corresponds to an intensity of said light pattern passing through said mask pattern wherein a plurality of diffraction grating areas are provided on the optical wave guide and are arranged along a longitudinal direction, the optical wave guide being identifiable according to at least one characteristic of light reflected by said diffraction grating areas in response to light supplied to an end of the optical wave guide.

5,671,309

WIDE-BAND OPTICAL FIBER COUPLER AND METHOD FOR PREPARING THE SAME

Jun Abe; Masaaki Shiota, and Kazuo Koya, all of Gunma, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

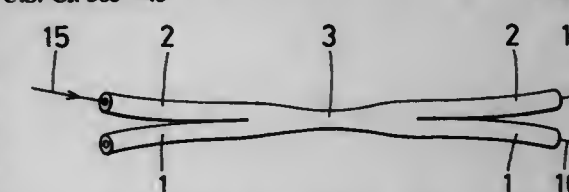
Filed Jun. 28, 1995, Ser. No. 495,932

Claims priority, application Japan, Jun. 29, 1994, 6-147303

Int. Cl.⁶ G02B 6/26; 6/42

U.S. Cl. 385-43

5 Claims



1. A wide-band optical fiber coupler having a coupled portion formed by fusing and drawing a plurality of optical fibers wherein an optical fiber having zero-dispersion at 1.55 μm band and an optical fiber having zero-dispersion at 1.3 μm band are fused together and drawn to form a coupled portion wherein the optical

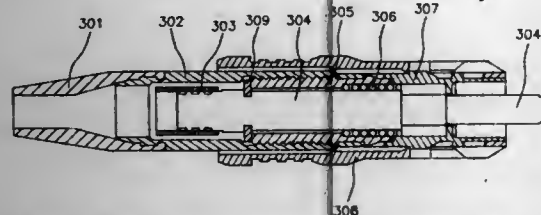
fiber having zero-dispersion at 1.55 μm band has a structure which comprises a first core, a second core having a refractive index smaller than that of the first core and concentrically surrounding the first core and a clad layer which surrounds the second core and has a refractive index smaller than that of the second core and wherein the specific refractive index difference, Δn_1 , between the first core and the clad layer ranges from 0.70 to 1.00, and the specific refractive index difference, Δn_2 , between the second core and the clad layer ranges from 0.07 to 0.12 and the specific refractive index difference, Δn , between the core and the clad layer of the optical fiber having zero-dispersion at 1.3 μm band ranges from 0.25 to 0.40.

5,671,310 OPTICAL FIBER CONNECTOR HAVING AN ADJUSTABLE ENGAGING EXTENT

I-En Lin, and Bill Fong, both of Hsin Chu, Taiwan, assignors to Tai Jin Mold Mfg. Co., Ltd., Hsin Chu, Taiwan
Filed Nov. 16, 1995, Ser. No. 558,736
Int. Cl. G02B 6/38

U.S. Cl. 385—78

13 Claims



1. An optical fiber connector adapted for connecting an optical fiber carried in said optical fiber connector to an optical cable, said connector comprising:
 - a plug;
 - a ferrule assembly mounted in said plug;
 - a retention member engaged with said plug, and having a first end and a second end;
 - a resilient element mounted between said ferrule assembly and said retention member;
 - a crimp member having a third end and a fourth end engaging with said second end;
 - an extension member connecting thereto said optical cable, said extension member being attached to said crimp member at said third end and having an entrance end; and
 - an adjuster mounted between said second end and said fourth end of said crimp member for adjusting an engaging extent therebetween, wherein said connector is disposed on one side of a coupling housing including therein a fixing device having a pair of shoulders and a jaw for securing said connector in order to connect with another connector disposed on another side of said coupling housing, said connector further comprising a plug frame having a stepped passageway and receiving therein said plug.

5,671,311 SEALED MULTIPOSITION FIBER OPTIC CONNECTOR

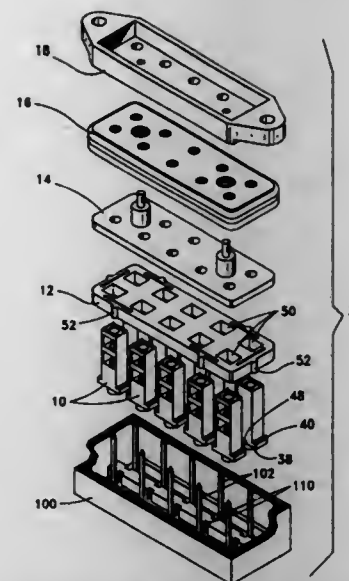
Donald Gray Stillie; William Batty, both of Winston-Salem, and Bobby Gene Ward, King, all of N.C., assignors to The Whitaker Corporation, Wilmington, Del.

Continuation of Ser. No. 340,101, Nov. 15, 1994, abandoned.
This application Oct. 9, 1996, Ser. No. 728,505
Int. Cl. G02B 6/36

U.S. Cl. 385—89

24 Claims

1. A multiposition fiber optic connector for use in connecting a plurality of fiber optic cables to a mating connector, the multiposition fiber optic connector comprising:



- a plurality of individual ferrules, each having a forward end and a rearward end, each being configured for receipt of a single fiber optic cable with the end of the fiber optic cable adjacent the forward end of the ferrule;
- and an alignment plate having mating surface means engagable with a companion surface on the mating connector to provide precise alignment between the multiposition fiber optic connector and the mating connector, and a plurality of openings, each ferrule being positioned in general alignment with a corresponding opening, each ferrule being secured to the alignment plate in precise alignment with the other ferrules secured to the alignment plate and in precise alignment with the mating surface means on the alignment plate, said alignment plate comprises a molded plastic member.

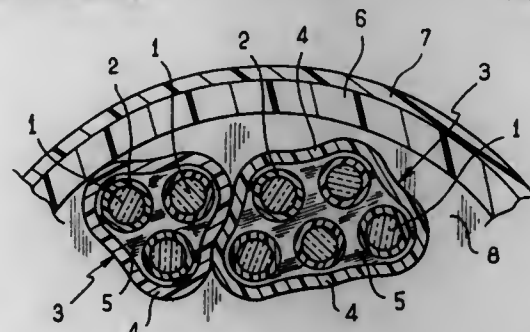
5,671,312 CABLE HAVING FINE CONDUCTORS, IN PARTICULAR OPTICAL FIBERS, AND A METHOD AND APPARATUS FOR MAKING A CABLE HAVING FINE CONDUCTORS

Patrick Jamet, Marolles Sur Seine, France, assignor to Societe Industrielle de Liaisons Electriques, Paris, France
PCT No. PCT/FR94/00641, § 371 Date Dec. 4, 1995, § 102(e)
Date Dec. 4, 1995, PCT Pub. No. WO94/29759, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 1, 1994, Ser. No. 569,091
Claims priority, application France, Jun. 8, 1993, 93 06847
Int. Cl. G02B 6/44

U.S. Cl. 385—100

7 Claims



1. In a cable having a plurality of fine conductors with a primary sheath directly contacting and covering each conductor, at least one module having a plurality of the primary sheath covered conductors disposed within a supporting sheath, and gaps between the primary sheath covered conductors in the module are substantially filled with a sealant,

the improvement wherein the sealant consists essentially of an oil having a viscosity in the range of 100 cPo to 5,000 cPo.

5,671,313 OPTICAL CABLE AND METHOD FOR THE MANUFACTURE THEREOF

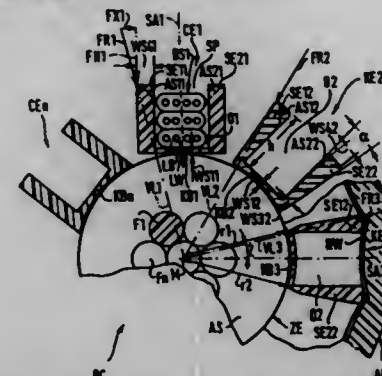
Reiner Schneider, Ebersdorf; Ernst Opel, Neustadt, and Edgar Heinz, Steinach, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jan. 11, 1995, Ser. No. 371,204
Claims priority, application Germany, Jan. 12, 1994, 44 00 700.0; Nov. 17, 1994, 44 40 983.4

U.S. Cl. 385—110

Int. Cl. G02B 6/44

47 Claims



1. In an optical cable having a center element and a plurality of individual elongated chamber elements, the individual chamber elements being stranded in a helical fashion onto the outside circumference of the central element, each chamber element having a chamber for the acceptance of light waveguides, each individual chamber element being fashioned with a cross section of a U-shape which does not form a circular sector shape, each chamber being radially outwardly open and laterally limited by shape-stable legs, the improvement comprising each chamber element having a chamber floor extending between said legs and each leg having a structure with a cross section so that a resultant radial force acting at an outer end face of a respective leg proceeds essentially with the cross section of the leg in an extension of the force toward a cable axis in the center element.

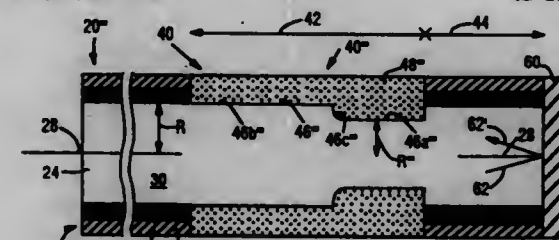
5,671,314 ILLUMINATOR DEVICES FOR ULTRAVIOLET LIGHT DELIVERY AND METHODS OF MAKING SAME

Kenton W. Gregory, West Linn; Hanqun Shanquuan, and Thomas E. Haw, both of Portland, all of Oreg., assignors to Sisters of Providence in Oregon, Portland, Oreg.

Filed Jan. 15, 1993, Ser. No. 2,865
Int. Cl. G02B 6/22

U.S. Cl. 385—128

42 Claims



42. A device for delivering ultraviolet light to an in vivo treatment site, the device comprising:
 - an optical fiber having a fiber core and a circumferential covering, the fiber core having the covering removed from the fiber core along an illumination window, the illumination window being spaced away from a distal end of the optical fiber

whereby the circumferential covering extends over the distal end of the optical fiber;
an essentially totally reflective mirror situated at a distal end of the optical fiber to reflect light toward the illumination window;
an optical scattering material radially surrounding the core along the illumination window.

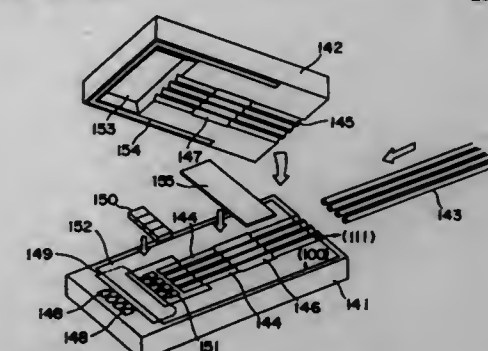
5,671,315 OPTICAL PARTS FIXING APPARATUS AND METHOD OF MANUFACTURING THE SAME

Haruhiko Tabuchi; Tsugio Kumai; Seimi Sasaki, and Kazunori Miura, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 9, 1995, Ser. No. 401,273
Claims priority, application Japan, Mar. 9, 1994, 6-038863
Int. Cl. G02B 6/00

U.S. Cl. 385—137

15 Claims



1. An optical parts fixing device comprising:
 - a first substrate having thereon a first groove into which an optical fiber is fitted, and a second groove to fix the optical fiber by applying adhesive, the second groove being formed on part of the first groove, a width and a depth of the second groove being wider and deeper than those of the first groove so that the optical fiber is not in contact with the second groove; and
 - a second substrate for pushing the optical fiber against the first groove.

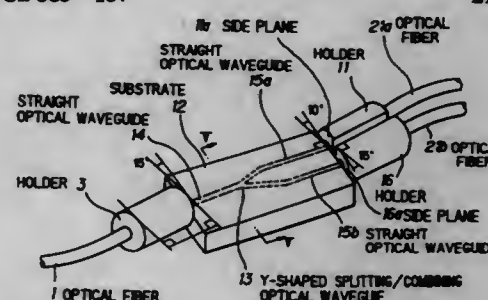
5,671,316 CONNECTING STRUCTURE OF OPTICAL FIBER TO OPTICAL WAVEGUIDE

Toshiya Yuhara; Hisao Iitsuka; Kazuyuki Fukuda; Makoto Shimaoka, and Tetsuo Kumazawa, all of Ibaraki, Japan, assignors to Hitachi Cable, Ltd., Tokyo, Japan

Filed Feb. 14, 1996, Ser. No. 601,657
Claims priority, application Japan, Feb. 14, 1995, 7-025633
Int. Cl. G02B 6/00

U.S. Cl. 385—137

21 Claims

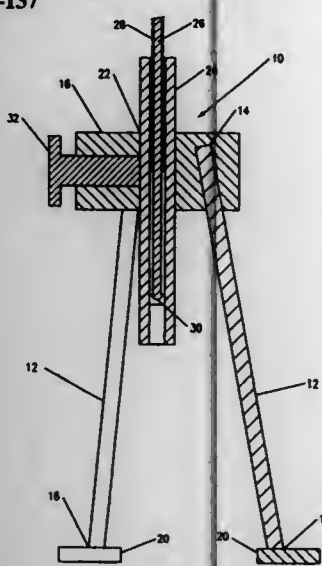


1. An optical fiber connecting structure for an end plane of an optical fiber, said optical fiber connecting structure, comprising:
 - an optical fiber having a protecting layer thereon, a predetermined length of said protecting layer being removed in the

vicinity of said end plane of said optical fiber to form a protecting layer removal end; and
 a holder for holding said protecting layer removal end, said holder being provided with a bore of circular cross-section for receiving said protecting layer removal end from one side plane of said holder to another;
 wherein said another side plane of said holder is co-planar with said end plane of said optical fiber.

5,671,317
FIBER OPTIC POSITIONER
 Kenneth R. Weishaupt, Hamburg; William R. Potter, Grand Island, and Leroy Wood, Buffalo, all of N.Y., assignors to Health Research, Inc., Buffalo, N.Y.
 Filed Jul. 16, 1996, Ser. No. 680,936
 Int. Cl.⁶ G02B 6/46

U.S. Cl. 385—137



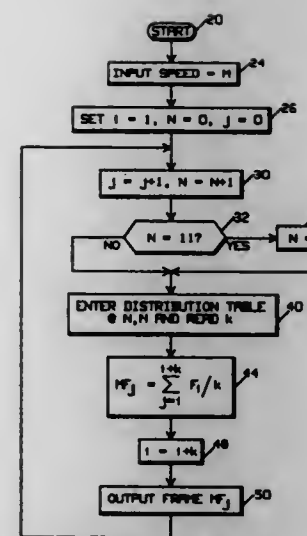
1. Apparatus for stabilizing a fiber optic relative to the skin surface of a patient so that radiation from the fiber optic strikes a defined surface area on the skin independently of patient movement, said apparatus comprising a polypod support having a fiber optic supporting platform and at least three legs to form a tripod, each of the legs having two ends, a first end being secured to the fiber optic supporting platform and the second end being adapted for secure attachment to the skin of the patient.

5,671,318
VARIABLE SPEED PLAYBACK OF DIGITAL VIDEO STORED IN A NON-TAPE MEDIA
 William S. Herz, Newark, Calif., assignor to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.
 Continuation of Ser. No. 485,929, Jun. 7, 1995, abandoned, which is a division of Ser. No. 54,379, Apr. 29, 1993, Pat. No. 5,543,927. This application Dec. 30, 1996, Ser. No. 774,449
 Int. Cl.⁶ H04N 5/91

U.S. Cl. 386—68

2 Claims

1. A method for playback of video data at a speed greater than normal playback speed, comprising the steps of:
 generating a sequence of output frames including a mixed frame, said mixed frame including individual pixels having a com-



ponent of three consecutive frames of said video data; and displaying said sequence of output frames.

5,671,319
COMPRESSION OF VIDEO AND AUDIO SIGNALS AND EXPANSION OF A COMPRESSED SIGNAL IN ACCORDANCE WITH AN IMAGE HF COMPONENT COMPRESSION FACTOR

Hiroaki Ueda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

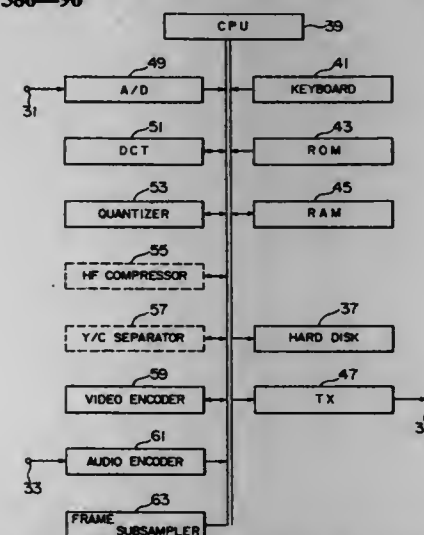
Filed Jul. 29, 1993, Ser. No. 98,876

Claims priority, application Japan, Jul. 31, 1992, 4-205091

Int. Cl.⁶ H04N 5/928

U.S. Cl. 386—96

14 Claims



1. A video and audio signal compressing and expanding system, comprising:
 a compression data table which indicates a high frequency component compression factor and a frame rate compression factor;
 compression means for compressing an original video signal and an original audio signal synchronized with each other collectively into a compressed video and audio signal in compliance with said compression data table; and
 expansion means for expanding said compressed video and audio signal in accordance with said compression data table separately into a video reproduction and an audio reproduction which represent said original video signal and said original audio signal such that said video reproduction and said audio reproduction are synchronized,

wherein said high frequency component compression factor is selected by said compression means to ensure that one of said original audio signal and said original video signal is compressed within a predetermined period of time or selected by said expansion means to ensure that one of said compressed video signal and said compressed audio signal is expanded within said predetermined period of time.

5,671,320
SYSTEM AND METHOD FOR CONTROLLING PLAY OF MULTIPLE DIALOG AUDIO TRACKS OF A SOFTWARE CARRIER

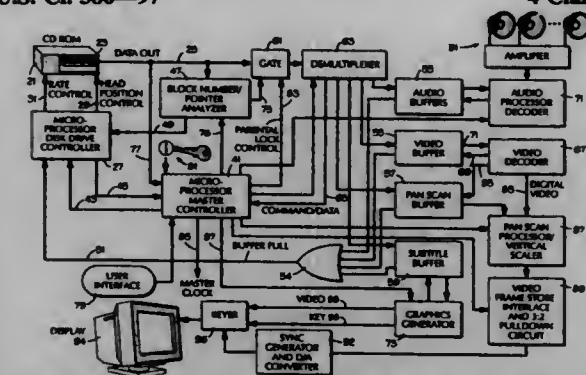
Christopher J. Cookson; Lewis S. Ostrover, and Warren N. Lieberfarb, all of Los Angeles, Calif., assignors to Time Warner Entertainment Co., L.P., Burbank, Calif.

Continuation of Ser. No. 144,791, Oct. 29, 1993, Pat. No. 5,576,843. This application Jun. 7, 1995, Ser. No. 486,611

Int. Cl.⁶ H04N 5/91

U.S. Cl. 386—97

4 Claims



1. A software carrier for storing thereon digital data representative of a motion picture, said digital data having a data structure comprising a lead-in section followed by a plurality of successive data blocks, said data blocks representing an image program and a plurality of audio tracks synchronized with said image program, said lead-in section containing data indicative of the language of any dialog represented in said audio tracks, and a code for each of said audio tracks identifying its use as either a switching master including music and effects and dialog language of predetermined length, a mixing master containing only music and effects of predetermined length, a shorter track containing audio segments to be switched with said switching master, or a shorter track containing audio segments to be mixed with said mixing master.

5,671,321
AIR HEATER GUN FOR JOINT COMPOUND WITH FAN-SHAPED ATTACHMENT

Donald J. Bagnuolo, 115 Elliott Pl., Rutherford, N.J. 07070

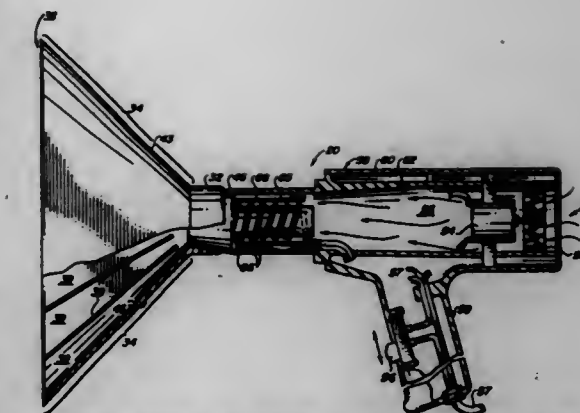
Filed Apr. 24, 1996, Ser. No. 637,050

Int. Cl.⁶ A45D 20/10

U.S. Cl. 392—385

20 Claims

1. A heat gun for quickly drying joint compound comprising:
 an outer shroud defining an airflow chamber which terminates in a tubular distal end;
 a fan disposed within the airflow chamber for forcing airflow within the airflow chamber;
 a motor disposed within the airflow chamber and providing drive to the fan;
 a plurality of heating coils disposed within the airflow chamber and heating the airflow between 1400° and 1700° Fahrenheit; and
 a fan-shaped attachment having a tubular nozzle cover which is configured to receive the tubular distal end of the outer

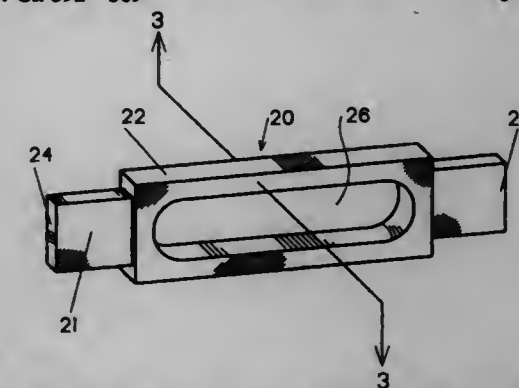


shroud, wherein the tubular cover extends into a pair of sidewall surfaces terminating in an elongated port.

5,671,322
LATERAL FLASH EVAPORATOR
 Robert L. Finicle, Bay Village, Ohio, assignor to Advanced Ceramics Corporation, Cleveland, Ohio
 Filed Jan. 17, 1996, Ser. No. 586,326
 Int. Cl.⁶ C23C 14/00; 16/00

U.S. Cl. 392—389

6 Claims



1. A flash evaporator comprising: a body having opposite open sides and a cavity extending from each of said opposite open sides for forming a continuous open area between said opposite open sides with said body having at least one metal evaporating surface formed by said cavity facing said open area for evaporating metal into said open area and laterally through said opposite open sides of said body.

5,671,323
ZIGZAG HEATING DEVICE WITH DOWNWARD DIRECTED CONNECTING PORTIONS

Takaaki Honda, Mishima, and Shinichi Mitani, Numazu, both of Japan, assignors to Toshiba Machine Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 319,248, Oct. 6, 1994, abandoned.

This application Feb. 12, 1996, Ser. No. 598,629

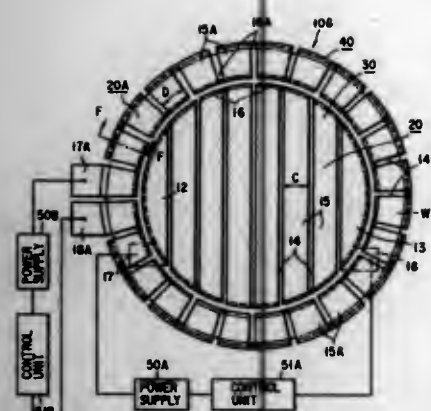
Claims priority, application Japan, Oct. 8, 1993, 5-253255

Int. Cl.⁶ A21B 2/00; H05B 3/68; H01L 3/00

U.S. Cl. 392—418

5 Claims

1. A heating device incorporating a disk-shaped heater having a heating surface substantially parallel to a surface of an object to be heated, and a ring-shaped heater surrounding the disk-shaped heater, the disk-shaped heater comprising:
 opposite end portions;
 a plurality of strip heating portions of a predetermined width placed between the opposite end portions, separated by a plurality of slits and extending substantially parallel to one another; and



connecting portions connecting the bent portions of each adjacent pair of the strip heating portions and the opposite end portions, thereby forming a heating surface in which a current path has bent portions thereof connected to terminals, the connecting portions extending so that they are not positioned in the same plane as the heating surface;

the ring-shaped heater comprising:
a plurality of short strip heating portions separated by a plurality of slits extending radially; and
connecting portions alternately connecting inner circumferential ends and outer circumferential ends of the strip heating portions, thereby forming a current path having opposite ends connected to terminals, the connecting portions extending so that they are not positioned in the same plane as the heating surface of the disk-shaped heater.

5,671,324

LIGHT BEAM HEATING APPARATUS WITH OPTICAL ENERGY CORRECTION COMPENSATING FOR LAMP ELECTRODE WEAR AND AGING

Nobuyuki Haji, Osaka; Moriaki Kawasaki, Habikino; Tamotsu Ikeda, Toyonaka, and Masayoshi Ueda, Ashiya, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

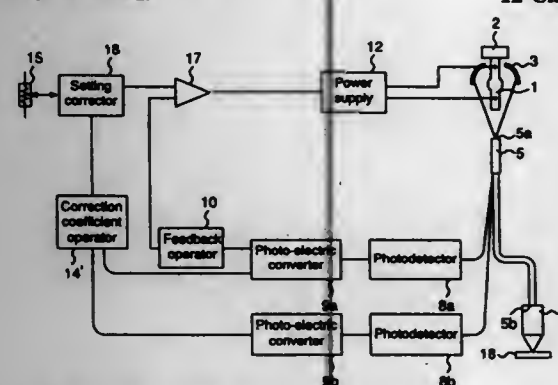
Filed Oct. 30, 1995, Ser. No. 550,112

Claims priority, application Japan, Oct. 31, 1994, 6-266953; Nov. 15, 1994, 6-280579

Int. Cl.⁶ F21V 7/00

U.S. Cl. 392-419

12 Claims



1. A light beam heating apparatus comprising:
a light source including a lamp;
an optical propagation means for condensing a light emitted by said light source and for generating a light beam for irradiating a work;
an output power setter for setting an output optical energy value;

an estimation means for estimating an optical energy of the light beam generated by said optical propagation means according to a predetermined assumed change in spacial optical intensity distribution across a cross section of the light to be condensed by said optical propagation means;

a corrector for correcting the output optical energy level set by said output power setter according to the optical energy estimated by said estimation means; and

a power supply which supplies a current to the lamp according to the output optical energy level corrected by said corrector.

5,671,325

APPARATUS FOR PREPARING INFANT FORMULA FROM POWDER

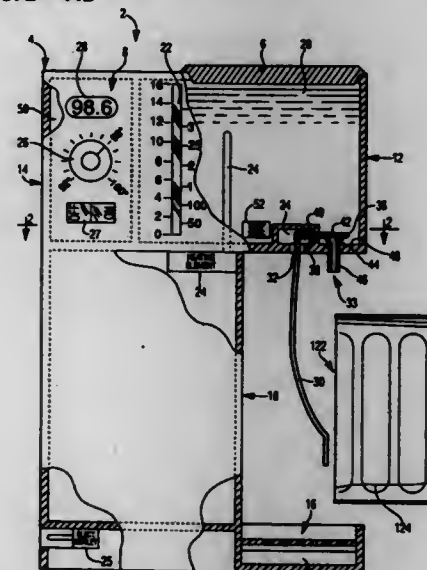
Danny J. Roberson, 315 Canterbury, Euless, Tex. 76039

Continuation of Ser. No. 981,791, Nov. 25, 1992. This application Jun. 24, 1994, Ser. No. 265,412

Int. Cl.⁶ A47J 27/00

U.S. Cl. 392-442

9 Claims



1. A method for preparing infant formula from powder for on demand feeding to a baby comprising the steps of:
filling a reservoir defined in a manually portable housing with water in advance of its need;

heating the water in the reservoir in advance of its need with a heating element to a predetermined set point within a predetermined range of temperatures encompassing temperatures at which baby formula may be fed to a baby without risk of burning or injuring the baby, the heating being controlled by control means in communication with means for sensing the temperature of the water;

maintaining the temperature of the water with the control means at the set point for an extended period until ready for use; dispensing the water at the set point into a baby bottle through a spigot defined in the reservoir;

mixing powdered infant formula with the water in the bottle; and feeding the mixed formula to an infant.

5,671,326

METHOD AND APPARATUS FOR FACILITATING USER GENERATION OF A SET OF MACHINE CONTROL STATEMENTS

Adrian Derek Gelsow, Portishead; Andrew David Wells, Stoke Gifford; Roy Stephen Marriott, Weston, all of England, and Adrian Arnold Buriks, Badalona, Spain, assignors to Hewlett-Packard Company, Palo Alto, Calif.

PCT No. PCT/GB92/01253, § 371 Date Jan. 9, 1995, § 102(e)

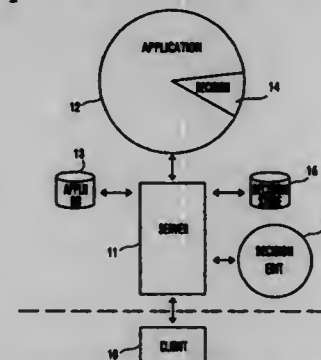
Date Jan. 9, 1995, PCT Pub. No. WO94/01817, PCT Pub. Date Jan. 20, 1994

PCT Filed Jul. 9, 1992, Ser. No. 362,575

Int. Cl.⁶ G06F 17/00

U.S. Cl. 395-1

15 Claims



1. A method of facilitating user generation of a set of machine control statements that taken together constitute a decision function relating particular value combinations of a predetermined set of condition factors to corresponding particular outcomes of a set of such outcomes, each individual machine control statement associating a set of one or more condition-factor value combinations, herein CFVCs, with a said outcome; said method comprising the steps of:

activating a computer system to display to a user a structured representation for said machine control statements in which one of said statements is represented in terms of a visual association between its CFVC set and corresponding outcome;

supplying the computer system with user inputs indicative of at least one new control statement and a modification of at least one existing machine control statement, the computer system responding to the user inputs to create at least one new machine control statement and/or modify at least one existing machine control statement thereby to generate a new said set of machine control statements, said new and/or modified statements being represented in said structured representation; and

the computer system responding to the user inputs by carrying out a consistency check on said new set of machine control statements by:

(a) identifying any conflicts between statements by identifying any group of at least one CFVC which is common to a plurality of said statements that do not all specify the same outcome,

(b) determining whether any such conflict is resolvable on the basis of a more specific statement having precedence over a more general one, by determining whether the corresponding said group is equal to the set of all the CFVCs encompassed by a said statement of said plurality, the presence of any such latter statement, herein an exception statement, determining said conflict to be resolvable with said exception statement being associated with any other said statement of said plurality such that the exception statement has precedence over said any other statement, and

(c) accepting said new set of statements unless an unresolvable conflict is present.

5,671,327

SPEECH ENCODING APPARATUS UTILIZING STORED CODE DATA

Masami Akamine, Yokosuka; Masahiro Oshikiri, Urayasu, and Kimio Misaki, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

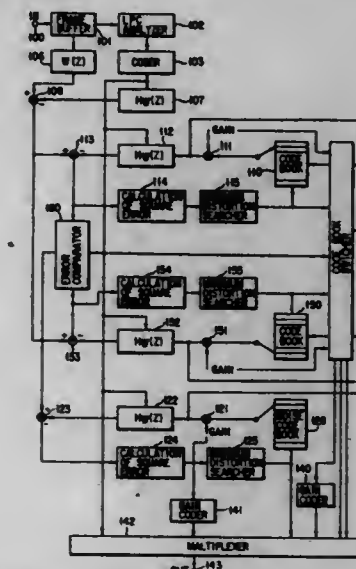
Continuation-in-part of Ser. No. 964,270, Oct. 21, 1992, abandoned. This application Jan. 22, 1993, Ser. No. 7,710

Claims priority, application Japan, Oct. 21, 1991, 3-272940; Jan. 24, 1992, 4-011177; Oct. 16, 1992, 4-278301

Int. Cl.⁶ G10L 3/02; 9/00

U.S. Cl. 395-2.28

17 Claims



1. A speech coding apparatus comprising:
a first code book for storing driving signal vectors;
a second code book for storing noise vectors;
a synthesizing filter for synthesizing one of the driving signal vectors stored in said first code book and one of the noise vectors stored in said second code book to produce a synthesized speech signal, the one of the driving signal vectors and the one of the noise vectors being selected by the synthesizing filter such that the synthesized speech signal resembles an input speech; and
real-time learning means for changing said driving signal vectors stored in said first code book and said noise vectors stored in said second code book in accordance with a driving signal vector and a noise vector which were synthesized by said synthesizing filter, whereby the first and second code books are updated during a coding procedure.

5,671,328

METHOD AND APPARATUS FOR AUTOMATIC CREATION OF A VOICE RECOGNITION TEMPLATE ENTRY

Gregory F. Fitzpatrick, Ft. Worth; William J. Johnson, Flower Mound, and Marvin L. Williams, Lewisville, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 30, 1992, Ser. No. 998,286

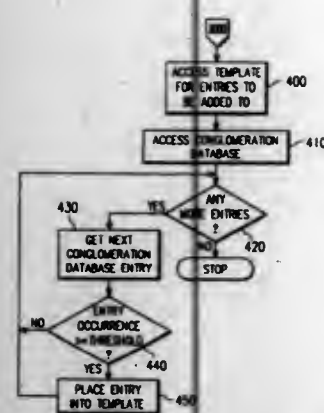
Int. Cl.⁶ G10L 5/06; 9/00

U.S. Cl. 395-2.55

10 Claims

1. A method, performed in a data processing system, for the automatic creation of a voice recognition template entry, the method comprising the computer implemented steps of:

assembling a plurality of commands consecutively received by the data processing system into an assembled plurality of commands, at least one command of said assembled plurality of commands having a voice recognition criteria component associated therewith;



counting the occurrences of receipt, by the data processing system, of the assembled plurality of commands; assembling the voice recognition criteria components associated with each command of said assembled plurality of commands into an assembled voice recognition criteria; and as a result of the occurrence count exceeding a predefined minimum, constructing a voice recognition template entry by associating the assembled voice recognition criteria components with the assembled plurality of commands.

5,671,329 SPEECH DIALOGUE SYSTEM IN WHICH A RECOGNITION AND UNDERSTANDING PROCESS, APPLICATION PROCESS, AND VOICE INPUT RESPONSE ARE PERFORMED SIMULTANEOUSLY WITH VOICE INPUT

Kaichiro Hatazaki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

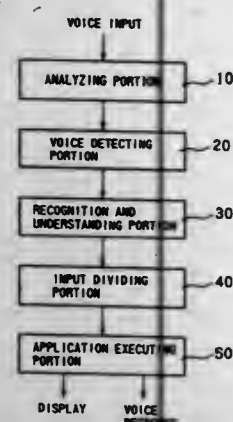
Filed Mar. 9, 1994, Ser. No. 207,266

Claims priority, application Japan, Mar. 9, 1993, 5-048085

Int. Cl.⁶ G10L 5/06

U.S. Cl. 395—2.62

16 Claims



1. A speech dialogues system comprising: voice analyzing means for converting a voice input signal into a time series feature vector, the converting being done in synchronism with voice input; voice detecting means for detecting a leading end and a trailing end of a voice period in said voice input signal on the basis of the time series feature vector, the detecting being done simultaneously with the voice input; recognition and understanding means for translating the time series feature vector into a meaning expression for each voice period, and for outputting the meaning expression in time series simultaneously with the voice input; input dividing means for dividing said meaning expression into partial strings respectively aggregated in meaning and for outputting each of said partial strings simultaneously with the voice input; and

application executing means for performing a corresponding application process for each of said partial strings of said meaning expression simultaneously with the voice input, the corresponding application process being based on the corresponding meaning of said each of said partial string.

5,671,330 SPEECH SYNTHESIS USING GLOTTAL CLOSURE INSTANTS DETERMINED FROM ADAPTIVELY- THRESHOLDED WAVELET TRANSFORMS

Masaharu Sakamoto, Yokohama; Mei Kobayashi; Takashi Saito, both of Tokyo, and Masafumi Nishimura, Yokohama, all of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

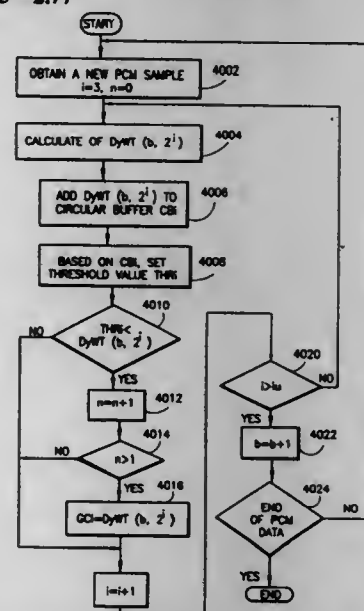
Filed Jul. 11, 1995, Ser. No. 500,793

Claims priority, application Japan, Sep. 21, 1994, 6-226667

Int. Cl.⁶ G10L 5/04

U.S. Cl. 395—2.77

12 Claims



1. A speech synthesis method comprising the steps of: (a) detecting the glottal closure instants in digitized speech signals; (b) pitch-marking said speech signal at said glottal closure instants; (c) separating speech synthesis waveform units from said speech signals at the points different from said pitch-marked points; (d) storing the separated speech synthesis waveform units; and (e) obtaining synthesized speech signals by shifting the stored speech synthesis waveform units along a synthesis pitch and overlapping them at the pitch-marked glottal closure instants as reference points.

5,671,331 PRINTED PUBLICATION VENDING APPARATUS INCLUDING PROGRAMMABLE ANNOUNCEMENT CAPABILITY

Harold G. Croley, 12651 Holly La., DeWitt, Mich. 48820

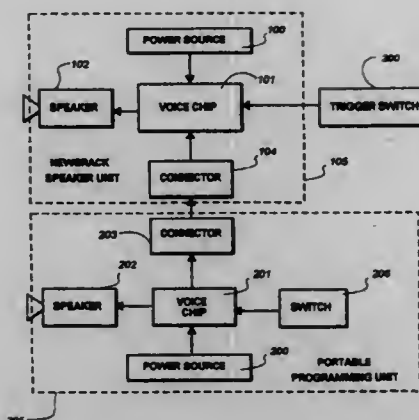
Filed Oct. 31, 1994, Ser. No. 328,795

Int. Cl.⁶ G10L 3/00

U.S. Cl. 395—2.79

13 Claims

1. A system for vending printed publications including a programmable announcement capability, the system comprising: an enclosure dimensioned to house a plurality of printed publications, including an access panel through which a customer may obtain one or more of the publications; a trigger switch; speaker unit, including:



- an input to receive an announcement in electronic form, an audio speaker, and a voice circuit in electrical communication with the trigger switch, the input, and the audio speaker, the voice circuit being operative to perform the following functions: receive and store the announcement in electronic form, retrieve the stored announcement upon activation of the trigger switch, and deliver an electrical signal representative of the announcement to the audio speaker so that the announcement may be heard by the customer; and a portable programming unit, including: means for storing one or more announcements in electronic form, an output adapted for electrical coupling to the input of the speaker unit, and an operator control, whereby an announcement stored within the portable programming unit may be downloaded into the speaker unit upon activation of the operator control.

5,671,332 DATA PROCESSING SYSTEM FOR PERFORMING EFFICIENT FUZZY LOGIC OPERATIONS AND METHOD THEREFOR

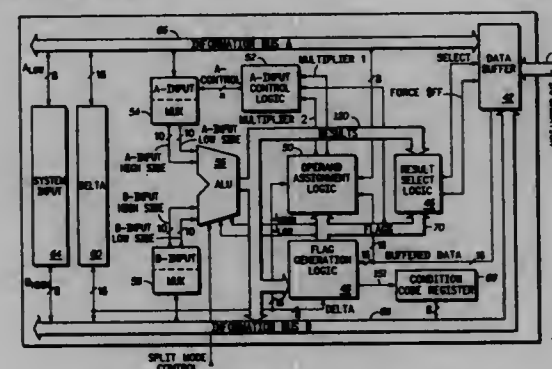
J. Greg Viot, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 22, 1994, Ser. No. 363,196

Int. Cl.⁶ G06F 9/44

U.S. Cl. 395—3

15 Claims



1. A data processing system for performing efficient fuzzy logic operations comprising: (a) an instruction decoder having an input for receiving an instruction for determining a degree of membership in a membership function, the instruction to be processed from an instruction set comprising a plurality of instructions, and having an output; and

- (b) an execution unit for executing a plurality of arithmetic and logic functions in response to a plurality of input signals from the output of the instruction decoder, including at least one input signal in response to the instruction for determining a degree of membership in the membership function, the execution unit also determining whether the membership function is a last membership function of a plurality of membership functions by examining a predetermined characteristic of the membership function;
- (c) the execution unit including a condition code register and placing a selected bit in the condition code register in a predetermined logic state in response to determining that the membership function is the last membership function of the plurality of membership functions.

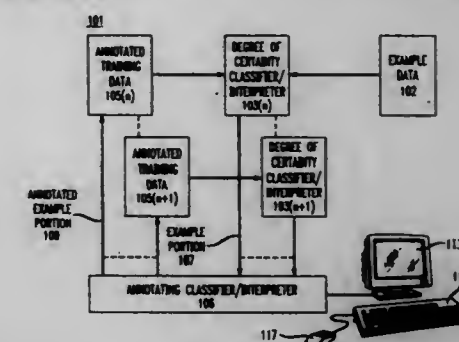
5,671,333 TRAINING APPARATUS AND METHOD Jason A. Catlett, Green Brook; William Arthur Gale, Maplewood, and David Dolan Lewis, Summit, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 7, 1994, Ser. No. 224,599

Int. Cl.⁶ G06E 1/00; G06F 15/18

U.S. Cl. 395—20

15 Claims



1. An apparatus for interpreting data, comprising: a current first classifier operative to interpret a plurality of actual examples of the data and to output an interpretation of each interpreted example and a certainty value associated with each interpretation wherein the current first classifier comprises a chooser operative to discriminate between certain ones of the outputted interpretations having respective high certainty values and uncertain ones of the outputted interpretations having respective low certainty values and to select and output each of the actual-examples associated with a respective uncertain one of the interpretations; a second classifier operative to annotate each of the interpreted examples associated with the selected uncertain ones of the interpretations and to output a preferred interpretation for each interpreted example associated with the selected uncertain ones of the interpretations; and an uncertainty measuring device generator operative to produce a next first classifier by utilizing at least one annotated example and its associated preferred interpretation, the next first classifier capable of interpreting subsequent actual examples of the data more accurately than the current first classifier.

5,671,334 NEURAL NETWORK MODEL FOR REACHING A GOAL STATE

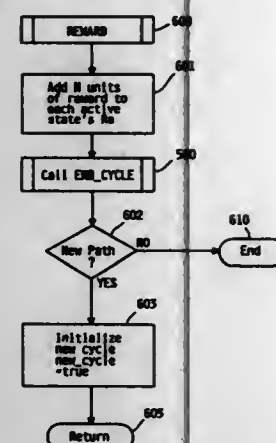
Kenton Jerome Lynne, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 790,806, Nov. 12, 1991, Pat. No. 5,172,253, which is a division of Ser. No. 541,570, Jun. 21, 1990, Pat. No. 5,113,482. This application Aug. 19, 1992, Ser. No. 932,429

Int. Cl. G06F 15/18

U.S. Cl. 395-21

6 Claims



1. A neural network model used to control the movement of an object amongst a plurality of states from a first state to a goal state, said model comprising:

- first learning means for learning a first path from said first state to said goal state;
- means for detecting an obstacle in said first path; and
- second learning means for learning an alternate path from said first state to said goal state.

5,671,335 PROCESS OPTIMIZATION USING A NEURAL NETWORK

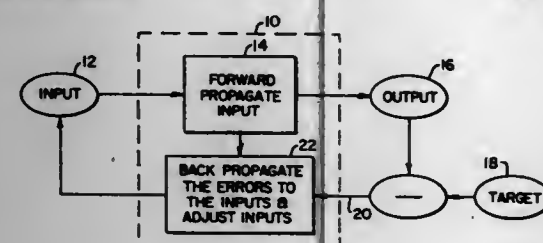
Gerald Wesley Davis, Franklin, and Michael L. Gasperi, Caladenia, both of Wis., assignors to Allen-Bradley Company, Inc., Milwaukee, Wis.

Continuation of Ser. No. 18,904, Feb. 8, 1993, abandoned, which is a continuation of Ser. No. 704,766, May 23, 1991, abandoned. This application Jan. 3, 1994, Ser. No. 707,191

Int. Cl. G06F 15/18

U.S. Cl. 395-23

6 Claims



1. A method of determining an optimized input to produce a target output in a complex multi-input process, the process having a teaching set of historical inputs and outputs, the method using a neural network having input, hidden, and output neurons, each neuron having an activation and having weighted interconnections with other neurons, where the neural network has been trained according to the teaching set to establish the weights of the interconnections between neurons and to produce a trained neural network comprising the steps of:

- a) presenting a trial input to the input neurons of the trained neural network;

- b) forward-propagating the trial input to determine the activations of the output neurons of the trained neural network;
- c) presenting the target output to the output neurons of the trained neural network;
- d) back-propagating the difference between the activations of the output neurons and the target output to compute an input error value for the input neurons of the trained neural network;
- e) adding a factor of the input error value to the trial input to create a modified trial input; and
- f) inputting the modified trial input to the complex multi-input process.

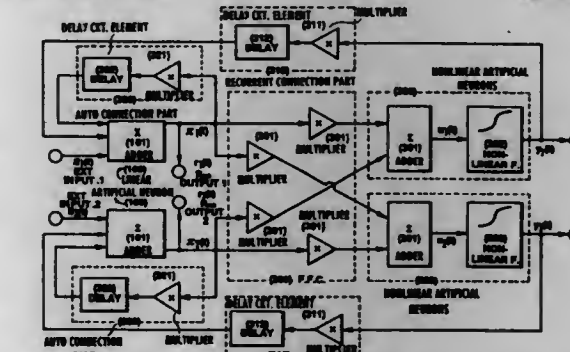
5,671,336 APPARATUS BASED ON N-VARIABLE UNLIMITED RECURRENT ADJUSTABLE NETWORK

Kazumi Yoshida, and Norimasa Kishi, both of Yokohama, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Sep. 15, 1994, Ser. No. 305,947
Claims priority, application Japan, Sep. 16, 1993, 5-230195
Int. Cl. G06E 1/00; G06F 15/18

U.S. Cl. 395-24

26 Claims



1. A nonlinear oscillation apparatus having a recurrent neural network having a two-layer hierarchical structure and a recurrent connection, each layer of said recurrent neural network including the same number of neuron elements, and said recurrent neural network comprising:

- a) a first layer including a plurality of circuits of linear artificial neurons x_i ($i=1, 2, \dots, n$);
- b) a second layer including a plurality of circuits of nonlinear artificial neurons y_j ($j=1, 2, \dots, n$) and arranged to convert input signals thereto into output signals by means of given same nonlinear functions f , their temperature parameters being denoted by T_j ;
- c) a feedforward connection part arranged to multiply outputs of the first layer circuits of linear artificial neurons x_i by feedforward connection coefficients w_{ji} and to output each of the multiplied outputs to a corresponding one of all of the circuits of nonlinear artificial neurons y_j of said second layer;
- d) a recurrent connecting part arranged to multiply outputs of the respective circuits of nonlinear artificial neurons y_j of said second layer by recurrent connection coefficients γ_j to output first-order delays of time constants τ_j for the multiplied outputs of the respective circuits of nonlinear artificial neurons y_j , and to input the delayed multiplied output of each respective circuit of nonlinear artificial neurons y_j to a corresponding one of the circuits of linear artificial neurons x_i of said first layer; and
- e) an auto connection part arranged to multiply the outputs of the respective circuits of linear artificial neurons x_i of the first layer, to output the first-order delays of the time constants τ_i for the multiplied outputs from said auto connection part, and to input again each of the first-order delayed outputs to the corresponding one of said circuits of linear artificial neurons x_i , and wherein said recurrent neural network operates in accordance with the following equation (1) and said nonlinear oscillation apparatus generates a nonlinear oscillation when said recurrent neural network operates in accordance with the

following equation (1),

$$\tau_1 \frac{dx_1}{dt} = -x_1 + \mu_1 x_1 + \lambda_1 f \left(\frac{w_{11}x_1 + w_{12}x_2 + \dots + w_{1n}x_n}{T_1} \right) \quad (1)$$

$$= g_1(x_1, x_2, \dots, x_n)$$

$$\tau_i \frac{dx_i}{dt} = -x_i + \mu_i x_i + \lambda_i f \left(\frac{w_{i1}x_1 + w_{i2}x_2 + \dots + w_{in}x_n}{T_i} \right)$$

$$= g_i(x_1, x_2, \dots, x_n)$$

$$\tau_n \frac{dx_n}{dt} = -x_n + \mu_n x_n + \lambda_n f \left(\frac{w_{n1}x_1 + w_{n2}x_2 + \dots + w_{nn}x_n}{T_n} \right)$$

$$= g_n(x_1, x_2, \dots, x_n)$$

wherein f denotes the given nonlinear function having saturation characteristics, and g denotes a characteristic function to discuss a stability of a differential equation and a nullcline when $g=0$.

5,671,337 NEURON UNIT

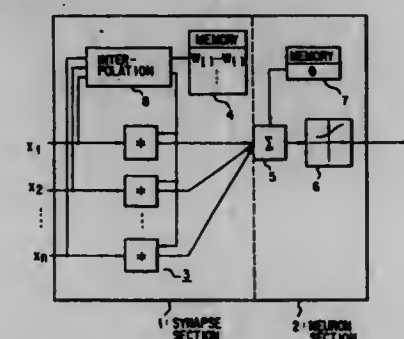
Takafumi Yoshihara, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 21, 1993, Ser. No. 171,013
Claims priority, application Japan, Dec. 24, 1992, 4-344602;
Oct. 8, 1993, 5-253138

Int. Cl. G06F 15/18

U.S. Cl. 395-27

35 Claims



1. A neuron unit comprising:

a synapse section including:

- synaptic weight generating means for generating a synaptic weight corresponding to the magnitude of an input signal, and
- multiplier means for multiplying said input signal and said synaptic weight, and

a neuron section including:

- first adder means for adding output signals of said multiplier means together,
- threshold value generating means for generating a threshold value,
- second adder means for adding an output of said threshold value

generating means to an output of said first adder means, and conversion means for subjecting an output of said second adder means to a predetermined conversion.

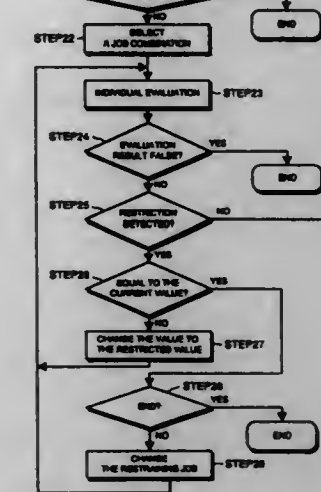
5,671,338 CONSTRAINT EVALUATION SYSTEM, EXPERT SYSTEM, AND CONSTRAINT EVALUATION METHOD

Dai Araki, Yokohama, and Katsumi Narimatsu, Kawasaki, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed Apr. 18, 1995, Ser. No. 423,576
Claims priority, application Japan, Apr. 19, 1994, 6-080697
Int. Cl. G06F 15/18

U.S. Cl. 395-51

14 Claims



1. A constraint evaluation system which, based on allocation proposal data representing an allocation proposal including a plurality of elements and condition data representing a constraint for the allocation proposal, evaluates the validity of the allocation proposal with the constraint, said constraint evaluation system comprising:

- first selecting means for sequentially selecting a combination of elements, included in the allocation proposal, for evaluation;
- evaluating means for performing an evaluation of each combination selected by said first selecting means to verify that the combination is consistent with the constraints;
- detecting means for detecting a restriction in a constraint, said restriction representing that one element of a combination of elements is uniquely determined by the other element of the combination;
- second selecting means for replacing a first element of the selected combination with an element determined by a second element of the combination based on the restriction when the restriction is detected in the constraint; and
- third selecting means for replacing the second element of the combination including the determined element with another element based on an evaluation of the combination.

5,671,339 OUTPUT APPARATUS

Shulchi Kumada, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 896,792, Jun. 9, 1992, abandoned, which is a continuation of Ser. No. 830,477, Feb. 7, 1992, abandoned, which is a continuation of Ser. No. 673,269, Mar. 21, 1991, abandoned, which is a continuation of Ser. No. 336,026, Apr. 11, 1989, abandoned. This application Sep. 28, 1994, Ser. No. 314,443

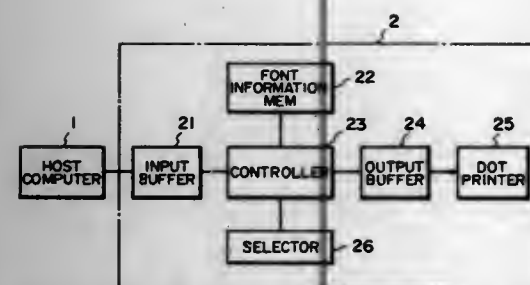
Claims priority, application Japan, Apr. 18, 1988, 63-095847;
Jun. 22, 1988, 63-152267

Int. Cl. G06K 15/00

U.S. Cl. 395-101

12 Claims

1. An output apparatus comprising:



memory means for storing a plurality of fonts each said font having a plurality of attributes;
 designation means for designating a condition of at least some of said attributes;
 discrimination means for discriminating for each of the plurality of fonts stored in said memory means whether the font satisfies the condition of said attributes designated by said designation means; and
 output means for outputting, as a list, information on all the fonts discriminated by said discrimination means as fonts that satisfy the designated condition of said attributes.

5,671,340 METHOD OF NON-OVERLAPPING ADDITIVE COLOR PRINTING

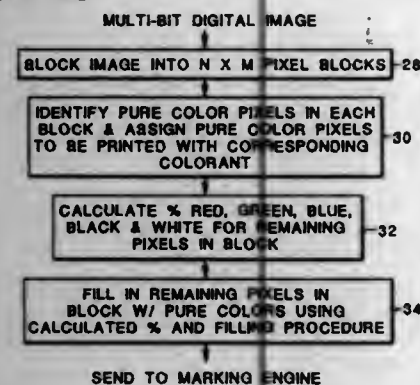
Edward N. Chapman, and Edward M. Housel, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 30, 1995, Ser. No. 565,467

Int. Cl.⁶ G06F 15/00; H04N 1/46; 5/14; G03F 3/08

U.S. Cl. 395—101

15 Claims



1. A multicolor printing method employing a color printer capable of printing non-overlapping primary colorants and a black colorant, comprising the steps of:

- providing a digital color image having n-bit/color pixels;
- dividing the digital image into a plurality of pixel blocks;
- identifying pure primary colorant pixels and black and white pixels in each block and assigning such pixels to be printed with the corresponding colorant or white (no colorant);
- calculating a percent primary colorant, and black and white for remaining pixels in each block;
- using the calculated percentages, assigning the remaining pixels in each block to be printed with pure primary colorant or black or white according to a predetermined filling procedure; and
- printing the image using the assigned colorants.

5,671,341 IMAGE PROCESSING APPARATUS AND METHOD THEREFOR

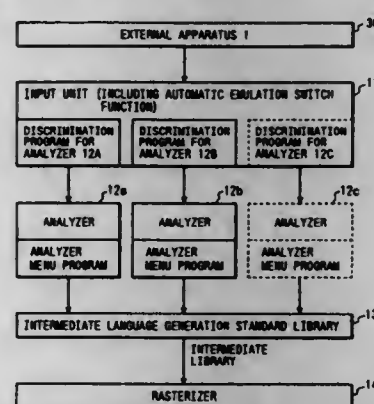
Masami Kashiwazaki, Kawasaki; Masaki Unishi, Tokyo, and Hisashi Koike, Sakura, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 17, 1993, Ser. No. 61,740

Claims priority, application Japan, May 18, 1992, 4-125136
 Int. Cl.⁶ G06K 15/00

U.S. Cl. 395—112

28 Claims



1. An output apparatus which analyzes a printer language received from an external apparatus using a printer language analysis program, generates data to be output based on the analyzed printer language and outputs the generated data, said output apparatus comprising:

determining means for determining whether a download command is received from the external apparatus;
 registration means, responsive to a determination by said determining means that the download command is received from the external apparatus, for downloading, from the external apparatus, a printer language analysis program and a discrimination program for discriminating whether the analysis program can analyze a printer language received from the external apparatus, and for storing the downloaded printer language analysis program and discrimination program in a memory;

executing means for executing the discrimination program stored in the memory to discriminate whether the received printer language can be analyzed by the analysis program stored in the memory; and

control means for executing the analysis program to generate the data to be output in response to a discrimination that the received printer language can be analyzed by the analysis program and for controlling said executing means to execute another discrimination program stored in the memory to discriminate whether the received printer language can be analyzed by another analysis program stored in the memory in response to a discrimination that the received printer language cannot be analyzed by the analysis program.

5,671,342 METHOD AND APPARATUS FOR DISPLAYING INFORMATION RELATING TO A STORY AND A STORY INDICATOR IN A COMPUTER SYSTEM

Marshall A. Millier, Hillsboro; Edward R. Harrison, Beaverton, and Bradford Needham, Hillsboro, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

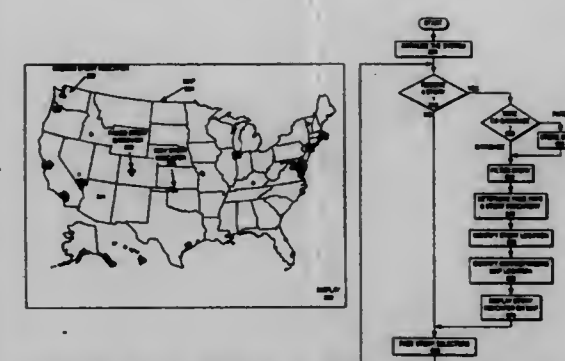
Filed Nov. 30, 1994, Ser. No. 347,809

Int. Cl.⁶ G09B 29/00

U.S. Cl. 395—118

17 Claims

1. A method of displaying information relating to a news story by a computer system, said method comprising the steps of:
 receiving said news story;
 determining a location corresponding to the geographic location where said news story originated;



displaying a story indicator on a map using said location, such that said story indicator is placed at said location corresponding to the geographic location where said news story originated; and
 fading said story indicator on said map using a fade rate determined by said computer system.

5,671,343 THREE-DIMENSIONAL MODELING APPARATUS AND METHOD UTILIZING THE EXTRACTION OF TOPOLOGICAL DATA, AS FROM TWO-DIMENSIONAL DRAWINGS

Satoshi Kondo, Kawasaki; Kazuma Shimizu, Kashiwa, and Yuichi Sato, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 753,977, Sep. 3, 1991, abandoned.

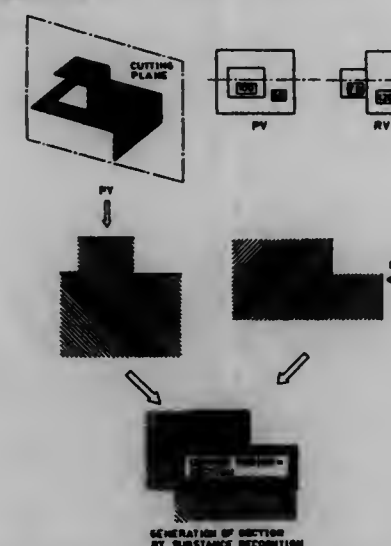
This application Dec. 9, 1994, Ser. No. 354,886

Claims priority, application Japan, Sep. 4, 1990, 2-235391; Sep. 4, 1990, 2-235392

Int. Cl.⁶ G06T 17/20; 7/60

U.S. Cl. 395—119

6 Claims



4. A three-dimensional drawing forming method comprising the steps of:

- recognizing a closed region of two-dimensional drawings, said recognizing step performing recognizing with regard to two-dimensional drawings of a first direction and those of a second direction, respectively;
- adding information in a depth direction to the closed region recognized in the recognizing step, said adding step performing addition with regard to two-dimensional drawings of a first direction and those of a second direction, respectively;
- forming a plurality of sectional information in accordance with the information in the depth direction added to the recognized closed region; and
- forming a three-dimensional drawing from the plurality of sectional information.

5,671,344 PROCESS FOR DISPLAYING N-DIMENSIONAL DATA IN AN N-1 DIMENSIONAL FORMAT

Tracy J. Stark, Houston, Tex., assignor to Exxon Production Research Company, Houston, Tex.

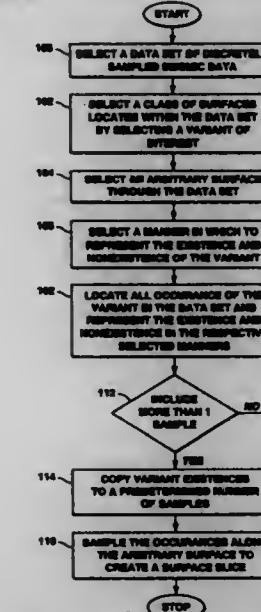
Continuation of Ser. No. 675,690, Mar. 27, 1991, abandoned.

This application Jan. 19, 1996, Ser. No. 588,827

Int. Cl.⁶ G06F 15/00; G01V 1/00

U.S. Cl. 395—119

81 Claims



1. A process for generating local N-1 dimensional representations of a class of surfaces in an N-dimensional data set wherein N represents the number of data dimensions and N is a positive integer greater than two, which comprises

- selecting a class of surfaces by selecting a variant, wherein said variant is any identifiable and isolatable attribute of the data which forms a surface of some finite extent throughout the data volume;
- selecting an arbitrary surface through the N-dimensional data set;
- selecting a manner in which to represent the existence and non-existence of said variant;
- locating the existence of, and representing in said manner, all occurrences of said variant within the N-dimensional data set; and
- sampling said occurrences relative to said arbitrary surface to create one surface slice by representing the existence of said occurrences, relative to said arbitrary surface, in said manner to thereby generate the local N-1 dimensional representation of the class of surfaces of the N-dimensional data set on the surface slice.

5,671,345 SYSTEM AND METHOD FOR INTERCEPTING AND RECONSTRUCTING GRAPHICS MANAGEMENT TOOL MARKING INSTRUCTIONS

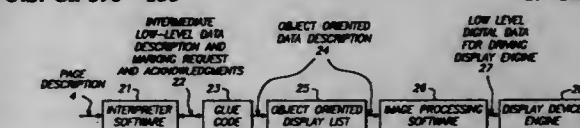
Vladimir Lhotak, Santa Clara, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Filed Jun. 6, 1995, Ser. No. 475,039

Int. Cl.⁶ G06T 11/00

U.S. Cl. 395—133

19 Claims



1. A system having a processor for performing digital data processing in response to software code, said system generating

data for driving a display device engine including interpreter software code for interpreting a first object-based page description that is formatted according to a first software language and converting said first page description into a marking request, said marking request being formatted according to said first software language, said interpreter software code being configured so as to transmit said marking request to a marking software code and await a marking request receipt acknowledgment signal back from said marking software code, said system comprising:

a first software code for intercepting said marking request originating from said interpreter software code, said first software code transmitting said marking request receipt acknowledgment signal to said interpreter software code in response to said marking request, said first software code evaluating said marking request to obtain marking request state information, said first software code combining previous marking request state information with said marking request state information to generate accumulated marking request state information, said first software code converting said marking request into an object-based display list description by interpreting said marking request and said accumulated marking state information, said display list description being formatted according to a second software language and providing individual object data;

a digital storage area for storing said display list description; a second object-based software code for accessing said display list description from said digital storage area, for processing said display list description, and for converting said display list description into said data for driving said display device engine.

5,671,346

FIGURE PROCESSING METHOD

Masaaki Tamura, Fuchu; Ayako Fujii; Yoshiko Kobari, both of Kawasaki; Mamoru Nagano, Yokohama; Kiyoshi Watanabe, Kawasaki; Hidehiko Morinaga, Tokyo; Shigeki Koyama, Yokohama, and Yoshikazu Sawada, Inagi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

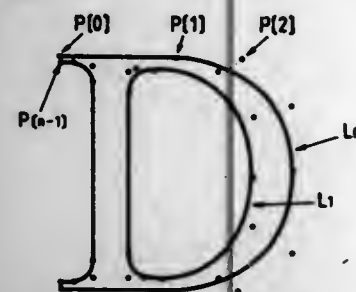
Filed Aug. 2, 1991, Ser. No. 741,243

Claims priority, application Japan, Aug. 3, 1990, 2-206615

Int. Cl. G06F 11/80

U.S. Cl. 395—171

42 Claims



1. A figure processing apparatus comprising:
display means for displaying an outline of a figure and a plurality of sample points representing the figure;
designation means for designating one of the plurality of sample points displayed by said display means;
means for determining at least one of the plurality of sample points having the same x- or same y-coordinate as the designated sample point; and
means for moving the designated sample point together with the at least one sample point determined by said determining means.

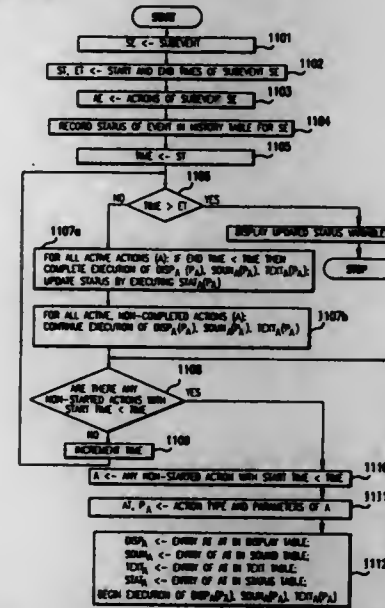
5,671,347 METHOD AND APPARATUS FOR BROADCASTING LIVE EVENTS TO ANOTHER LOCATION AND PRODUCING A COMPUTER SIMULATION OF THE EVENTS AT THAT LOCATION

David R. Barstow, 107 Laura La., Austin, Tex. 78746, and Daniel W. Barstow, 99 Pine Point Rd., Stow, Mass. 01775
Continuation of Ser. No. 920,355, Jul. 29, 1992, Pat. No. 5,526,479, which is a continuation-in-part of Ser. No. 542,990, Jun. 25, 1990, abandoned. This application Jun. 10, 1996, Ser. No. 660,891

Int. Cl. G06F 9/455

U.S. Cl. 395—173

18 Claims



1. A method of broadcasting information about a live event that is composed of a sequence of discrete sub-events wherein a set of rules governs the event so that a status change resulting from the occurrence of a sub-event is determined by the set of rules, comprising the steps of:

creating a set of symbols useful in a computer simulation, wherein each symbol is representative of an action involving physical exertion and skill;
generating a sequence of symbolic descriptions, each description being a representation of one of the discrete sub-events, and includes at least one symbol from said set of symbols wherein said symbol may be used in a computer simulation to effect a change in an indicated status of an event in connection with a computer simulation program that operates in accordance with the set of rules governing the event;
creating a database file corresponding to the event;
updating said database file using the generated sequence of symbolic descriptions;
creating transmission data from the generated sequence of symbolic descriptions; and
broadcasting said transmission data.

5,671,348

NON-VITAL TURN OFF OF VITAL OUTPUT CIRCUIT

William A. Petit, Claremont, Calif., assignor to General Railway Signal Corporation, Rochester, N.Y.

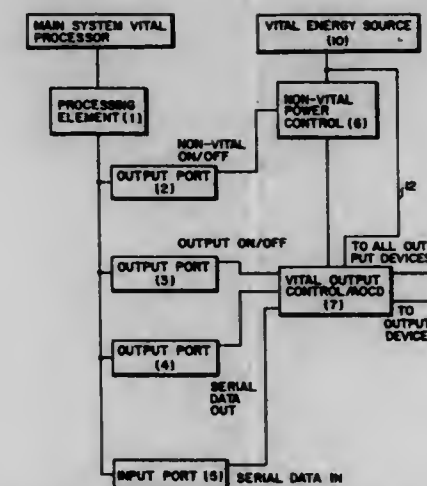
Filed Jun. 6, 1995, Ser. No. 473,557

Int. Cl. B61L 27/00; G06F 11/08

U.S. Cl. 395—180

4 Claims

1. A vital information processing system adapted for railway signaling and control operations and having means for detecting the state of the outputs therefrom, comprising:
a vital energy source;
a vital processor including (a) a processing means and (b) at least three output ports and an input port forming part of said



processor means, and in which a first of said output ports provides a non-vital on/off operation, and a second output port of said output ports provides a vital on/off operation; and means for optionally shutting down the entire system, involving all outputs, or shutting down a selected output device, thereby to improve the overall system availability, said optionally shutting down means including:

a non-vital power control having a first input connected to said first output port and having a second input connected to said vital energy source; and
a vital output control having a first input connected to said second output port, having a second input connected to said third output port, and having an output connected to said input port; and said vital output control having a third input connected to an output of said non-vital power control.

5,671,349

APPARATUS AND METHOD FOR PROVIDING DATA REDUNDANCY AND RECONSTRUCTION FOR REDUNDANT ARRAYS OF DISK DRIVES

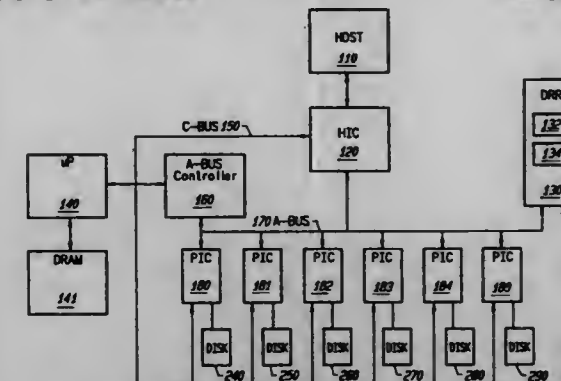
Ebrahim Hashemi, Los Gatos, Calif., and Martin E. Schulze, Longmont, Colo., assignors to Hitachi Computer Products America, Inc., Santa Clara, Calif.

Filed Dec. 6, 1994, Ser. No. 350,743

Int. Cl. G06F 11/00

U.S. Cl. 395—182.04

20 Claims



1. In a data storage system having a plurality of data storage devices, an apparatus for constructing and reconstructing redundancy data by utilizing a set of $N \times N$ T-matrices formed from a polynomial of degree N, said apparatus comprising:
said plurality of data storage devices arranged in a parallel array;
a host interface means for receiving read and write requests from a host for data stored in said plurality of data storage devices;
a means for constructing a reconstructing said redundancy data, said means comprising a means for constructing each of said $N \times N$ T-matrices, each of a select one of said $N \times N$ T-matrices constructed from a given column vector of said selected $N \times N$

T-matrix according to the following equation:

$$\text{coln}(n+1) = [\text{coln}(n) \cdot 2, \text{ if } \text{coln}(n) \leq 7F_A] \\ [[\text{coln}(n) \cdot 2] \oplus A9_n, \text{ if } \text{coln}(n) \geq 80_n]$$

5,671,350

DATA BACKUP SYSTEM WITH METHODS FOR STRIPE AFFINITY BACKUP TO MULTIPLE ARCHIVE DEVICES

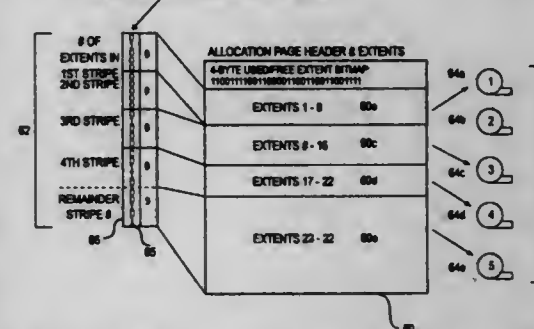
Timothy E. Wood, San Francisco, Calif., assignor to Sybase, Inc., Emeryville, Calif.

Continuation of Ser. No. 129,942, Sep. 30, 1993, Pat. No. 5,515,502. This application Apr. 10, 1996, Ser. No. 630,149

Int. Cl. C06F 13/00

U.S. Cl. 395—182.13

21 Claims



1. In a computer system comprising a plurality of storage devices and a plurality of archive devices, each storage device storing information as a plurality of data pages on a storage media, a method for transferring information stored on said storage devices to said archive devices, the method comprising:

(a) for each storage device, grouping data pages for the storage device into a sequence of extent groups, each extent group comprising some of the data pages for the storage device;
(b) for each storage device, associating said extent groups of the storage device with respective archive devices, so that each archive device has associated therewith a plurality of corresponding extent groups from multiple ones of said storage devices;
(c) transferring information stored on the storage devices to said archive devices by transferring to each of the archive devices those extent groups associated with that archive device so that each storage device's extent groups are distributed among multiple ones of said plurality of archive devices and each archive device contains data pages from multiple ones of said plurality of storage devices.

5,671,351

SYSTEM AND METHOD FOR AUTOMATED TESTING AND MONITORING OF SOFTWARE APPLICATIONS

Ulrich H. H. Wild, Dallas, and Mohamed Iyad Jabri, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 13, 1995, Ser. No. 420,969

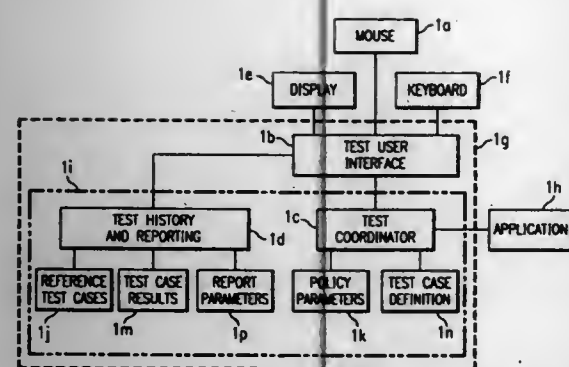
Int. Cl. G06F 11/00

U.S. Cl. 395—183.14

8 Claims

1. A computer system for post deployment testing, dynamic monitoring and diagnosis of an on-line application, said on-line application including and operable to execute at least one built-in test case built into said application, said built-in test case operable to test at least one aspect of said on-line application, the system comprising:

a test coordinator responsive to said on-line application for storing registration information describing said at least one built-in test case to a test case definition storage;



a test user interface responsive to a user for presenting said at least one built-in test case to said user in accordance with the registration information and for accepting a request to initiate execution of said at least one built-in test case;

said test coordinator responsive to said request for initiating and controlling said execution of said at least one built-in test case in accordance with a set of policy variables and for periodically providing status information to said test user interface during said execution of said at least one built-in test case;

said test user interface further operable to present said status information to said user during said execution of said at least one built-in test case; and

test history reporting responsive to said test user interface and said test coordinator for evaluating execution results of said at least one built-in test case in accordance with said set of policy parameters, thereby generating evaluation results.

5,671,352

ERROR INJECTION TO A BEHAVIORAL MODEL

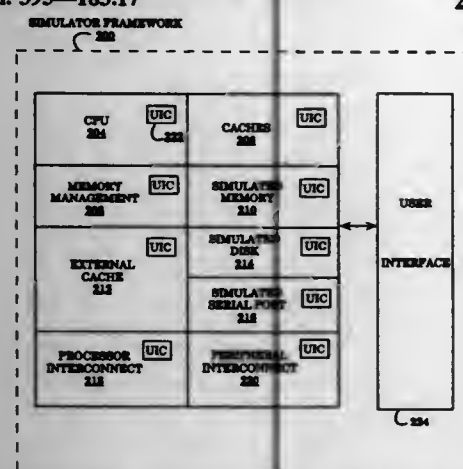
Ramesh Subrahmaniam, Union City, and Elizabeth George, Sunnyvale, both of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 7, 1995, Ser. No. 099,202

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—183.17

20 Claims



9. An apparatus for testing an error handler on a simulated hardware comprising:

an error injection mechanism for dynamically injecting an error information including error type and an address range, said error information being dynamically injected into one of a plurality of simulated components of said simulated hardware while said simulated hardware is running, each said plurality of simulated components having a dedicated first user interface module for receiving said error information, said error injection mechanism causing said error type to occur within said address range to test whether said error handler is correctly handling said error type;

and

a second user interface module for allowing said dynamic injection of said error information into said simulated hardware, said second user interface module accepting said error information from a user while said simulated hardware is running and transmitting said error information to said dedicated first user interface module of any one of said plurality of simulated components.

5,671,353

METHOD FOR VALIDATING A DIGITAL IMAGING COMMUNICATION STANDARD MESSAGE

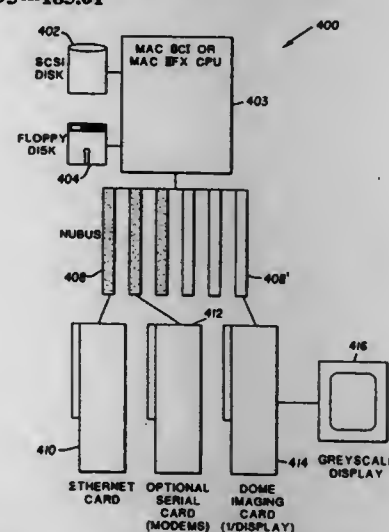
Helen He Tian, Plano, Tex.; Brian C. Madsen, Carpinteria, Calif., and Donald Mason, Garland, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 16, 1996, Ser. No. 602,412

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—185.01

20 Claims



1. A method for validating a DICOM message comprising the steps of:

- transforming a physical image on radiological film into a digital image;
- storing the digital image in computer memory;
- encapsulating the digital image in a DICOM message in computer memory;
- accessing a dictionary in computer memory to obtain a list of elements and modules comprising the DICOM message;
- building a validation list in computer memory for the DICOM message;
- accessing a dictionary in computer memory to obtain a set of rules for validating the elements and modules comprising the DICOM message;
- accessing a dictionary in computer memory to obtain a set of warnings associated with the rules for validating the elements and modules comprising the DICOM message;
- comparing the rules to the elements and modules comprising the DICOM message;
- generating a warning when an element or module violates a rule;
- storing the warning in the validation list in computer memory; and
- examining the validation list to determine whether the DICOM message is semantically conforming with a DICOM standard.

5,671,354

METHOD OF ASSISTING SERVER ACCESS BY USE OF USER AUTHENTICATION INFORMATION HELD IN ONE OF SERVERS AND A METHOD OF ASSISTING MANAGEMENT USER ACCOUNT FOR USE OF SERVERS

Tsutomu Ito, Kanagawa; Toshio Hirose, Machida; Atsushi Ueoka, Ome; Motohide Kokunishi, Hachioji; Tadashi Yamagishi, Yokohama, and Kouichi Nakatsu, Hadano, all of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Computer Engineering Co., Ltd., Hadano, both of Japan

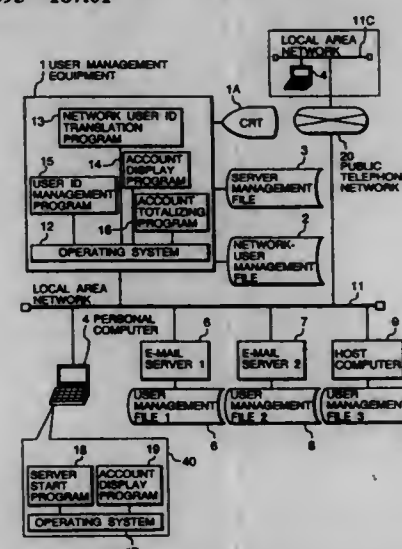
Filed Feb. 23, 1996, Ser. No. 606,099

Claims priority, application Japan, Feb. 28, 1995, 7-039510

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—187.01

11 Claims



1. A method of assisting account information management in a network system which has a plurality of servers, and a network for connecting said plurality of servers, the method comprising the steps of:

- gathering, by a particular one of said servers, server account information from each server for each of plural users who have authorization to access said each server via a client terminal;
- holding, by said particular server, account information for each of the users, as gathered from said plurality of servers;
- transmitting, by one client terminal connected to said network, to said one particular server, user authentication information predetermined for one of said users for said particular server and an account display request;
- transmitting, by said particular server to said one client terminal, account information as gathered by said particular server from said plurality of servers for a user to whom said transmitted user authentication information has been assigned; and
- displaying said transmitted account information by said one client terminal.

5,671,355

RECONFIGURABLE NETWORK INTERFACE APPARATUS AND METHOD

Mark Andrew Collins, Austin, Tex., assignor to PredaComm, Inc., Austin, Tex.

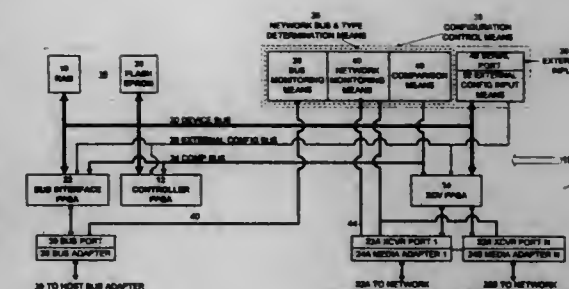
Continuation-in-part of Ser. No. 265,498, Jun. 23, 1994, abandoned, which is a continuation-in-part of Ser. No. 905,285, Jun. 26, 1992, abandoned. This application Sep. 13, 1996, Ser. No. 713,755

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.2

16 Claims

1. A reconfigurable computer network interface apparatus comprising:



(a) a reconfigurable transceiver having a transceiver port associated therewith for operatively connecting with a transceiver connector of a media adapter, and further including a transceiver configuration input for receiving hardware and software transceiver configuration instructions, and a circuit array that is reconfigurable by the transceiver configuration instructions to communicate across the transceiver port in any one of a plurality of network hardware protocols;

(b) a media adapter having a media connector for operatively connecting to a desired computer network communications medium, and further having the transceiver connector for operatively connecting to the transceiver port, the transceiver connector being in communication with the media connector for enabling data to be passed back and forth between the transceiver port and the communications medium to which the media connector is connected;

(c) a reconfigurable bus interface having a bus port associated therewith, and further including a bus configuration input for receiving hardware and software bus configuration instructions, and a circuit array that is reconfigurable by the bus configuration instructions to communicate across the bus port in any one of a plurality of bus architecture protocols;

(d) a bus adapter having a bus port connector for operatively connecting with the bus port associated with the reconfigurable bus interface, and also having a bus socket connector for operatively connecting to a socket of a particular computer bus type, the bus port connector and the bus socket connector being in communication for passing data back and forth between a computer bus to which the bus socket connector is connected and the bus port associated with the reconfigurable bus interface;

(e) a device bus connected to the reconfigurable transceiver and the reconfigurable bus interface;

(f) a reconfigurable controller connected to the device bus, the reconfigurable controller including a controller configuration input for receiving hardware and software controller configuration instructions, and further including a circuit array that is reconfigurable by the controller configuration instructions to communicate with the reconfigurable transceiver across the device bus in any one of a plurality of different network software protocols, and to communicate with the reconfigurable bus interface across the device bus;

(g) configuration control means connected to the reconfigurable transceiver, the reconfigurable controller, and reconfigurable bus interface for directing the transceiver configuration instructions to the transceiver configuration input, for directing the controller configuration instructions to the controller configuration input, and for directing the bus configuration instructions to the bus configuration input; and

(h) memory means connected to the device bus for storing digital data.

h) searching said second data base to determine if there is a match for the matched radiologist and body part and x-ray projection data associated with said provided x-ray image signal, and if no match is found, searching said first data base for the default data of said default body part and default x-ray projecting and temporarily associating said default body part and default x-ray projection with said part and default x-ray projection with said provided x-ray image signal; and wherein at step f said second data base is searched to determine that there is a match for the matched radiologist, default body part and default x-ray projection, and there is extracted from said matched file, said one or more versions with edge enhancement and tonescale image processing parameters.

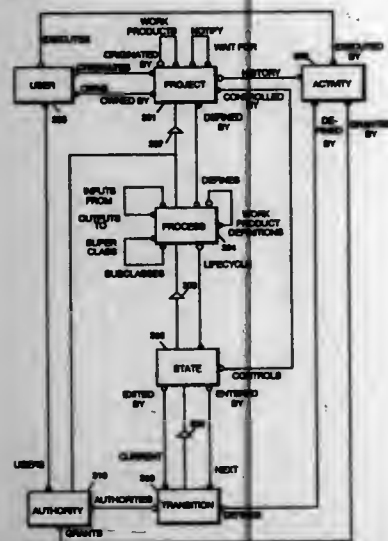
5,671,360
PROJECT MANAGEMENT TOOL IMPLEMENTING AUTHORITY FOR A PEOPLE ORIENTED WORK ENVIRONMENT TOOL

Geoffrey Martin Hambrick, Round Rock, and Judd Thomas Rogers, Austin, both of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 20, 1995, Ser. No. 375,758
Int. Cl.⁶ G06F 15/21

U.S. Cl. 395—209

13 Claims



1. A data processing system implementing an object-oriented programming language environment for representing a people oriented work environment for managing a project, wherein said system includes a processor, a storage means, an input means, and an output means coupled via a bus, said system comprising:

- means for modeling said project as an object-like software packet within said object-oriented programming language environment;
- means for modeling an authority as an object-like software packet within said object-oriented programming language environment, wherein said authority inherits attributes of said project;
- means for modeling a process as an object-like software packet within said object-oriented programming language environment, wherein said process inherits attributes of said project;
- means for modeling a state as an object-like software packet within said object-oriented programming language environment, wherein said state inherits attributes of said process;
- means for modeling a transition as an object-like software packet within said object-oriented programming language environment, wherein said transition inherits attributes of said state;
- means for modeling a user as an object-like software packet within said object-oriented programming language environment;

ment, wherein said user owns and/or originates said project, and wherein said authority contains a list of users including said user;

means for determining if said project is controlled by said state associated with said transition;

means for denying said authority if said project is not controlled by said state associated with said transition;

if said project is controlled by said state associated with said transition, means for determining whether or not said transition has a guard;

means for denying said authority if said transition has said guard and said guard fails;

if said guard passes, or if said transition has no guard, means for determining whether or not said user invoking said transition owns said project;

means for granting said authority if said user owns said project, otherwise means for determining whether or not said transition has any of said authority remaining;

means for denying said authority if said transition does not have any of said authority remaining, otherwise means for checking said authority to determine whether or not said user is listed in said authority; and

means for granting said authority if said user is listed in said authority and if a condition associated with said authority is passed.

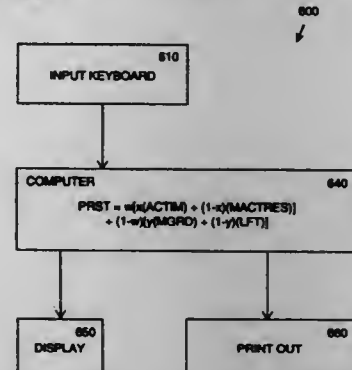
5,671,361
PRIORITY RULE SEARCH TECHNIQUE FOR RESOURCE CONSTRAINED PROJECT SCHEDULING

James T. Brown, Titusville, and Robert L. Armacost, Cape Canaveral, both of Fla., assignors to University of Central Florida, Orlando, Fla.

Filed Sep. 28, 1995, Ser. No. 535,457
Int. Cl.⁶ G06F 7/00

U.S. Cl. 395—209

12 Claims



1. A method of scheduling job tasks and activities of construction, manufacturing, research, and development projects to minimize overall duration time of the projects, comprising the steps of:

- (a) identifying all job tasks of a project to be scheduled, wherein the project is chosen from at least one of: a construction project, manufacturing project, research project and development project;
- (b) identifying all resources available for the project to be scheduled;
- (c) identifying time values for completing each task for the project to be scheduled;
- (d) computing a priority index value for each job task in accordance with the equation:

$$PRST = w[x(ACTIM) + (1-x)(MACTRES)] + (1-w)[y(MGRD) + (1-y)(LFT)]$$

where:

- w is a variable incremented between 0 and 1,
- x is a variable incremented between 0 and 1,
- ACTIM is critical path time minus late start time for each task,

MACTRES is the task duration multiplied by the sum of the scaled resource requirements for the task, plus addition of maximum MACTRES value following the task;

MGRD is sum of scaled resource requirements for the activity multiplied by resource type complexity factor of the task;

LFT is the latest finish time to complete the task; and

(e) providing a schedule of job tasks based on the priority index values for each task, wherein the all job tasks for the project are in one schedule which minimizes the duration time to complete the project.

5,671,362
MATERIALS MONITORING SYSTEMS, MATERIALS MANAGEMENT SYSTEMS AND RELATED METHODS

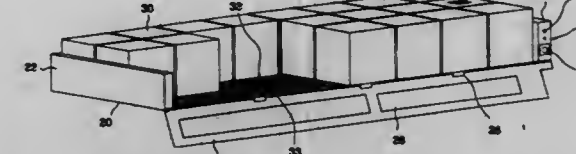
Alan B. Cowe, 12 Towpath Rd., Denville, N.J. 07834, and Roland Werres, 27 Chesterfield Dr., Warren, N.J. 07059

Filed Apr. 4, 1995, Ser. No. 417,745

Int. Cl.⁶ G06F 15/30

U.S. Cl. 395—228

15 Claims



1. A materials monitoring system comprising:
 - a) a traffic-sensing electronic product-storage unit having:
 - i) a storage volume to store multiple materials product items arranged in side-by-side relationship;
 - ii) a storage volume defining surface to extend along said side-by-side multiple product items when stored, said stored product items each having a spatial form projecting an outline onto said storage volume defining surface; and
 - iii) an item activity-sensing subsystem continually to monitor the product items in the storage volume and produce a stored item activity output, said item activity-sensing subsystem including a sensing grid comprising an array of product item sensors distributed in relation to said storage volume defining surface so that each projected outline of a product item on the storage volume surface includes multiple sensors, each said sensor being responsive to the presence of a product item positioned in occluding relationship with the sensor to provide a sensor output, said multiple sensors providing sensor output pattern data indicative of said product item projected outline and useful for determining stored item activity; and
 - b) a data-processing subsystem to process said sensor output pattern data for said multiple product items and generate product item activity information including product item withdrawal information;

whereby said materials monitoring system can automatically generate a product traffic report, including withdrawals of product items from said storage volume as said withdrawals are made.

5,671,363
PRIVATE STOCK OPTION ACCOUNT CONTROL AND EXERCISE SYSTEM

John M. Cristofich, Bridgewater, and Susan E. Warner, Lawrenceville, both of N.J., assignors to Merrill Lynch, Pierce, Fenner & Smith Inc., New York, N.Y.

Continuation of Ser. No. 938,939, Sep. 1, 1992, abandoned.

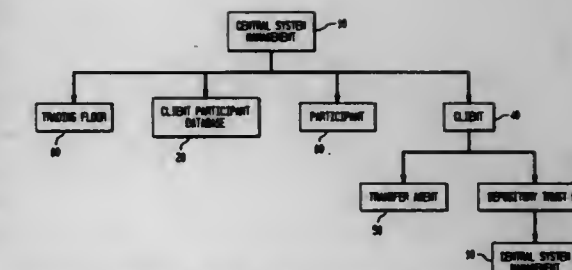
This application Jun. 7, 1995, Ser. No. 487,902

Int. Cl.⁶ G06F 17/60; 15/70

U.S. Cl. 395—237

49 Claims

1. A system for the management of a plurality of distinct accounts corresponding to the provision of privately issued option



contract rights to a group of individuals in accordance with pre-established plan criteria, comprising:

- addressable data storage means for nonvolatile storage of data in accounts segregated according to participant and client entries wherein participant data records include demographic and employment related information and specified accounts of granted, vested, and exercised options, of option holdings information for each of said accounts, of plan criteria, and of an axiomatic rule system at least in part defining said plan criteria and the exercise of said options;
- client/participant communication means for accessing system management for entry of transaction requests and confirmation of stored information;
- system management processor means for accessing said storage means and receiving said client/participant transaction requests and processing automatic security transactions in accordance therewith; and
- brokerage account means for accessing market price data on select securities and implementing said system-requested security transactions in accordance with said option holdings information and said axiomatic rule system.

5,671,364
METHOD AND SYSTEM FOR COMMODITY-BASED CURRENCY FOR PAYMENT OF ACCOUNTS AND ELIMINATION OF PAYMENT RISK

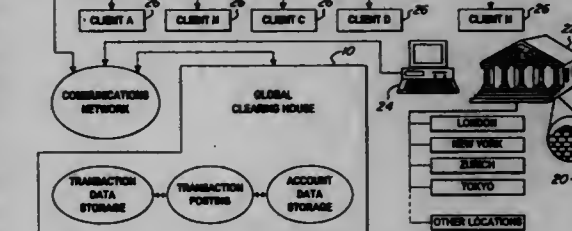
James J. Turk, P.O. Box 4682, Greenwich, Conn. 06830

Continuation-in-part of Ser. No. 15,588, Feb. 10, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 465,430

Int. Cl.⁶ G06F 15/30; 15/00

U.S. Cl. 395—239

16 Claims



1. An electronic commodity based system for conducting financial transactions, comprising:
 - at least one deposit site having secure facilities for storage of a commodity;
 - an inventory of a valuable commodity stored in said secure facilities at a said deposit site, said inventory including a quantity of units of said valuable commodity held at said deposit site for an account of at least one identified person;
 - a computer system for processing data for accounting transactions denominated in said units of said commodity, having
 - (a) an account data storage device for recording data comprising an identification of persons and a quantity of units of said commodity credited to said account of each of said persons and an identification of said deposit site where said units of commodity are held,
 - (b) a transaction data storage device for receiving records of transactions denominated in units of said commodity from a said person identified as having a quantity of said units of said commodity credited to said account of said person,

said records of transactions including at least an identification of a person who will receive a debit, a person who will receive a credit, an amount of a debit of a quantity of said units of said commodity held at a deposit site, an amount of a credit of a quantity of said units of said commodity held at a deposit site, and an identification of the deposit site where said quantity of said units of said commodity are held;

(c) a transaction posting device for posting said records of transactions to said account data storage device to update said data comprising an identification of persons and a quantity of units of said commodity credited to said account of said persons at an identified deposit site;

a remote terminal located at said deposit site for receiving and sending data to said computer system, said data identifying a person and a quantity of units of said commodity held at said deposit site for an account of said person;

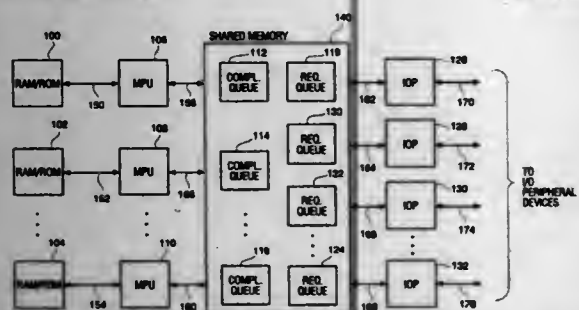
said electronic commodity based system permitting persons to conduct financial transactions without reliance on national currencies in conducting said financial transactions whereby obligations, of a person receiving a said debit of said units of said commodity held at a deposit site, to another person receiving a said credit of said units of said commodity held at a said deposit site, are extinguished upon posting of said records of transactions, thereby eliminating payment risk.

5,671,365 I/O SYSTEM FOR REDUCING MAIN PROCESSOR OVERHEAD IN INITIATING I/O REQUESTS AND SERVICING I/O COMPLETION EVENTS

Charles D. Binford; Michael J. Gallagher, and Craig C. McCombs, all of Wichita, Kans., assignors to Symbios Logic Inc., Fort Collins, Colo.

Filed Oct. 20, 1995, Ser. No. 546,003
Int. Cl.⁶ G06F 1/00

U.S. Cl. 395—280



1. In a computing system having a first processor for generating input/output (I/O) requests and a second processor for performing I/O requests, an I/O interface system comprising:

a queue associated with said first processor and associated with said second processor;

means, in said first processor, for generating I/O requests for processing by said second processor and for adding said I/O requests to said queue;

means, in said second processor, for removing I/O requests from said queue and for generating a completion message corresponding to each of said I/O requests removed from said queue;

interrupt means, in said second processor, for applying an interrupt request signal to said first processor when at least two said completion messages are generated; and
completion means, in said first processor, for retrieving said completion messages.

5,671,366 OPERATING SYSTEM OPTIMIZATION TO PERMIT USE OF A FIRST UNIT WITH A SECOND UNIT TO EXTEND THE FUNCTIONALITY OF THE FIRST

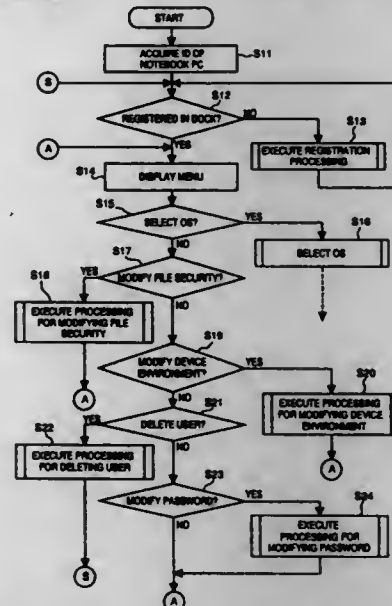
Nobuyuki Niwa, Tokyo; Yasuhiro Yokota, Yokohama; Shinji Shiraga, Kawasaki; Tomoaki Kikuchi, Ayase; Hiroya Miura, Tokyo, and Kenji Morita, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 30, 1995, Ser. No. 380,809

Claims priority, application Japan, Feb. 4, 1994, 6-013024
Int. Cl.⁶ G06F 13/00; 9/445; H05K 7/10

U.S. Cl. 395—281

21 Claims



1. An information processing system including a first electronic device having a standard input/output unit and being for executing processing independently, and a second electronic device having a standard input/output unit which, when said first electronic device has been connected to said second electronic device, takes the place of the standard input/output unit of said first electronic device, wherein said system comprises:

search means for searching for bootable storage devices in said first and second electronic devices;

display means for displaying a list of bootable operating systems in accordance with a search result obtained by said search means;

selecting means for selecting one of the displayed operating systems on the basis of designation by a user; and

start-up means for starting up the operating system selected by said selecting means.

5,671,367 MICROCOMPUTER PC-CARD HAVING SWITCHING CIRCUIT FOR CONTROLLING ACCESS TO MEMORY BASED ON CONTROL SIGNALS FROM INTERNAL MICROPROCESSOR ON CONTROL SIGNALS FROM EXTERNAL PC

Jean-Yves Le Roux, Domaine de la Cyprière, France, assignor to Gemplus Card International, Gemenos, France

Continuation of Ser. No. 993,607, Dec. 21, 1992, abandoned.

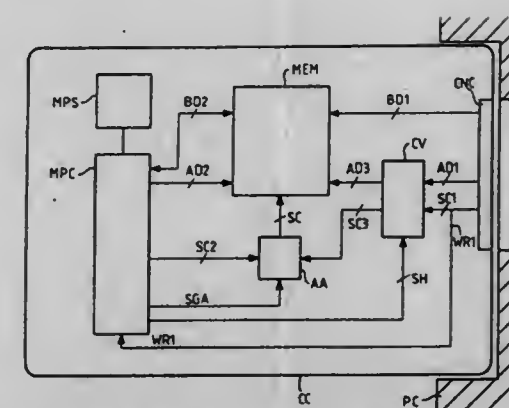
This application May 17, 1995, Ser. No. 441,336

Claims priority, application France, Jan. 14, 1992, 92 00322
Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—282

10 Claims

1. An external card (CC) attachable to a computer (PC) comprising: a memory (MEM) accessible by said computer (PC) through a direct connection on a data bus (BD1) and through a locking circuit (CV) connection on an address bus (AD1);
a microprocessor (MPC);



means (BD2, AD2) for directly accessing an instruction program contained in the memory, said means for directly accessing including an operational bus (BD2) of the microprocessor directly connected to an output bus of the memory (MEM); a switching circuit (AA) controlled by the microprocessor for supplying control signals (SC) to control performance of the memory (MEM), said switching circuit (AA) based on the control signals received controls access to the memory, either by the control signals from the computer (SC1, SC3) in which the card is inserted or by the control signals from the microprocessor (SC2, SGA); and

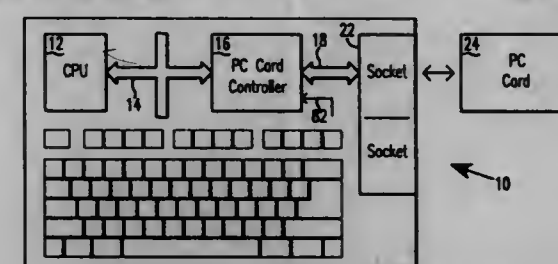
said locking circuit (CV) is controlled by a clearance bus (SH) from the microprocessor, enables /authorization/inhibition signals (SC1, SC3) from the computer or an address signal on said address bus (AD1, AD3) passing through this locking circuit (CV) for ensuring access security to the memory (MEM) from the computer.

5,671,368 PC CARD CONTROLLER CIRCUIT TO DETECT EXCHANGE OF PC CARDS WHILE IN SUSPEND MODE Reginia K. Chan, Fremont, and Yishao Max Huang, San Jose, both of Calif., assignors to O₂ Micro, Inc., Santa Clara, Calif.

Filed Feb. 22, 1996, Ser. No. 605,752
Int. Cl.⁶ H02H 9/00; G06F 9/44; 1/32

U.S. Cl. 395—282

18 Claims



1. A PC Card controller adapted for use in a host computer which includes a central processing unit ("CPU"), the CPU having at least two operating modes, one operating mode of the CPU being a normal operating-mode and another operating mode of the CPU being a lower power, Suspend operating-mode, the CPU responding only to a limited class of interrupt signals while operating in the Suspend operating-mode, the PC Card controller comprising:

a host-computer bus-interface adapted for exchanging digital signals, including interrupt signals, with a bus included in the host computer, interrupt signals supplied to the bus of the host computer by said host-computer bus-interface being received and processed by the CPU if the CPU is operating in the normal operating-mode;

a PC Card interface-circuit for exchanging digital signals with a PC Card inserted into a PC Card socket included in the host computer, during normal operation of the CPU said PC Card interface-circuit generating an interrupt signal for transmis-

sion to the CPU via said host-computer bus-interface upon insertion of a PC Card into the PC Card socket;

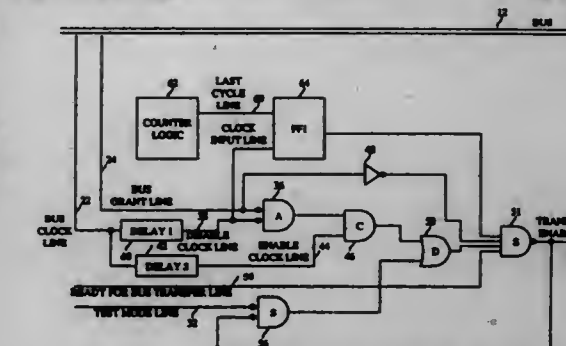
a suspend/resume pin for receiving a suspend/resume signal which, in a first state of the suspend/resume signal, indicates that the CPU is not operating in the Suspend operating-mode, and which, in a second state of the suspend/resume signal, indicates that the CPU is operating in the Suspend operating-mode; and

a fake PC Card-insertion-interrupt generator which, upon detecting a change in the suspend/resume signal from the second state to the first state, generates, for transmission to the CPU via said host-computer bus-interface, an interrupt signal that simulates insertion of a PC Card into the PC Card socket.

5,671,369 BUS GRANT OVERLAP CIRCUIT Paul A. LaBerge, Coon Rapids; Gregory B. Wiedenman, Woodbury, both of Minn., and Donald E. Harding, Downingtown, Pa., assignors to Unisys Corporation, Blue Bell, Pa. Filed Dec. 22, 1995, Ser. No. 587,772 Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—287

10 Claims



1. A bus grant overlap circuit for minimizing inactive bus time between transfers on a bus, the bus providing a bus clock signal on a bus clock line and a bus grant signal on a bus grant line, comprising:

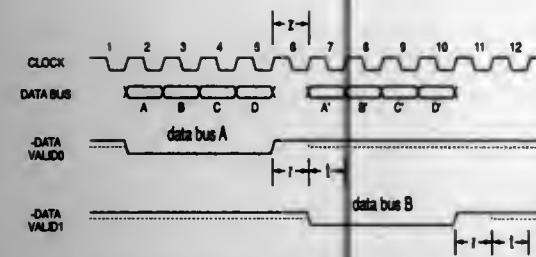
a bus access enable line;
first delay means coupled to the bus clock line for delaying the bus clock signal for a first predetermined time;
second delay means coupled to the bus clock line for delaying the bus clock signal for a second predetermined time; and
overlap means coupled to the bus grant line, said first delay means, said second delay means, and said bus access enable line for accepting said first delayed bus clock signal and activating said bus access enable line to initiate a current bus transfer when the bus grant line is activated, and for accepting said second delayed bus clock signal and deactivating said bus access enable line to halt said current bus transfer when the bus grant line is deactivated or when said current bus transfer's last clock cycle has occurred, whereby time between consecutive bus transfers over the bus is shortened.

5,671,370 ALTERNATING DATA VALID CONTROL SIGNALS FOR HIGH PERFORMANCE DATA TRANSFER Michael Scott Allen, Austin; Ravi Kumar Arimilli, Round Rock; John Michael Kaiser, Cedar Park, and William Kurt Lewchuk, Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y. Continuation of Ser. No. 326,190, Oct. 3, 1994, abandoned. This application Mar. 25, 1996, Ser. No. 622,651 Int. Cl.⁶ G06F 3/00

U.S. Cl. 395—305

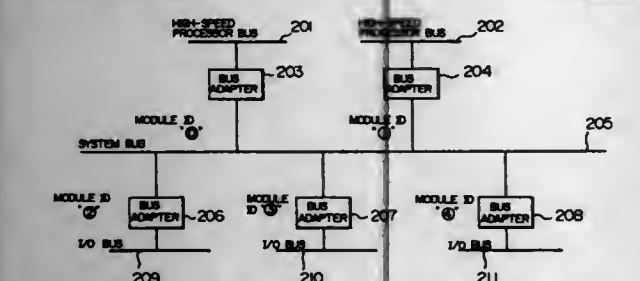
17 Claims

1. A method of transferring data between devices in a data processing system connected by a system bus, comprising the steps of:



providing at least first and second data valid signals on first and second data valid lines in said system bus;
 placing first data from a first providing device on said system bus, and activating said first data valid signal on said first data valid line;
 placing second data from a second providing device on said system bus, and activating said second data valid signal on said second data valid line; and
 reading said first or second data, by a receiving device, when either said first or second data valid signal is active.

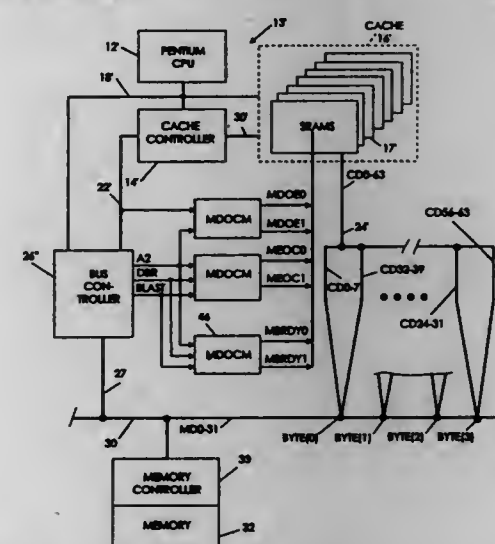
5,671,371
BUS CONTROL SYSTEM
 Nobukazu Kondo, Ebina; Seiji Kabeke, Yokohama; Koichi Okazawa, Tokyo; Hideaki Gemma, Hadano; Tetsuya Mochida, Yokohama, and Takehisa Hayashi, Sagami, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Continuation of Ser. No. 16,692, Feb. 11, 1993, abandoned.
 This application Oct. 18, 1994, Ser. No. 544,727
 Claims priority, application Japan, Feb. 18, 1992, 4-030428
 Int. Cl. G06F 13/00
 U.S. Cl. 395-306 12 Claims



1. A bus control method for use in a data processing system having:
 a plurality of source modules,
 a plurality of destination modules,
 a source bus adapter,
 a plurality of destination bus adapters,
 a first bus connected to the plurality of source modules,
 a second bus for adapting a split transfer protocol for executing of a split read operation, and
 at least one identifier transfer line, wherein:
 at least one of said source modules is connected to said first bus,
 said source bus adapter is connected to said first bus and said second bus,
 said destination bus adapters are connected to said second bus and said destination modules,
 said split read operation comprising a read access cycle and a response cycle, where a data read request transferred from said source bus adapter to said destination bus adapters during said read access cycle is separated with respect to time from said response cycle during which response data from one of said destination bus adapters is transferred to said source bus adapter;
 said method comprising the steps of:
 assigning a source module identifier to each of said source modules;

responsive to said data read request and an address specifying a destination module transferred from one of said source modules to said source bus adapter, outputting, from said source bus adapter to said destination bus adapters in said read access cycle of the split read operation, said address and said source module identifier via said second bus and said at least one identifier transfer line, respectively, and wherein a valid duration of said address substantially overlaps a valid duration of said source module identifier in said read access cycle;
 receiving, from one of said destination bus adapters, connected to said destination module, at said source bus adapter, said response data for said data read request and a response identifier via said second bus and said at least one identifier transfer line, respectively, in said response cycle of the split read operation, wherein a valid duration of said response data substantially overlaps a valid duration of said response identifier information in said response cycle;
 determining in said source bus adapter whether said response data received is associated with a certain one of said source modules by comparing said source module identifier with said response identifier; and,
 transferring, from said source bus adapter to said source module, when said source bus adapter determines that said response data received is associated with said source module connected to said first bus, said response data via said first bus.

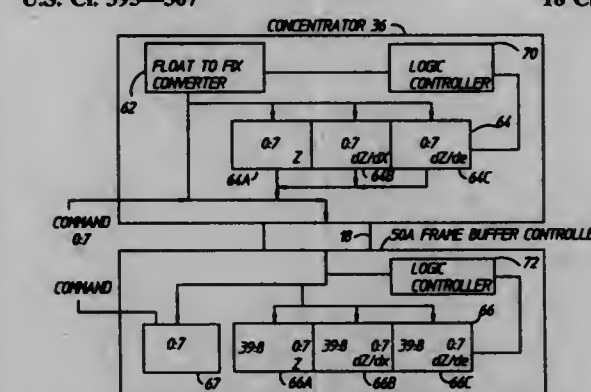
5,671,372
DATA PROCESSING SYSTEM WITH MICROPROCESSOR/CACHE CHIP SET DIRECTLY COUPLED TO MEMORY BUS OF NARROW DATA WIDTH
 Warren Everett Price, and Kenneth Allen Uplinger, both of Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Sep. 30, 1993, Ser. No. 130,034
 Int. Cl. G06F 13/40
 U.S. Cl. 395-307 6 Claims



1. Data processing apparatus comprising:
 a memory subsystem comprising an addressable, a memory bus having a plurality of "n" data bit lines, and a memory controller connected between said RAM and said memory bus for controlling access thereto, said memory controller transferring "n" data bits in each memory bus cycle;
 a CPU/cache chip set including a cache memory having a data path width of "m" bits, where "m" is greater than "n" and having a the ratio of "m" to "n" that is an integer "r", said

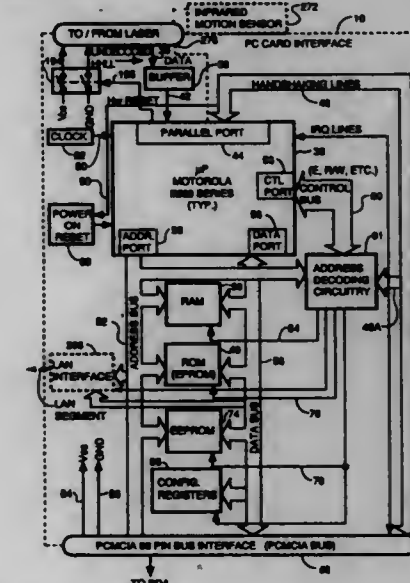
cache memory having "m" cache data lines through which data bit signals are transmitted into and out of said cache memory;
 a data transfer path extending between said cache memory and said memory bus, said path consisting of "m" conductors corresponding to respective bits of an "m" in bit word, each conductor having a first end and a second end, each conductor having its first end directly connected to a different one of said cache data lines, said conductors being arranged into "r" groups of "n" conductors with each conductor in each group corresponding to a respective "n" bit subset of the "m" bits and having its second end connected to a different data bit line of said memory bus so that each data bit line of said memory bus is directly connected to "r" data transfer path conductors; and
 control means connected between said CPU/cache chip set and said memory bus for controlling direct cache data transfers between said RAM and said cache memory, said control means being operative, for each such cache data transfer, to transfer, sequentially, "r" data sets with "n" data bits in each data set said control means producing signals coordinating direct transfers of "n" bit subsets at said cache with respective "n" bit memory bus cycle transfers, said data sets being transferred over said memory bus one data set per memory bus cycle.

5,671,373
DATA BUS PROTOCOL FOR COMPUTER GRAPHICS SYSTEM
 Bryan G. Prouty, Wellington, and Eric M. Rentschler, Fort Collins, both of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.
 Filed Jun. 8, 1995, Ser. No. 480,607
 Int. Cl. G06F 13/38
 U.S. Cl. 395-307 18 Claims



1. In a computer graphics system comprising first and second circuit blocks interconnected by a data bus having n bits, apparatus for transferring data between said circuit blocks, comprising:
 a circuit in the first circuit block for sequentially transmitting data words from the first circuit block to the second circuit block on said data bus, said data words including a plurality of long data words having more than n bits;
 a register in the first circuit block for storing bits of said long data words in excess of n bits; and
 a controller in the first circuit block, responsive to transmission of said long data words, for loading the bits of said long data words in excess of n bits into said register, and for combining the bits of said long data words stored in said register into a composite data word for transmission to said second circuit block, wherein the composite data word includes bits from two or more of the plurality, of long data words.

5,671,374
PCMCIA INTERFACE CARD COUPLING INPUT DEVICES SUCH AS BARCODE SCANNING ENGINES TO PERSONAL DIGITAL ASSISTANTS AND PALMTOP COMPUTERS
 Joel R. Postman, Santa Clara, Calif.; George B. Miller, Hingham, Mass., and Ronald C. Fish, Morgan Hill, Calif., assignors to TPS Electronics, Palo Alto, Calif.
 Continuation-in-part of Ser. No. 236,630, Apr. 29, 1994. This application Apr. 25, 1995, Ser. No. 428,692
 Int. Cl. H01J 13/00
 U.S. Cl. 395-309 25 Claims

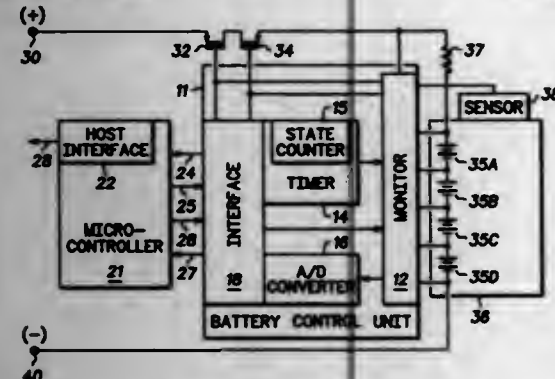


8. An interface circuit, said interface circuit for coupling between an input device that can generate electrical signals encoding alphanumeric characters and a host computer with a PCMCIA slot housing a PCMCIA bus connector coupled to a system bus of said host computer, comprising:
 on a PC card having a form factor defined by a PCMCIA specification as it existed as of the time of this patent application:
 nonvolatile memory for access by said host computer;
 an input interface circuit for receiving electrical signals from said input device in whatever form they are sent and converting them to a useable form;
 a PCMCIA bus connector;
 a decoder circuit coupled to said input interface circuit so as to receive said electrical signals after conversion by said input interface circuit to a form useable by said decoder circuit, said decoder circuit for decoding said electrical signals to generate one or more alphanumeric characters encoded in said electrical signals and for generating data indicative of a successful decoding operation when at least one successful decoding operation has occurred and at least one alphanumeric character resulting from decoding operations is available on said PC card for access by said host computer; and
 an interface circuit having hardware and software components on both said PC card and within said host computer, and coupled to said decoder circuit and to said PCMCIA bus connector on said PC card and to said PCMCIA bus connector of said host computer, for facilitating coupling of said decoder circuit to said host computer via said PCMCIA bus connectors on said host computer and said PC card such that said notification of a successful decoding operation can be implemented by signals passing between said host computer and said PC card via said PCMCIA bus connectors and so that said host computer can retrieve said one or more decoded alphanumeric characters from said PC card via said PCMCIA bus connectors and wherein said interface circuit includes means for providing access to said nonvolatile memory on said PC card by said host computer

either before or after data transfers between said host computer and said decoder circuit on said PC card without rebooting said host computer.

5,671,375
METHOD FOR COMMUNICATING BETWEEN A MICROPROCESSOR AND AN INTERFACE CIRCUIT
 Troy L. Stockstad, Phoenix; Matthew F. Bacchi, Mesa, and Martin J. Brown, Scottsdale, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.
 Filed Dec. 26, 1995, Ser. No. 578,763
 Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—309 15 Claims



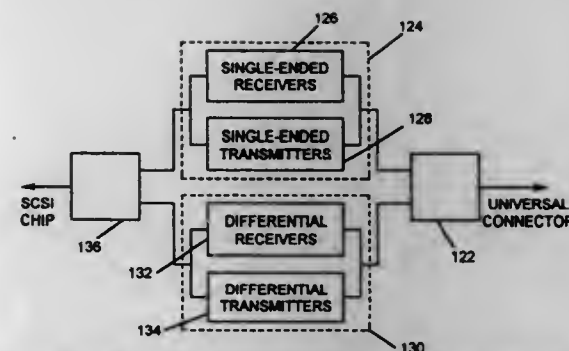
1. A method for communicating between a microprocessor and an interface circuit, comprising the steps of: transmitting a first edge of an enable signal to the microprocessor;
- transmitting a first edge of a first pulse of a window signal to the interface circuit in response to the microprocessor receiving the first edge of the enable signal;
- transmitting a second edge of the first pulse of the window signal to the interface circuit;
- transmitting a first data signal to the microprocessor in response to the interface circuit receiving the first edge of the first pulse of the window signal;
- transmitting a first pulse of a command signal to the interface circuit in response to the microprocessor initiating a first command; and
- executing the first command in response to the interface circuit receiving the first pulse of the command signal after receiving the first edge of the first pulse of the window signal and before receiving the second edge of the first pulse of the window signal.

5,671,376
UNIVERSAL SCSI ELECTRICAL INTERFACE SYSTEM
 Steven Bucher, Minnetonka, and Wayne A. Kisters, Eden Prairie, both of Minn., assignors to 1-Tech Corporation, Edina, Minn.

Continuation of Ser. No. 67,473, May 24, 1993. This application May 7, 1996, Ser. No. 646,080
 Int. Cl.⁶ G06F 13/14

U.S. Cl. 395—309 14 Claims

1. A universal electrical interface connection system for connecting to and transmitting and receiving electrical signals to and from a Small Computer Systems Interface (SCSI) bus that is configured to define a set of electrical signals according to either a single-ended electrical interface protocol or a differential electrical interface protocol, the connection system comprising: a set of single-ended transceivers for transmitting and receiving the electrical signals on the SCSI bus according to the single-ended protocol when the set of single-ended transceivers is enabled; and

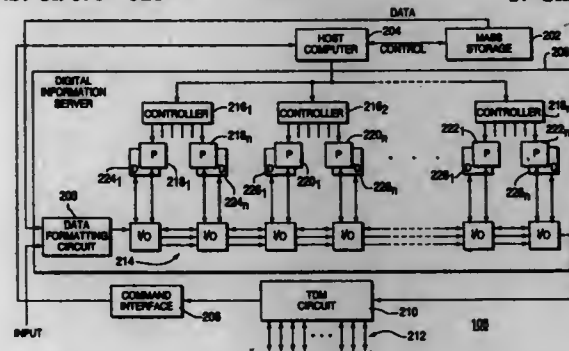


- a set of differential transceivers for transmitting and receiving the electrical signals on the SCSI bus according to the differential protocol when the set of differential transceivers is enabled;
- control means operably connected to the set of single-ended transceivers and the set of differential transceivers for automatically selecting the appropriate set of transceivers to be enabled depending upon whether the SCSI bus is configured to use the single-ended or the differential protocol, wherein any electrical signals on the SCSI bus which are commonly grounded in both the single-ended and differential protocols are permanently grounded and wherein at least one of the remaining electrical signals on the SCSI bus which is grounded in only one of the single-ended and differential protocols is switchably grounded under control of the control means.

5,671,377
SYSTEM FOR SUPPLYING STREAMS OF DATA TO MULTIPLE USERS BY DISTRIBUTING A DATA STREAM TO MULTIPLE PROCESSORS AND ENABLING EACH USER TO MANIPULATE SUPPLIED DATA STREAM
 Robert Bleidt, Atlanta, Ga.; Danny Chin, Mercer County, and James Timothy Christopher Kaba, Jackson, both of N.J., assignors to David Sarnoff Research Center, Inc., Princeton, N.J.

Filed Jul. 19, 1994, Ser. No. 275,742
 Int. Cl.⁶ G06F 15/16; 15/80

U.S. Cl. 395—328 17 Claims



1. Apparatus for supplying, in response to user commands, independent streams of output data to a plurality of users, comprising: a parallel processing computer containing a plurality of processors each connected to an information storage device; an input/output circuit, connected to each of said processors, for distributing an input data stream amongst the processors such that each of the information storage devices stores a portion of the input data stream; interface means, connected between said parallel processing computer and said users, for interpreting said user commands and causing said parallel processing computer to access, from each of said information storage devices, stored input data in

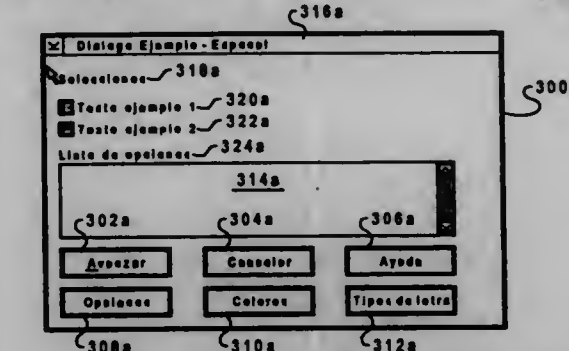
accordance with the user commands; and enabling each individual user to manipulate the stream of data supplied to that individual user

said input/output circuit supplies each of said users with said accessed data as a stream of output data.

5,671,378
METHOD AND SYSTEM FOR SIZING OF GRAPHICAL USER INTERFACE OBJECTS FOR LOCALIZATION
 Warren Patrick Acker, and Gregory Paul Andrews, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 31, 1995, Ser. No. 415,103
 Int. Cl.⁶ G06F 3/00

U.S. Cl. 395—334 16 Claims



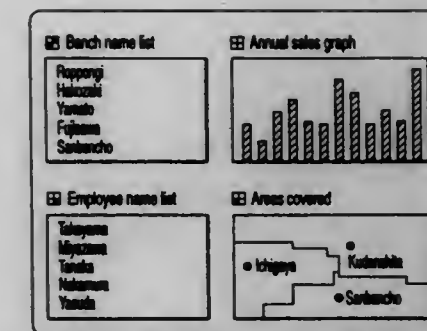
1. A method for resizing a plurality of controls located in a window displayed in a graphical user interface in a data processing system, wherein the plurality of controls include replacement symbols, the method comprising: determining an amount of resizing for each of the plurality of controls required to contain the replacement symbols; recording a maximum amount of resizing in response to the determining step; resizing the window and resizing and repositioning the plurality of controls using the maximum amount of resizing recorded in the recording step; determining whether the maximum amount of resizing will expand the window beyond the portion of the graphical user interface displayed to the user on a display device prior to resizing the window and the plurality of controls; and adjusting the maximum amount of resizing such that the window is fully displayed within the display device in response to a determination that the maximum amount of resizing would expand the window beyond the portion of the graphical user interface displayed to the user.

5,671,379
SYSTEM AND METHOD FOR MANAGING WINDOWS
 Kazushi Kuse, Urayasu; Kinichi Mitsui, Asaka; Tsuyoshi Ohira, Urawa, all of Japan, and Shahram Javey, Toronto, Canada, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 29, 1993, Ser. No. 15,365
 Int. Cl.⁶ G09G 5/14

U.S. Cl. 395—346 16 Claims

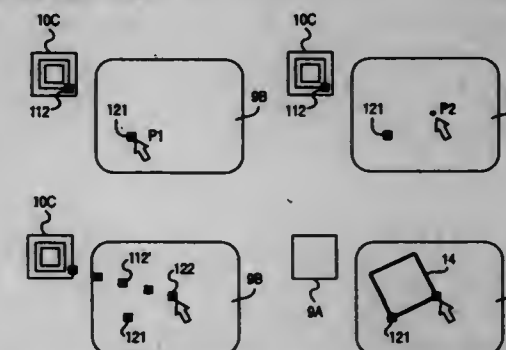
1. A system for managing windows comprising: a display means; a means for concurrently displaying a plurality of windows and a plurality of graphical objects on the display screen of said display means, each of the graphical objects associated with a respective one of the plurality of windows; a means for setting a set of relationships between the windows according to operations on the graphical objects; and,



a means for changing the display mode of each of the graphical objects to depict which of the plurality of windows are related to its respective window.

5,671,380
METHOD AND APPARATUS FOR CREATING A GRAPHIC USING GRAPHIC ICONS
 Kazuyoshi Hidaka, Yokohama, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed Nov. 2, 1992, Ser. No. 970,513
 Claims priority, application Japan, Nov. 21, 1991, 3-331520
 Int. Cl.⁶ G06F 3/14

U.S. Cl. 395—348 11 Claims



1. A method for creating a graphic using graphical icons for defining a graphic in a graphical creating apparatus having an input means, a graphical processing means, and a display screen, the method comprising the steps of: displaying a plurality of graphical icons on the display screen; responsive to selection of a selected graphical icon of the plurality of graphical icons, displaying on the selected graphical icon on the display screen an operation sequence for a plurality of control points necessary for creating a graphic; and responsive to input of a plurality of drawing points, each corresponding to one of the plurality of control points, creating the graphic according to the plurality of drawing points.

5,671,381
METHOD AND APPARATUS FOR DISPLAYING DATA WITHIN A THREE-DIMENSIONAL INFORMATION LANDSCAPE

Steven Larry Strassnick, Mountain View, and Joel Dave Tesler, Cupertino, both of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.
 Division of Ser. No. 42,801, Mar. 23, 1993, Pat. No. 5,528,735.
 This application Jun. 6, 1995, Ser. No. 467,620

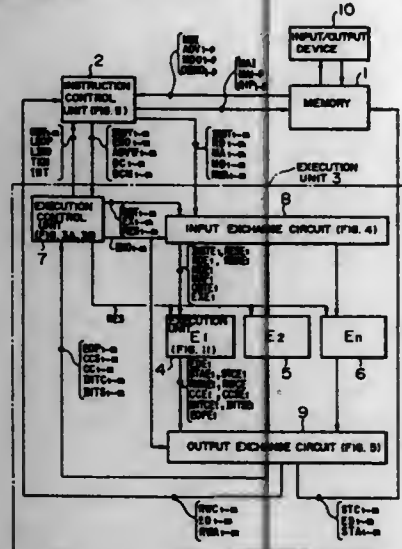
Int. Cl.⁶ G06F 3/14 8 Claims

1. A method for indicating a selected object in a display space, comprising the steps of: (a) displaying objects in the display space;



- (b) displaying a representation of a spotlight on the selected object in the display space; and
(c) automatically navigating to the selected object indicated by the spotlight.

5,671,382
INFORMATION PROCESSING SYSTEM AND INFORMATION PROCESSING METHOD FOR EXECUTING INSTRUCTIONS IN PARALLEL
Yootchi Shintani, Hadano; Kazunori Kuriyama, Saitama-ken; Tohru Shonai; Eiki Kamada, both of Hadano, and Kiyoshi Inoue, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation of Ser. No. 550,566, Jul. 10, 1990, abandoned, which is a continuation of Ser. No. 123,139, Nov. 20, 1987, Pat. No. 4,942,525. This application Apr. 20, 1992, Ser. No. 915,204
Claims priority, application Japan, Nov. 21, 1986, 61-276554
Int. Cl. G06F 9/38
U.S. Cl. 395—391
60 Claims

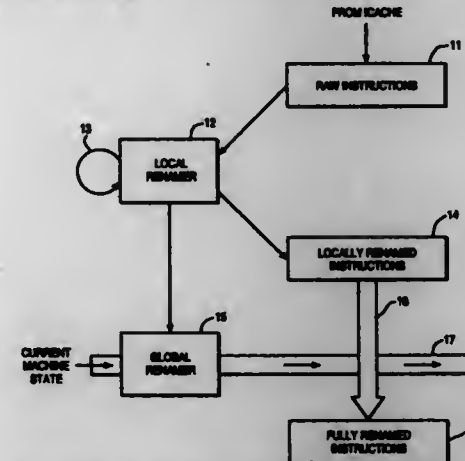


1. An information processing system for parallel execution of sequentially-ordered instructions, comprising:
 - a plurality of execution units, each executing processing required by an instruction;
 - a memory storing a series of instructions which include instructions which require different processing times than each other;
 - an instruction fetch circuit connected to said memory, fetching instructions from said memory;
 - an instruction decoding circuit connected to said instruction fetch circuit, decoding the instructions fetched by said instruction fetch circuit; and
 - a set-up circuit, connected to said instruction decoding circuit and said plurality of execution units, setting-up the decoded instructions decoded by said instruction decoding circuit into the execution units in such a manner that a group of decoded instructions which are to be executed next and which may

require processing times different than each other are set-up simultaneously into different ones of said plurality of execution units, each of which is capable of executing processing required by one of the instructions of the group of decoded instructions, in response to completion of execution, by different ones of said plurality of execution units, of the processing of instructions of a preceding group of decoded instructions which have previously been set-up by the set-up circuit, and which may require processing times different than each other;

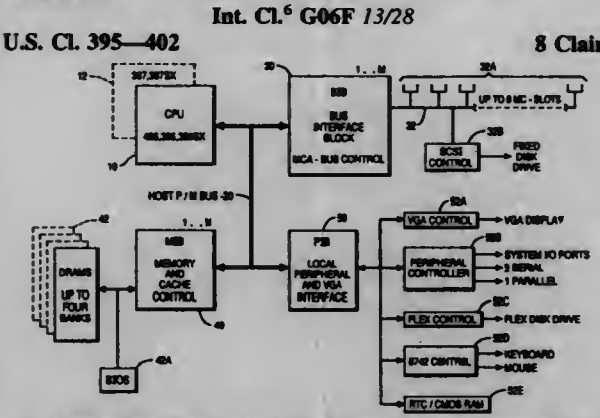
wherein said set-up circuit includes means for selecting, as the group of decoded instructions to be executed next, a number of decoded instructions ordered sequentially and next in order to the preceding group of decoded instructions from among decoded instructions which have been decoded already but have not yet been set-up, under a condition that within the selected group no instruction has a longer required processing time than any of the instructions of the group of decoded instructions which succeed it in the sequential order.

5,671,383
REGISTER RENAMING IN A SUPERSCALAR MICROPROCESSOR UTILIZING LOCAL AND GLOBAL RENAMER DEVICES
Robert Valentine, Qiryat Tivon, Israel, assignor to Intel Corporation, Santa Clara, Calif.
Filed Oct. 4, 1995, Ser. No. 538,845
Int. Cl. G06F 9/34
U.S. Cl. 395—392
12 Claims



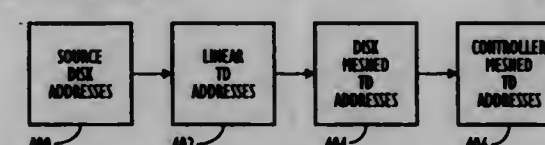
1. A method of register renaming for a superscalar processor executing a program of instructions, the method comprising the steps of:
 - (a) locally renaming register identifiers associated with first and second blocks of instructions by assigning register locations in a physical register file of the processor to the register identifiers of the first and second blocks of instructions consistent with source operands and destinations specified by the first and second blocks of instructions;
 - (b) committing the register identifiers renamed in step (a) to the physical register file for first and second machine states of the processor, associated with the first and second blocks of instructions, respectively;
 - (c) globally renaming unknown source operands of the locally renamed second block with register locations of the physical register file consistent with corresponding destinations of the locally renamed first block of instructions, the global renaming step producing a third machine state.

5,671,384
WORK STATION WITH A DMA CONTROLLER HAVING EXTENDED ADDRESSING CAPABILITY
Anton Goepfel, Burgau, Germany, assignor to NCR Corporation, Dayton, Ohio
Filed Aug. 30, 1991, Ser. No. 752,815
Claims priority, application United Kingdom, Aug. 31, 1990, 9019026
Int. Cl. G06F 13/28
U.S. Cl. 395—402
8 Claims



1. A work station including a CPU connected to a DMA controller, said controller comprising:
 - a multiple byte memory address register (MAR) for storing a multiple byte memory address; and
 - a pointer register connected between the CPU and MAR; wherein said pointer register is responsive to a command from said CPU to give said CPU successive access to the byte positions of said MAR for writing a memory address thereto.

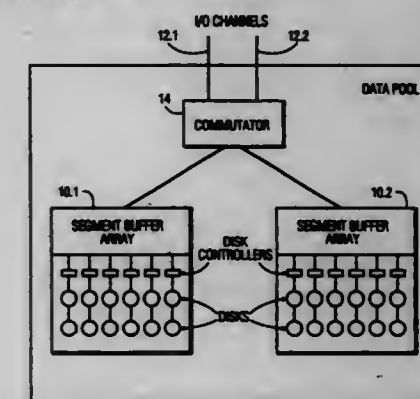
5,671,385
MEMORY SUBSYSTEM WITH DISK MESHING, CONTROLLER MESHING, AND EFFICIENT CACHE BUFFER LOOKUP
Larry T. Jost, St. Louis, Mo., assignor to Southwestern Bell Technology Resources, Inc., Austin, Tex.
Continuation-in-part of Ser. No. 53,655, Apr. 29, 1993, abandoned. This application Apr. 29, 1994, Ser. No. 235,714
Int. Cl. G06F 12/06; 12/10
U.S. Cl. 395—404
7 Claims



7. In a data processing system comprising a processor that operates on various data and specifies a source block address that corresponds to a requested data block located within a memory to be accessed by the processor, and a hierarchical memory system comprising a cache and a long-term storage, a storage control method comprising:
 - linearly mapping source block addresses to virtual linear target disks equal in size to actual physical disks comprised by the long-term storage, so that each data block requested by the processor is identified by a virtual linear target disk address, including an assigned linear target disk and a linear target disk offset within the assigned linear target disk; said source block addresses identifying requested data blocks according to a source addressing scheme of said processor;
 - performing disk meshing by assigning blocks of the virtual linear target disks to disk-meshed disks equal in size to the actual physical disks comprised by the long-term storage, wherein each said requested data block is assigned to one disk-meshed disk, and source blocks having adjacent source block addresses are assigned to a different disk-meshed disk and dividing said virtual linear target disks into sets of N linear target disks; and

meshing the source block addresses of each said virtual linear target disk within a particular virtual linear target disk set into N separate meshed disks, wherein N represents a disk mesh factor utilized in performing disk meshing.

5,671,386
SYSTEM FOR STORING DATA AND FOR PROVIDING SIMULTANEOUS PLURAL ACCESS TO DATA BY CONNECTING EACH ACCESS CHANNEL TO EACH AND EVERY ONE OF STORAGE ARRAYS
David Kim Blair, Bennion; Scott Karl Curtis, and Philip Harrison Lucht, both of Salt Lake City, all of Utah, assignors to Phillips Electronics North America Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 125,996, Sep. 23, 1993, Pat. No. 5,539,660. This application Feb. 16, 1995, Ser. No. 389,672
Int. Cl. G06F 12/00
U.S. Cl. 395—405
42 Claims



1. A system for storing large amounts of data and for providing simultaneous plural access to the data, the system comprising:
 - an access medium having N access channels;
 - a mass storage medium having M individual storage arrays for storing the data;
 - a commutator having establishable paths for connecting each of said access channels to each of said storage arrays, said commutator having Q paths established at a time, which each connects a different one of said access channels to a different one of said storage arrays, where Q is equal to the lesser of N and M when they are different and N when they are the same; and
 - control means for controlling said commutator to cause said commutator to switch the Q paths which are established so that in a period T each of said access channels is connected to each and every one of said storage arrays by means of said paths.

5,671,387
METHOD OF AUTOMATICALLY ASSIGNING DEVICE ADDRESSES TO DEVICES COMMUNICATING OVER A COMMON DATA BUS
Russel J. Jacobs, Center Valley; Brett A. Pierce, Hellertown, and Joel S. Spira, Coopersburg, all of Pa., assignors to Lutron Electronics, Co., Inc., Coopersburg, Pa.
Division of Ser. No. 753,811, Sep. 3, 1991, Pat. No. 5,467,266. This application Nov. 7, 1995, Ser. No. 554,680
Int. Cl. G06F 13/00
U.S. Cl. 395—420
2 Claims

1. A method of labelling a device connected to a data bus with a unique device address, in a system comprising a plurality of devices operating on a peer basis, the method comprising the steps of:

the multi-bank memory array, a combination with the addressing circuitry of a test enabling circuit for enabling concurrent addressing of at least two columns of memory cells of at least two of the memory banks, said test enabling circuit comprising:

multi-bank addressing mode signal circuitry coupled to receive a multi-bank addressing mode signal and a column address enable signal, said multi-bank addressing mode signal circuitry for generating multi-bank address select signals when the multi-bank addressing mode signal and the column address enable signal are concurrently received thereat; and column address select signal generating circuitry coupled to receive the multi-bank address select signals generated by said multi-bank addressing mode signal circuitry, said column address select signal generating circuitry for generating column address select signals enabling the concurrent addressing and testing of the memory cells of the at least two columns of the at least two memory banks when the multi-bank address select signals are generated.

5,671,393 SHARED MEMORY SYSTEM AND ARBITRATION METHOD AND SYSTEM

Norihiro Yamaki, Nara-ken; Noriyuki Takao, and Hidetoshi Takano, both of Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, and Sharp Kabushiki Kaisha, Osaka, both of Japan

Continuation of Ser. No. 301,933, Sep. 7, 1994, abandoned.

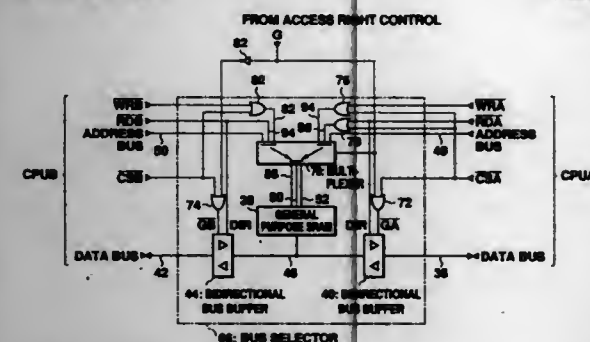
This application Sep. 20, 1996, Ser. No. 717,149

Claims priority, application Japan, Oct. 1, 1993, 5-246678

Int. Cl.⁶ G06F 13/16

U.S. Cl. 395—477

7 Claims



1. A shared memory system comprising:

a shared memory accessible by a preferred processor, which is that processor of a plurality of processors that currently has an access right, the access right being a right to access to the shared memory in synchronization with a processor specific clock signal, the processor specific clock signal being generated in the preferred processor and being independent from other of the plurality of processors; and

arbitrating means for arbitrating access requests among the plurality of processors to give an access right to one of said plurality of processors, said arbitrating means comprising:

means for causing the giving up of the access of a first processor of said plurality of processors in response to the rising or falling of the processor specific clock signal having a predetermined frequency;

means for giving the access right to a second processor of said plurality of processors when said second processor is holding an access request at a point of time when the access right has been given up; and

means for returning the access right to said first processor when no other processors of said plurality of processors are holding access requests and said first processor is holding an access request at the point of time when the access right has been given up.

5,671,394 MICROCOMPUTER HAVING ROM DATA PROTECTION FUNCTION

Hiroshi Katsuta, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 736,975, Jul. 29, 1991, abandoned.

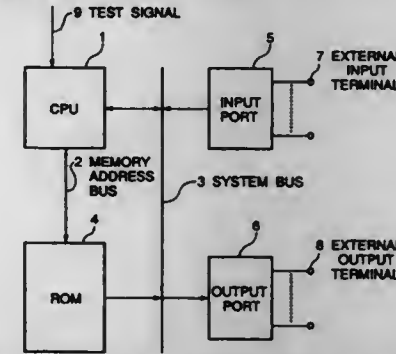
This application Sep. 27, 1994, Ser. No. 313,534

Claims priority, application Japan, Jul. 27, 1990, 2-199551

Int. Cl.⁶ G06F 12/14

U.S. Cl. 395—491

9 Claims



1. A microcomputer for restricting access to proprietary data stored in a read only memory (ROM) from an unauthorized user, comprising:

read only memory (ROM) for storing proprietary data; a central processing unit (CPU) connected to said ROM; a plurality of data keys stored in said ROM along with said proprietary data;

an input port connected to said CPU for sequentially inputting a plurality of collation data from a user attempting to access the proprietary data stored in said ROM, said CPU reading ones of said plurality of collation data at said input port at a predetermined timing interval and collating said ones of said plurality of collation data with one of said plurality of data keys; and

an output port for outputting the proprietary data in said ROM if all of said plurality of collation data matches all of said plurality of data keys after collation.

5,671,395 METHOD AND SYSTEM FOR DIVIDING ANALYZING REGION IN DEVICE SIMULATOR

Yutaka Akiyama, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 16, 1994, Ser. No. 306,970

Claims priority, application Japan, Sep. 17, 1993, 5-230627

Int. Cl.⁶ G06K 9/46; G06T 17/20

U.S. Cl. 395—500

10 Claims

1. A method for dividing a region to be analyzed in a semiconductor device comprising the steps of:

performing an initial division with respect to the region to be analyzed in the semiconductor device for initially dividing said region to be analyzed into a plurality of fractional elements of a predetermined configuration;

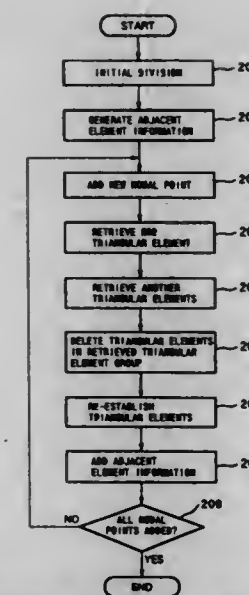
generating adjacent element information for the plurality of fractional elements established by the initial division performing step;

adding a new nodal point to a predetermined region to be analyzed in the semiconductor device;

retrieving one fractional element having a circumscribed region enclosing said new nodal point as a specific fractional element;

retrieving surrounding other fractional elements adjacent said specific fractional element and having a circumscribed region enclosing said new nodal point for establishing a fractional element group of retrieved fractional elements;

re-establishing said fractional elements as newly established fractional elements in a region defined by a boundary of said fractional element group on the basis of said boundary of said



fractional element group and said new nodal point as a peak of respective fractional elements; and adding adjacent element information for respective ones of said newly established fractional elements;

the step of retrieving surrounding other fractional elements comprising the steps of

making a judgment outwardly on a one-by-one basis whether a circumscribed region of the surrounding other fractional elements adjacent the specific fractional element encloses the new nodal point and

repeating the judgment until the judgment is completed for all the surrounding other fractional elements having a circumscribed region enclosing the new nodal point.

5,671,396 M AND A FOR EXECUTING FIRMWARE OF AN ADD-ON FAX/MODEM CARD ON THE HOST PROCESSOR WHILE MAINTAINING COMPATIBILITY

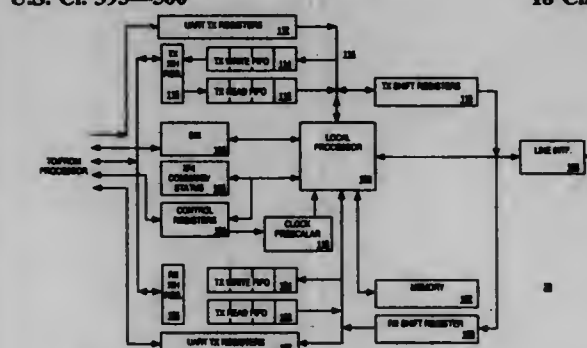
Dan Gavish, Haifa, Israel, assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 5, 1994, Ser. No. 349,617

Int. Cl.⁶ G06F 3/00

U.S. Cl. 395—500

18 Claims



7. A computer system comprising:

a) host processor means for writing raw transmit data into a first host processor-fax/modem interfacing register of fax/modem means coupled to the host processor means, reading the raw transmit data from a first host processor-fax/modem redirection FIFO of the fax/modem means into memory of the host processor means, processing and encoding the raw transmit data, and writing the encoded transmit data to a second host processor-fax/modem redirection FIFO of the fax/modem means.

5,671,397 SEA-OF-CELLS ARRAY OF TRANSISTORS

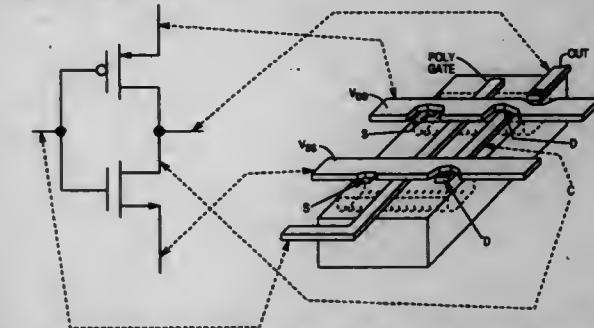
Harold S. Crafts, Colorado Springs, Colo., assignor to AT&T Global Information Solutions Company, Dayton, Ohio; Hyundai Electronics America, San Jose, Calif., and Symbolic Logic Inc., Fort Collins, Colo.

Division of Ser. No. 174,654, Dec. 27, 1993, abandoned. This application May 31, 1995, Ser. No. 455,503

Int. Cl.⁶ H01L 21/768

U.S. Cl. 395—500

1 Claim



1. In a method of constructing a logic inverter which comprises an n-channel and a p-channel field-effect transistor, the improvement comprising:

etching a gate and a conductor connecting drains of the two transistors from a same layer of polysilicon.

5,671,398 METHOD FOR COLLAPSING A VERSION TREE WHICH DEPICTS A HISTORY OF SYSTEM DATA AND PROCESSES FOR AN ENTERPRISE

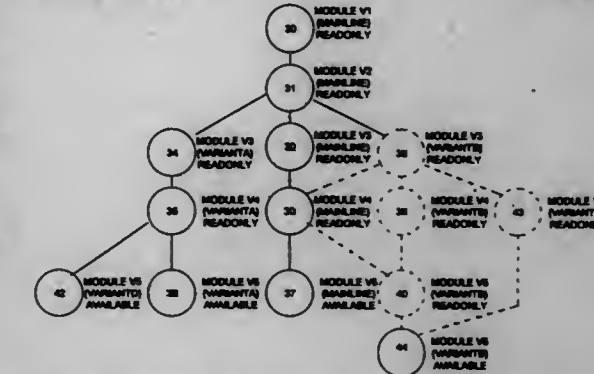
Ronald Jay Neubauer, Thousand Oaks, Calif., assignor to Unisys Corporation, Blue Bell, Pa.

Filed Jun. 9, 1995, Ser. No. 470,582

Int. Cl.⁶ G06F 17/30

U.S. Cl. 395—500

23 Claims



1. In a computer system having a user interface, a memory, a database and repository operative in said computer system for accessing said database, a method implemented by said computer system for collapsing a version tree that depicts a history of objects stored in said database, said method being stored in said memory at run time and comprising the steps of:

a. validating collapse request by insuring that target object is not a ghost object, the end object is not a ghost, end object is on the same version tree as said target object, and end object is a later version than said target object;

b. initializing an empty array representing path objects from said target object to said end object;

c. if an end object is supplied, calling a function to build up an array of objects representing paths from said target object to said end object, processing said array of objects built up in step c hereof;

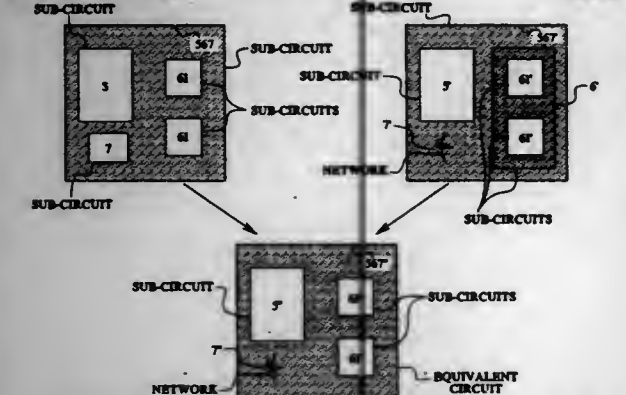
d. for each nextVersion of said target object, calling a function to collapse versions starting from nextVersion;

e. calling a function to destruct said target object;

- f. for each nextVersion of target object, initializing a continue-Walk flag to TRUE;
- g. if this nextVersion is in path, setting pathFound to TRUE;
- h. if this nextVersion is not in the path, and if variant name of this nextVersion is not the same as the variant name of target object, and if variant name of nextVersion is not the same as variant name of endObject, and if workObject is not the start of a branch, setting continueWalk to FALSE;
- i. if this nextVersion is the end object, setting pathFound to TRUE;
- j. if this nextVersion is not the end object, and if variant name of this nextVersion is not the same as the variant name of target object, and if variant name of nextVersion is not the same as variant name of endObject, and if workObject is not the start of a branch, setting continueWalk to FALSE;
- k. if continueWalk is TRUE, calling a function to continue building a path starting from this nextVersion;
- l. if said function returned TRUE, and if this nextVersion is not the endObject, adding this nextVersion to said path;
- m. setting pathFound to TRUE;
- n. if there are more workObjects, repeating the process steps above until all workObjects have been processed; and,
- o. exiting this process and returning a value for pathFound.

5,671,399
METHOD FOR HIERARCHIC LOGIC VERIFICATION OF VLSI CIRCUITS
 Wolfgang Meier, Munich, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
 Filed Jul. 3, 1995, Ser. No. 498,687
 Claims priority, application Germany, Jul. 4, 1994, 44 23 367.1

Int. Cl. G06F 17/50; H01L 21/98
 U.S. Cl. 395-500



1. A method for hierarchic logic verification of VLSI circuits, a hierarchic layout circuit acquired from a physical layout of a VLSI circuit using an extraction procedure being compared to a hierarchic logic plan circuit defined by a logic plan, comprising the steps of:

- in a first step, transforming the layout circuit as well as the hierarchic logic plan circuit such that a number of terminals of sub-circuits of each hierarchy level is minimal, whereby
- in a step 1a, canceling terminals of a sub-circuit that are not connected to any component of this sub-circuit within this sub-circuit or are not connected to any occurrence of a lower-ranking sub-circuit that belongs to at least one next-lower hierarchy level,
- in a step 1b, combining terminals of a sub-circuit that are externally connected to one another in all occurrences of a respective sub-circuit to form a common terminal, whereby this ensues across all hierarchy levels, and
- in a step 1c, canceling terminals of a sub-circuit that do not have an external connection to at least one component of another sub-circuit in any occurrence of this sub-circuit as external terminal on the respective hierarchy level; and in a second step, forming pairs of potentially equivalent sub-circuits in that corresponding sub-circuits with a common name are

sought in the layout circuit and in the logic plan circuit and are only allocated to one another for sub-circuits having an identical number of terminals; and

in a third step, reshaping internal hierarchies of a pair of potentially equivalent sub-circuits into isomorphic hierarchies, whereby

in a step 3a, replacing occurrences of sub-circuits, to which a partner in the respectively other circuit is allocated, by a macro component that cannot be further detailed, insofar as at least all terminals of both occurrences of sub-circuits are completely allocated to one another,

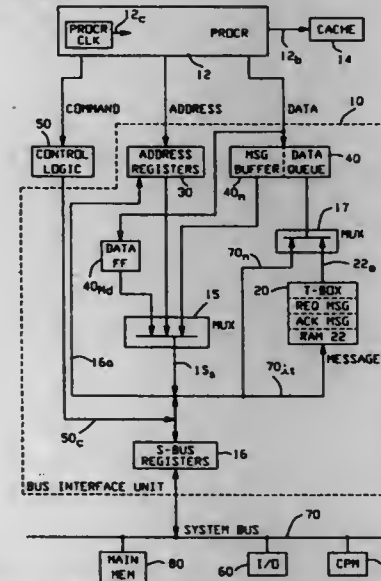
in a step 3b, partially expanding occurrences of sub-circuits, to which no partner in the respectively other circuit is allocated, by switching to a lower hierarchy level until at least one occurrence of a sub-circuit is again present for which a partner in the respectively other circuit exists with allocated terminals, and replacing the respective occurrence of the respective lower-ranking sub-circuit by a respective macro component,

in a step 3c, further partially expanding as in step 3b occurrences of sub-circuits that do not occur an identical number of times in both circuits after implementation of the aforementioned steps until a plurality of occurrences of all sub-circuits respectively corresponding to one another coincides, step 3 having been already previously applied to lower-ranking sub-circuits occurring in the respective sub-circuits to be compared.

5,671,400
PROGRAMMABLE BUS INTERFACE UNIT DATA PATH
 Jill Marie Kiggins, Temecula, and Teresa Mary Affeldt, Lake Forest, both of Calif., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Aug. 16, 1995, Ser. No. 515,605
 Int. Cl. G06F 5/06

U.S. Cl. 395-500



1. An integrated field programmable gate array data path interface system for data transfer between a processor operating at a processor clock rate and a system bus means operating at a system bus clock rate comprising:

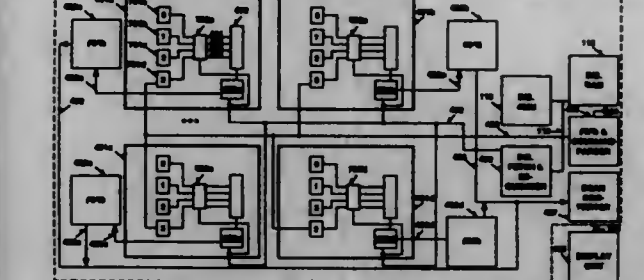
(a) means to transfer N words of protocol message from said processor to a message buffer means at said processor clock rate;

- (b) means to transfer said N word protocol messages in groups of N words to said system bus means at said system bus clock rate;
- (c) means to transfer N message words of data from said system bus means to a transfer logic box means at said system bus clock rate;
- (d) means to transfer data words from said main memory of said system bus means to said data queue means;
- (e) means to transfer each word of said N message words of protocol data to said processor at said processor clock rate;
- (f) said transfer logic box means for holding a message of N words.

5,671,401
APPARATUS FOR EFFICIENTLY ACCESSING GRAPHIC DATA FOR RENDERING ON A DISPLAY
 Chandee Bryant Harrell, Mountain View, Calif., assignor to Silicon Graphics, Inc., Mountain View, Calif.
 Continuation of Ser. No. 4,963, Jan. 15, 1992, Pat. No. 5,457,779. This application May 8, 1995, Ser. No. 438,044

Int. Cl. G06T 1/20

U.S. Cl. 395-505



18. In a computer controlled graphics system including a display displaying computer generated images and a memory unit storing information representing geometric primitives, an apparatus for rendering said geometric primitives onto said display, said apparatus comprising:

- a plurality of processors coupled to a common instruction bus according to a SIMD architecture, each processor simultaneously processing a separate geometric primitive, each processor further comprising:
- a first circuit determining slopes based on said information associated with said plurality of vertices of said geometric primitive, each slope associated with an edge of said geometric primitive, said first circuit processing said information associated with said plurality of vertices in a predetermined vertex order, said first circuit coupled to a plurality of signal lines for receiving said information;
- a plurality of memories for storing said information associated with said plurality of vertices, each memory for storing information associated with a separate vertex of said geometric primitive and each memory having a separate output line;
- multiplexing circuitry coupled to said plurality of memories and coupled to said first circuit for intercoupling an output line of each memory to an individual signal line of said plurality of signal lines coupled to said first circuit wherein said multiplexing circuitry simultaneously supplies said information associated with said plurality of vertices from said plurality of memories to said first circuit in said predetermined vertex order;
- a second circuit generating comparison results of screen coordinate values between pairs of vertices of said geometric primitive; and
- a third circuit ordering said plurality of vertices of said geometric primitive according to said predetermined vertex order, said third circuit coupled to receive said comparison results from said second circuit and coupled to control said multiplexing circuitry.

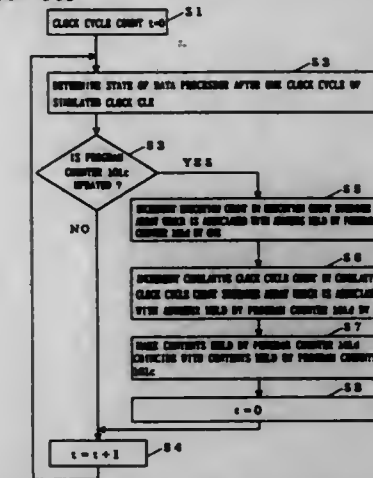
5,671,402
METHOD OF EVALUATING A DATA PROCESSING RATE USING SIMULATION

Takashi Nasu, and Tadashi Sakamoto, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 28, 1995, Ser. No. 411,981
 Claims priority, application Japan, Apr. 12, 1994, 6-073130; Jan. 6, 1995, 7-000675

Int. Cl. G06F 9/455
 U.S. Cl. 395-568

13 Claims



1. A method of evaluating a data processing rate of a program by means of simulation, wherein said data processing rate is a rate at which said program is executed in a data processor operating in response to a simulated clock, said program including a plurality of instructions, said method comprising the steps of:

- (I) performing a first simulation of an operation of a data processor, said step (I) including the steps of:
- a) performing said first simulation of said program in response to a simulated clock, and
- (b) holding, at addresses corresponding to each of said plurality of instructions, an execution count and a clock cycle count of said simulated clock required for execution of each of said plurality of instructions in said first simulation, said step (a) including the steps of:
- (a-1) holding a first instruction and a second instruction of said plurality of instructions executed in said first simulation, wherein said second instruction succeeds said first instruction in said program and where said second instruction is executed in said first simulation after execution of said first instruction is terminated; and
- (a-2) updating said first and second instructions held in said step (a-1) by updating and executing an instruction of said program in said first simulation,
- said step (b) including the steps of:
- (b-1) incrementing by one said execution count held in the address corresponding to said first instruction held in said step (a-1) each time execution of said first instruction is terminated; and
- (b-2) cumulatively adding a clock cycle count required for execution of said first instruction in said first simulation to said clock cycle count held in association with the address corresponding to said first instruction held in said step (a-1) each time execution of said first instruction is terminated,
- said step (a) further including the step of:
- (a-3) replacing said first instruction held in said step (a-1) with said second instruction after said steps (b-1) and (b-2).

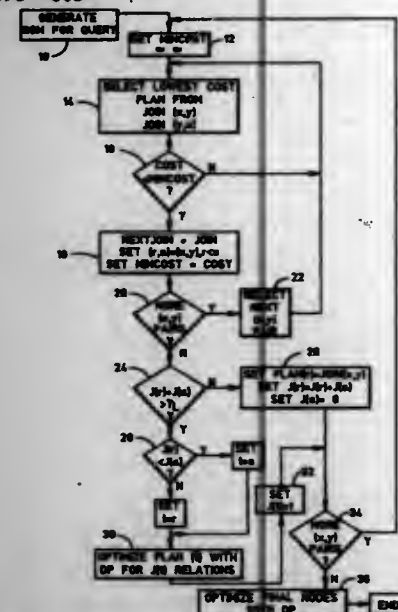
5,671,403 ITERATIVE DYNAMIC PROGRAMMING SYSTEM FOR QUERY OPTIMIZATION WITH BOUNDED COMPLEXITY

Eugene Jon Shekita, and Honesty Cheng Young, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 30, 1994, Ser. No. 367,502
Int. Cl.⁶ G06F 17/30

U.S. Cl. 395-603

6 Claims



1. A method for selecting an execution plan P for a N-way join query in a computer-implemented database system having a plurality of stored database relations, wherein said N-way join query is represented by a join graph G connecting each R_i of a plurality N+1 of relation nodes by a predicate edge E_{ij} to another R_j of said relation node plurality to form a plurality N of connected node pairs (R_i, R_j) and wherein $1 \leq i, j \leq N+1$ and $N > 1$ are positive integers, said method comprising the steps of:

- selecting from said join graph G for a threshold value T_L a subgraph G_L connecting a plurality $N_L \leq T_L$ of said relation nodes;
- selecting the optimal execution plan P_L from among all feasible execution plans for joining said subgraph G_L of said relation nodes;
- replacing said relation node subgraph G_L in said join graph G with a relation node R_L representing the relation produced by said optimal execution plan P_L ; and
- repeating said selecting steps (a)-(b) and said replacing step (c) until said execution plan P is selected for said join graph G.

5,671,404 SYSTEM FOR QUERYING DATABASES AUTOMATICALLY

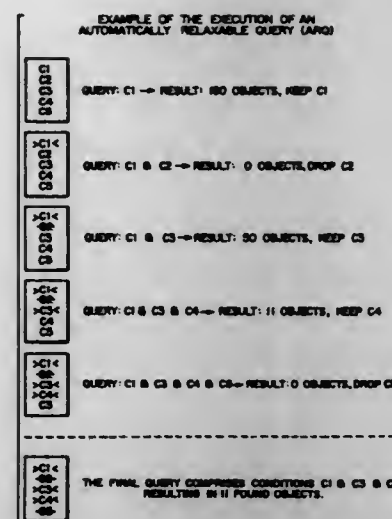
Martin Lizée, 5383 Gattineau, Montreal, P.Q., Canada, H3T 1X2, and Robert Lizée, 362 Palmerston Blvd., Toronto, Ontario, Canada, M6G 2N6, assignors to Martin Lizée, Montreal, and Robert Lizée, Toronto, both of Canada

Filed Mar. 30, 1995, Ser. No. 413,630
Claims priority, application Canada, Mar. 31, 1994, 2120447
Int. Cl.⁶ G06F 17/30

U.S. Cl. 395-605

19 Claims

1. A method for automatically retrieving information from a database through a computer in communication with the database, the database having a plurality of retrieval objects, the computer defining a plurality of pre-ordered and distinct query conditions, wherein each query condition is ordered in a query condition list from the most important query condition to the least important



query condition and wherein the most important query condition of the query condition list is initially designated as the current query condition, comprising the steps of:

- testing the current query condition within the database to determine the number of database retrieval objects which satisfy the current query condition;
- marking said current query condition if at least one database retrieval object satisfies the current query condition and designating the next pre-ordered and distinct query condition in the query condition list as the current query condition;
- successively repeating steps a) and b) with each pre-ordered and distinct query condition of the query condition list in conjunction with all previously marked query conditions until a predetermined termination condition is satisfied.

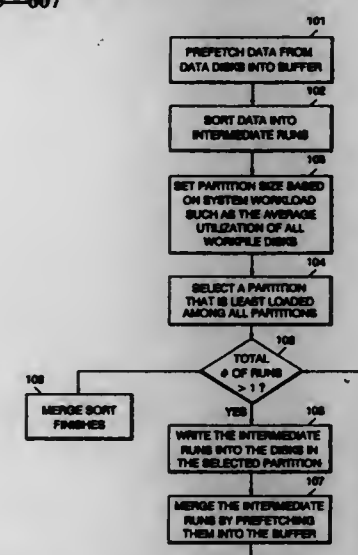
5,671,405 APPARATUS AND METHOD FOR ADAPTIVE LOGICAL PARTITIONING OF WORKFILE DISKS FOR MULTIPLE CONCURRENT MERGESORTS

Kun-Lung Wu, Yorktown Heights, and Philip Shi-Lung Yu, Chappaqua, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 19, 1995, Ser. No. 504,160
Int. Cl.⁶ G06F 7/00

U.S. Cl. 395-607

10 Claims



6. A method for improving response time of multiple, concurrent mergesort operations, in an information handling system having a database storage system with a predetermined data structure, comprising the steps of:

providing a plurality of logical processors each operating under control of an image of an operating system program; providing one or more workfile storage devices for storing workfiles during mergesort operations; sharing one or more of said workfile storage devices by one or more of said logical processors; and executing a plurality of mergesort operations, wherein each mergesort operation is executed on a separate logical processor and wherein, for each mergesort operation, said executing comprises the steps of: sorting said data structure into one or more ordered runs; determining a logical partition size for said workfile storage devices; selecting a least loaded partition; writing said one or more ordered runs into said workfile storage devices in said selected partition; and merging said one or more ordered runs into a single sorted run.

into the array of pointer arrays to obtain an address of the pointer array; and performing an insertion search.

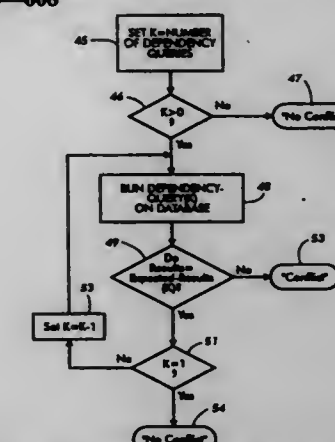
5,671,407 APPLICATION-SPECIFIC CONFLICT DETECTION FOR WEAKLY CONSISTENT REPLICATED DATABASES

Alan J. Demers, Boulder Creek; Karin Petersen, Menlo Park; Michael J. Spreitzer, Tracy; Douglas B. Terry, San Carlos; Marvin M. Thelmer, and Brent B. Welch, both of Mountain View, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 7, 1994, Ser. No. 351,841
Int. Cl.⁶ G06F 17/30; 7/20

U.S. Cl. 395-608

1 Claim



1. An application-specific process for detecting write operations which conflict with whatever state a database is found to have whenever any of said write operations is presented for updating said database; said process comprising embedding at least one dependency query in each of said write operations, together with a corresponding description of any results which are expected to be produced when said query is run against said database, where said dependency query is an arbitrary query on the database that is provided by the application as required to satisfy requirements of the application; running each of the embedded dependency queries for any given write operation against said database whenever said given write operation is presented for updating said database until a conflict is detected or all of said queries have been applied; collecting all results produced when any given dependency query for said given write operation is run against said database; comparing the results produced by running said given dependency query against said database with the expected results of so doing; and identifying a given write operation as being in conflict with the state of said database whenever the results produced by running any given one of the dependency queries for the given write fail to match the expected results.

5,671,408 NETWORK SUPPORT SYSTEM

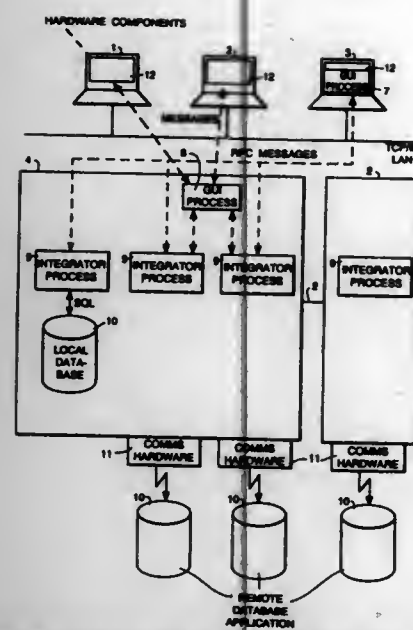
Simon Timothy McBride, Clwyd, England, assignor to British Telecommunications public limited company, London, England

Filed Aug. 30, 1994, Ser. No. 297,870
Claims priority, application European Pat. Off., Mar. 16, 1994, 94301878
Int. Cl.⁶ G06F 17/30; 15/74

U.S. Cl. 395-611

32 Claims

1. A support system for a telecommunications network which provides communication channels between locations, the system comprising:



- a plurality of databases which store route specifications for the respective channels and information about the physical paths taken by the channels between successive locations on the routes specified in the corresponding route specifications, the route specifications and the information about the physical paths being stored in different databases;
- a respective data acquisition means associated with each of the databases, for receiving requests for specific data stored in its associated database, interrogating its associated database in response to receipt of such requests, and outputting the requested specific data;
- user interface means having a graphical display device and input means which permits the inputting to the system of user requests, each identifying a said channel, for information about the route specification of that channel and the physical path taken by that channel between each pair of successive locations on the route specified in the route specification;
- selection means for selecting the databases in which the data corresponding to the information requested in an inputted user request is stored and directing requests for this data to the data acquisition means associated with these databases; and
- combining means for combining the data outputted by the data acquisition means in response to the inputted user request and displaying the route specification and the physical path taken by the channel between each pair of successive locations on the route specified in the route specification as a single graphical display via the display device.

5,671,409 COMPUTER-AIDED INTERACTIVE CAREER SEARCH SYSTEM

Ted Fatseas; Amy E. Fatseas, both of 1244 Orkney La., Cardiff, Calif. 92007; Peter Kreklow, 249 S. Hwy 101, Solano Beach, Calif. 92075, and John E. George, 4321 Goldfinch St., San Diego, Calif. 92103

Filed Feb. 14, 1995, Ser. No. 388,365
Int. Cl.⁶ G06F 13/42

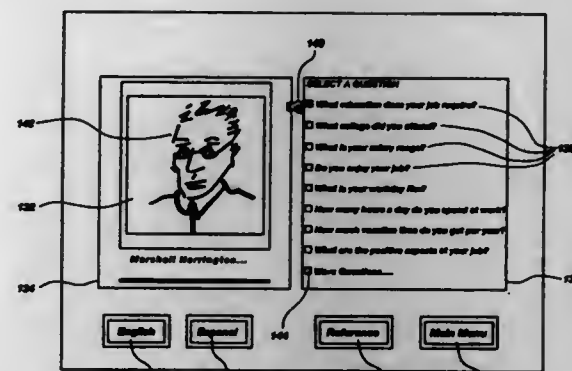
U.S. Cl. 395—615

20 Claims

7. A method of interactively accessing information relating to careers and occupations compiled in a computer-interactable structure comprising:

providing computer-interactable structure containing in read only memory a compilation of information relating to a plurality of career and occupations which provide the selection of a single career or occupation about which information may be accessed;

selectively accessing said compilation of information through menu-driven selections at multiple levels of inquiries, a first



- level of inquiry comprising a plurality of selectable files defining a collection of sub-files of careers and occupations; and
- selectively accessing from said at least one of said sub-files information relating to a specific career or occupation, said information including a plurality of randomly selectable questions the selection of which is directed to elicit a response which is specific to a specific career and a compilation of responses correspondingly responsive to said plurality of randomly selectable questions to provide specific information about said selected career or occupation.

5,671,410 DATA STORING DEVICE HAVING A CAPACITY DETERMINING SYSTEM

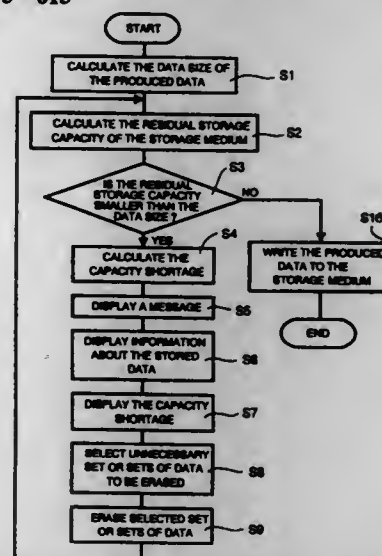
Masahiro Mizuno; Masao Futamura, and Yukiyo Muto, all of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Apr. 6, 1995, Ser. No. 417,889

Claims priority, application Japan, Jun. 8, 1994, 6-126031
Int. Cl.⁶ G06F 19/00

U.S. Cl. 395—615

25 Claims



14. A data storing apparatus for storing a produced data set, comprising:

a storing device storing the produced data set;

a data size determining circuit determining a data size of the produced data set to be stored in said storing device;

a storage determining circuit determining if the determined data size of the produced data set can be stored in said storing device;

a storage area determining circuit determining, when the produced data set cannot be stored in said storing device, a data size of a shortage capacity of said storing device based on the

determined data size of the produced data set, a used capacity of said storing device and a total capacity of said storing device; and

a display device for displaying information representing the determined data size of the shortage capacity of said storing device and a data size of at least one data set previously stored in said storing device.

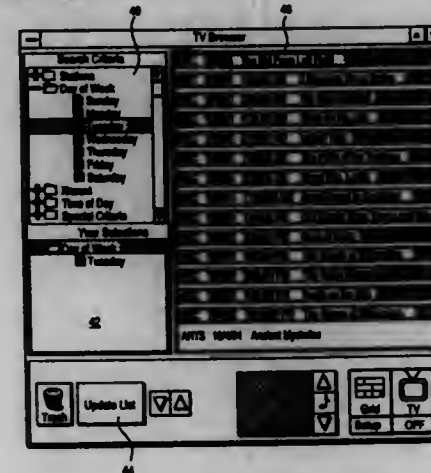
5,671,411 METHOD OF SEARCHING AN AUDIO/VISUAL PROGRAMMING DATABASE USING SELECTED CRITERION HAVING IMPLICIT LOGICAL OPERATION

Michael Watts, Morgan Hill; Robert Nazarenus, San Jose; Kathleen Lane, Los Altos; Fai-To Leung, and Alan Steinhauer, both of Sunnyvale, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 337,285, Nov. 10, 1994, Pat. No. 5,606,691. This application Jun. 7, 1995, Ser. No. 483,716
Int. Cl.⁶ G06F 17/30

U.S. Cl. 395—615

10 Claims



1. A method of searching an audio/visual programming database using criteria selected by a user, by the use of a computer having a display device and a pointing device for visually indicating a position on the display device through a cursor means, said method comprising the steps of:

- scrollably and consecutively displaying a plurality of scheduling search criteria followed by a plurality of subject search criteria in a first area on said display device, and implicitly associating each of said plurality of scheduling search criteria with an AND logical operation and each of said plurality of subject search criteria with an OR logical operation;
- moving the cursor means on the display device by the user, through the use of the pointing device to a desired one of said displayed search criteria;
- selecting one or more of said displayed search criteria by the user activating the pointing device and dragging desired ones of the displayed search criteria to a second area of said display device;
- scrollably and consecutively displaying the selected search criteria in the second area of said display device;
- searching said audio/visual programming database by the computer using the logical operations implicitly associated with the selected search criteria; and
- displaying in a third area of said display device the result of said search.

5,671,412 LICENSE MANAGEMENT SYSTEM FOR SOFTWARE APPLICATIONS

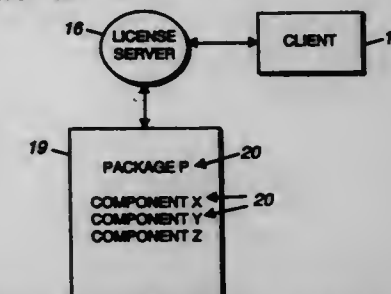
Matt Christiano, Saratoga, Calif., assignor to Globetrotter Software, Incorporated, Campbell, Calif.

Filed Jul. 28, 1995, Ser. No. 508,829

Int. Cl.⁶ G06F 17/30

U.S. Cl. 395—615

70 Claims



1. A method for initializing a license database including licenses for software products available to be checked out by clients wishing to use said software products, the method comprising the steps of:

- receiving a license item including a license associated with a software product;
- checking whether said license item is a package license item associated with a package, or a standard license item;
- when said license item is a standard license item, entering said license item as a standard license record in a license database; and
- when said license item is a package license item, creating a component license record in said license database for an associated component software product included in said package, said component license record being created from said package license item.

5,671,413 METHOD AND APPARATUS FOR PROVIDING BASIC INPUT/OUTPUT SERVICES IN A COMPUTER

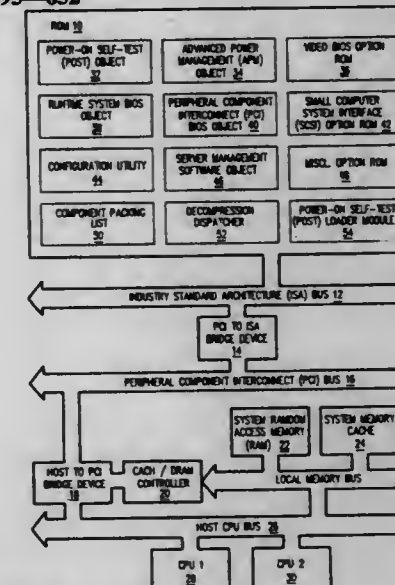
Mark S. Shipman, Hillsboro, and Orville Christeson, Portland, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Oct. 31, 1994, Ser. No. 332,104

Int. Cl.⁶ G06F 9/00

U.S. Cl. 395—652

33 Claims



1. An apparatus comprising:

- a non-volatile storage having a basic input/output system (BIOS) stored therein, the BIOS being constituted of a plurality of independently executable service components and a

decompression dispatcher, the service components being stored in a compressed state, and the decompression dispatcher being used during operation of a computer system within which the apparatus is integrated, to decompress and dispatch the service components for execution, on an as needed basis, to provide basic input/output services to the computer system, and to remove the dispatched service components upon execution when the dispatched service components are no longer needed.

5,671,414
METHOD AND APPARATUS FOR PROVIDING SIMPLE SECURE MANAGEMENT OF REMOTE SERVERS
 Jim Nicolet, 209 E. Park Dr., Elk Ridge, Utah 84651
 Continuation of Ser. No. 355,369, Dec. 13, 1994, abandoned.
 This application Feb. 27, 1996, Ser. No. 607,599
 Int. Cl.⁶ G06F 9/44

U.S. Cl. 395—684

30 Claims

1. A method in a computer network that includes (a) a network client computer configured to request and receive network services through the use of digital message packets, the client computer comprising a first processor for executing computer programs, and user input and output hardware, said client computer being characterized by a unique user access password having a first level of security associated therewith; (b) a network server computer configured to request and receive network services through the use of digital message packets, the server computer comprising a processor for executing computer programs, a hard drive for storing a plurality of software modules, and a RAM, said server computer being characterized by an administrator access password having a second level of security associated therewith, which second level of security is greater than said first level of security; and (c) a server operating system, including a native communications protocol, resident in said server computer; the method of remotely reconfiguring said server operating system from said client computer comprising the steps of:

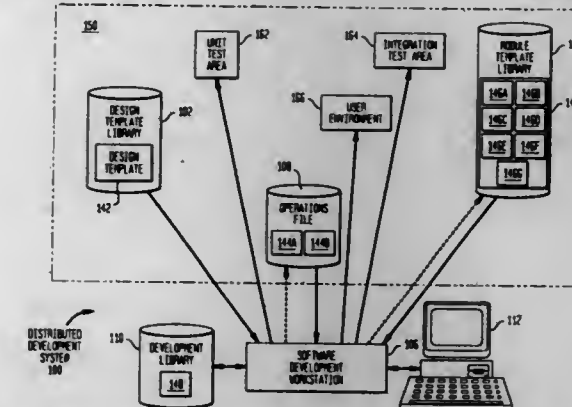
entering said user access password into said user input hardware to thereby establish a user session at said client computer; transmitting a server process from said client computer to said server computer; storing said server process at a first address on said hard drive of said server computer; transmitting from said server computer to said client computer indicia of said first address; constructing, by said client computer, a first digital message packet comprising a first field indicative of a request to load a software module, and a second field indicative of said first address; transmitting said first packet from said client computer to said server computer; processing said first and second fields by said server operating system; retrieving said server process from said first address on said hard drive; loading said server process into said RAM to thereby dynamically reconfigure said server operating system without using said administrator access password; and constructing a response message, by said server computer, and transmitting said response message to said client computer after said loading step, said response message indicating that said server process is loaded into said RAM, wherein said constructing step comprises building a message packet including an IPX header together with said first and second fields.

5,671,415
SYSTEM AND METHOD FOR FACILITATING SOFTWARE DEVELOPMENT

K. Omar Hossain, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
 Continuation of Ser. No. 986,182, Dec. 7, 1992, abandoned.
 This application Jun. 1, 1994, Ser. No. 252,392
 Int. Cl.⁶ G06F 3/00

U.S. Cl. 395—701

8 Claims



4. A computer-based system for aiding a developer in developing an application program that conforms to plant standards, comprising:

first means for storing a plurality of module templates, wherein each said module template is a pre-developed software module that performs a function in conformance with the plant standards, each of said plurality of module templates having at least one baseline having at least one baseline property; second means for providing a design template to the developer, wherein said design template comprises project requirements and specifications for the application and specifies one or more functions performed by said module templates; a software development workstation, coupled to said first and second means, for providing a development platform on which the developer develops the application program, wherein the application program includes mainline code that evaluates conditions, and calls said module template to perform said specified function in accordance with said project requirements and specification provided by said design template; third means for checking-out from said module template library an instance of said plurality of module templates for use in the application program; fourth means for extracting and retaining said baseline object and said baseline property from within said module template instance when checking-out said module template instance from said module template library; fifth means for developing mainline code for the application program on a development platform in accordance with said project requirements and specifications provided by said design template, wherein said mainline code evaluates conditions, and calls said module template instance to perform said specified function; sixth means for modifying said checked-out module template instance during said developing; seventh means for checking-in said module template instance into said module template library after the completion of said developing; eighth means for extracting a check-in object and a check-in property respective to said baseline object and baseline property from within said module template instance when checking-in said module template instance into said module template library; ninth means for comparing said check-in object and said check-in property against said baseline object and said baseline property; tenth means for defining said module template instance as a new module template instance if said comparing indicates a differ-

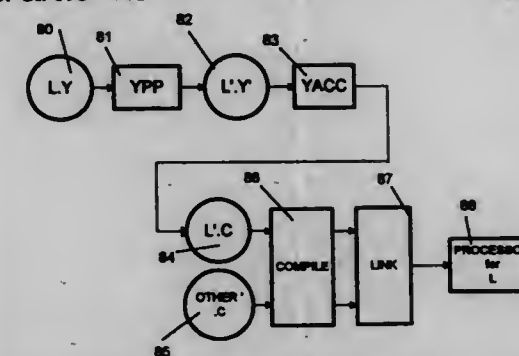
ence between said check-in object and said check-in property when compared against said baseline object and said baseline property; eleventh means for firstly examining said new module template instance to determine if it conforms with said plant standards; twelfth means for, if said new module template instance is determined to be in conformance with said plant standards, secondly examining said new module template instance to determine if it is generic; thirteenth means for, if said new module template instance is determined to be generic, holding said new module template instance in a candidate module library update set; and fourteenth means for periodically upgrading said module template library to include said candidate module library update set, wherein only one instance of each of said plurality of module templates is maintained and thus all application programs calling one of said plurality of module templates perform said specified function in conformance with plant standards.

5,671,416
APPARATUS AND A METHOD FOR SEARCHING AND MODIFYING SOURCE CODE OF A COMPUTER PROGRAM

David Elson, 3676 De Soto Ave., Santa Clara, Calif. 95051
 Filed Feb. 24, 1995, Ser. No. 393,710
 Int. Cl.⁶ G06F 9/45

U.S. Cl. 395—702

20 Claims

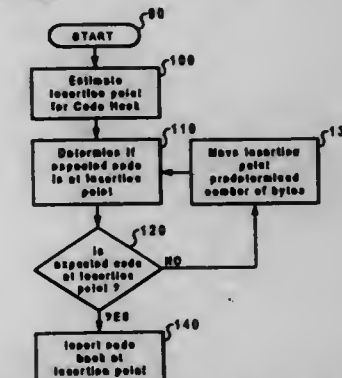


1. An apparatus for searching and modifying a source code of a computer program written in a programming language for controlling operation of a computer, said source code including program language symbols defined in said programming language and application symbols defined in said source code, comprising: a memory including a first storage for storing said source code program; a second storage; a compiler for translating said source code program into a parsed representation of said source code and storing said parsed representation in said second storage; first means for traversing said parsed representation; a third storage for storing a search term including at least one of said symbols, said first means for traversing including means for applying said search term to said parsed representation, and means for identifying occurrences and first locations of said symbols equal to said at least one of said symbols in said parsed representation; and a fourth storage for storing a list of said first locations.

5,671,417
METHOD AND SYSTEM FOR INSERTING FLOATING CODE HOOKS INTO MULTIPLE VERSIONS OF CODE
 Darren Milette, deceased, late of Boynton Beach, Fla., by Kristina Milette, executrix, and Mark D. Rogalski, Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Aug. 11, 1995, Ser. No. 514,510
 Int. Cl.⁶ G06F 7/00

U.S. Cl. 395—704

33 Claims



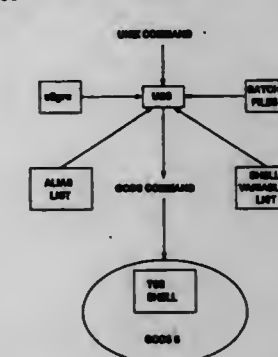
1. A method of inserting a floating code hook at a proper position within a program's code, the method comprising the steps of:

- estimating an insertion point for a code hook in a computer program loaded in a computer's memory;
- determining whether expected code is located at the estimated insertion point;
- if the expected code is located at the estimated insertion point, inserting the code hook into the program code at the insertion point;
- if the expected code is not located at the estimated insertion point, moving the estimated insertion point a predetermined number of bytes from the estimated insertion point to a new estimated insertion point, and repeating steps (b)-(d).

5,671,418
OPERATING SYSTEM TRANSLATOR INCORPORATING A VERBOSE MODE OF OPERATION
 Forouzan Golshani, Paradise Valley, and Thomas H. Howell, Scottsdale, both of Ariz., assignors to Bull HN Information Systems Inc., Billerica, Mass.
 Filed May 22, 1995, Ser. No. 445,637
 Int. Cl.⁶ G06F 9/44

U.S. Cl. 395—705

4 Claims



1. An open computer complex comprising:
 A) a first computer system operating under the GCOS-8 operating system having a first operating system command repertoire;
 B) a second computer system operating under the UNIX operating system having a second operating system command repertoire;

- C) at least one of said first computer system and said second computer system further including a user terminal; and
- D) interface means connecting said first and second computer systems, said interface means including an operating system translator, said operating system translator comprising:
- a table of equivalent commands which are included in said first operating system command repertoire and said second operating system command repertoire, said table of equivalents including the following equivalent file operating system commands:

UNIX	GCOS-8
ls	clist
cat	display
more	P
rm	rele
mv	acce
tail	tail
diff	len
file	wc
wc	bsort
sort	

- means for receiving an operating system command from said second operating system command repertoire which is to be executed in said first computer system;
- means for determining from said table an operating system command in said first operating system command repertoire which is an equivalent operating system command of said operating system command from said second operating system command repertoire which is to be executed in said first computer system;
- means for executing said equivalent operating system command in said first computer system; and
- verbose mode means for selectively displaying on said user terminal messages describing the relationship between said operating system command from said second operating system command repertoire and said equivalent operating system command from said first operating system command repertoire, said verbose mode being invoked by a first manually entered command and disabled by a second manually entered command.

5,671,419

INTERPROCEDURAL DATA-FLOW ANALYSIS THAT SUPPORTS RECURSION WHILE ONLY PERFORMING ONE FLOW-SENSITIVE ANALYSIS OF EACH PROCEDURE

Paul Robert Carini, Fairfield County, Conn.; Michael George Burke, Westchester County, and Michael James Hind, Ulster County, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

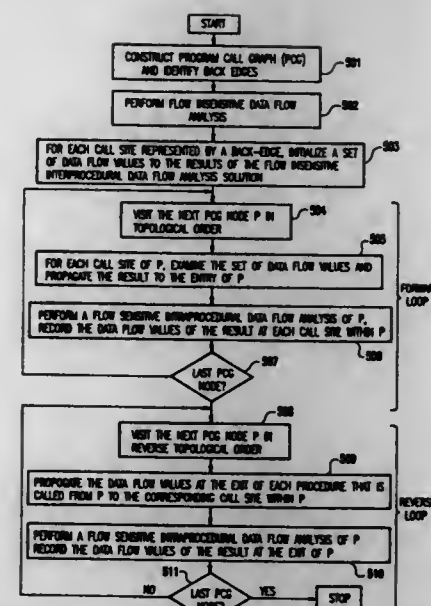
Filed Jun. 15, 1995, Ser. No. 490,879
Int. Cl. G06F 9/44

U.S. Cl. 395—709

5 Claims

- In a computer processor executing a computer compiler, a computer implemented method for performing interprocedural data flow analysis over a program call graph (PCG) that supports recursion, while performing only one flow-sensitive analysis of each routine, comprising the steps of:

- constructing the PCG of a computer application program, the PCG having a plurality of PCG nodes and PCG edges, each PCG node representing a procedure P in the computer application program and each PCG edge representing a procedure call site and connecting two nodes, a procedure call site being a statement in a program that invokes a procedure, a source node being a calling PCG node and a target node being a called PCG node and a PCG edge having a direction from the calling node to the called node, and some of the edges possibly being back edges;
- identifying any back edges of the PCG;



- performing a flow-insensitive interprocedural data flow analysis if there are back edges of the PCG;
- for each call site represented by a back edge, initializing a set representing a data flow value to the results of the flow-insensitive interprocedural data flow analysis solution of step c;
- for each procedure P in the PCG, performing a forward or reverse topological traversal of the PCG and, for each call site that invokes P, examining the set of data flow values and propagating the result to an entry of P; and
- performing a flow-sensitive intraprocedural data flow analysis of P without iteration and recording data flow values of the result at each call site within P.

5,671,420

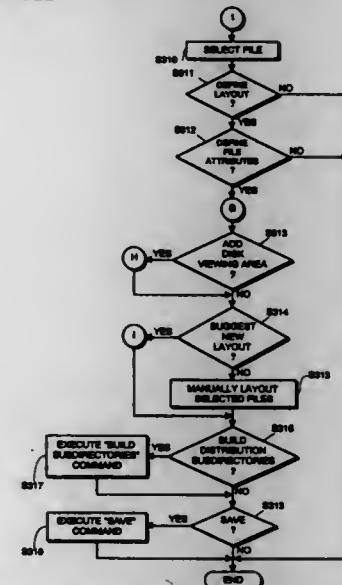
DISTRIBUTION DISKETTE UTILITY

David R. Bell, Rancho Santa Margarita; Thomas R. Ramsdell, Lomita, and Marianne L. Kodimer, Anaheim, all of Calif., assignors to Canon Information Systems, Inc., Costa Mesa, Calif.

Filed Jun. 28, 1995, Ser. No. 496,099
Int. Cl. G06F 17/30

U.S. Cl. 395—712

55 Claims



- A method of distributing files having assigned attributes onto computer-usable storage media based on a suggested file distribu-

tion, the files being loadable from the computer-usable storage media into directories on an end-user's system, said method comprising:

- a first displaying step for displaying (1) a file library comprising executable and nonexecutable files and (2) one or more file storage designation area(s) corresponding to fixed storage area(s) in a memory means;
- a second displaying step for displaying, in response to a user's input which includes selection of one or more file(s) in the file library, a file attribute option which includes file installation options;
- an assigning step for assigning, in response to a user's selection of a file installation option, one or more file attribute(s) to a selected file, the one or more file attribute(s) specifying a target directory on the end-user's system into which selected files are to be stored;
- a third displaying step for displaying, in response to a user's input, a suggested file distribution assignment of the selected file to one file storage designation area; and
- a storing step for storing, in response to a user's input, the selected file in a fixed storage area corresponding to the one file storage designation area, and for storing the selected file from the fixed storage area onto a computer-usable storage medium.

5,671,421

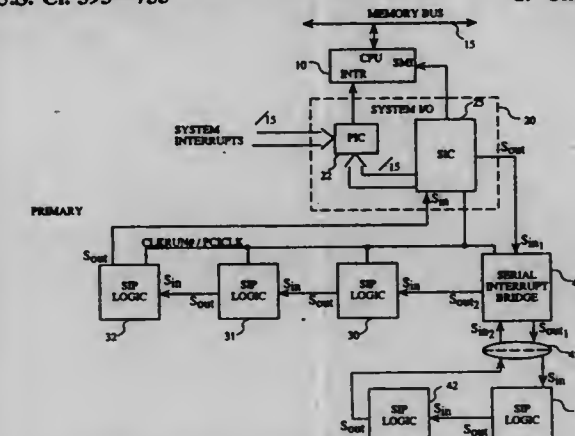
SERIAL INTERRUPT BUS PROTOCOL

James Kardach, San Jose; Sung Soo Cho, Sunnyvale; Nicholas B. Peterson; Thomas R. Lane, both of San Jose; Jayesh M. Joshi, Santa Clara, and Neil Songer, San Jose, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 7, 1994, Ser. No. 351,637
Int. Cl. G06F 9/46; 13/14

U.S. Cl. 395—733

19 Claims



- A computer system comprising:
- a central processing unit (CPU) for executing an interrupt service routine in response to an interrupt pending signal;
 - a first interrupt controller coupled to provide said interrupt pending signal to said CPU in response to any one of a plurality of potential interrupt request signals;
 - a serial interrupt controller coupled to said first interrupt controller, said serial interrupt controller generating an appropriate one of said plurality of potential interrupt request signals corresponding to a received serial interrupt request signal; and
 - a first plurality of serial interrupt peripherals interconnected and in communication with said serial interrupt controller, wherein each one of said first plurality of serial interrupt peripherals may request one or more of said plurality of potential interrupt request signals to be generated by said serial interrupt controller, each of said first plurality of serial interrupt peripherals including protocol logic configured to serially propagate said serial interrupt request signal to said serial interrupt controller.

5,671,422

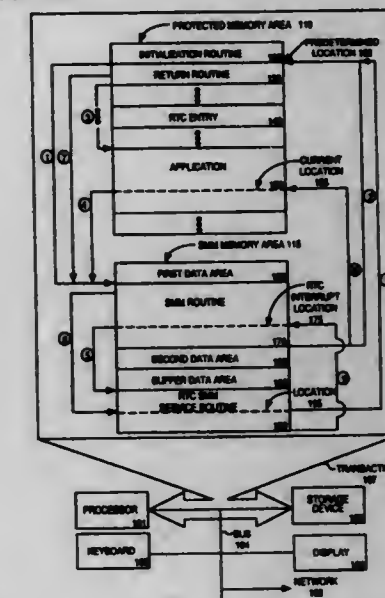
METHOD AND APPARATUS FOR SWITCHING BETWEEN THE MODES OF A PROCESSOR

Sham M. Datta, Hillsboro, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 339,471, Nov. 14, 1994, abandoned. This application Mar. 28, 1995, Ser. No. 411,450
Int. Cl. G06F 9/00

U.S. Cl. 395—734

34 Claims



- In a computer system including a processor operable in a first mode and a second mode, said processor being coupled to a storage device storing a plurality of instructions, a method for switching between said first mode and said second mode of said processor, said method comprising the steps of:

- storing, in response to a first interrupt, a first information in said storage device for switching to processing in said first mode starting at a first of said plurality of instructions;
- switching from processing air at a second of said plurality of instructions in said first mode to processing in said second mode in response to a second interrupt occurring subsequent to said storing in step A;
- storing, in response to said second interrupt, a second information in said storage device for returning to processing in said first mode starting at said second of said plurality of instructions; and
- switching from processing in said second mode to processing in said first mode starting at said first instruction using said first information if processing starting at said first instruction is required, said switching in step D occurring in response to said switching in step B.

5,671,423

DEVICE FOR CONTROLLING THE SWITCHOVER OF PROCESSOR OPERATION FROM AN INSTANTANEOUS STATUS TO A SUBSEQUENT STATUS

Volker Hallwirth, St. Georgen, Germany, assignor to Siemens Aktiengesellschaft, München, Germany

PCT No. PCT/DE93/00665, § 371 Date Feb. 9, 1995, § 102(e) Date Feb. 9, 1995, PCT Pub. No. WO94/03848, PCT Pub. Date Feb. 17, 1994

PCT Filed Jul. 27, 1993, Ser. No. 381,900

Claims priority, application Germany, Aug. 10, 1992, 42 26 456.1

Int. Cl. G06F 9/22

5 Claims

U.S. Cl. 395—740

- A device for controlling the switchover of processor operation from an instantaneous status to a subsequent status, comprising:

5,671,429

DOCUMENT PROCESSING SYSTEM PROVIDING FACILITATED MODIFICATION OF DOCUMENT IMAGES

Tsuyoshi Tanaka, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

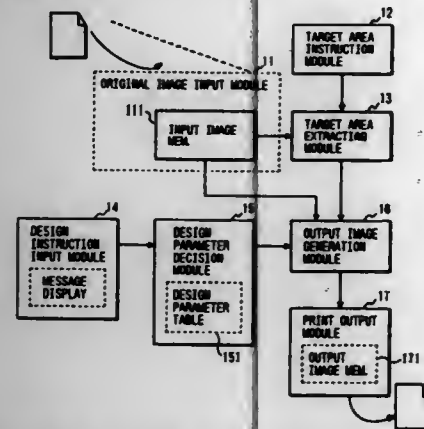
Filed Jun. 1, 1993, Ser. No. 69,394

Claims priority, application Japan, Jun. 2, 1992, 4-165526

Int. Cl.⁶ G06T 1/00

U.S. Cl. 395-792

23 Claims



1. A document processing system comprising:

document image holding means for storing data representing a document image and including at least some non-character image data;

target area instruction means designating, for editing, an image target area including at least a portion of the non-character image data in the document image stored in said document image holding means, said target area instruction means further comprising a display which displays respective model images which have been prepared for respective kinds of image target areas, and wherein the displayed model images guide a user on how to instruct the image target area;

target area extraction means for extracting the image target area designated by said target area instruction means from the document image;

design instruction means for generating at least a selected one of a plurality of design instructions to generate a desired document design for an output document;

design parameter decision means for determining values of design parameters determined in accordance with the one design instruction for the document design in the image target area and operative to modify at least the portion of the non-character image data in the image target area; and

output image generation means for processing and modifying at least the document non-character image data in the image target area extracted by said target area extraction means in accordance with the parameter values determined by said design parameter design means, thereby to produce an output image.

5,671,430

PARALLEL DATA PROCESSING SYSTEM WITH COMMUNICATION APPARATUS CONTROL

Anton Gunzinger, Ottenweg 12, 8008 Zürich, Switzerland

PCT No. PCT/CH94/00133, § 371 Date Mar. 22, 1995, § 102(e)

Date Mar. 22, 1995, PCT Pub. No. WO95/01604, PCT Pub. Date Jan. 12, 1995

PCT Filed Jun. 24, 1994, Ser. No. 392,786

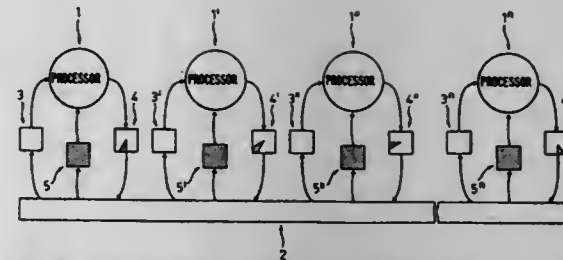
Claims priority, application Switzerland, Jun. 30, 1993, 01972/93

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395-800

21 Claims

13. A parallel data processing system with communication system control comprising:



a plurality of autonomous data processors each having a data memory, an instruction memory, a communication controller and a communication interface, each said data memory and instruction memory having stored therein data sets, algorithms and protocol instructions, said communication controllers being connected to control opening and closing of access to said data memories through said communication interface; and

a hardware communication system common to all of said autonomous data processors, said communication system being connected to communicate with said communication interfaces of all of said data processors to regulate operation of said data processors,

said communication system having stored therein an overriding body of execution sequence commands for said data processors to initiate and regulate autonomous processing of data sets in said data processors in accordance with said stored algorithms in said data processors, independently of each other, to individually arrive at processing results and make said results available to said communication system for reading and communicating the processing results.

5,671,431

METHOD FOR PROCESSING USER PROGRAM ON A PARALLEL COMPUTER SYSTEM BY INSERTING A TAG DURING COMPILING

Jürgen Knopp, Ottobrunn, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE93/00744, § 371 Date May 10, 1995, § 102(e)

Date May 10, 1995, PCT Pub. No. WO94/07197, PCT Pub. Date Mar. 31, 1994

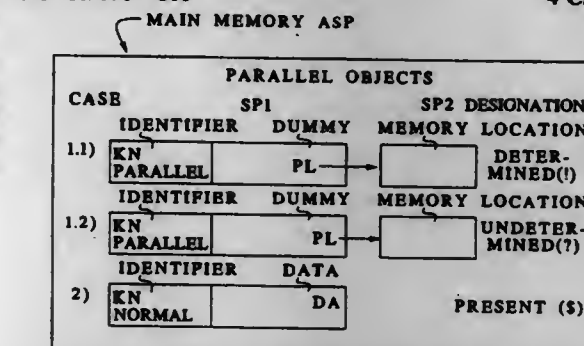
PCT Filed Aug. 18, 1993, Ser. No. 406,893

Claims priority, application Germany, Sep. 22, 1992, 42 31 709.6

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395-800

4 Claims



1. A method of processing an application program on a parallel-computer system, comprising the steps of:

a) processing individual processes on different computers in the parallel-computer system,

b) reading in code of the application program,

c) establishing, during compiling of the application program, for each instruction, based on a list in which is specified when execution of an instruction requires an access to a data item, if execution thereof requires an access to a data item,

d) entering as characteristic information for these instructions in a symbol table whether data d1) has already been written in a current process, d2) can be executed in parallel and has

already been calculated if the current process requires the data, d3) can be executed in parallel and possibly has not yet been calculated if the current process requires the data,

e) providing, in the compiled program, instructions for which case d1) applies with a first tagging sign, and instructions for which case d3) applies with a second tagging sign,

f) tagging a result of an executed instruction according to characteristic information thereof and entering a result variable with the characteristic information in the symbol table.

5,671,432

PROGRAMMABLE ARRAY I/O-ROUTING RESOURCE

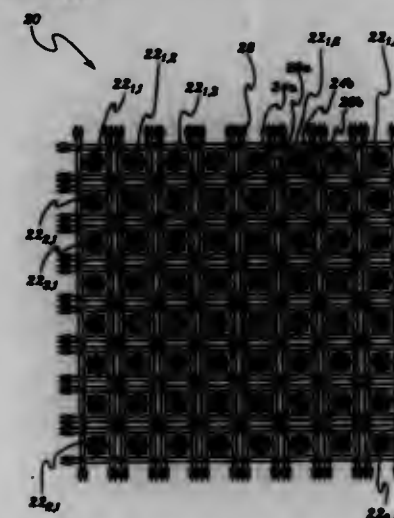
Allan Robert Bertolet, Williston, Vt.; Kenneth Ferguson, Edinburgh, Scotland; Scott Whitney Gould, South Burlington, Vt.; Eric Ernest Millham, St. George, Vt.; Ronald Raymond Palmer, Westford, Vt.; Brian Worth, Milton, Vt., and Terrence John Zittrich, Williston, Vt., assignors to International Business Machines Corporation, Armonk, N.Y., and Cadence Design Systems, Inc., San Jose, Calif.

Filed Jun. 2, 1995, Ser. No. 460,420

Int. Cl.⁶ G06F 13/00; 13/40

U.S. Cl. 395-800

38 Claims



1. A programmable array having a plurality of programmable logic cells arrayed therein, said programmable array further comprising:

a programmable interconnect network, the programmable interconnect network comprising a first plurality of buses wherein selected buses in the first plurality of buses are connectable to ones of the plurality of logic cells, the first plurality of buses including a plurality of switches, at least some switches of the plurality of switches for programmably providing signals between buses of the first plurality of buses; and

a first I/O interface associated with a corresponding one of the plurality of logic cells, the first I/O interface comprising:

a data output path for carrying array output signals to an I/O terminal corresponding to the first I/O interface;

a data input path for carrying array input signals from the I/O terminal corresponding to the first I/O interface;

a first multiplexer having an output connected to said data output path, said first multiplexer further having a plurality of inputs;

a second multiplexer having an input connected to said data input path, said second multiplexer further having a plurality of outputs; and

first and second I/O signal buses, the first I/O signal bus being connected between one of the switches of the first plurality of buses and one of the plurality of inputs of the first multiplexer, the second I/O signal bus being connected between one of the switches of the first plurality of buses and one of the plurality of outputs of the second multiplexer.

5,671,433

MAPPABLE FUNCTIONS FROM SINGLE CHIP/MULTI-CHIP PROCESSORS FOR COMPUTERS

Henry Tat Fung, and Phillip Merle Mitchell, both of San Jose, Calif., assignors to Vadem Corporation, San Jose, Calif.

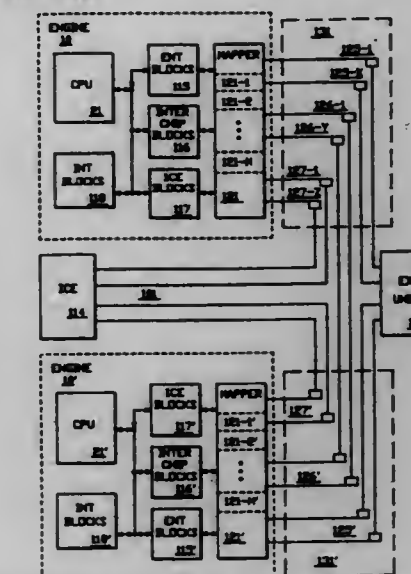
Continuation of Ser. No. 947,471, Sep. 18, 1992, abandoned.

This application Jun. 7, 1995, Ser. No. 478,313

Int. Cl.⁶ G06F 13/36

U.S. Cl. 395-800

26 Claims



1. A distributed system comprising,

a plurality of engines, each of said engines including, a plurality of functional circuits for performing a plurality of functions;

a plurality of Input/Output pins;

a plurality of internal connectors for interconnecting the functional circuits to the Input/output pins,

selection means for selecting between a stand-alone mode and a distributed mode, wherein

in a stand-alone, mode a first set of said functional circuits are connected to a first set of said Input/Output pins for operation with a first set of said functions, said first set of functions comprising at least one function, and wherein

in a distributed mode, a second set of said functional circuits are connected to a second set of said Input/Output pins for operation with a second set of said functions, said second set of functions comprising at least one function,

the distributed system further comprising control means for controlling the selection means of the engines.

5,671,434

MICROPROCESSOR CONTROLLED APPARATUS

Andrew Menadue, Truro, and Ian Withycombe, Farnborough, both of United Kingdom, assignors to Nokia Mobile Phones Ltd., Salo, Finland

Continuation of Ser. No. 16,804, Feb. 11, 1993, abandoned.

This application Jun. 7, 1995, Ser. No. 478,551

Claims priority, application United Kingdom, Mar. 24, 1992, 9206319

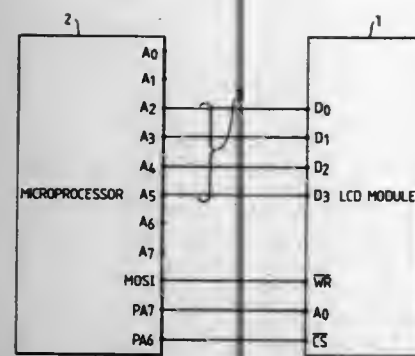
Int. Cl.⁶ G06F 13/00; 3/14

U.S. Cl. 395-800

32 Claims

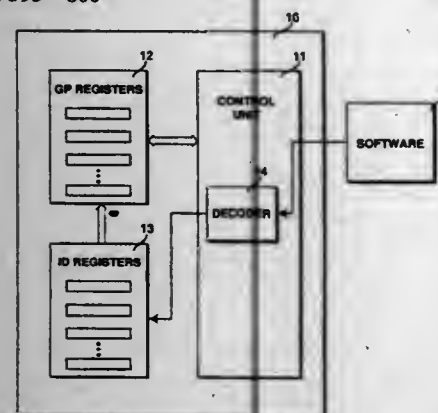
1. A microprocessor controlled apparatus for providing signals to a device comprising:

a microprocessor having a plurality of dedicated address lines to which only address signals are applied during an instruction cycle, the microprocessor comprising means for maintaining all of the address signals on a sub-set of the address lines substantially constant between consecutive microprocessor instruction cycles; and



a device for receiving signals on a plurality of data lines, the data lines being coupled to the sub-set of the microprocessor address lines for receiving data on the data lines from the sub-set of address lines during a device write operation that extends over a plurality of microprocessor instruction cycles.

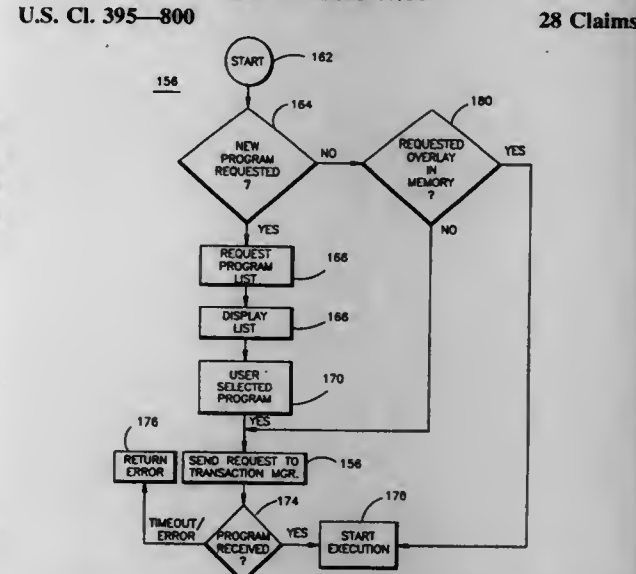
5,671,435
TECHNIQUE FOR SOFTWARE TO IDENTIFY FEATURES IMPLEMENTED IN A PROCESSOR
 Donald Alpert, Santa Clara, Calif., assignor to Intel Corporation, Santa Clara, Calif.
 Continuation-in-part of Ser. No. 938,288, Aug. 31, 1992. This application Jun. 28, 1995, Ser. No. 496,259
 Int. Cl.⁶ G06F 11/30; 12/06
 U.S. Cl. 395—800



1. In a processor which includes a decoder for decoding instructions and a control unit for generating control signals for controlling said processor, an apparatus for providing identification information pertaining to said processor when queried by a processor identification instruction comprising:

- a first register containing a first data field which identifies a higher-level attribute of said processor, said first register also containing a second data field and a third data field, said first register coupled to said control unit;
- at least one second register containing information pertaining to identification of a source of said processor, wherein said second data field contained in said first register identifies a number of said second register or registers present, said second register or registers coupled to said control unit;
- at least one third register containing information which identifies a lower-level attribute of said processor, wherein said third data field contained in said first register identifies a number of said third register or registers present, said third register or registers coupled to said control unit.

5,671,436
VERSATILE RF DATA CAPTURE SYSTEM
 Michael D. Morris, Cedar Rapids, and Lyle L. Zumbach, Coggon, both of Iowa, assignors to Norand Corporation, Cedar Rapids, Iowa
 Continuation-in-part of Ser. No. 267,758, Jul. 5, 1994, Pat. No. 5,568,645, which is a continuation of Ser. No. 748,150, Aug. 21, 1991, Pat. No. 5,349,678. This application Aug. 28, 1995, Ser. No. 520,136
 Int. Cl.⁶ G06F 17/30
 U.S. Cl. 395—800

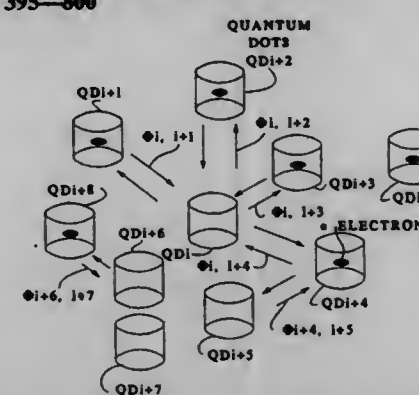


1. A system for collecting data from at least one remote site and transmitting the collected data to a main information center and having information distributed throughout said data collecting system, the information comprising first, second and third portions and including a plurality of application programs, data specific to the plurality of application programs, each of the application programs being partitioned into a root module and at least one overlay module, said data collecting system comprising:

- a) a plurality of portable terminals for collecting data at the remote site, each terminal comprising means for collecting data, a first memory for storing the first information portion, a keyboard, a computer processor for executing a selected one of the plurality of application programs, means responsive during the execution of the selected one application program by said computer processor to a request for the data specific to the selected one application or for the next overlay or to a request entered by the user upon said keyboard for a root module of a new application program for generating an information call for that requested information, first radio means, and first memory searching means responsive to the information call for searching said first memory for that requested information and if the requested information is not found therein for transmitting the information call;
- b) a first mobile server to be transported to various locations with respect to the main information center and the remote site and comprising a second memory for storing the second information portion, second radio means for receiving from said first radio means the transmitted information call, third radio means and second memory searching means responsive to the received information call for searching said second memory for that requested information, said second searching means responsive to absence of that requested information for actuating said third radio means to retransmit the information call and responsive to the presence of that requested information for accessing from said second memory that requested information and actuating said second radio means to transmit to said first radio means the accessed requested information; and
- c) a second server disposed at the main information center and comprising a third memory for storing the third information portion, fourth radio means for receiving from said third radio means the retransmitted information call and third memory

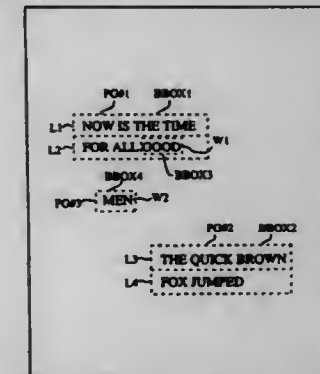
searching means responsive to the received, retransmitted information call for searching said third memory means for that requested information, said third memory searching means responsive to the absence of that requested information for generating a message indicating an absence of that requested information within said data collecting system and actuating said fourth radio means to transmit the information absence message, said third memory searching means responsive to the presence of that requested information within said third memory for accessing third memory means and actuating said fourth radio means to transmit to said third radio means the accessed, requested information.

5,671,437
QUANTUM DOT-TUNNEL DEVICE AND INFORMATION PROCESSING APPARATUS AND METHOD USING SAME
 Kenichi Taira, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
 Continuation of Ser. No. 320,375, Oct. 11, 1994, Pat. No. 5,613,140. This application Dec. 16, 1996, Ser. No. 766,946
 Claims priority, application Japan, Jun. 21, 1991, 3-150446
 Int. Cl.⁶ H01L 33/00
 U.S. Cl. 395—800



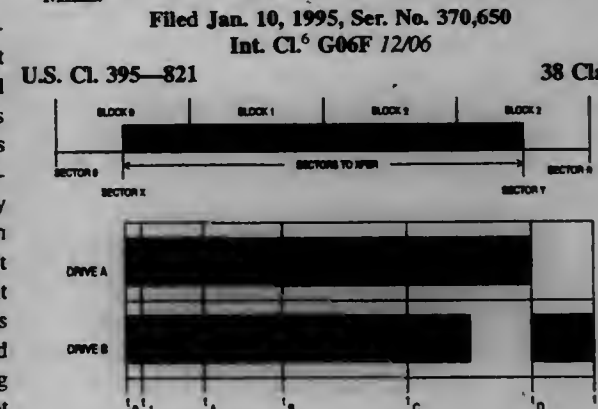
2. A quantum dot-tunnel device comprising a plurality of side-by-side quantum dots mounted on a transparent base, first light emitting means for selectively scanning during a first time period said plurality of quantum dots so as to selectively excite electrons in certain ones of said quantum dots to an energy level which is higher than they were before such excitation, a second light emitting means for scanning during a second time period said plurality of quantum dots, and said second light emitting means mounted on one side of said transparent base, and a two-dimensional light detecting means mounted on the opposite side of said transparent base from which said second light emitting means is mounted so as to detect during said second time period which ones of said quantum dots have electrons which have been excited by detecting the light energy which has passed straight through said transparent base; wherein the energy level of said first light emitting means is substantially higher than the energy level of said second light emitting means; wherein the energy level of said first light emitting means is such to excite electrons in said quantum-dots from the quantized ground level of the conduction band form the valence band, wherein the energy level of said second light emitting means is such to excite electrons between a ground level of a valence band of the quantum dots and a first excited level, and wherein the output of said first laser light emitting source has a wavelength having an energy equivalent to a band gap of the said quantum dots.

5,671,438
METHOD AND APPARATUS FOR FORMATTING PARAGRAPHS
 Stephen P. Capps, and Ernest H. Beernink, both of San Carlos, Calif., assignors to Apple Computer, Inc., Cupertino, Calif.
 Continuation of Ser. No. 70,096, May 27, 1993, Pat. No. 5,479,596. This application Jun. 7, 1995, Ser. No. 485,095
 Int. Cl.⁶ G06T 11/60; 11/80
 U.S. Cl. 395—802



1. A method for formatting paragraphs on a screen of a computer system comprising the steps of:
 entering a word on a screen of a computer system using a pointing device of said computer system;
 conducting an automatic search for a paragraph that the word can be associated with, said automatic search being conducted without receiving an explicit command to associate said word with a paragraph, and designating a paragraph to be an associated paragraph of the word if the word meets a criteria for inclusion in said associated paragraph; and
 adding the word to said associated paragraph, if one was found by said automatic search.

5,671,439
MULTI-DRIVE VIRTUAL MASS STORAGE DEVICE AND METHOD OF OPERATING SAME
 Dean A. Klein, Lake City, Minn., and Eric D. Anderson, Hodson, Wis., assignors to Micron Electronics, Inc., Minneapolis, Minn.
 Filed Jan. 10, 1995, Ser. No. 370,650
 Int. Cl.⁶ G06F 12/06
 U.S. Cl. 395—821



1. A virtual mass storage device for use with a computer system, for storing data in a format including a plurality of logical sectors arranged in logical blocks, each logical block representing an integral number of logical sectors, the virtual device comprising:
 (a) first and second physical mass storage devices, each for storing data in a format including a plurality of physical sectors, wherein the physical sectors are arranged in physical blocks, each physical block representing an integral number of physical sectors;
 (b) first and second intelligent drive controllers for respectively handling data transfers with the first and second physical mass storage devices, each intelligent drive controller having an

- on-board memory, wherein the first and second drive controllers operate independent of one another; and
- (c) control means for transferring data between the computer system and the first and second physical mass storage devices in response to a transfer request for a group of logical sectors, the control means including:
- determining means for determining respective first and second groups of physical sectors on the first and second physical mass storage devices that correspond to the group of logical sectors;
 - command means for sending commands to the first and second intelligent drive controllers to respectively transfer data related to the first and second groups of physical sectors between the on-board memories and the physical mass storage devices; and
 - first second transferring means for alternately transferring data related to the first and second groups of physical sectors between the computer system and the on-board memories of the first and second intelligent drive controllers, respectively, wherein the first and second transferring means alternate transferring segments of data equal in size to the physical blocks irrespective of block boundaries.

5,671,440

COLOR IMAGE DATA REORIENTATION AND FORMAT CONVERSION SYSTEM

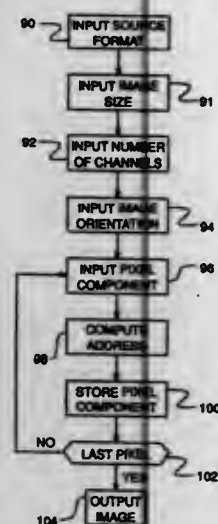
Kenneth D. Curry, Victor, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 8, 1994, Ser. No. 287,373

Int. Cl.⁶ G06F 3/12 G06K 15/02

U.S. Cl. 395—828

20 Claims



1. A color image data transformation system, comprising:
 - a data buffer receiving input color image data in a data interleaved format and in an orientation of a first type;
 - a memory storing the data in a format and an orientation of a second type; and
 - a transformation control device, coupled to said buffer and said memory, transferring the data between said buffer and said memory and changing the data interleaved format and the orientation between the first and second types.

5,671,441 METHOD AND APPARATUS FOR AUTOMATIC GENERATION OF I/O CONFIGURATION DESCRIPTIONS

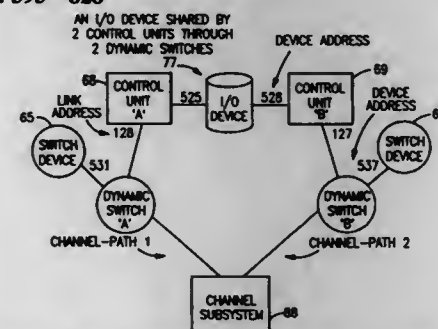
Steven Gardner Glassen, Wallkill; Marten Jan Halma, Poughquag; Eugene Paul Hefferon, Poughkeepsie, and Francis Edward Johnson, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 29, 1994, Ser. No. 346,642

Int. Cl.⁶ H01J 3/00

U.S. Cl. 395—828

17 Claims



1. A method in a computer system with a central electronics complex (CEC), having at least one I/O channel subsystem, a plurality of channel paths and a plurality of I/O items, said I/O items being attachable to said subsystem via said channel paths in different ways as to provide a plurality of different system configurations, the method performed by the CEC for accessing information associated with said I/O items, said method comprising the following CEC-performed steps:

structuring in the CEC an amorphous subchannel not defined in a current I/O configuration definition for the I/O channel subsystem,

using the amorphous subchannel to test for the existence of each I/O item connected to one or more channel paths of said CEC by simulating a plurality of I/O item addresses by the amorphous subchannel without the CEC using the current I/O configuration definition for accessing the I/O item,

attempting to access the I/O item addressed by the using step,

determining characteristics of each of said I/O items by accessing self-description information provided for each of said I/O items;

determining the channel paths usable to access each of said I/O items;

storing the self-description information about said attached I/O items and storing information for each channel path connection to each I/O item in an I/O item configuration record;

examining said I/O item configuration record to determine if any of said I/O items are shared by said channel paths or said I/O items, and

using said I/O item configuration record to build an I/O configuration definition, wherein the amorphous subchannel previously contained no fixed I/O configuration definition information, and allows information about said I/O items to be stored, modified, or retrieved when I/O commands are issued.

5,671,442

SYSTEM HAVING DEVICE DRIVER OPERATES IN FIRST MODE FOR ALLOWING CONCURRENT ACCESS TO ADAPTER BY APPLICATIONS AND SECOND MODE FOR LIMITING ACCESS TO ONE APPLICATION

James William Feeney, Endicott, and George William Wilhelm, Jr., Endicott, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

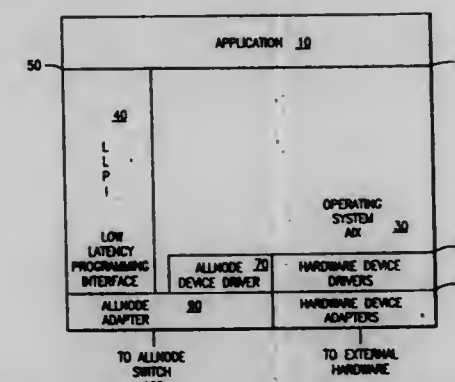
Division of Ser. No. 17,197, Feb. 12, 1993, abandoned. This application May 11, 1995, Ser. No. 437,386

Int. Cl.⁶ G06F 15/02

U.S. Cl. 395—834

8 Claims

1. An information handling system, comprising:
 - at least two terminals; and



- a communications means coupled to the at least two terminals for communicating information between at least two terminals in the information handling system;
- wherein each of said terminals comprises:
- a processor, for processing information to be communicated between the terminals;
- an operating system for controlling the operation of the processor;
- at least one application on the processor under control of the operating system;
- a device driver having at least two modes of operation, a first mode of operation of the device driver allowing concurrent access to an adapter controlled by one or more applications, and a second mode of operation of the device driver which limits access to one application; and
- a communications adapter controlled by the device driver;
- each device driver further comprising:
- means for testing a request for access to the communications adapter to determine if such request is for a first mode or a second mode of operation;
- means for setting a mode indicator to a first state if a first mode of operation is detected;
- means for setting a mode indicator to a second state if the second mode of operation is indicated; and
- means for blocking access by other applications if the second mode of operation has been detected.

5,671,443

DIRECT MEMORY ACCESS ACCELERATION DEVICE FOR USE IN A DATA PROCESSING SYSTEM

David Robert Stauffer, Milton, Vt., and Rebecca Stempski McMahon, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

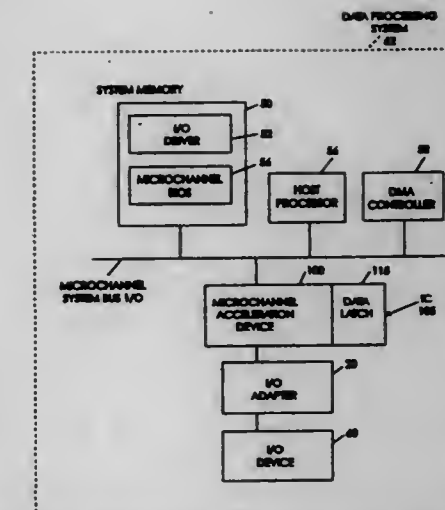
Filed Feb. 21, 1995, Ser. No. 391,810

Int. Cl.⁶ G06F 13/36

U.S. Cl. 395—845

9 Claims

1. A device for increasing a data transfer rate between a system bus and an input/output adapter during a direct memory access operation, comprising:
 - bus arbitration means coupled to the system bus and the input/output adapter, for decoding bus arbitration signals from the system bus and the input/output adapter, and gaining control of the system bus for the direct memory access operation when a signal bearing a predefined code corresponding to the input/output adapter is detected;
 - addressing means coupled to the system bus and the input/output adapter, for supplying an address to the system bus and the input/output adapter when said bus arbitration means has gained control of said system bus, and
 - sequencing means coupled to the system bus and the input/output adapter, wherein said sequencing means causes a sequence of instructions to be executed for generating control signals that simultaneously initialize for a transfer of new data over the system



bus and cause transmission of data between the system bus and the input/output adapter according to current addresses produced by said addressing means.

5,671,444

METHODS AND APPARATUS FOR CACHING DATA IN A NON-BLOCKING MANNER USING A PLURALITY OF FILL BUFFERS

Haitham Akkary, Portland; Jeffrey M. Abramson, Aloha; Andrew F. Glew, Hillsboro; Glenn J. Hinton, Portland; Kris G. Konigsfeld, Portland; Paul D. Madland; Mandar S. Joshi, both of Beaverton, and Brent E. Lince, Hillsboro, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

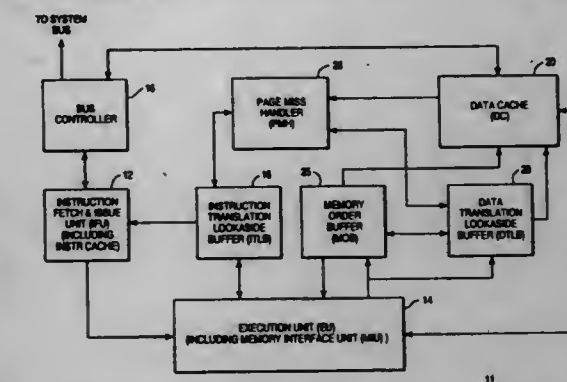
Continuation of Ser. No. 202,448, Feb. 28, 1994, abandoned.

This application Oct. 15, 1996, Ser. No. 731,545

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—872

39 Claims



1. An apparatus for caching data in a non-blocking manner comprising:
 - a first plurality of cache data banks for storing a first plurality of cache lines of cache data;
 - first cache tag array and matching circuitry for storing a first plurality of cache line addresses for said first plurality of cache lines, and for tag matching a load address of a load operation against said first plurality of cache line addresses to determine if said load operation hits one of said first plurality of cache lines; and
 - a plurality of fill buffers that stage data to be placed in one of said first plurality of cache data banks, said data staged by said plurality of fill buffers not necessarily to be stored in sequential cache lines, said plurality of fill buffers being coupled to said first plurality of cache data banks and said first cache tag array and matching circuitry and being configured to replace one of said first plurality of cache lines whenever the filling of one of said plurality of fill buffers is completed.

wherein if said load operation misses all of said first plurality of cache lines and hits one of said plurality of fill buffers, then said one of said fill buffers outputs load data for said load operation, and if said load operation misses all of said first plurality of cache lines and all of said plurality of fill buffers, then one of said plurality of fill buffers stages data to be stored in said plurality of cache data banks as data corresponding to said load operation; and wherein the plurality of fill buffers are configured concurrently to stage data to be placed in one of said plurality of cache data banks, and to replace one of said first plurality of cache lines.

5,671,445 **INTERFACE FOR TRANSMITTING GRAPHICS DATA TO A PRINTER FROM A HOST COMPUTER SYSTEM IN RASTERIZED FORM**

Stephen David Gluyas, Berlin, N.J.; Joseph A. Horanzy, Philadelphia, Pa., and John L. Scarrow, Redmond, Wash., assignors to OKI America, Inc., Hackensack, N.J.

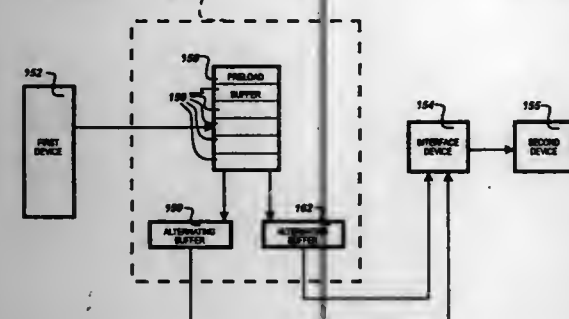
Continuation of Ser. No. 94,667, Jul. 19, 1993, abandoned.

This application Aug. 2, 1995, Ser. No. 510,437

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—873

20 Claims



1. A data transmission system for transmitting data comprising: a first device having an output for outputting data at a first data output rate;
- a preload buffer having an input connected to the output of the first device for initially receiving a predetermined amount of data from the first device and storing the initially received data, the preload buffer having an output for transmitting at least a portion of the initially received data, the preload buffer receiving additional data from the first device as the initially received data is transmitted from the preload buffer;
- first and second alternating buffers having inputs connected to the output of the preload buffer for alternately receiving data from the preload buffer, the first and second buffers each being sized to receive a single block of data at a time from the preload buffer, the single block of data having a size less than the predetermined amount of data initially received and stored in the preload buffer, the first and second buffers each alternately receiving a sequential block of data from the preload buffer;
- the first buffer having an output for outputting a received block of data while the second buffer is receiving a block of data from the preload buffer;
- the second buffer having an output for outputting a received block of data while the first buffer is receiving a block of data from the preload buffer; and
- an interface device having inputs connected to the outputs of the first and second buffers for alternately receiving sequential blocks of data from the first and second buffers, the interface device also having a static random access memory for storing the alternately received blocks of data and an output for outputting data from the static random access memory at a second data output rate different from the first data output rate.

5,671,446 **METHOD AND APPARATUS FOR ATOMICALLY ACCESSING A QUEUE IN A MEMORY STRUCTURE WHERE LIFO IS CONVERTED TO FIFO**

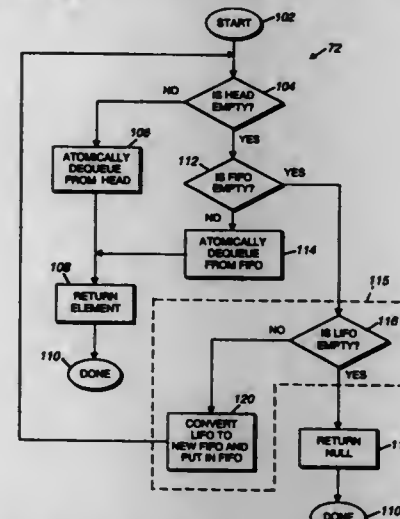
Philip M. Rakity, San Francisco, Calif., and Mark D. Rustad, Edina, Minn., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Mar. 16, 1995, Ser. No. 406,189

Int. Cl.⁶ G06F 13/00; 7/00

U.S. Cl. 395—874

43 Claims



1. A method for storing and retrieving data from a queue implemented on a computer system, the method comprising:
 - (a) allocating a queue memory structure in a memory device, said memory structure having a last-in-first-out list (LIFO) and a first-in-first-out list (FIFO);
 - (b) atomically adding a data element to said LIFO when said data element is enqueued to said queue memory structure;
 - (c) atomically removing a data element from said FIFO when said data element is to be dequeued from said queue memory structure; and
 - (d) converting said LIFO to a new FIFO and storing said new FIFO as said FIFO when said FIFO is empty.

5,671,447 **LINE-OF-SIGHT DETECTING DEVICE AND APPARATUS INCLUDING THE SAME**

Tatsuyuki Tokunaga, Yono, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

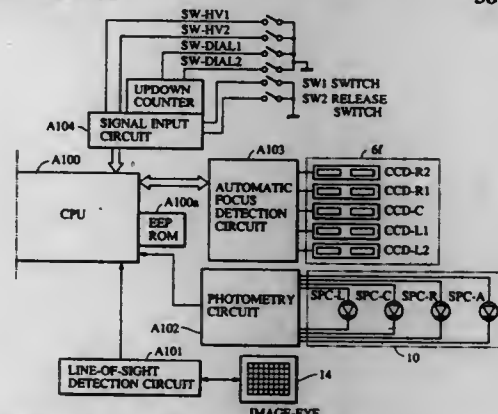
Filed Jul. 25, 1995, Ser. No. 506,549

Claims priority, application Japan, Jul. 26, 1994, 6-192692

Int. Cl.⁶ G03B 17/00

U.S. Cl. 396—51

38 Claims



1. A line-of-sight detecting device comprising: a receiving sensor having a plurality of photoelectric conversion elements for receiving an image of an eyeball of a viewer;

block area setting means for setting in said receiving sensor a plurality of block areas, each block area including a number of said plurality of photoelectric conversion elements, and each block area outputting a value on the basis of the output of the photoelectric conversion elements included in that block area;

selection means for selecting a particular block area satisfying a predetermined condition based on the values output from the block areas; and

line-of-sight detecting means for executing image processing at least on those photoelectric conversion elements which are included in the particular block selected by said selection means,

wherein said block area setting means changes the number of photoelectric conversion elements constituting one block in response to a predetermined situation.

5,671,448 **MOTION COMPENSATION DEVICE FOR SUPPRESSING IMAGE BLUR IN AN OPTICAL SYSTEM**

Kazutoshi Usui, Kawasaki, Japan, assignor to Nikon Corporation, Tokyo, Japan

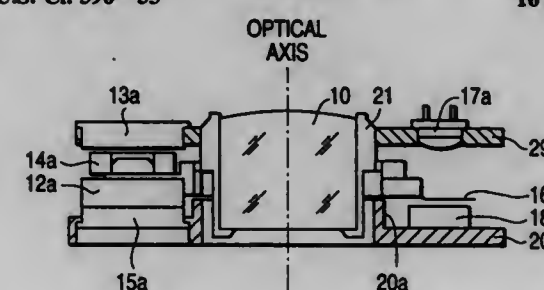
Filed Jun. 16, 1995, Ser. No. 491,575

Claims priority, application Japan, Jun. 16, 1994, 6-134068

Int. Cl.⁶ G03B 17/00

U.S. Cl. 396—55

16 Claims



1. A motion compensation device comprising:
 - a motion compensation optical system having an optical axis;
 - a fixed upper panel;
 - a lower panel;
 - a magnet positioned between said fixed upper panel and said lower panel;
 - a first yoke biased against said fixed upper panel by the magnetic force of said magnet;
 - a second yoke biased against said lower panel by the magnetic force of said magnet;
 - a plurality of elastic support rods extending between said motion compensation optical system and said lower panel, said elastic support rods allowing said motion compensation optical system to move approximately perpendicular to the optical axis of said motion compensation optical system; and
 - a coil connected to said motion compensation optical system and adapted to move the motion compensation optical system approximately perpendicular to the optical axis of said motion compensation optical system by forming a magnetic circuit with said magnet and said first yoke and said second yoke.

5,671,449 **SWITCHING SYSTEM FOR CAMERA**

Hitoshi Shimizu, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 301,776, Sep. 7, 1994, abandoned.

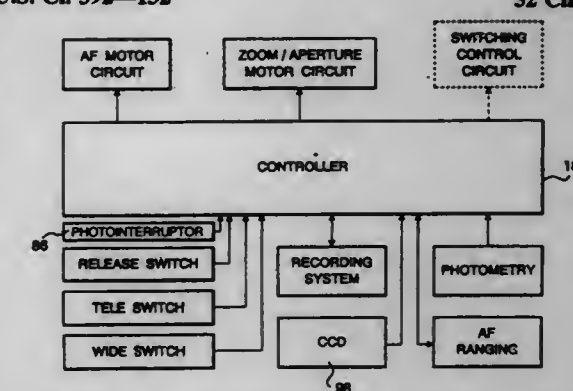
This application Jun. 24, 1996, Ser. No. 669,614

Claims priority, application Japan, Sep. 7, 1993, 5-247363; Sep. 7, 1993, 5-247364; Sep. 7, 1993, 5-247365; Sep. 21, 1993, 5-257759

Int. Cl.⁶ G03B 1/18; 9/02

U.S. Cl. 392—132

52 Claims



1. A switching system for a camera, said switching system comprising:

- a main drive, comprising a motor, for transmitting a motive force of said motor in forward and reverse rotational directions;
- a zoom drive system for transmitting said motive force to a zoom lens group to move said zoom lens group in wide-angle and telephoto directions;
- an aperture drive system for transmitting said motive force to an aperture to open and close said aperture;
- a transmission, coupled to said main drive, for selectively transmitting said motive force of said motor to said zoom drive system and said aperture drive system; and
- switching means for applying a force to said transmission to switch said transmission between transmitting said motive force to said zoom drive system and to said aperture drive system, wherein said transmission comprises:
 - a first shaft that moves linearly along a longitudinal axis of said first shaft, said first shaft having a first engaging portion at one distal end of said first shaft and a second engaging portion at an other distal end of said first shaft;
 - said aperture drive system comprising:
 - a second shaft coaxially aligned with said first shaft and having a third engaging portion at one distal end of said second shaft;
 - said zoom drive system comprising:
 - a third shaft coaxially aligned with said first shaft and having a fourth engaging portion at one distal end of said third shaft, said first shaft moving linearly to engage one of said first engaging portion and said second engaging portion with one of said third engaging portion and said fourth engaging portion, respectively, when said transmission is switched, said first engaging portion and said third engaging portion engaging to transmit said motive force transmitted by said transmission to said aperture of said camera to open and close said aperture, and wherein said second engaging portion and said fourth engaging portion engage to transmit said motive force transmitted by said transmission to said zoom drive system of said camera to move said lens zoom group in telephoto and wide-angle zooming directions.

5,671,450

STEREO IMAGE FORMING ADAPTER

Etsuro Suzuki, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

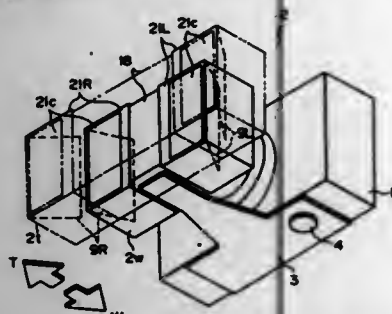
Filed Jul. 20, 1995, Ser. No. 504,469

Claims priority, application Japan, Jul. 21, 1994, 6-190969

Int. Cl. G03B 35/08

U.S. Cl. 396—227

20 Claims



1. An adapter disposed forwardly of a photo-taking lens having a zooming function, said adapter comprising: an optical system having a plurality of deflecting members for deflecting light from an object, and for forming light fluxes having a parallax therebetween; and interlocking means for varying an interval spacing between said deflecting members in operative association with a zooming movement of said photo-taking lens.

5,671,451

DATA-RECORDING UNIT IN USE WITH A CAMERA

Yoshiharu Takahashi; Minoru Yamada; Yoshiyuki Nojima, and Yasutoshi Fujii, all of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan

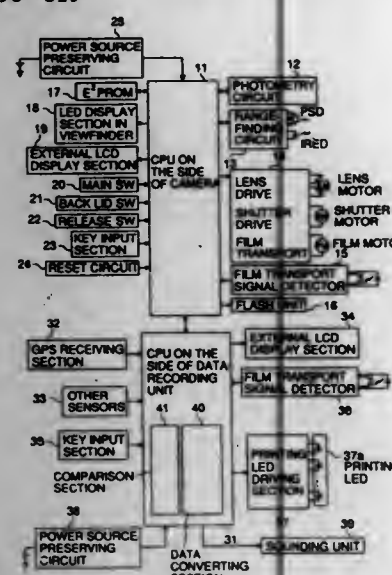
Filed Apr. 16, 1996, Ser. No. 633,052

Claims priority, application Japan, Apr. 18, 1995, 7-092379

Int. Cl. G03B 17/24; 29/00

U.S. Cl. 396—310

8 Claims



1. A data recording unit for use with a camera for recording on a recording medium, information data obtained by a GPS receiver, comprising: selection means for selecting a geodetic system from a plurality of geodetic systems; data conversion means for converting position information data, obtained by said GPS receiver, to converted position information data in the selected geodetic system; and

recording means for recording said converted position information data on said recording medium together with images photographed by said camera.

5,671,452

PHOTO FILM AND METHOD OF INSPECTING THE SAME

Hiroshi Sekai, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

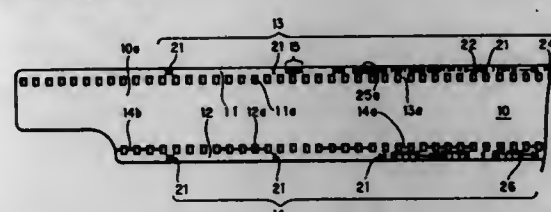
Filed Jul. 11, 1995, Ser. No. 499,903

Claims priority, application Japan, Jul. 13, 1994, 6-161281

Int. Cl. G03B 27/32; 17/24

U.S. Cl. 396—318

22 Claims



1. A photo film, having a pair of edge portions extended in a longitudinal direction, wherein plural image frames are photographable between said edge portions, and plural bodies of photo film information are recorded in at least one of said edge portions photographically in a predetermined arranging pattern in the form of latent images, said arranging pattern corresponding to characteristics of said photo film, said photo film comprising: a pattern discriminating code recorded photographically in a predetermined position, said pattern discriminating code uniquely identifying said arranging pattern used to record said plural bodies of photo film information.

5,671,453

CAMERA WITH DEVICE FOR IDENTIFYING USED FILM MAGAZINE

Hideya Inoue, Yokohama; Hitoshi Aoki, Tokyo; Yoshio Imura, Machida, and Daiji Tsukahara, Kawasaki, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Division of Ser. No. 351,145, Nov. 30, 1994, abandoned, which is a continuation of Ser. No. 247,392, May 23, 1994, abandoned, which is a continuation of Ser. No. 141,694, Oct. 26, 1993, abandoned, which is a continuation of Ser. No. 961,345, Oct. 15, 1992, abandoned, which is a division of Ser. No. 747,458, Aug. 12, 1991, Pat. No. 5,159,365, which is a continuation of Ser. No. 465,310, Jan. 12, 1990, abandoned, which is a continuation of Ser. No. 321,793, Mar. 10, 1989, abandoned.

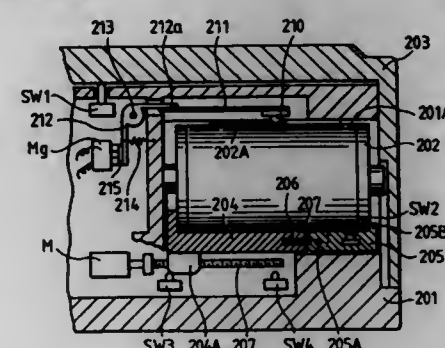
This application Jun. 7, 1995, Ser. No. 483,966

Claims priority, application Japan, Mar. 15, 1988, 63-60916

Int. Cl. G03B 17/24

U.S. Cl. 396—320

48 Claims



1. A device constructed to load a film unit having a film, a container for accommodating said film and an information recording part capable of recording information, comprising:

an information producing unit which produces predetermined information;
a recording head which is electrically connected to the information producing unit and which records said predetermined information in said information recording part; and
a recording head driving unit which is connected to said recording head and which can move said recording head between a first position in contact with said information recording part and a second position retracted from said information recording part, said recording head being capable of recording information in said information recording part when said recording head is in said first position.

5,671,454

HEAD TO FILM INTERFACE FOR PHOTOFINISHING EQUIPMENT

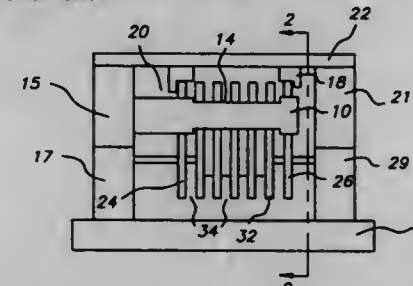
David L. Rowden, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 24, 1996, Ser. No. 736,095

Int. Cl. G03B 17/24; 5/48

U.S. Cl. 396—320

11 Claims



1. A head to film interface for photofinishing equipment, comprising:
a) pair of spaced apart film guides for establishing a film plane;
b) a pair of magnetic heads located between the film guides above the film plane at the edges of the film;
c) a pair of compliant edge rollers extending into the film plane for urging the edges of the film into contact with the magnetic heads, the compliant edge rollers being mounted for independent rotation.

5,671,455

MAGNETIC RECORD CAMERA

Toru Nagata, Tokyo, and Kazuhiro Izukawa, Misato, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 73,071, Jun. 8, 1993, abandoned.

This application Jun. 7, 1995, Ser. No. 474,013

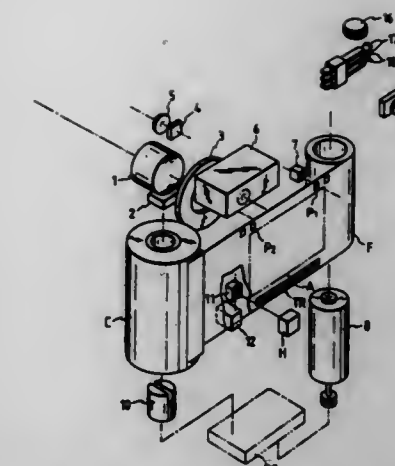
Claims priority, application Japan, Jun. 10, 1992, 4-175074

Int. Cl. G03B 1/18

U.S. Cl. 396—390

16 Claims

1. A camera, capable of being loaded with a film having a leader-end and a trailer-end, having information detecting means for detecting frame information in a record portion provided for each frame of a film loaded in said camera, and which performs exposure on an unexposed frame of the film, said camera comprising:
a judgement circuit for judging whether a frame of a film is exposed or not based on information detected by the information detecting means;
unexposed frame detecting means for detecting, based on a judgement result of said judgement circuit, a first leader-end unexposed frame of film from the leader end of the film and a first trailer-end unexposed frame of film from the trailer-end of the film;
an exposure control circuit for controlling successive exposures from the first trailer-end unexposed frame of film detected by said unexposed frame detecting means to the first leader-end unexposed frame of film detected by said unexposed frame



- detecting means, or from the first leader-end unexposed frame of film detected by said unexposed frame detecting means to the first trailer-end unexposed frame of film detected by said unexposed frame detecting means;
a frame number count circuit for counting frame numbers in the process of film feeding;
a frame number detecting circuit for detecting, based on the frame number counted by said frame number count circuit, a frame number corresponding to a first leader-end unexposed frame and a frame number corresponding to a first trailer-end unexposed frame which are detected by said unexposed frame detecting means;
a calculation circuit for calculating, based on the frame number detected by said frame number detecting circuit, an exposure order number representing an exposure order that sequentially follows a number of previously exposed frames; and
record control means for recording the exposure order number calculated by said calculation circuit in the record portion of each frame of film.

5,671,456

SYSTEM FOR PROVIDING AN ACCURATE INDICATION WHETHER FILM IS EXPOSED OR UNEXPOSED, INDEPENDENT OF BATTERY VOLTAGE

Kenji Tsuji, Kashiwa; Toshihito Kido, Matsubara, and Satoshi Hamada, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 53,591, Apr. 28, 1993, abandoned.

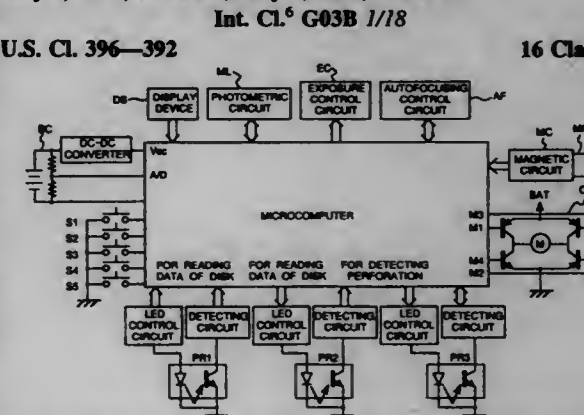
This application Mar. 7, 1995, Ser. No. 400,516

Claims priority, application Japan, May 8, 1992, 4-116290; May 8, 1992, 4-116385; May 8, 1992, 4-116391

Int. Cl. G03B 1/18

U.S. Cl. 396—392

16 Claims



1. A camera using a cartridge that has a spool around which a film is wound and that has a display member rotating together with

the spool for providing an exposed/unexposed indication for the film, the camera comprising:

- a fork engaging and rotating together with the spool;
- a motor for driving the fork, wherein the motor is supplied with electricity from a power supply;
- a stop mechanism which stops the fork at a desired rotational position corresponding to an exposed/unexposed indication for the film; and
- a controller which controls said motor so that the rotational speed of the fork is maintained at a predetermined speed when the motor is actuated, so that the fork does not deviate from a desired rotational position corresponding to an exposed/unexposed indication for the film when the fork is stopped by the stop mechanism, wherein the predetermined speed of the fork is lower than the rotational speed thereof at which the film is rewound into the cartridge.

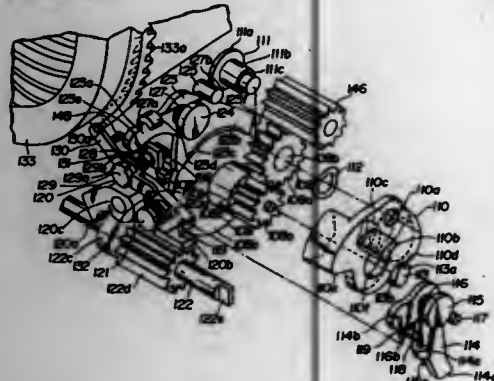
5,671,457 CAMERA

Kunio Yokoyama, Hino, Moriya Katagiri, Tachikawa; Hide-nori Sakurai, Hachioji; Yoshiyuki Kitahara, Tokyo; Hiroaki Miyazaki, Kanagawa-ken, and Tatsuya Suzuki, Tokyo, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan Division of Ser. No. 249,530, May 26, 1994. This application Dec. 19, 1995, Ser. No. 575,702

Claims priority, application Japan, Jul. 5, 1919, 5-165467; May 27, 1993, 5-126053; Jul. 19, 1993, 5-173461; Jul. 28, 1993, 5-185875

Int. Cl.⁶ G03B 1/00; 17/00

U.S. Cl. 396—411



5. A driving force transmission mechanism having a film driving gear mechanism which comprises:

- a first gear driven by planetary gear mechanism and arranged on a first shaft movable along its longitudinal axis when rotated;
- a second gear on said shaft for driving a gear of a film take-up mechanism;
- a second shaft having one end selectively engaged by one end of said first shaft and having a gear for engaging a gear of a film wind spool mechanism to send a film to the film take-up mechanism when said second shaft is rotated in a first direction by said first shaft.

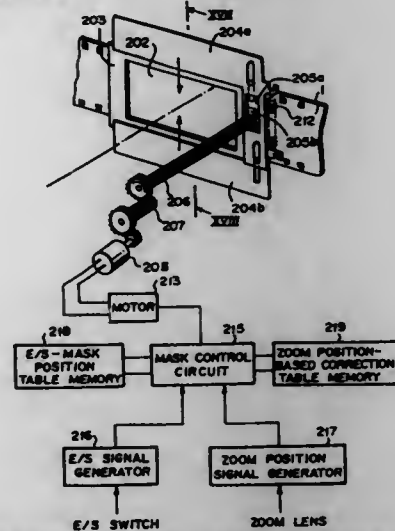
5,671,458 PHOTOGRAPHIC CAMERA WITH EXPOSURE SIZE CORRECTED FOR POSITION OF EXIT PUPIL OF TAKING LENS

Takashi Kubo; Tsutomu Kimura; Hideto Shirane, and Masayoshi Hirai, all of Saitama-ken, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa-ken, Japan Continuation of Ser. No. 499,491, Jul. 7, 1995, abandoned, which is a division of Ser. No. 251,414, May 31, 1994, abandoned. This application Dec. 12, 1996, Ser. No. 767,035 Claims priority, application Japan, May 31, 1993, 5-129618; Jun. 21, 1993, 5-149127; Jun. 21, 1993, 5-149128; Jun. 21, 1993, 5-149129

Int. Cl.⁶ G03B 17/02

U.S. Cl. 396—436

4 Claims



1. A variable-exposure-size camera comprising an aperture member which defines an aperture through which a photographic film positioned behind the aperture member is exposed to light passing through a taking lens and a mask means which is disposed between the aperture member and the taking lens and is driven by a mask drive means to change an effective edge of the aperture, thereby narrowing the effective opening area of the aperture, characterized by having an exposure size input means which is operated by a user of the camera, and inputs the exposure size selected by the user, an exit pupil position detecting means which detects the position of the exit pupil of the taking lens and a controller which determines a position of the mask means where the actual exposure size conforms to the exposure size selected by the user responsive to the detection of the position of the exit pupil of the taking lens by said exit pupil position detecting means and which causes the mask drive means to move the mask means to the position determined, the mask drive means driving the mask means in directions that are simultaneously parallel to a plane of the photographic film and perpendicular to the length of the photographic film, both with a movement responsive to the exposure size input means and with a further movement responsive to the exit pupil position detecting means.

5,671,459 CAMERA COVER GUIDE MECHANISM

Edward Norman Balling, Rochester, and David Clinton Smart, Fairport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

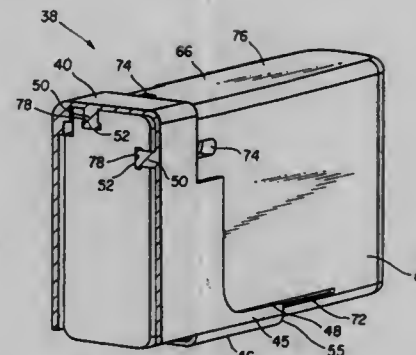
Filed Feb. 28, 1996, Ser. No. 608,371

Int. Cl.⁶ G03B 17/02

U.S. Cl. 396—535

22 Claims

1. A camera comprising:
a lighttight body; and
a cover having opposed top and bottom surfaces and opposed front and rear surfaces, said cover having an open end and an interior recess sized for fitting over an end of said body, said cover having an extension extending from said bottom sur-



face, said cover being movable relative to said body between a cantilevered open position and a closed position; said body and said cover together having a plurality of guide pins and slots retaining said guide pins, each said guide pin being disposed on one of said cover and said body, each said guide pin having a shoulder with a diameter larger than a diameter of a remainder of said guide pin, each said slot having a T-shaped contour closely fitted to said diameters of said shoulder and said remainder of a respective said guide pin and being disposed on the other of said cover and said body, said guide pins and slots being spaced apart from said extension.

5,671,460

EXPOSING APPARATUS

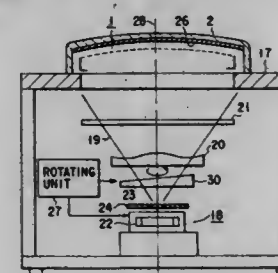
Tadanori Okada, and Yuji Kuwabara, both of Fukaya, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan Filed Mar. 30, 1995, Ser. No. 413,222

Claims priority, application Japan, Mar. 31, 1994, 6-062804

Int. Cl.⁶ G03B 41/00

U.S. Cl. 396—547

3 Claims



1. An exposing apparatus for exposing a photosensitive layer coated on an inner surface of a panel of a color cathode ray tube with a pattern corresponding to apertures of a shadow mask mounted in said panel, thereby forming a phosphor screen, comprising:

- means for supporting said panel;
- a light source unit for emitting light rays toward said photosensitive layer so as to print thereon said pattern corresponding to one of said apertures of said shadow mask;
- an optical system including a correcting optical member which is arranged between said light source unit and said shadow mask and through which said light rays emitted from said light source unit pass toward said photosensitive layer, said correcting optical member having an incident surface on which said light rays are incident and an exit surface from which said light rays exit, and said exit surface being curved and inclined with respect to said incident surface, so that light rays which are incident at different incident positions on said

incident surface pass through said correcting optical member with different optical path lengths and exit from said exit surface, wherein

said light exit surface is an inclined curved surface having a shape based on a ratio of a major axis to a minor axis of a pattern corresponding to said one of said apertures of said shadow mask, which is to be printed on a photosensitive member, when said correcting optical member is not arranged in said optical system; and

a driving unit for rotating said correcting optical member about a rotational axis which is substantially coincident with an optical axis of said light rays, emitted from said light source unit toward said photosensitive layer.

5,671,461

TONER CARTRIDGE AVOIDING SPILLAGE OF TONERS
Tetsuichi Ishii, Yashio, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

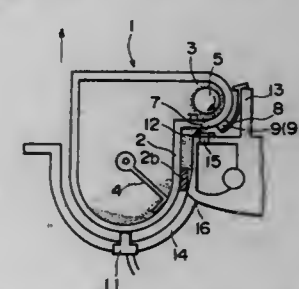
Filed Oct. 20, 1995, Ser. No. 546,136

Claims priority, application Japan, Oct. 21, 1994, 6-281571; Mar. 31, 1996, 7-153789

Int. Cl.⁶ G03G 15/08

U.S. Cl. 399—27

50 Claims



1. A toner cartridge of a xerographic recording apparatus, comprising:

- a toner cartridge body for accommodating toner therein;
- a toner outlet provided on said toner cartridge body as an opening formed on said toner cartridge body, said toner outlet being adapted for engagement with a corresponding toner inlet of said xerographic recording apparatus;
- a toner supply mechanism provided on said toner cartridge body for feeding toner in said toner cartridge body to said toner inlet of said xerographic recording apparatus via said toner outlet; and
- a shutter mechanism movably provided on said toner cartridge body for closing said toner outlet, said shutter mechanism including a shutter element defined by a free shutter edge and movable between a closed position and an opened position along an outer surface of said toner cartridge body over a part thereof that includes said toner outlet, such that said toner outlet is covered by said shutter element when in said closed position of said shutter element and such that said toner outlet is exposed when in said opened position of said shutter element, said free shutter edge engaging with a part of said toner cartridge body in said closed position thereof to define a closed space between said shutter element and said outer surface of said toner cartridge body, such that said shutter element prevents spillage of toner from said toner outlet; wherein said shutter element further carries a magnetic member for preventing spillage of toner accumulated in said space between said shutter element and said outer surface of said toner cartridge body, from said free shutter edge.

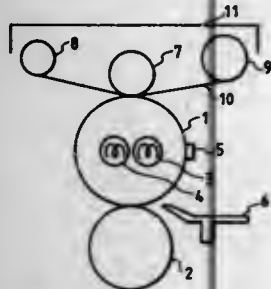
5,671,462
FIXING DEVICE HAVING A POWER SUPPLY CONTROL ELEMENT FOR CONTROLLING A TEMPERATURE OF A HEAT MEMBER

Yuichiro Toyohara, and Tsuyoshi Kunishi, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Filed Jul. 19, 1995, Ser. No. 504,760
 Claims priority, application Japan, Jul. 22, 1994, 6-191256; Aug. 30, 1994, 6-227461

Int. Cl.⁶ G03G 15/20

U.S. Cl. 399—33

5 Claims



1. A fixing device comprising: a first heater; a second heater having a heat distribution different from that of said first heater; a heat member to be heated by said first heater and said second heater; a temperature detecting element for detecting a temperature of said heat member; and power supply control means for controlling a power supply to said first heater and said second heater in such a manner that the temperature of said heat member detected by said temperature, wherein after a fixing operation and until the temperature detected by said temperature detecting element rises from a fixing temperature to a stand-by temperature for temperature adjustment, the stand-by temperature being higher than the fixing temperature, said power supply control means effects power supply control different from that in a stand-by state.

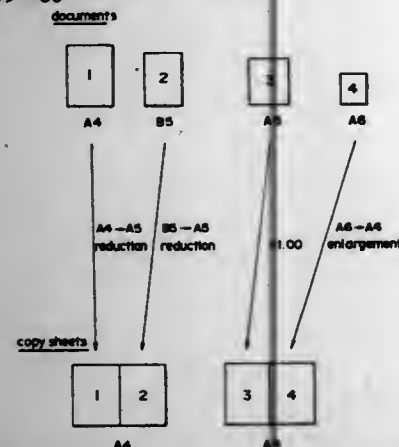
5,671,463
IMAGE FORMING APPARATUS CAPABLE OF FORMING A PLURALITY OF IMAGES FROM DIFFERENT ORIGINALS ON A SINGLE COPY SHEET

Takeshi Morikawa, and Kazuo Inui, both of Toyokawa, Japan, assignors to Minolta Co., Ltd., Osaka, Japan
 Filed Dec. 23, 1994, Ser. No. 362,954
 Claims priority, application Japan, Dec. 28, 1993, 5-336821; Feb. 28, 1994, 6-029686

Int. Cl.⁶ G03G 14/36

U.S. Cl. 399—86

7 Claims



1. An image forming apparatus which divides a copy sheet into a plurality of copy areas and copies a plurality of original documents

ments on the respective divided copy areas of the copy sheet, said image forming apparatus comprising: a detector which detects a size of each of the original documents to be copied, said original documents being different from each other in size; determining means for determining a copy magnification for each of the original documents so that an entire area of the original document matches a respective one of said copy areas, said determined copy magnifications being different from each other depending on a difference in the sizes of the documents; a memory which stores a table which shows the determined different copy magnifications for each of the original documents; and image forming means for forming images of the original documents on a single surface of the copy sheet in accordance with the table stored in said memory.

5,671,464
COLOR IMAGE FORMING APPARATUS USING INTERMEDIATE TRANSFER MEMBER

Akira Kubota, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

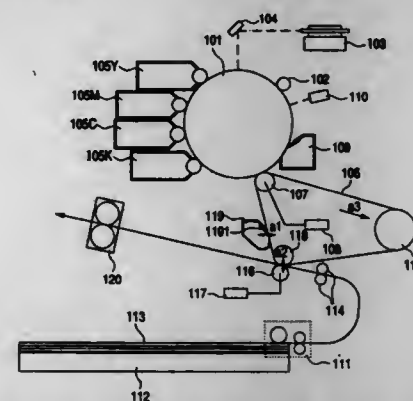
Filed Jun. 18, 1996, Ser. No. 664,618

Claims priority, application Japan, Jun. 27, 1995, 7-160553; Apr. 23, 1996, 8-101754

Int. Cl.⁶ G03G 15/16

U.S. Cl. 399—101

5 Claims



1. A color image forming apparatus comprising: a first transfer means for sequentially transferring a plurality of toner images developed on a latent image carrying body onto an intermediate transfer belt stretched by a group of support rollers including a drive roller; a second transfer means for collectively transferring the toner images superimposed on the intermediate transfer belt onto a recording medium; and a cleaning means for removing a toner remaining on the intermediate transfer belt, wherein a total circumferential length of the intermediate transfer belt as stretched is l (m); a Young's modulus and a thickness of the intermediate transfer belt are E (kg/m²) and t (m), respectively; a frictional coefficient between the cleaning means and the intermediate transfer belt is μ ; a line pressure of a contact load brought about by the cleaning means coming in contact with the intermediate transfer belt is n (kg/m); a length of the recording medium is $L0$ (m); a pitch between dots developed on the latent image carrying body is ld (m); and a ratio (la/l) of a length la (m) to the total circumferential length of the intermediate transfer belt is expressed as follows, the length la extending from a central position of a portion of the intermediate transfer belt that is in contact with the drive roller to a contact position at which the cleaning means is in

contact with the intermediate transfer belt in an intermediate transfer belt rotating direction:

$$la/ld < E \cdot t / (L0 \cdot \mu \cdot n)$$

5,671,465
IMAGE FORMING APPARATUS HAVING A REVOLVER TYPE DEVELOPING DEVICE

Noriyuki Kimura, Kawasaki; Minoru Suzuki, Yokohama; Kouji Sakamoto, Tokyo; Kouichi Noguchi, Machida; Tsuyoshi Deki, Koshigaya; Hiroyuki Matsushiro, Yokohama; Eiichi Sasaki, Sagami; Takatsugu Fujishiro, and Chiyoko Kobayashi, both of Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 224,291, Apr. 7, 1994, abandoned.

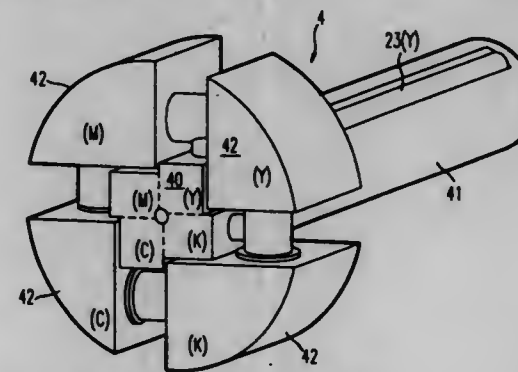
This application Dec. 5, 1995, Ser. No. 567,739

Claims priority, application Japan, Apr. 8, 1993, 5-082044

Int. Cl.⁶ G03G 15/04; 15/01

U.S. Cl. 399—119

23 Claims



1. An image forming apparatus comprising: an image carrier; and a revolver developing device rotatable around a shaft to bring any one of a plurality of developing units to face said image carrier for effecting development at a developing position; each of said developing units comprising: a casing rotatably accommodating said developing device therein; a toner storing section provided on one side of said casing; a first conveyor member for conveying toner from the toner storing section to a developing area; a second conveyor member for conveying used toner from the developing area to the toner storing section; and a toner cartridge mounted on said toner storing section for feeding new toner to the toner storing section.

5,671,466
ELECTROPHOTOGRAPHIC APPARATUS AND SHEET GUIDE MECHANISM

Satoshi Hokamura; Kazuhiro Ichinokawa, both of Saitama; Takaaki Yano, Hokkaido; Masatoshi Takano, Tokyo; Masakazu Hirano, Tokyo; Motohiro Masaki, Tokyo; Tatsuya Yoshida, Saitama-ken; Miki Horie, Saitama-ken; Masami Shirai, Saitama-ken; Eiichi Ito, Kanagawa-ken, and Ken-ichiro Otsuka, Saitama-ken, all of Japan, assignors to Asahi Kogyo Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 36,375, Mar. 24, 1993, abandoned.

This application Jan. 5, 1995, Ser. No. 369,312

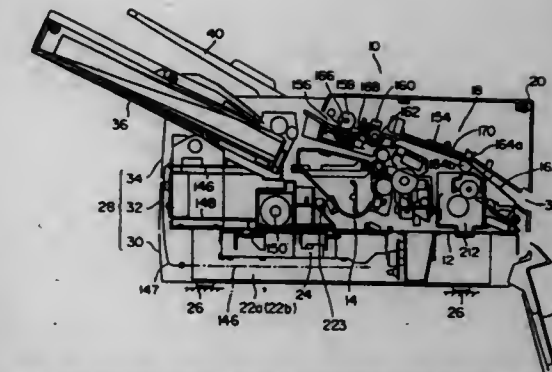
Claims priority, application Japan, Mar. 24, 1992, 4-024500; Apr. 8, 1992, 4-029967; May 20, 1992, 4-040153; May 20, 1992, 4-152690

Int. Cl.⁶ G03G 15/00

U.S. Cl. 399—124

37 Claims

1. A sheet guide mechanism comprising:



first and second guide surfaces opposing one another and forming a guide path for guiding sheet movement; and a plurality of protrusions positioned between said first and second guide surfaces, said protrusions being spaced apart from each other and being connected to at least one of said guide surfaces, said protrusions contacting the other of said first and second guide surfaces to define an enclosed gap for receiving a sheet, said gap having four sides, said sides being defined by said guide surfaces and said protrusion, said protrusions space said surfaces from each other by a predetermined distance, said distance being large enough to accommodate only a single sheet.

5,671,467
COLOR IMAGE-FORMING APPARATUS ADAPTED TO STABILIZE CONTACT BETWEEN ENDLESS BELT-LIKE PHOTORESENSITIVE MEDIUM AND DEVELOPING ROLLER

Yoshikazu Katsumata, Fukuoka; Yoshihiro Mizoguchi, Fukuoka-ken; Yoshiaki Iijima, Dazaifu; Makoto Kamioka; Yoshinori Ejima, both of Kasuga; Nobuo Kishiyama, Onojo; Yutaka Noda, and Eiichi Nakao, both of Kurume, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

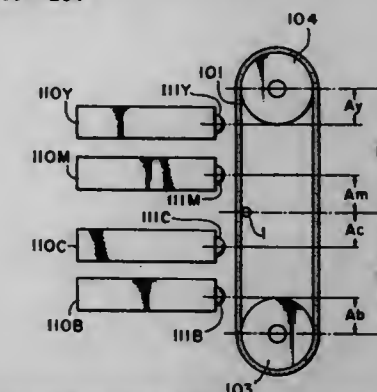
Filed Dec. 13, 1995, Ser. No. 571,672

Claims priority, application Japan, Dec. 28, 1994, 6-327967

Int. Cl.⁶ G03G 15/00

U.S. Cl. 399—164

2 Claims



1. A color image-forming apparatus comprising: an endless belt-like photosensitive member stretched between and wound around a plurality of support rollers; four developing devices arranged in a juxtaposed manner to include two adjacent middle developing devices and two opposite outer developing devices along a flat surface portion of said photosensitive member extending between said support rollers, each of said developing devices including a developing roller carrying a developing material, and causing said developing roller to make contact with an outer surface of said flat surface portion of said photosensitive member to apply said developing material thereto to thereby effect developing; and

a support member opposed to an intermediate point between the two adjacent middle developing devices, said support member being laid in parallel to said developing rollers, and held in contact with an inner surface of said photosensitive member; wherein the distance between a position of contact of said developing rollers of one of the two opposite outer developing devices, with said photosensitive member and a position of contact of said support roller closest to that of said one of said two opposite outer developing devices, with said photosensitive member is substantially equal to the distance between a position of contact of said developing roller of the other one of said two opposite outer developing devices with said photosensitive member and a position of contact of said support roller, adjacent to said other one of said two opposite outer developing devices with said photosensitive member, and said distance is substantially equal to the distance between a position of contact of said support member with said photosensitive member and a position of contact of said developing roller of one, adjacent thereto, of said two middle developing devices with said photosensitive member.

5,671,468

CHARGING MEMBER AND IMAGE FORMING APPARATUS HAVING CONTACT CHARGING MEMBER
Takeo Yamamoto, Yokohama; Tetsuya Kuribayashi, Tokyo; Takao Honda, Yokohama; Fumihiko Arahira, Kanagawa-ken, and Hiroyuki Osada, Urawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

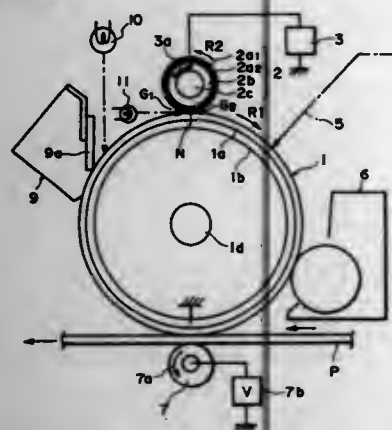
Filed Jun. 4, 1993, Ser. No. 71,105

Claims priority, application Japan, Jun. 8, 1992, 4-173902

Int. Cl.⁶ G03G 15/02

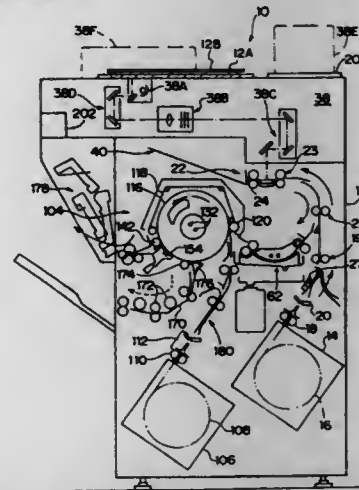
U.S. Cl. 399—169

34 Claims



1. An image forming apparatus comprising:
a movable image bearing member, said image bearing member including a photosensitive layer;
a charging member contactable to said image bearing member to electrically charge said image bearing member, wherein said charging member effects electric discharge at a downstream-side gap which is formed between said image bearing member and said charging member at a downstream-side of a nip formed therebetween; and
exposure means for exposing said image bearing member, said exposure means exposing to light an area of said image bearing member corresponding to an upstream-side gap formed between said image bearing member and said charging member at an upstream-side of said nip, wherein the upstream-side gap reduces gradually from an upstream position of said nip with respect to a movement direction of said image bearing member toward said nip.

5,671,469
IMAGE RECORDING APPARATUS
Keisuke Yasuda, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Jun. 28, 1996, Ser. No. 673,360
Claims priority, application Japan, Jun. 30, 1995, 7-165996
Int. Cl.⁶ G03G 21/00
U.S. Cl. 399—197
18 Claims



1. An image recording apparatus which exposes a document image to a photosensitive material to obtain a reproduced image, comprising:
first magnification setting means which automatically sets a first exposure magnification in which said document image is recorded on the overall surface of said photosensitive material;
second magnification setting means which changes said first exposure magnification which has been set by said first magnification setting means to set a second exposure magnification where said first exposure magnification has been increased by a predetermined value so that margin is prevented from being formed at the periphery of an image which is recorded on said photosensitive material; and
exposure means which exposes said document image to said photosensitive material, on the basis of the central portion of said document image, in one of said first exposure magnification which has been set by said first magnification setting means and said second exposure magnification which has been set by said second magnification setting means.

5,671,470
COLOR IMAGE FORMING DEVICE WHICH CHANGES DEVELOPING BIAS WHEN SWITCHING BETWEEN DEVELOPER UNITS

Takayuki Maruta, Tokyo; Hiroshi Takashima, Yono; Tomoji Ishikawa; Kazuyuki Sugihara, both of Yokohama; Shinji Kato, Kawasaki, and Katsuhiro Kosuge, Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Oct. 23, 1995, Ser. No. 553,776

Claims priority, application Japan, Oct. 21, 1994, 6-282655;

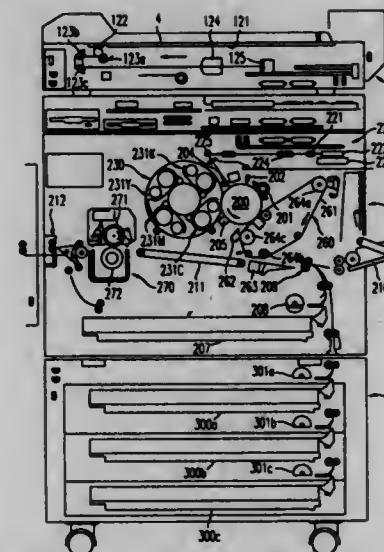
Jul. 12, 1995, 7-199151

Int. Cl.⁶ G03G 15/08

U.S. Cl. 399—235

11 Claims

1. An image forming device comprising:
a plurality of developing devices, each including a developer carrying body driven by a drive means, a two component developer including carrier and toner, and a developer agitation paddle which pumps up and agitates the two component developer including the carrier and the toner;
an image carrying body;
developing device moving means for moving one of said developing devices to a developing position adjacent to the image carrying body which has a latent image thereon;



- a voltage generator for generating a first developing bias having an a.c. component and a d.c. component, and for generating a second developing bias; and
developing bias applying means for applying, at different time, the first and second developing biases to the developer carrying body of one of the developing devices at the developing position, the developing bias applying means including a developing bias switching means for switching between the first and second developing biases, the developing bias switching means applying the first developing bias to the developer carrying body when developing the latent image on said image carrying body, and applying the second developing bias when the two component developer on the developer carrying body comes in contact with the image carrying body and when the two component developer on the developer carrying body separates from the image carrying body, the second developing bias generating an electric field such that two component developer on the developer carrying body is more reluctant to move toward the image carrying body as compared with an electric field generated by the first developing bias.

5,671,471

SHEET SEPARATING DEVICE

Naoki Mizuno, Toyokawa; Toshio Sakata, Toyohashi, and Toshio Toyama, Sakai, all of Japan, assignors to Minolta Co., Ltd., and Toyama Machineries Co., Ltd., both of Osaka, Japan

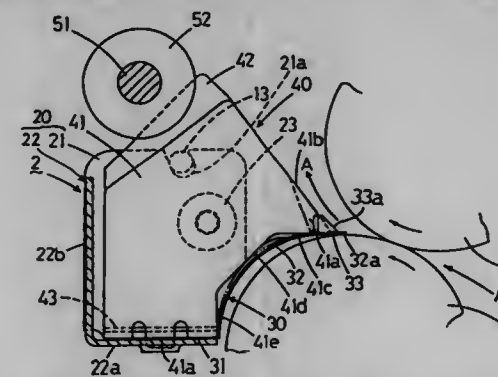
Continuation of Ser. No. 364,232, Dec. 27, 1994. This application Oct. 23, 1996, Ser. No. 731,969

Claims priority, application Japan, Dec. 28, 1993, 5-334844

Int. Cl.⁶ G03G 15/14;15/16;15/20

U.S. Cl. 399—297

25 Claims



1. A separating device for separating a sheet-like member from a surface of a rotatable member in an image forming apparatus, said

device comprising a separating pawl having a separating tip in engaging contact with the surface of the rotatable member and a base end rigidly connected with a body of the separating device, said separating pawl being made up of a flexible, elastic material and having a preformed convex shape positioned facing in the same direction as that of a circumferential surface of the rotatable member.

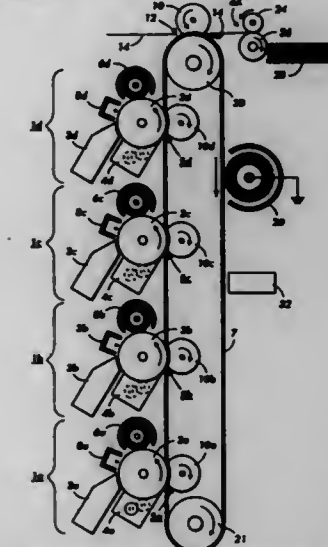
5,671,472
XEROGRAPHIC SYSTEMS USING PIEZOELECTRIC INTERMEDIATE BELT TRANSFER
Christopher Snelling, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jun. 24, 1996, Ser. No. 670,831

Int. Cl.⁶ G03G 15/01;15/16

U.S. Cl. 399—308

15 Claims



11. A device for transferring images from an imaged source to a copy sheet, comprising:
a transfer intermediate member, and wherein said transfer intermediate member includes piezoelectric properties for transferring the images from the imaged source to said intermediate member and subsequently transferring the images from said intermediate member to copy sheets.

5,671,473
FUSING DEVICE, A HEATING DEVICE, AND A METHOD FOR FUSING A TONER IMAGE ONTO A SHEET

Takashi Yamada; Mitsuru Isogai; Tetsuya Yamada, all of Aichi-ken, and Satoru Yoneda, Toyohashi, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

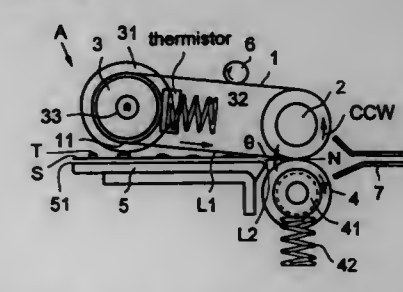
Filed May 30, 1996, Ser. No. 655,487

Claims priority, application Japan, Jun. 12, 1995, 7-143790

Int. Cl.⁶ G03G 15/20

U.S. Cl. 399—320

25 Claims



10. A

pressing means for pressing the sheet at a pressing position with a force F (kg) along a predetermined sheet path;
heating means located at an upstream side of said pressing means with respect to a direction of sheet transportation for heating the sheet;
wherein the force F and the heating means are set so as to satisfy the following formula:

$$0 < F < 0.5\theta^2 + 0.05\theta,$$

wherein θ is defined as an angle between a first line from said heating means to said pressing position and a second line defined by said predetermined path.

5,671,474

PRESS ROLLER SUPPORTED AT OPPOSITE ENDS AND AT AN INTERIOR PORTION

Masahiko Fukano, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Japan

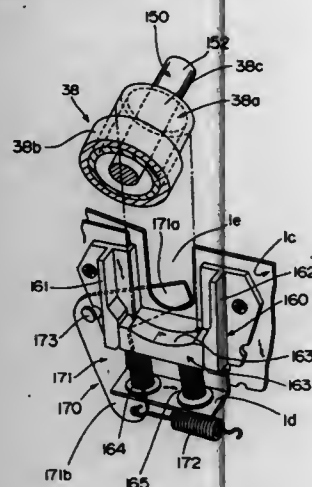
Filed Dec. 7, 1995, Ser. No. 568,644

Claims priority, application Japan, Jan. 11, 1995, 7-002877

Int. Cl.⁶ G03G 15/20

U.S. Cl. 399—331

6 Claims



1. A press roller support structure for supporting the press roller of a fixing unit for fixing a toner image on a sheet, the press roller being rotatably in contact with a heat roller of the fixing unit and pressing the sheet to the heat roller, the structure comprising:
a cylinder incorporated as part of the press roller and having an elastic layer provided on an outer peripheral surface thereof;
a shaft extending through the cylinder;
a bearing provided between an outer peripheral surface of the shaft and an inner surface of the cylinder for rotatably supporting a longitudinally central portion of the cylinder around the shaft;
a first pair of elastic support means for rotatably and elastically supporting opposite ends of the cylinder; and
a second pair of elastic support means for elastically supporting opposite ends of the shaft.

5,671,475 ELECTROSTATOGRAPHIC PRINTER FOR FORMING AN IMAGE ONTO A WEB AND FOR REFURBISHING THE PHOTOSENSITIVE DRUM

Etienne Marie De Cock; Lucien Amedé De Schampelaere, both of Edegem; Jean Alois Rachel Norbert Van Daele, Bonheiden, and Ludo Verluyten, Holsbeek, all of Belgium, assignors to Xelkon NV, Mortsel, Belgium

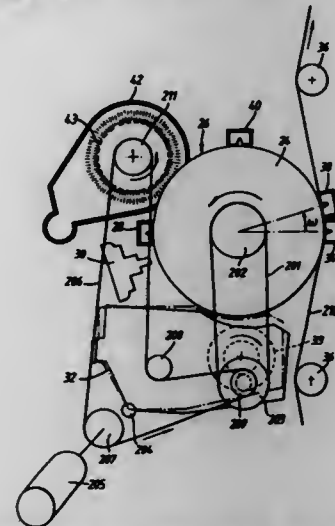
Filed Mar. 6, 1995, Ser. No. 398,893

Claims priority, application European Pat. Off., Mar. 11, 1994, 94301782

Int. Cl.⁶ G03G 21/00

U.S. Cl. 399—347

24 Claims



1. An electrostatographic printer for forming an image onto an image receiving web, which comprises:
at least one toner image-producing electrostatographic station having a rotatable endless surface onto which a toner image can be formed;
a web transport for conveying a web past said image-producing station; and
image transfer apparatus for transferring said toner image on said rotatable endless surface onto said image receiving web, further comprising a control arrangement for switching said printer between a printing mode and a refurbishment mode, wherein in said printing mode said web transport conveys said image receiving web in synchronism with the peripheral speed of said rotatable endless surface and in said refurbishment mode said web transport conveys a refurbishment web at such a speed relative to the peripheral speed of said rotatable endless surface and in contact therewith, to cause refurbishment of said rotatable endless surface; said control arrangement including a drive for rotating said rotatable endless surface in said refurbishment mode at a higher peripheral speed than in said printing mode.

5,671,476

IMAGE FORMING MACHINE WITH CLEANING DRUM BRUSH DRIVEN BY ROTATING DRUM

Yasuyuki Ishiguro; Kazuhiko Kimura; Hiroaki Yamaguchi; Hiroyuki Tsuji, and Masaru Watanabe, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Jan. 18, 1996, Ser. No. 587,271

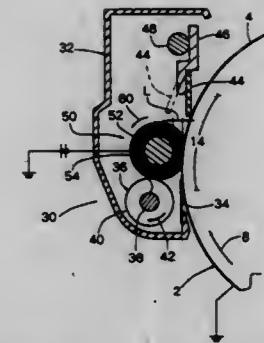
Claims priority, application Japan, Feb. 2, 1995, 7-15724

Int. Cl.⁶ G03G 21/00

U.S. Cl. 399—354

7 Claims

1. An image forming machine comprising a rotating drum mounted rotatably and having a photosensitive material disposed on the peripheral surface thereof; a rotating drive source for causing the rotating drum to rotate; an image forming means for forming a toner image on the photosensitive material in an image forming zone; a transfer means for transferring the toner image on the photosensitive material onto an image receiving member in a transfer zone located downstream of the image forming zone as



viewed in the direction of rotation of the rotating drum; and a

cleaning means which acts on the photosensitive material in a cleaning zone located downstream of the transfer zone but upstream of the image forming zone as viewed in the direction of rotation of the rotating drum;

wherein the cleaning means includes a brush means having a cylindrical brush formed of a multiplicity of radially extending yarns;

the brush of the cleaning means is mounted rotatably about the central axis of rotation extending substantially parallel to the central axis of rotation of the rotating drum, is pressed against the photosensitive material, and is caused to rotate following the rotation of the rotating drum; and

the yarn constituting the brush has a density that is greater than 40,000 yarns/inch² and no more than 70,000 yarns/inch².

DESIGNS

GRANTED September 23, 1997

ERRATA

For CLASS	See PATENT NO.
D04-138	D383,901
D04-136	D384,058
D14-115	D384,149

DESIGNS

SEPTEMBER 23, 1997

383,885

CARVED POTATO

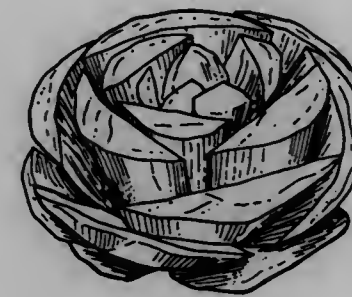
Ronnie Franklin, 5144 Chandler Way, Denver, Colo. 80239

Filed Apr. 8, 1996, Ser. No. 52,714

Term of patent 14 years

LOC (6) Cl. 01 - 02

U.S. Cl. D1-115



383,887

TIE HOLDER

Harold T. Pehr, 3920 W. 96th St., Overland Park, Kans. 66207

Continuation-in-part of Ser. No. 36,413, Mar. 20, 1995, Pat.

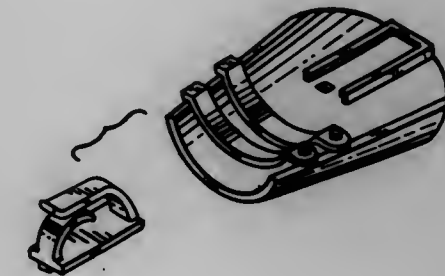
No. Des. 368,573. This application Mar. 21, 1996, Ser. No.

52,012

Term of patent 14 years

LOC (6) Cl. 02 - 05

U.S. Cl. D2-609



383,886

PET FOOD TREAT

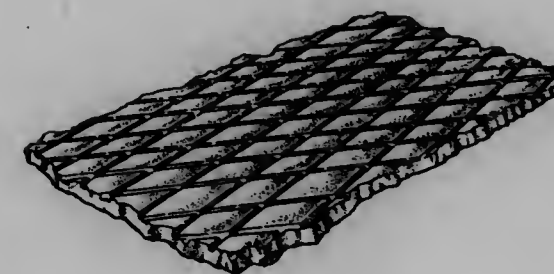
Thomas J. Baumgartner, 1801 S. 8th St., Rogers, Ark. 72765

Filed Oct. 18, 1995, Ser. No. 46,627

Term of patent 14 years

LOC (6) Cl. 01 - 06

U.S. Cl. D1-199



383,888

BRA STRAP HOLDER

Carolyn V. Smith, 8500 Falmouth Ave., #3117, Playa Del Rey, Calif. 90293

Filed Feb. 22, 1996, Ser. No. 50,679

Term of patent 14 years

LOC (6) Cl. 02 - 07

U.S. Cl. D2-624



3435

383,889

ENSEMBLE COMPRISED OF SHORTS, BELT, POUCH, BOTTLE AND NET BAG

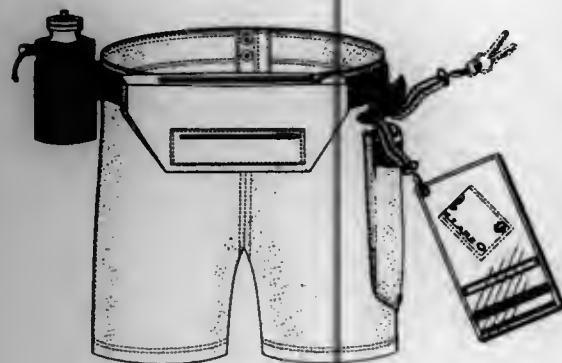
Steven Gallegos, 6962 Cumberland Dr., Huntington Beach, Calif. 92647-2709

Continuation-in-part of Ser. No. 25,457, Jul. 1, 1994, abandoned. This application Dec. 6, 1995, Ser. No. 47,506

Term of patent 14 years

LOC (6) Cl. 02 - 02

U.S. Cl. D2-738



383,891

BIB

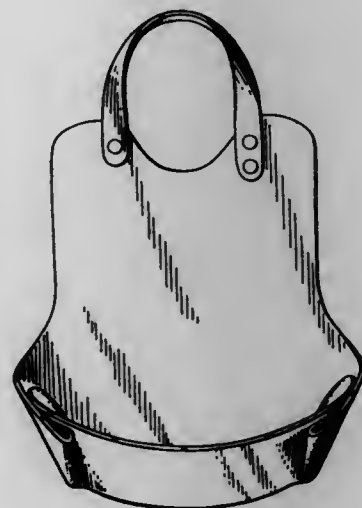
Steven G. Hill, 522 Palmer La., Menlo Park, Calif. 94025

Filed Jan. 11, 1996, Ser. No. 48,865

Term of patent 14 years

LOC (6) Cl. 02 - 02

U.S. Cl. D2-864



383,892

HOCKEY PUCK ICON FOR A HAT

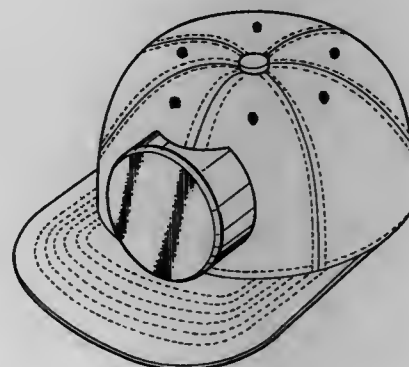
Al Virzi, Troy, Mich., assignor to G&D Communications Corporation, Bloomfield Hills, Mich.

Division of Ser. No. 20,586, Mar. 29, 1994, Pat. No. Des. 374,116. This application Apr. 16, 1996, Ser. No. 52,570

Term of patent 14 years

LOC (6) Cl. 02 - 03

U.S. Cl. D2-866



383,890

CONVERTIBLE SHIRT AND CAP

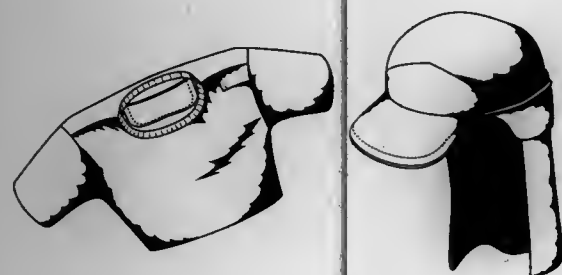
Craig T. Downs, 300 Sevilla Ave., Suite 305, Coral Gables, Fla. 33134

Continuation-in-part of Ser. No. 251,736, May 31, 1994, abandoned. This application Sep. 22, 1995, Ser. No. 44,362

Term of patent 14 years

LOC (6) Cl. 02 - 02

U.S. Cl. D2-841



383,893

SURFACE PATTERN ON A BOOT SOLE

Patrick Leick, Villaz, France, assignor to Salomon S.A., Annecy, France

Filed Aug. 8, 1995, Ser. No. 42,402

Claims priority, application France, Feb. 8, 1995, DM/032053

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2-959



383,895

KEY FOB

Scott Christie, Weymouth, Mass., assignor to Audiovox Corp., Hauppauge, N.Y.

Filed Aug. 14, 1996, Ser. No. 58,428

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3-208



383,894

INSOLE

Daniel B. Snyder, Memphis, Tenn.; Loretta D. Williamson, Rahway, N.J., and Harold A. Howlett, Nesbit, Miss., assignors to Schering-Plough Healthcare Products, Inc., Memphis, Tenn.

Filed Dec. 22, 1995, Ser. No. 48,270

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2-961



383,896

GOLF ACCESSORY CADDY

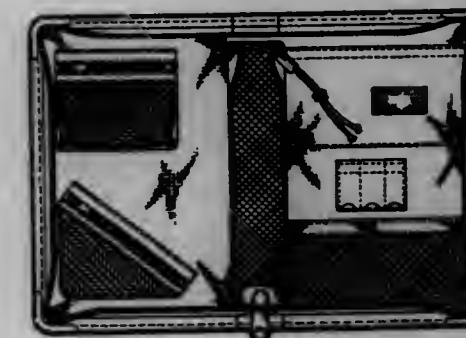
Meeyoung Whang, 16161 Nordhoff, Ste. 278, North Hills, Calif. 91343

Filed Apr. 19, 1996, Ser. No. 53,391

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3-254

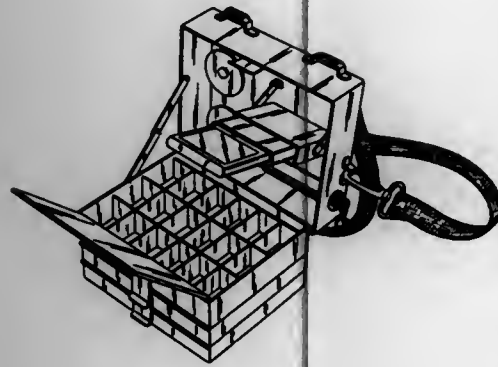


383,897
FLY BOX

Richard D. Hare, Sun Valley, Id., assignor to Flies On Water, Inc., Ketchum, Id.

Filed Dec. 1, 1995, Ser. No. 47,385
Term of patent 14 years
LOC (6) Cl. 03 - 01

U.S. Cl. D3—260



383,899

STAND FOR GOLF BAG

Yong Su Rhee, 138-26 Yun Hui 2nd Dong, Seo Dae Moon-Ku, Seoul, Rep. of Korea, 120-112

Filed Jul. 25, 1994, Ser. No. 26,340
Claims priority, application Rep. of Korea, Mar. 15, 1994, 4886

Term of patent 14 years
LOC (6) Cl. 03 - 99

U.S. Cl. D3—320



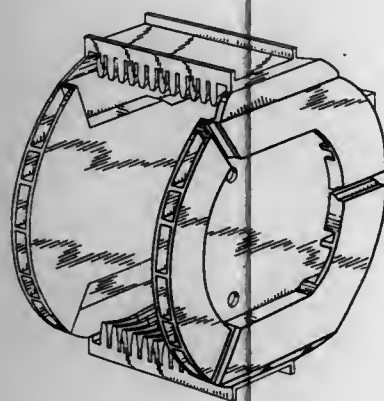
383,898

COMBINATION SHIPPING AND TRANSPORT CASSETTE

Kelly Peterson, Savage; Brian Wiseman, Oakdale, both of Minn.; Gary Gallagher, Colorado Springs, Colo., and Barry Gregerson, Deephaven, Minn., assignors to Empak, Inc., Chanhassen, Minn.

Filed Oct. 13, 1995, Ser. No. 45,221
Term of patent 14 years
LOC (6) Cl. 03 - 01

U.S. Cl. D3—315



383,900

OUTDOOR UMBRELLA

Robert M. Bart, 1031 Meadowood Terr., Davie, Fla. 33325
Filed Dec. 11, 1995, Ser. No. 47,694

Term of patent 14 years
LOC (6) Cl. 03 - 04

U.S. Cl. D3—6



383,901

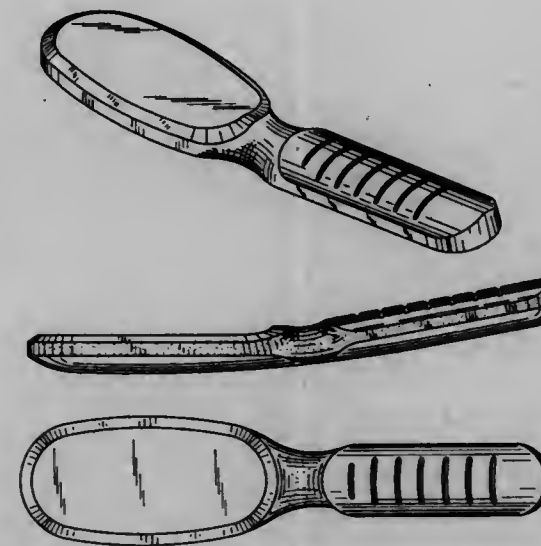
HANDLE FOR AN OVAL BRUSH

Eric Anderson, Maplewood, N.J., and Eric Chan, New York, N.Y., assignors to Goody Products, Inc., Kearney, N.J.

Continuation-in-part of Ser. No. 7,129, Apr. 15, 1993, Pat. No. Des. 362,342. This application Mar. 22, 1995, Ser. No. 36,501

Term of patent 14 years
LOC (6) Cl. 04 - 02

U.S. Cl. D4—138



383,903

CLUTCH SIZED BAG EXPANDABLE TO TOTE BAG

David Kopel, Aqoura Hills, Calif., assignor to Koltov, Inc., Westlake Village, Calif.

Filed Aug. 23, 1995, Ser. No. 43,035
Term of patent 14 years
LOC (6) Cl. 03 - 01

U.S. Cl. D3—233



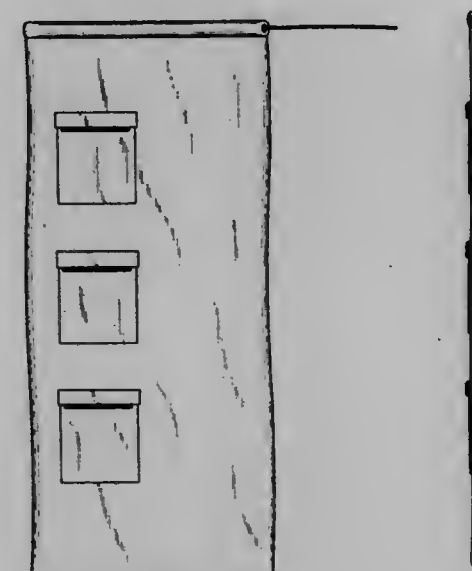
383,902

STORAGE ORGANIZER BAG FOR GIFT WRAP AND RELATED SUPPLIES

Beverly J. Droste, 3551 Faust Ave., Long Beach, Calif. 90808
Filed Aug. 8, 1996, Ser. No. 58,106

Term of patent 14 years
LOC (6) Cl. 03 - 01

U.S. Cl. D3—201



383,904

HANGING CLOSET HAMPER

James W. Stewart, San Rafael, Calif., assignor to ClothesMate Products, Inc., San Rafael, Calif.

Filed May 2, 1996, Ser. No. 53,953
Term of patent 14 years
LOC (6) Cl. 03 - 01

U.S. Cl. D3—293



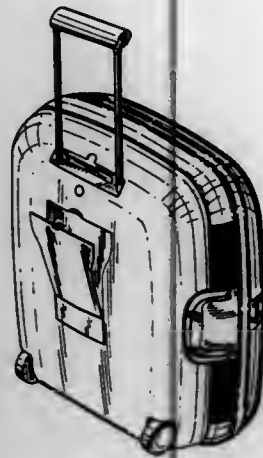
383,905
CART CASE

Adrian Douglas Stokes, Kingston Upon Thames; David Banham, Haslemere, and Wendy Flicker, London, all of United Kingdom, assignors to Carlton International PLC, Enfield, England

Division of Ser. No. 31,950, Dec. 9, 1994, Pat. No. Des. 375,199. This application Jul. 31, 1996, Ser. No. 57,785
Claims priority, application United Kingdom, Jun. 10, 1994, 2039629

Term of patent 14 years
LOC (6) Cl. 03 - 01

U.S. Cl. D3—279



383,907

COMBINED VEHICLE WINDOW SCRAPER AND BRUSH
Andrea J. Fey, 2261 Blake St., 3D, Denver, Colo. 80205; Scott A. Franklin, 11977 W. 75th La., Arvada, Colo. 80005, and Alan T. Fey, 2261 Blake St., 3D, Denver, Colo. 80205

Filed Feb. 1, 1996, Ser. No. 49,833

Term of patent 14 years

LOC (6) Cl. 04 - 01

U.S. Cl. D4—118



383,908

MIRRORED PICTURE FRAME

John C. Waszkiewicz, III, New Hartford, N.Y., assignor to Faster-Form Corporation, New Hartford, N.Y.

Filed Dec. 14, 1995, Ser. No. 47,916

The portion of the term of this patent subsequent to Dec. 31, 2010, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 06 - 07

U.S. Cl. D6—300

383,906

STORAGE CASE

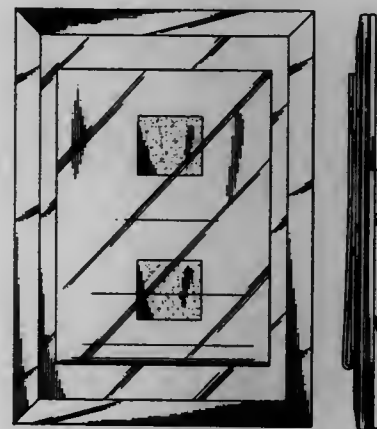
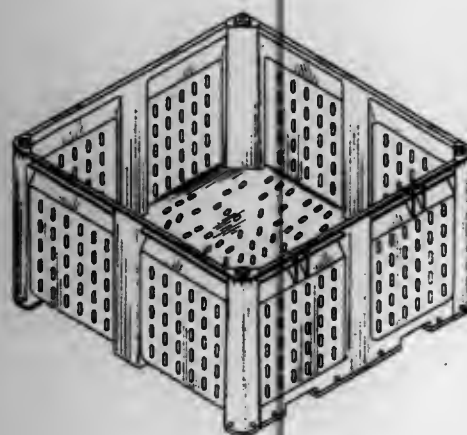
Akiva Lev-Ran, D.N. Negev, Israel, assignor to Dolav Dvir-Lahav Plastic Products, Israel

Continuation-in-part of Ser. No. 23,545, May 26, 1994, abandoned. This application Oct. 11, 1995, Ser. No. 46,793

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—314



383,909

READING STAND

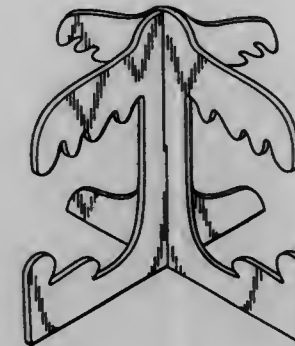
Virginia S. Salas, 746 W. Second Pl., Mesa, Ariz. 85201

Filed Sep. 9, 1996, Ser. No. 59,349

Term of patent 14 years

LOC (6) Cl. 06 - 07

U.S. Cl. D6—310



383,911

BOOSTER SEAT

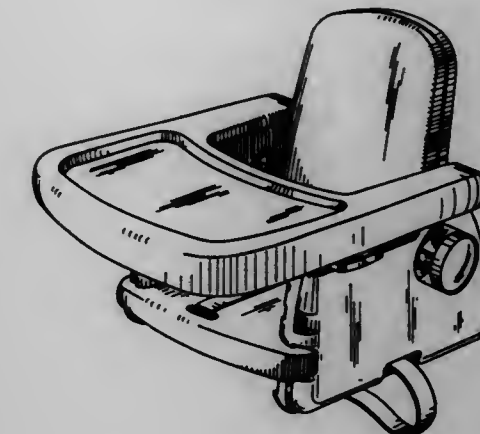
Carl J. Conforti, Fall River; Ralph M. Nowak, Marblehead, both of Mass., and Jean Laverdure, Québec, Canada, assignors to The First Years Inc., Avon, Mass.

Filed May 9, 1995, Ser. No. 38,593

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6—333



383,910

CLOTHES HANGER HOOK COVER

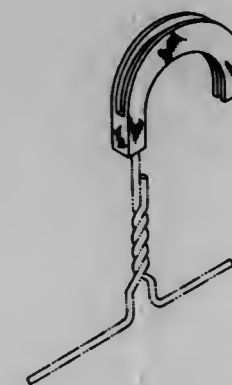
William D. Maxwell, 3813 Country Club Rd. North, Irving, Tex. 75038

Filed Sep. 20, 1995, Ser. No. 44,212

Term of patent 14 years

LOC (6) Cl. 06 - 08

U.S. Cl. D6—328



383,912

CHILD CAR SEAT

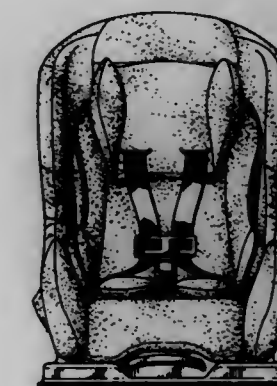
Paul K. Meeker, Hiram, and William R. Gibson, Canton, both of Ohio, assignors to Lisco, Inc., Tampa, Fla.

Filed Nov. 9, 1995, Ser. No. 46,212

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6—333



383,913

CHAIR FRAME

Stig Ahlström, Juvälvägen 1, S-131, 31 Nacka, Sweden
 Filed Nov. 30, 1995, Ser. No. 47,257
 Claims priority, application Norway, Jun. 9, 1995, 950427
 Term of patent 14 years
 LOC (6) Cl. 06 - 01

U.S. Cl. D6—348

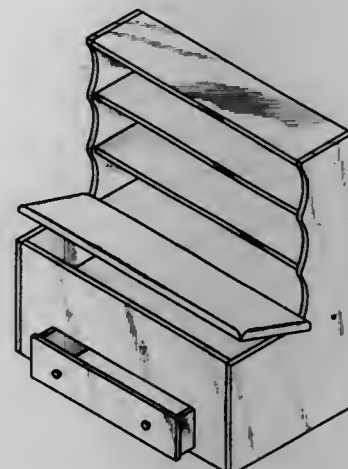


383,915

SIDE ELEMENT OF A SHOE UPPER

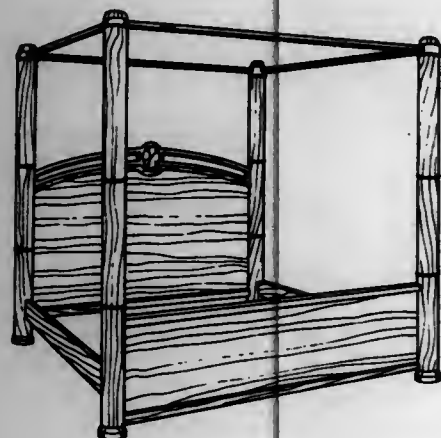
Christian J. Tresser, Portland, Oreg., assignor to Nike, Inc.,
 Beaverton, Oreg.
 Filed Nov. 6, 1996, Ser. No. 62,045
 Term of patent 14 years
 LOC (6) Cl. 02 - 99

U.S. Cl. D2—972

383,914
BED

H. Thomas Keller, High Point, N.C., assignor to Henredon
 Furniture Industries, Inc., Morganton, N.C.
 Filed Feb. 16, 1996, Ser. No. 50,413
 Term of patent 14 years
 LOC (6) Cl. 06 - 01

U.S. Cl. D6—389

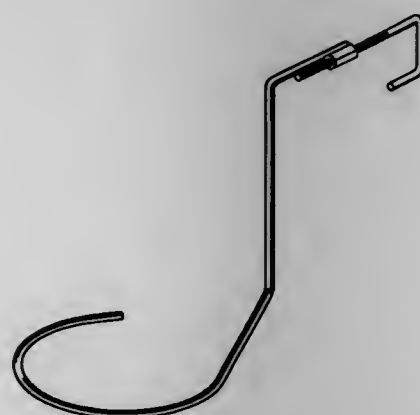


383,916

ADJUSTABLE PLANT HOLDER

Roger H. Richards, 3134 Waterside Dr., Arlington, Tex. 76012,
 and William C. Richards, 700 Middlefork, Irving, Tex. 75063
 Filed Sep. 13, 1995, Ser. No. 43,856
 Term of patent 14 years
 LOC (6) Cl. 11 - 02

U.S. Cl. D6—403



383,917

PLANTER STAND

William Bohland, 101 N. 72nd Ave., Pensacola, Fla. 32506
 Filed Dec. 11, 1995, Ser. No. 47,666
 Term of patent 14 years
 LOC (6) Cl. 06 - 06

U.S. Cl. D6—405

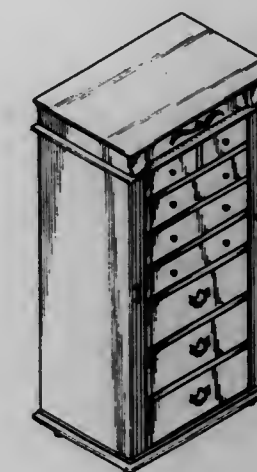


383,919

JEWELRY ARMOIRE

James Glenn Mohundro, No. 20 Ta-Lung Road, 11F-4, Tai-
 chung, Taiwan
 Filed Apr. 10, 1996, Ser. No. 52,843
 Term of patent 14 years
 LOC (6) Cl. 06 - 04

U.S. Cl. D6—445



383,920

DISPLAY RACK

John F. Morgan, Ponte Vedra Beach, Fla., assignor to
 NO-MUV Corp., Inc., Jacksonville, Fla.
 Filed Jun. 17, 1996, Ser. No. 55,906
 Term of patent 14 years
 LOC (6) Cl. 20 - 02

U.S. Cl. D6—458



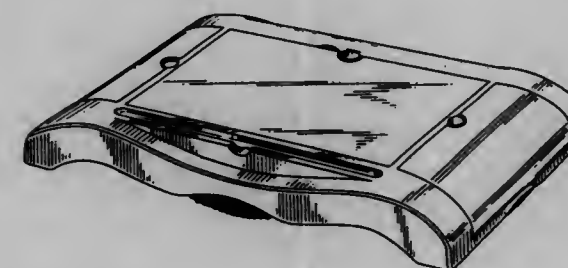
383,918

LAP TOP DESK

Michael Prince, Chicago, Ill., assignor to Selfix, Inc., Chicago,
 Ill.

Filed Nov. 13, 1995, Ser. No. 46,286
 Term of patent 14 years
 LOC (6) Cl. 06 - 03

U.S. Cl. D6—406



383,921

SHELVING UNIT

John Robert Newkirk, Bonita Springs, Fla., assignor to Zenith Products Corp., Aston, Pa.

Filed Aug. 9, 1996, Ser. No. 58,245

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—465



383,922

DISPLAY CASE

David Malcolm Goodwin, Fyrford, and Nicholas Mernor Hamnett, Epsom, both of England, assignors to Parker Pen Products, Islesworth, England

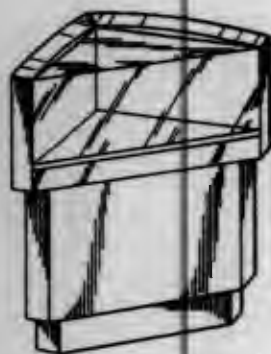
Division of Ser. No. 31,974, Dec. 9, 1994. This application Jul. 9, 1996, Ser. No. 56,794

Claims priority, application United Kingdom, Jun. 27, 1994, 2039957

Term of patent 14 years

LOC (6) Cl. 20 - 02

U.S. Cl. D6—470



383,923

WORK STATION

Wolfgang Muller-Deisig, Berlin, Germany, and Alexander Henricus Antonius Maria Dankers, Berkel-Enschot, Netherlands, assignors to Assenburg, B.V., Ea Tilburg, Netherlands

Filed Apr. 18, 1995, Ser. No. 37,649

Claims priority, application Benelux TM/Des. Off., Oct. 19, 1994, 70186-01/11

Term of patent 14 years

LOC (6) Cl. 06 - 03

U.S. Cl. D6—474



383,924

MOBILE TABLE

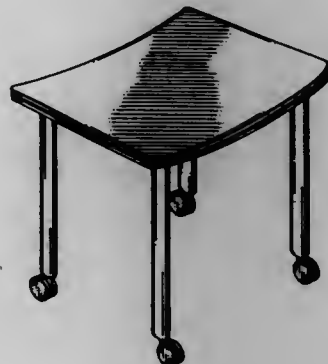
Nicholas Q. Dormon, London, United Kingdom; Greg D. Lamke, Hastings, and Joyce S. Bromberg, Grand Rapids, both of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.

Filed Jun. 7, 1996, Ser. No. 55,546

Term of patent 14 years

LOC (6) Cl. 06 - 03

U.S. Cl. D6—480



383,925

SIDE SECTION FOR A DISPLAY ARRANGEMENT

Erik Ola Ahlberg, S:t Eriksgatan 109, 113 31 Stockholm, Sweden

Filed Jan. 5, 1996, Ser. No. 48,628

Claims priority, application Sweden, Jul. 12, 1995, 95-1372

Term of patent 14 years

LOC (6) Cl. 06 - 06

U.S. Cl. D6—491



383,926

PARTITION PANEL POST

Ami Spector, Ontario, Canada, assignor to Links Business Furniture Inc., Weston, Canada

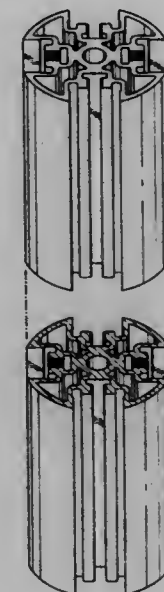
Filed Aug. 28, 1996, Ser. No. 59,663

Claims priority, application Canada, Jul. 12, 1996, 1996-1594

Term of patent 14 years

LOC (6) Cl. 06 - 06

U.S. Cl. D6—495



383,927

WHEELED BASE FOR CHAIRS, ARMCHAIRS, TABLES, COAT-STANDS

Alessandro Vassallo, Padova, Italy, assignor to Cazzaro S.p.A., Piombino Dese, Italy

Filed Mar. 21, 1996, Ser. No. 52,029

Claims priority, application Italy, Sep. 25, 1995, PD950 000038

The portion of the term of this patent subsequent to Jun. 10, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 06 - 06

U.S. Cl. D6—498



383,928

INTEGRATED LUMBAR SUPPORT AND AIR PUMP UNIT FOR A VEHICLE SEAT

A. Wayne Earleywine, Jr., Syracuse, Ind., assignor to Bristol Thermal Technologies, LLC, Bristol, Ind.

Filed Aug. 10, 1995, Ser. No. 42,467

Term of patent 14 years

LOC (6) Cl. 06 - 06

U.S. Cl. D6—500



383,929

MODULAR SEAT

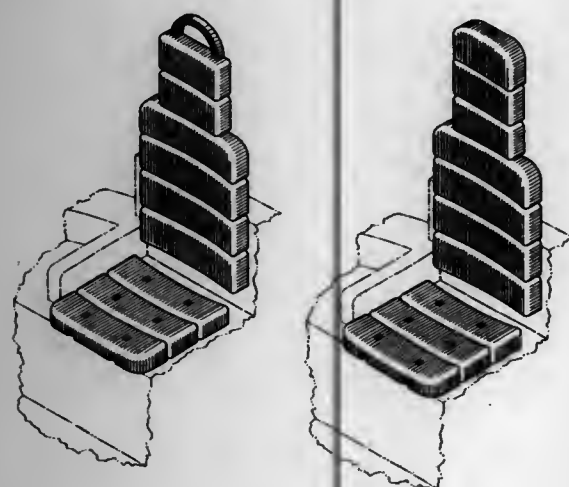
Oliver Alan Ring, Houston, and Dale Polley, Buda, both of Tex., assignors to Canyon Manufacturing Company, Manchaca, Tex.

Filed Jul. 15, 1996, Ser. No. 57,021

Term of patent 14 years

LOC (6) Cl. 06 - 06

U.S. Cl. D6—500



383,931

CHAIR ARM

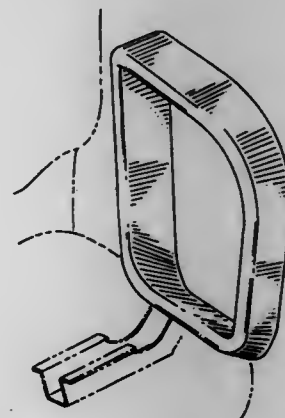
Craig H. Schultz, Muscatine, and Leo E. Williams, Wapello, both of Iowa, assignors to Hon Industries Inc., Muscatine, Iowa

Filed Mar. 12, 1996, Ser. No. 51,519

Term of patent 14 years

LOC (6) Cl. 06 - 06

U.S. Cl. D6—501



383,930

ADJUSTABLE PADDED ARM REST

Mary O. Perry, 144 Santee Dr., Panama City, Fla. 32404

Continuation-in-part of Ser. No. 29,078, Sep. 29, 1994, Pat.

No. Des. 369,929, and a continuation-in-part of Ser. No.

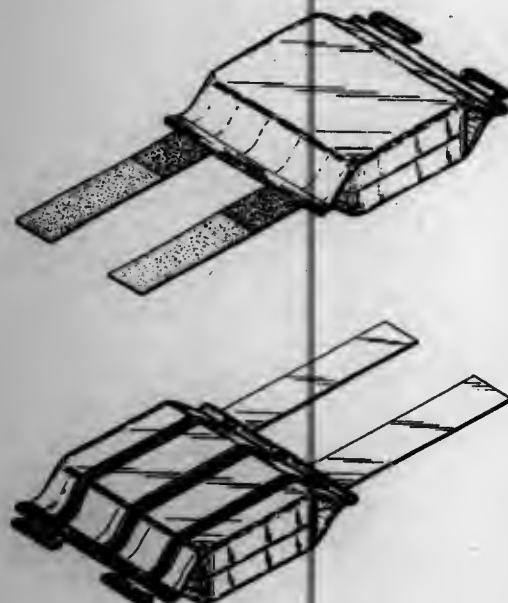
334,047, Nov. 4, 1994, abandoned. This application Jun. 19,

1995, Ser. No. 40,432

Term of patent 14 years

LOC (6) Cl. 06 - 09

U.S. Cl. D6—501



383,932

CHAIR ARMREST

Steve J. Nemeth, Jr., Park Township, Ottawa County, Mich.,

assignor to Haworth, Inc., Holland, Mich.

Division of Ser. No. 40,055, Jun. 9, 1995. This application Jul.

30, 1996, Ser. No. 57,709

Term of patent 14 years

LOC (6) Cl. 06 - 06

U.S. Cl. D6—501



383,933

DISPLAY DEVICE FOR PLACEMENT ON A REFRIGERATOR

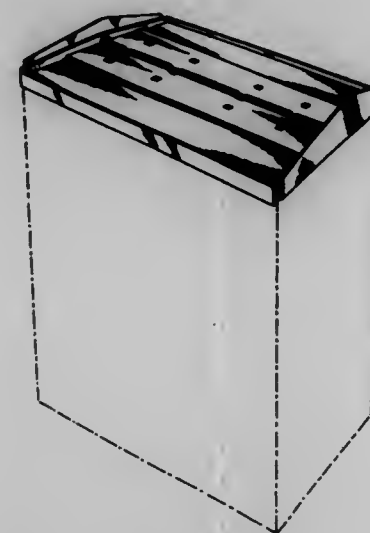
James D. Robertson, Atlanta, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Mar. 20, 1996, Ser. No. 51,971

Term of patent 14 years

LOC (6) Cl. 06 - 06

U.S. Cl. D6—511



383,935

TOILET PLUNGER HOLDER

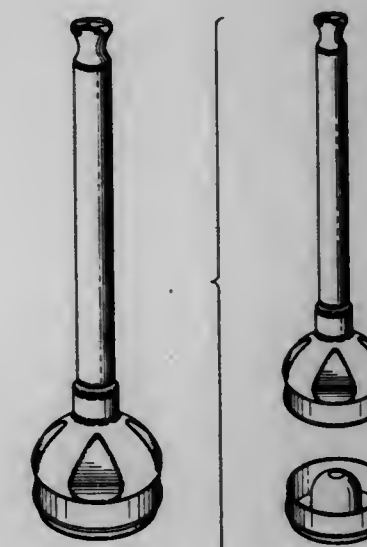
Frank W. Zawalsky, 54 Riverside Dr., Exeter, Canada, N0M 1S3

Filed Dec. 23, 1995, Ser. No. 48,324

Term of patent 14 years

LOC (6) Cl. 07 - 07

U.S. Cl. D6—524



383,934

DISPENSER FOR HOUSEHOLD GOODS DISPENSED FROM ROLLS

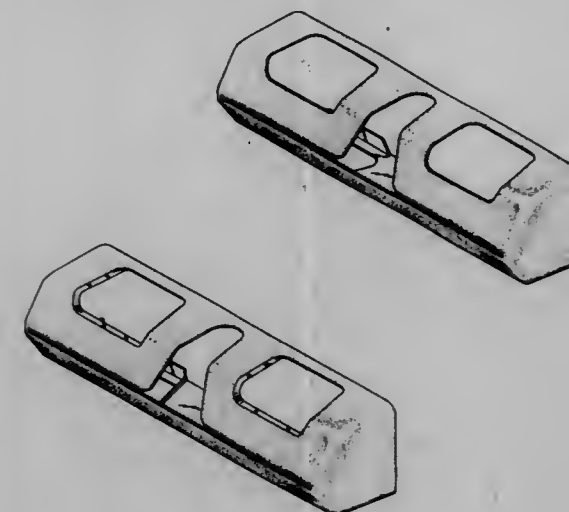
Patrick McNaughton, Plymouth, Minn., assignor to McNaughton Incorporated, Minneapolis, Minn.

Filed Dec. 13, 1995, Ser. No. 47,828

Term of patent 14 years

LOC (6) Cl. 07 - 07

U.S. Cl. D6—518



383,936

CD STORAGE UNIT

Brian McCracken, 21416 Velicata St., Woodland Hills, Calif. 91364

Filed May 7, 1996, Ser. No. 54,186

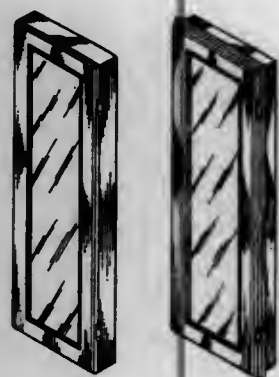
Term of patent 14 years

LOC (6) Cl. 06 - 04

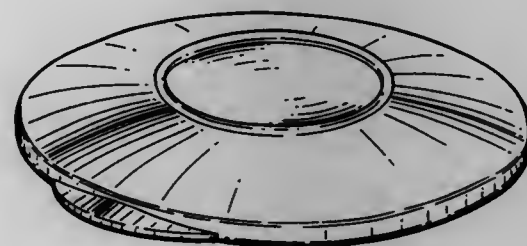
U.S. Cl. D6—627



383,937
JEWELRY CLOSET
 Craig A. Myers, 1160 W. 3rd St., Colby, Kans. 67701
 Filed Mar. 21, 1996, Ser. No. 52,020
 Term of patent 14 years
 LOC (6) Cl. 06 - 04
 U.S. Cl. D6—559



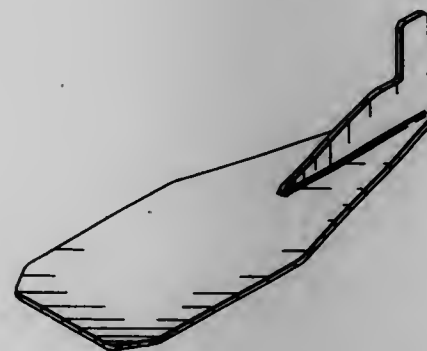
383,939
BOWL SEAL
 Hanne Dalsgaard Jeppesen, Holte; Jakob Helberg, Charlottenlund, and Stig Lillelund, Gentofte, all of Denmark, assignors to Dart Industries Inc., Orlando, Fla.
 Filed Dec. 22, 1995, Ser. No. 48,201
 Term of patent 14 years
 LOC (6) Cl. 07 - 99
 U.S. Cl. D7—391



383,938
HAND HELD ELECTRIC MIXER
 Ludwig Littmann, Kronberg, Germany, assignor to Braun Aktiengesellschaft, Kronberg, Germany
 Filed Jun. 27, 1996, Ser. No. 56,387
 Claims priority, application Germany, Dec. 27, 1995, M9510164.0
 Term of patent 14 years
 LOC (6) Cl. 01 - 00
 U.S. Cl. D7—376



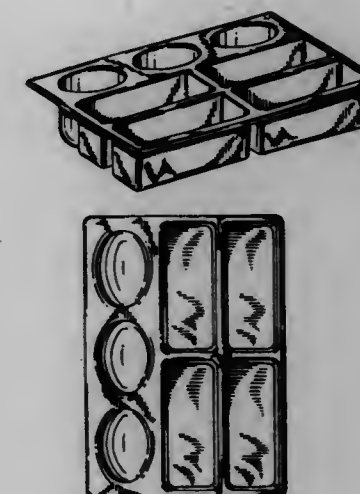
383,940
BASE FOR POWER-OPERATED POTATO SLICER
 Michael A. Davis, 108 Stucky Dr., Dover, Ohio 44622, and Christopher T. Troyer, 1296 N. Wooster Ave., Strasburg, Ohio 44680
 Filed Jan. 2, 1996, Ser. No. 48,511
 Term of patent 14 years
 LOC (6) Cl. 07 - 99
 U.S. Cl. D7—412



383,941
WATER BOTTLE
 Ross J. Petrie, Broward County, Fla., assignor to James L. Franco, Sr., Boca Raton, Fla.
 Filed Sep. 3, 1996, Ser. No. 59,106
 Term of patent 14 years
 LOC (6) Cl. 07 - 01
 U.S. Cl. D7—511



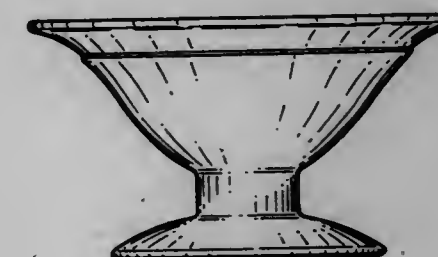
383,943
FOOD PREPARATION CONTAINER
 John D. Boley, 1132 June St., Fremont, Ohio 43420
 Filed Jun. 17, 1996, Ser. No. 55,937
 Term of patent 14 years
 LOC (6) Cl. 07 - 01
 U.S. Cl. D7—555



383,942
CUP
 Frederick A. Rench, Boise, and Michael E. Watanabe, Nampa, both of Id., assignors to Boise Cascade Corporation, Boise, Id.
 Filed Jan. 5, 1996, Ser. No. 48,620
 Term of patent 14 years
 LOC (6) Cl. 07 - 01
 U.S. Cl. D7—529



383,944
DESSERT DISH
 Stig Lillelund, Gentofte, and Eskil Højland Olsen, Klampenborg, both of Denmark, assignors to Dart Industries Inc., Orlando, Fla.
 Filed Oct. 16, 1995, Ser. No. 44,772
 Term of patent 14 years
 LOC (6) Cl. 07 - 01
 U.S. Cl. D7—558



383,945

GHOST BUCKET

Stephen L. Fillipp, and Andrew George Avinger, both of Lubbock, Tex., assignors to Industrial Molding Corporation, Lubbock, Tex.

Filed Sep. 6, 1996, Ser. No. 59,270

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—601



383,946

PUMPKIN BUCKET

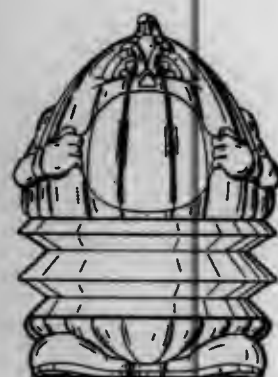
Stephen L. Fillipp, and Andrew George Avinger, both of Lubbock, Tex., assignors to Industrial Molding Corporation, Lubbock, Tex.

Filed Sep. 6, 1996, Ser. No. 59,271

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—601



383,947

THERMAL INSULATING SLEEVE FOR DRINK CUPS

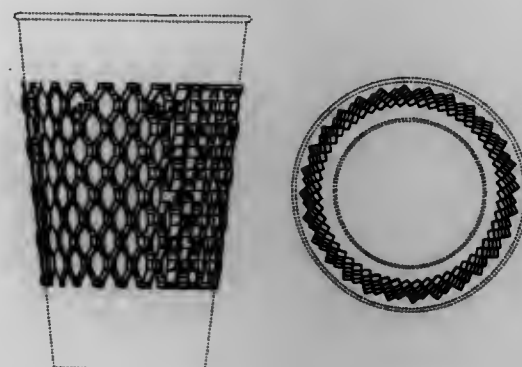
Robert J. Schaefer, Baltimore, Md., assignor to Sweetheart Cup Company, Inc., Owing Mills, Md.

Filed Apr. 17, 1996, Ser. No. 53,198

Term of patent 14 years

LOC (6) Cl. 07 - 01

U.S. Cl. D7—607



383,948

EXTENDING SPOON

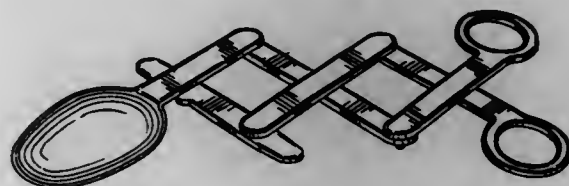
John A. Crane, and Jeffrey Knurek, both of Elk Grove Village, Ill., assignors to JAC Investments Inc., Chicago, Ill.

Filed Dec. 18, 1995, Ser. No. 48,778

Term of patent 14 years

LOC (6) Cl. 07 - 03

U.S. Cl. D7—653



383,949

FUNNEL

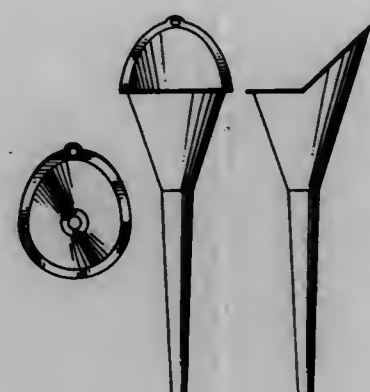
John M. Lown, Huntington Beach, Calif., assignor to FloTool International, Inc., Tustin, Calif.

Filed Apr. 29, 1996, Ser. No. 53,752

Term of patent 14 years

LOC (6) Cl. 07 - 99

U.S. Cl. D7—700



383,950

GIMBAL TRAY

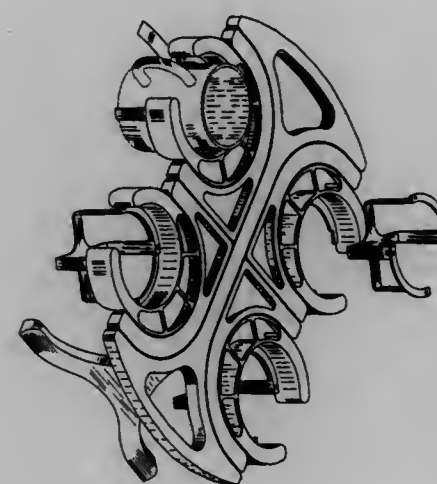
William G. Muschett, 2885 Electronics Dr., B1-3, Melbourne, Fla. 32935

Filed Jun. 27, 1995, Ser. No. 40,819

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—708



383,951

HOE

Clem L. Dutchak, P.O. Box 998, Belfield, N. Dak. 58622

Filed Jan. 22, 1996, Ser. No. 49,225

Term of patent 14 years

LOC (6) Cl. 08 - 01

U.S. Cl. D8—11



383,952

TIRE TOOL

Jimmy Ross Williams, 1036 Williams Rd., Madison, N.C. 27025

Filed Sep. 17, 1996, Ser. No. 59,901

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—31



383,953

HELMET SHAPED BOTTLE AND CAN OPENER

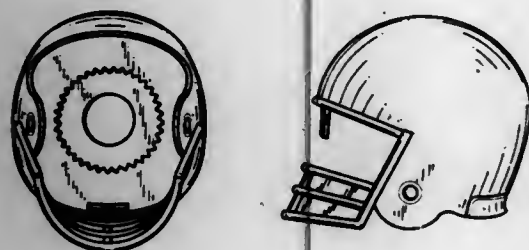
Dean DeFilippo, 685 Apt. TA, Elm Spring Ct., Pittsburgh, Pa. 15220

Filed Aug. 6, 1996, Ser. No. 58,007

Term of patent 14 years

LOC (6) Cl. 07 - 99

U.S. Cl. D8-38



383,955

HAND TOOL

Stephen L. Brantley, Las Vegas, Nev., assignor to JS Products, Inc., Las Vegas, Nev.

Filed Sep. 12, 1995, Ser. No. 43,761

The portion of the term of this patent subsequent to Jul. 29, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8-52



383,956

HAND TOOL

Stephen L. Brantley, Las Vegas, Nev., assignor to JS Products, Inc., Las Vegas, Nev.

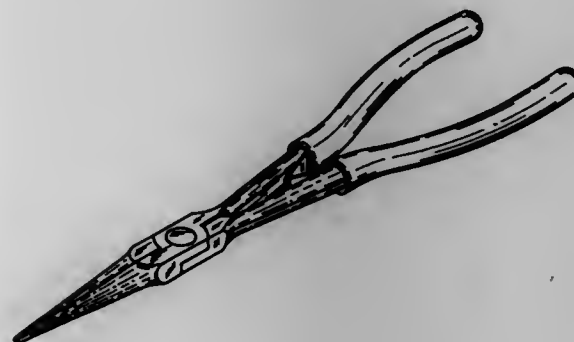
Filed Sep. 12, 1995, Ser. No. 43,766

The portion of the term of this patent subsequent to Aug. 29, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8-52



383,954

COMBINED BOTTLE AND CAN OPENER

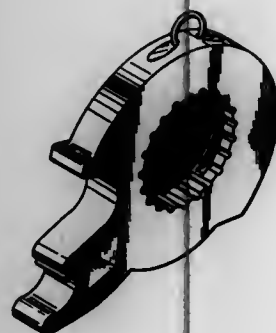
Richard J. Blunno, 95 Karnell Dr., Piscataway, N.J. 08854

Filed Jul. 25, 1996, Ser. No. 57,430

Term of patent 14 years

LOC (6) Cl. 07 - 99

U.S. Cl. D8-40



383,957

SCISSORS

Robert W. Cornell, Schofield, Wis., assignor to Fiskars Inc., Madison, Wis.

Continuation-in-part of Ser. No. 28,298, Sep. 12, 1994, Pat.

No. Des. 363,866. This application Nov. 6, 1995, Ser. No.

47,807

Term of patent 14 years

LOC (6) Cl. 08 - 03

U.S. Cl. D8-57



383,959

SCISSOR

Garfield Litton, Glenrock, N.J., assignor to Revlon Consumer Products Corporation, New York, N.Y.

Filed Aug. 23, 1996, Ser. No. 59,711

Term of patent 14 years

LOC (6) Cl. 08 - 03

U.S. Cl. D8-57



383,960

TUBE END SQUARING TOOL

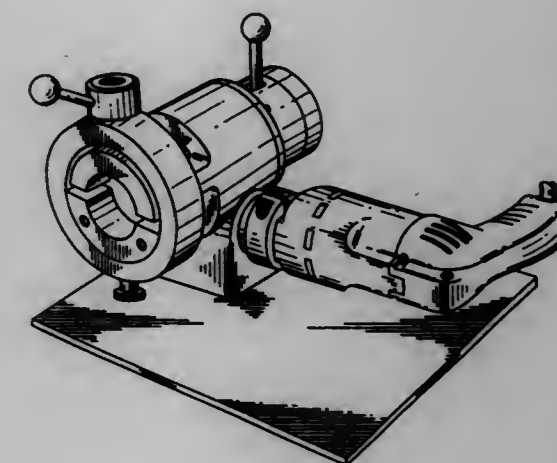
William E. Sandford, Camino, and Henry Astle, Rancho Cordova, both of Calif., assignors to Tri Tool, Inc., Rancho Cordova, Calif.

Filed Jul. 10, 1995, Ser. No. 41,246

Term of patent 14 years

LOC (6) Cl. 08 - 01

U.S. Cl. D8-61



383,958

EDGING SCISSORS

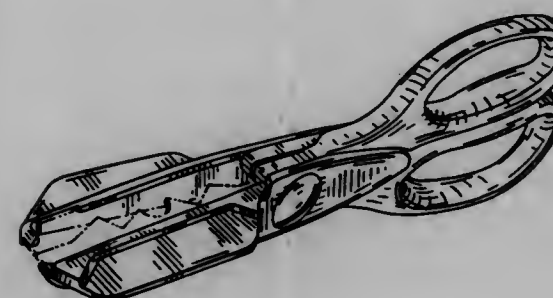
Suk Ku An, Gyunggido, Rep. of Korea, and Kyle M. Bennett, Wausau, Wis., assignors to Fiskars Inc., Madison, Wis.

Filed Jul. 22, 1996, Ser. No. 57,265

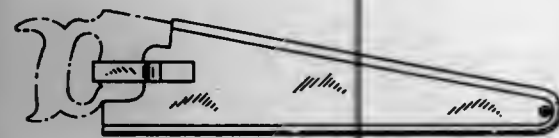
Term of patent 14 years

LOC (6) Cl. 08 - 03

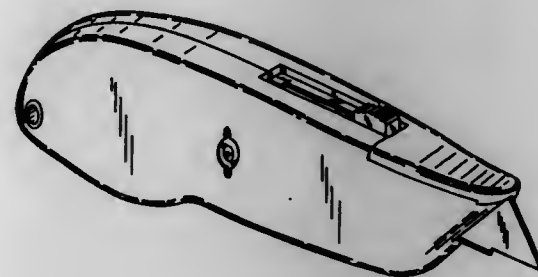
U.S. Cl. D8-57



383,961
HAND SAW BLADE COVER
 Elwood Scales, III, 109G Roane Dr., Hampton, Va. 23669
 Filed Nov. 22, 1995, Ser. No. 46,965
 Term of patent 14 years
 LOC (6) Cl. 08 - 03
 U.S. Cl. D8—95



383,963
SAFETY UTILITY KNIFE
 Peter Gold, 465 N. Wood Rd., Rockville Centre, N.Y. 11570
 Filed Nov. 29, 1995, Ser. No. 49,587
 Term of patent 14 years
 LOC (6) Cl. 08 - 03
 U.S. Cl. D8—99



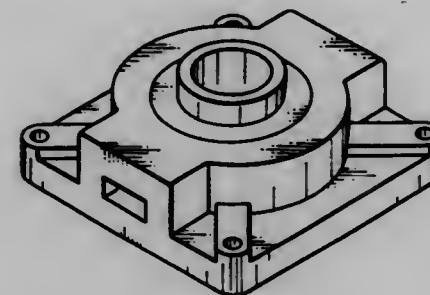
383,962
MODELERS KNIFE
 Philip B. Daley, Statesville, N.C., and Eric P. Chan, New York, N.Y., assignors to Hunt Holdings, Inc., Wilmington, Del.
 Filed Oct. 17, 1995, Ser. No. 45,299
 Term of patent 14 years
 LOC (6) Cl. 08 - 03
 U.S. Cl. D8—98



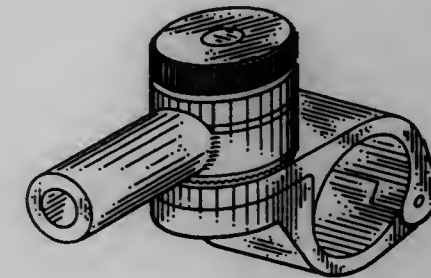
383,964
TOOL HANDLE
 Paula Riley, New York, and Kenneth V. Stevens, Brooklyn, N.Y., assignors to Prescient Partners, L.P., New York, N.Y.
 Continuation-in-part of Ser. No. 539,738, Oct. 5, 1995, which is a continuation-in-part of Ser. No. 270,057, Jul. 1, 1994, Pat. No. 5,547,249. This application Dec. 1, 1995, Ser. No. 47,330
 Term of patent 14 years
 LOC (6) Cl. 08 - 05
 U.S. Cl. D8—107



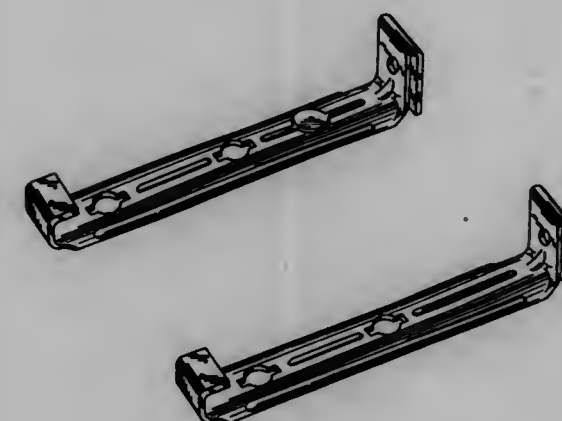
383,965
SQUARE SHAPED FLANGE UNIT
 Takashi Ichihara, 16, Hondacho 2 chome, Midori-ku, Chiba-shi, Chiba, Japan
 Filed Mar. 24, 1995, Ser. No. 36,705
 Term of patent 14 years
 LOC (6) Cl. 11 - 05
 U.S. Cl. D8—353



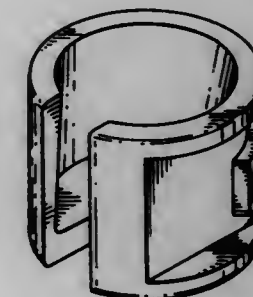
383,967
UMBRELLA HOLDING CLAMP
 Robert A. DeMars, 5000 N. Parkway Calabasas-Sulte 233, Calabasas, Calif. 91302
 Filed Apr. 22, 1996, Ser. No. 53,451
 Term of patent 14 years
 LOC (6) Cl. 08 - 05
 U.S. Cl. D8—354



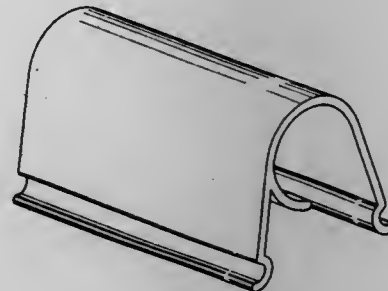
383,966
GUTTER BRACKET
 Gregory R. Zaccagni, Aurora, Ill., assignor to ZMC, Inc., Addison, Ill.
 Filed Nov. 2, 1995, Ser. No. 46,749
 Term of patent 14 years
 LOC (6) Cl. 08 - 05
 U.S. Cl. D8—354



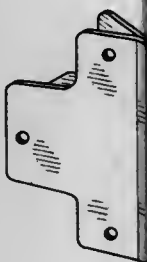
383,968
ULTRASOUND TRANSDUCER PROBE HOLDER
 Dean J. Bidwell, and Stephen B. Hooper, both of Redmond, Wash., assignors to Siemens Medical Systems, Inc., Isselm, N.J.
 Filed Sep. 29, 1995, Ser. No. 46,787
 Term of patent 14 years
 LOC (6) Cl. 08 - 05
 U.S. Cl. D8—356



- 383,969
HOSE ANCHOR
William E. Adams, Portersville, Pa., assignor to Adams Mfg. Corp., Portersville, Pa.
Filed Dec. 18, 1995, Ser. No. 47,983
Term of patent 14 years
LOC (6) Cl. 08 - 08
U.S. Cl. D8—388
- 383,971
BIN ADAPTER
Benjamin L. Garfinkle, 1120 Portal Ave., Piedmont, Calif. 94610
Filed Feb. 28, 1996, Ser. No. 50,867
Term of patent 14 years
LOC (6) Cl. 08 - 08
U.S. Cl. D8—395



- 383,970
CURTAIN CLIP
Frank A. Berman, 9 Lee Park Ave., Wilkes-Barre, Pa. 18702-4013
Filed Mar. 15, 1995, Ser. No. 36,214
Term of patent 14 years
LOC (6) Cl. 08 - 08
U.S. Cl. D8—395



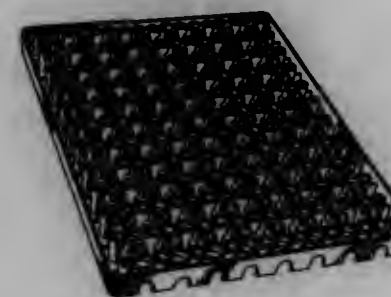
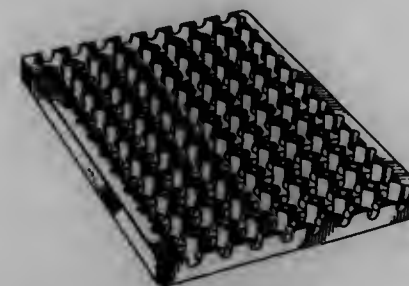
- 383,972
COMBINED SPRAY DISPENSER AND CAP
Stephan Weiss, 211 E. 70th St., New York, N.Y. 10021
Filed Dec. 8, 1995, Ser. No. 47,630
Term of patent 14 years
LOC (6) Cl. 09 - 01
U.S. Cl. D9—300



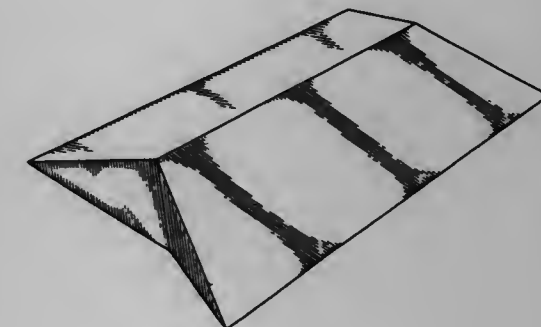
- 383,973
PACKAGING FOR CONFECTIONERY
Gerd Lippens, Brussels, Belgium, assignor to Ballon-Express S.A., Brussels, Belgium
Filed Sep. 27, 1995, Ser. No. 44,621
Term of patent 14 years
LOC (6) Cl. 09 - 99
U.S. Cl. D9—329
- 383,975
BOTTLE PACKAGE
Karl-Gustaf Kristoffersson, Örkelljunga, Sweden, assignor to Perstorp AB, Perstorp, Sweden
Filed Oct. 20, 1995, Ser. No. 46,650
Claims priority, application Sweden, Apr. 21, 1995, 950842
Term of patent 14 years
LOC (6) Cl. 09 - 03
U.S. Cl. D9—341



- 383,974
PACKAGE FOR A PLURALITY OF BOTTLES
Karl-Gustaf Kristoffersson, Örkelljunga, Sweden, assignor to Perstorp AB, Perstorp, Sweden
Filed Aug. 23, 1995, Ser. No. 43,122
Claims priority, application Sweden, Feb. 23, 1995, 950375
Term of patent 14 years
LOC (6) Cl. 09 - 03
U.S. Cl. D9—341



- 383,976
CONTAINER
Wendy Allinsmith; Ross A. Swigert, and Michael S. Kerth, all of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
Filed Jan. 11, 1996, Ser. No. 48,869
Term of patent 14 years
LOC (6) Cl. 09 - 07
U.S. Cl. D9—430



383,977

CONTAINER BLANK

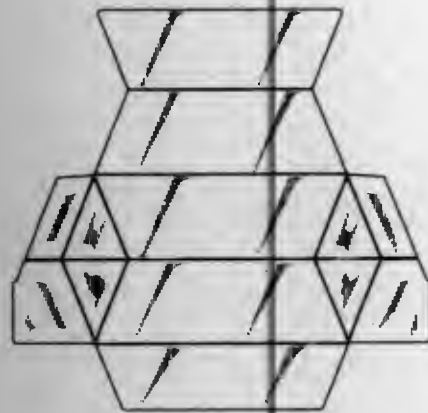
Wendy Allinsmith, Ross A. Swigert, and Michael S. Kerth, all of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jan. 11, 1996, Ser. No. 48,867

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—433



383,979

SPORT INDICATIVE CLOSURE CAP

Terence Tucker, Monarch Beach, Calif., assignor to Calico Industries, Inc., San Clemente, Calif.

Filed Aug. 21, 1995, Ser. No. 43,130

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—451



383,978

REUSEABLE SANITARY SEAL FOR USE WITH POP-TOP BEVERAGE CANS

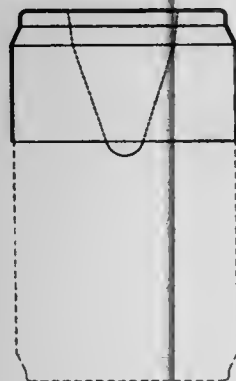
Rodney L. Loeb, R.D. #1, Box 1387, Hamburg, Pa. 19526

Filed Jun. 21, 1996, Ser. No. 56,089

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—438



383,980

CONTAINER

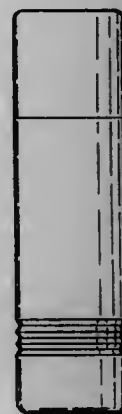
Mel Abfner, Stamford, Conn., and Matthew Scott Okin, Cresskill, N.J., assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

Filed Feb. 7, 1996, Ser. No. 50,055

Term of patent 14 years

LOC (6) Cl. 09 - 01

U.S. Cl. D9—502



383,981

BOTTLE FOR A NUTRITIONAL PRODUCT

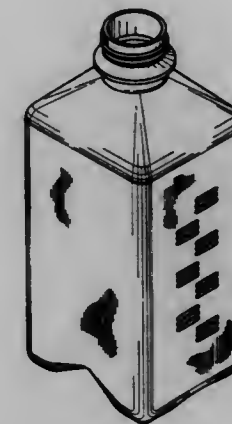
Richard Peter Macauley, Westerville, and Lewis Henry Sita, Worthington, both of Ohio, assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation-in-part of Ser. No. 26,129, Jul. 20, 1994, Pat. No. Des. 372,090. This application Dec. 21, 1995, Ser. No. 48,181

Term of patent 14 years

LOC (6) Cl. 09 - 01

U.S. Cl. D9—520



383,983

SPOT CLOCK

Thomas R. Steinhagen, West Des Moines; Charles A. Haas, Des Moines, and John E. Schenken, West Des Moines, all of Iowa, assignors to Cobbs Manufacturing Company, Des Moines, Iowa

Filed Jul. 29, 1996, Ser. No. 57,616

Term of patent 14 years

LOC (6) Cl. 10 - 01

U.S. Cl. D10—22



383,982

BOTTLE

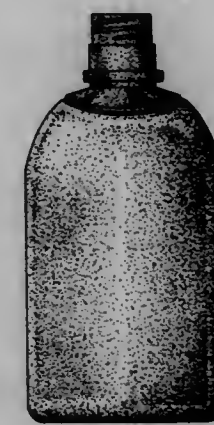
Gary Tippitt, Arcadia, and Thomas Safstrom, Orange, both of Calif., assignors to Key Brands International, Ltd., Irwindale, Calif.

Filed Nov. 14, 1995, Ser. No. 46,421

Term of patent 14 years

LOC (6) Cl. 09 - 01

U.S. Cl. D9—571



383,984

WATCHCASE

Toshiyuki Dobashi, Chiba, Japan, assignor to Seiko Instruments Inc., Japan

Filed Jul. 18, 1995, Ser. No. 41,562

Claims priority, application United Kingdom, Feb. 21, 1995, 2045495

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—30



383,985

COMBINATION WATCH AND PAGER

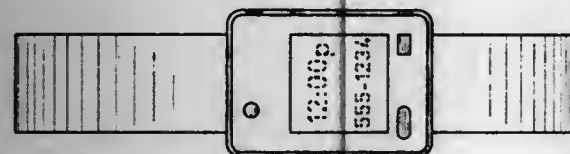
Doris Davenport, 4737 Fellsridge Dr., Stone Mountain, Ga. 30083

Filed Dec. 22, 1995, Ser. No. 48,218

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—31



383,987

WRIST WATCH

Nobuhiko Nakanishi, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Jul. 25, 1995, Ser. No. 41,793

Claims priority, application Japan, Mar. 2, 1995, 7-5678 U

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—39



383,988

NON-CONTACT ELECTRICAL PROBE

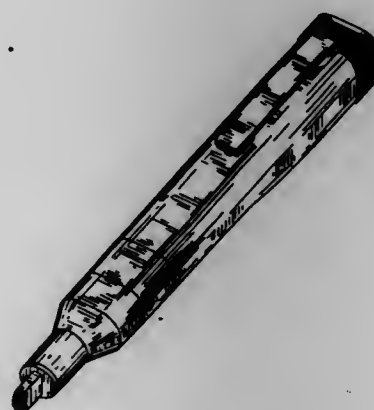
Thomas M. Luebke, Menomonee Falls, Wis., assignor to Applied Power Inc., Butler, Wis.

Filed Jun. 20, 1996, Ser. No. 56,023

Term of patent 14 years

LOC (6) Cl. 10 - 04

U.S. Cl. D10—78



383,986

WRISTWATCH

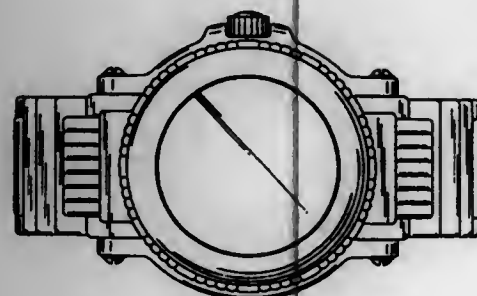
Jorg Hysek, Monaco, Monaco, assignor to Red River S.r.l., Milan, Italy

Filed Dec. 28, 1995, Ser. No. 49,661

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—32



383,989

CLAMP-ON CURRENT PROBE

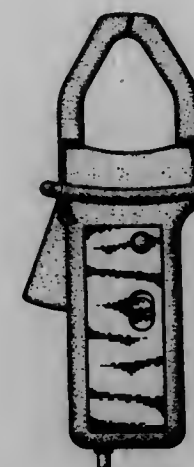
Daniel Arnoux, and Axel Arnoux, both of Paris, France, assignors to Societe Chauvin Arnoux, France

Filed Mar. 5, 1996, Ser. No. 51,095

Term of patent 14 years

LOC (6) Cl. 10 - 04

U.S. Cl. D10—79



383,991

SECURITY CLIP FOR GARMENT

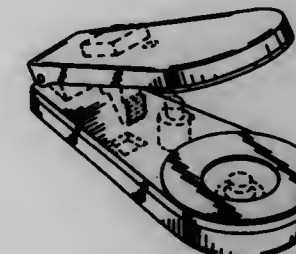
Roger J. Leyden, 11383 German Church Rd., Willow Springs, Ill. 60480, and Terrance Surma, 265 Oxford La., Bloomington, Ill. 60108

Filed Jan. 22, 1996, Ser. No. 49,271

Term of patent 14 years

LOC (6) Cl. 10 - 05

U.S. Cl. D10—104



383,992

OCEAN BUOY

Yoji Mori, Tokyo, Japan, assignor to World Chemical Co., Ltd., Tokyo, Japan

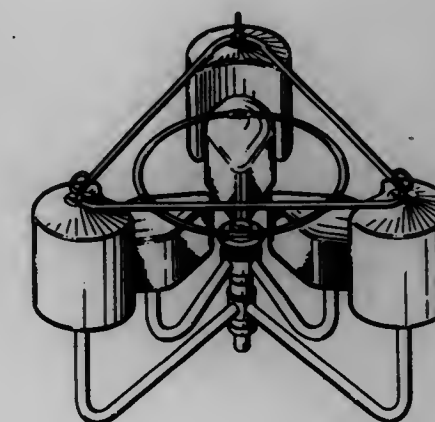
Filed Nov. 13, 1995, Ser. No. 46,374

Claims priority, application Japan, May 19, 1995, 7-14117

Term of patent 14 years

LOC (6) Cl. 10 - 05

U.S. Cl. D10—107



383,990

INSPECTION WINDOW

Matti Ropponen, Espoo, and Heikki Meriläinen, Helsinki, both of Finland, assignors to Fibox Oy AB, Jorvas, Finland

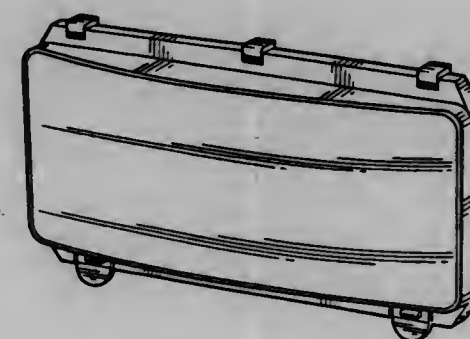
Filed May 31, 1996, Ser. No. 55,169

Claims priority, application Rep. of Korea, Dec. 1, 1995, 95-23364

Term of patent 14 years

LOC (6) Cl. 10 - 04

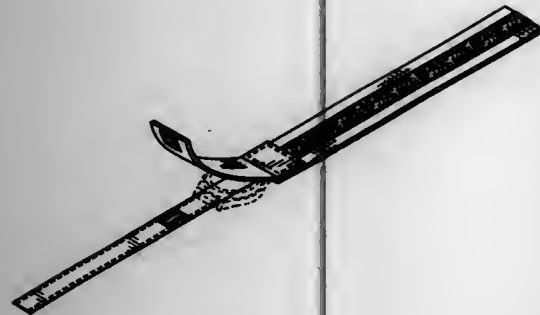
U.S. Cl. D10—103



383,993
WATCHBAND WITH COVER
 Edward Van Lee Kalbach, 575 W. 3200 South, Nibley, Utah 84321

Filed Jan. 17, 1996, Ser. No. 49,101
 Term of patent 14 years
 LOC (6) Cl. 11 - 01

U.S. Cl. D11—3

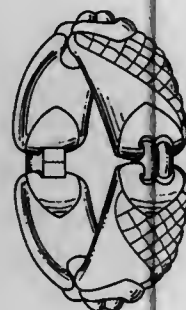


383,994
BRACELET
 Paolo Bulgari, Rome, Italy, assignor to Bulgari S.p.A., Rome, Italy

Division of Ser. No. 28,054, Sep. 6, 1994, Pat. No. Des. 373,095. This application Jun. 3, 1996, Ser. No. 55,265
 Claims priority, application European Pat. Off., Mar. 7, 1994, DMA/002444

Term of patent 14 years
 LOC (6) Cl. 11 - 01

U.S. Cl. D11—4



383,995
NECKLACE
 Paolo Bulgari, Rome, Italy, assignor to Bulgari S.p.A., Rome, Italy

Division of Ser. No. 28,054, Sep. 6, 1994, Pat. No. Des. 373,095. This application Jun. 3, 1996, Ser. No. 55,266
 Claims priority, application European Pat. Off., Mar. 7, 1994, DMA/002444

Term of patent 14 years
 LOC (6) Cl. 11 - 01

U.S. Cl. D11—6

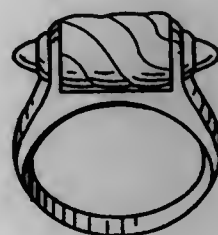


383,996
RING
 Paolo Bulgari, Rome, Italy, assignor to Bulgari S.p.A., Rome, Italy

Division of Ser. No. 28,054, Sep. 6, 1994, Pat. No. Des. 373,095. This application Jun. 3, 1996, Ser. No. 55,249
 Claims priority, application European Pat. Off., Mar. 7, 1994, DMA/002444

Term of patent 14 years
 LOC (6) Cl. 11 - 01

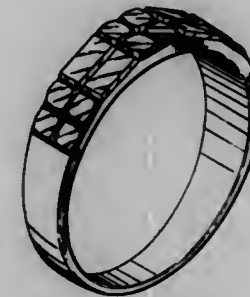
U.S. Cl. D11—26



383,997
FINGER RING
 Betzalel Ambar, Los Angeles, Calif., assignor to Ambar Diamonds, Inc., Los Angeles, Calif.

Filed Sep. 13, 1994, Ser. No. 28,345
 Term of patent 14 years
 LOC (6) Cl. 11 - 01

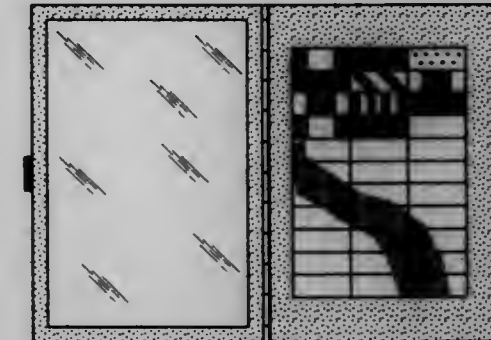
U.S. Cl. D11—34



383,999
CIVILIAN AWARDS RECOGNITION SYSTEM WITH PHOTO DISPLAY AND MAGNETIC AWARDS HOLDER
 Michael W. Werley, Rd. 1, Box 1474, Leesport, Pa. 19533-9614

Filed Feb. 26, 1996, Ser. No. 49,552
 Term of patent 14 years
 LOC (6) Cl. 11 - 99

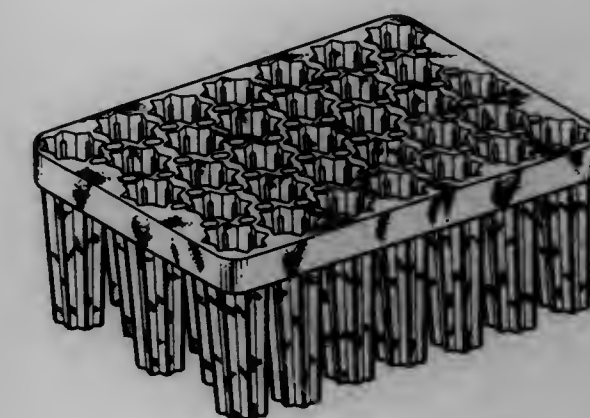
U.S. Cl. D11—132



384,000
PLANT HOLDER
 Erik Panth, Östhammar, Sweden, assignor to Panth Produkter AB, and Mo och Domsjö AB, both of Sweden

Filed Oct. 24, 1995, Ser. No. 46,800
 Claims priority, application Finland, Apr. 26, 1995, 292/95
 Term of patent 14 years
 LOC (6) Cl. 11 - 02

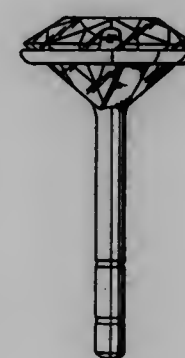
U.S. Cl. D11—143



383,998
EARRING
 Paul J. Condron, 25 E. Norman Ave., Dayton, Ohio 45429

Filed Mar. 25, 1996, Ser. No. 52,155
 Term of patent 14 years
 LOC (6) Cl. 11 - 01

U.S. Cl. D11—40



384,001

DECORATIVE PLANTER

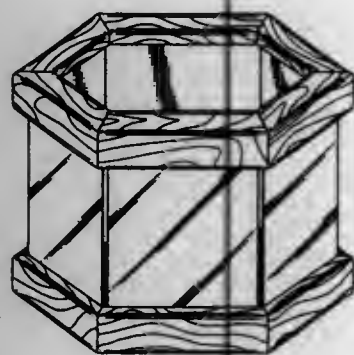
John C. Waszkiewicz, III, New Hartford, N.Y., assignor to
Faster Form Corporation, New Hartford, N.Y.

Filed Dec. 14, 1995, Ser. No. 47,895

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11-143



384,002

PROTECTIVE PLANT DISPLAY CONTAINER

Thomas K. David, Carlsbad, and Gina M. Antoniotti, Encinitas, both of Calif., assignors to Paul Ecke Ranch, Encinitas, Calif.

Filed Sep. 13, 1995, Ser. No. 44,720

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11-164



384,003

FLOWER POT COVER

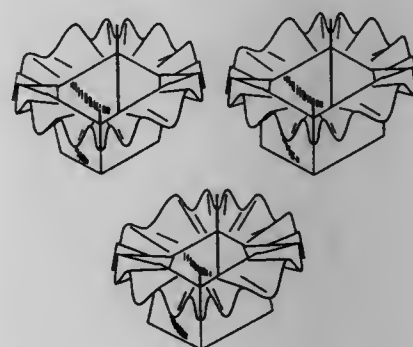
Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc., Oklahoma City, Okla., not individually, but as trustee of The Family Trust U/T/A dated Dec. 8, 1995, Charles A. Coddling, Authorized Signatory for Southpac Trust International, Inc., trustee

Division of Ser. No. 5,965, Mar. 17, 1993, Pat. No. Des. 364,121, which is a continuation-in-part of Ser. No. 782,237, Oct. 18, 1991, Pat. No. Des. 349,076, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, Ser. No. 411,247, Sep. 22, 1989, abandoned, and Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Nov. 2, 1995, Ser. No. 45,915

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11-164



384,004

FLOWER POT COVER

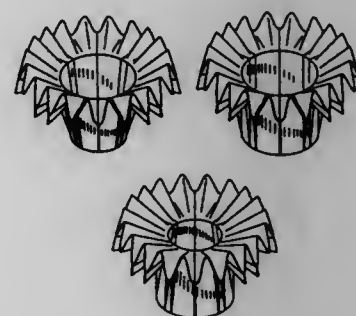
Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc., Oklahoma City, Okla., not individually, but as trustee of The Family Trust U/T/A dated December 8, 1995, Charles A. Coddling, Authorized Signatory for Southpac Trust International, Inc., trustee

Division of Ser. No. 1,279, Nov. 9, 1992, Pat. No. Des. 364,363, which is a continuation-in-part of Ser. No. 781,453, Oct. 21, 1991, Pat. No. Des. 348,634, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, Ser. No. 411,247, Sep. 22, 1989, abandoned, and Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Oct. 18, 1995, Ser. No. 46,632

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11-164



384,005

FLOWER POT COVER

Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc., Oklahoma City, Okla., not individually, but as trustee of The Family Trust U/T/A dated Dec. 8, 1995, Charles A. Coddling, Authorized Signatory for Southpac Trust International, Inc., trustee

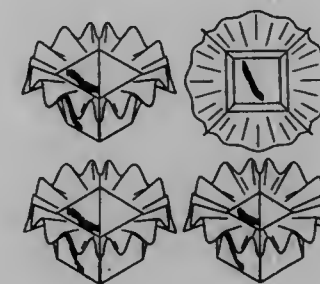
Division of Ser. No. 671, Oct. 20, 1992, Pat. No. Des. 370,431, which is a continuation-in-part of Ser. No. 781,453, Oct. 21, 1991, Pat. No. Des. 348,634, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, Ser. No. 411,247, Sep. 22, 1989, abandoned, and Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Jan. 22, 1996, Ser. No. 49,222

The portion of the term of this patent subsequent to May 6, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11-164



384,006

FLOWER POT COVER

Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc., Oklahoma City, Okla., not individually, but as trustee of The Family Trust U/T/A dated December 8, 1995, Charles A. Coddling, Authorized Signatory for Southpac Trust International, Inc., trustee, 9400 N. Broadway, Ste. 420, Okla. City, OK 73114

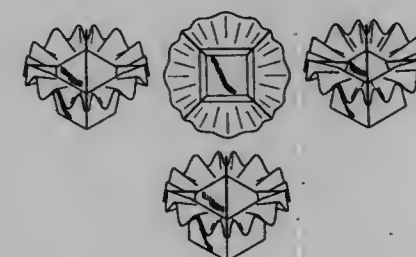
Division of Ser. No. 5,806, Mar. 11, 1993, Pat. No. Des. 368,411, which is a continuation-in-part of Ser. No. 782,237, Oct. 18, 1991, Pat. No. Des. 349,076, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, Ser. No. 411,247, Sep. 22, 1989, abandoned, and Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Jan. 22, 1996, Ser. No. 49,316

The portion of the term of this patent subsequent to Feb. 11, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11-164



384,007

FLOWER POT COVER

Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc., Oklahoma City, Okla., not individually, but as trustee of The Family Trust U/T/A dated December 8, 1995, Charles A. Coddling, Authorized Signatory for Southpac Trust International, Inc., trustee

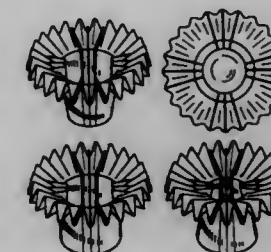
Division of Ser. No. 7,867, Apr. 30, 1993, Pat. No. Des. 368,876, which is a continuation-in-part of Ser. No. 782,237, Oct. 18, 1991, Pat. No. Des. 349,076, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, Ser. No. 411,247, Sep. 22, 1989, abandoned, and Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Jan. 30, 1996, Ser. No. 49,763

The portion of the term of this patent subsequent to Jul. 1, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11-164



384,008

FLOWER POT COVER

Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc., Oklahoma City, Okla., not individually, but as trustee of The Family Trust U/T/A dated December 8, 1995, Charles A. Coddling, Authorized Signatory for Southpac Trust International, Inc., trustee

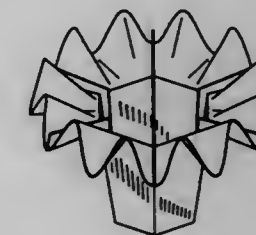
Division of Ser. No. 6,099, Mar. 19, 1993, Pat. No. Des. 369,126, which is a continuation-in-part of Ser. No. 782,237, Oct. 18, 1991, Pat. No. Des. 349,076, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, Ser. No. 411,247, Sep. 22, 1989, abandoned, and Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Jan. 30, 1996, Ser. No. 49,772

The portion of the term of this patent subsequent to Jul. 1, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11-164



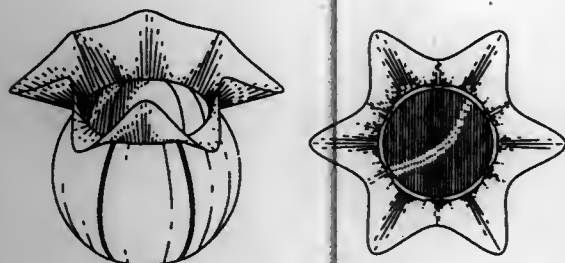
384,009

FLOWER POT COVER

Donald E. Weder, and Joseph G. Strater, both of Highland, Ill., assignors to Southpac Trust International, Inc., Oklahoma City, Okla., not individually, but as trustee of The Family Trust U/T/A dated December 8, 1995, Charles A. Coddling, Authorized Signatory for Southpac Trust International, Inc., trustee

Division of Ser. No. 8,189, May 10, 1993, Pat. No. Des. 374,639, which is a continuation-in-part of Ser. No. 808,570, Dec. 16, 1991, abandoned, which is a continuation-in-part of Ser. No. 710,272, Jun. 4, 1991, Pat. No. Des. 365,302, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, Ser. No. 411,247, Sep. 22, 1989, abandoned, and Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Aug. 1, 1996, Ser. No. 57,744
Term of patent 14 years
LOC (6) Cl. 11 - 02

U.S. Cl. D11-164



384,010

BICYCLE TRAILER

Ping-Jan Chiu, No. 1146, Chung-Shan Rd., Ta-Chia Chen, Taichung Hsien, Taiwan

Filed Sep. 7, 1995, Ser. No. 43,563
Term of patent 14 years
LOC (6) Cl. 12 - 10

U.S. Cl. D12-102



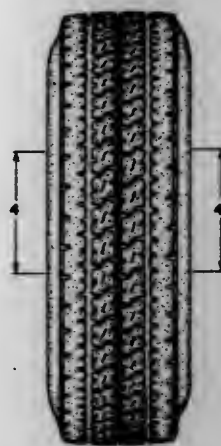
384,011

AUTOMOBILE TIRE

Akira Kawamata, Hiratsuka, and Kohtaroh Iwabuchi, Tokyo, both of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Filed Sep. 21, 1995, Ser. No. 44,249
Claims priority, application Japan, May 23, 1995, 7-14218
Term of patent 14 years
LOC (6) Cl. 12 - 15

U.S. Cl. D12-146



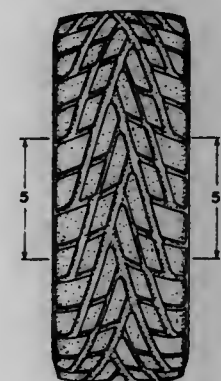
384,012

AUTOMOBILE TIRE

Izumi Kuramochi, Tokyo; Yukio Kuroda; Masayuki Oshima, both of Hiratsuka, and Kohtaroh Iwabuchi, Tokyo, all of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Filed Oct. 16, 1995, Ser. No. 45,303
Claims priority, application Japan, Apr. 27, 1995, 7-11747
Term of patent 14 years
LOC (6) Cl. 12 - 15

U.S. Cl. D12-147



384,013

ALL TERRAIN TIRE

Dan Thomas, 43 E. Industrial Pky., Spanish Fork, Utah 84660

Filed May 13, 1996, Ser. No. 54,355
Term of patent 14 years
LOC (6) Cl. 12 - 15

U.S. Cl. D12-147



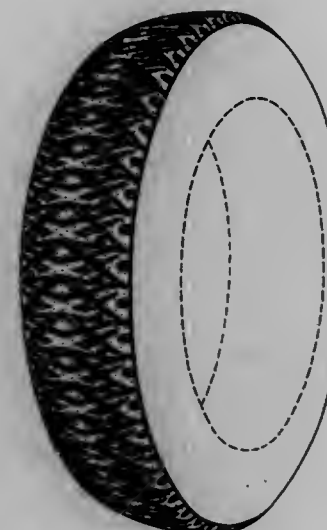
384,014

TIRE TREAD

Billy Joe Ratliff, Jr., Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 20, 1995, Ser. No. 48,115
Term of patent 14 years
LOC (6) Cl. 12 - 15

U.S. Cl. D12-151



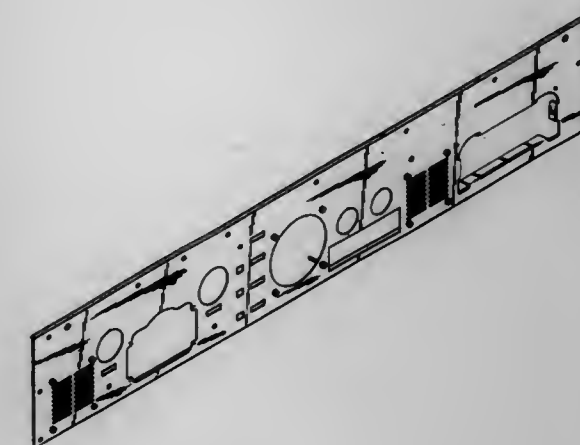
384,015

REFLECTIVE DASHBOARD PANEL

Lawrence Stenger, 30970 Montclair Dr., Lindstrom, Minn. 55045, and Reginald E. Bronson, 186 Brookview Ct., Maplewood, Minn. 55109-4701

Filed Dec. 18, 1995, Ser. No. 48,035
Term of patent 14 years
LOC (6) Cl. 12 - 16

U.S. Cl. D12-192



384,016

STEERING WHEEL GUARD

Melvin Tarnofsky, 217 E. 7th St., Brooklyn, N.Y. 11218

Filed Mar. 25, 1996, Ser. No. 52,114
Term of patent 14 years
LOC (6) Cl. 12 - 16

U.S. Cl. D12-177



384,017

CANTILEVER BRAKE FOR A BICYCLE

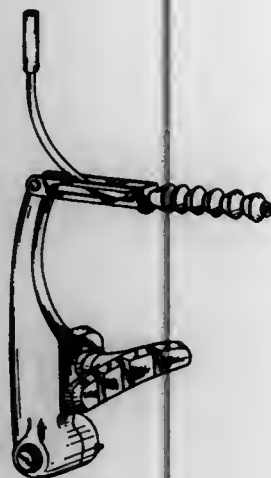
Tomohiko Nishimura, Osaka, Japan, assignor to Shimano Inc., Osaka, Japan

Filed Jul. 2, 1996, Ser. No. 56,546

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12-179



384,018

CANTILEVER BRAKE FOR A BICYCLE

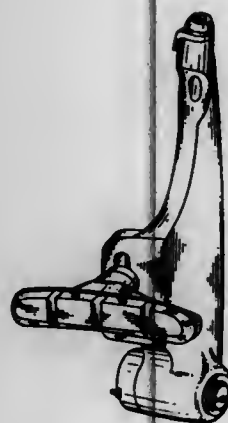
Tomohiko Nishimura, Osaka, Japan, assignor to Shimano Inc., Osaka, Japan

Filed Jul. 2, 1996, Ser. No. 56,547

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12-179



384,019

TRUCK SUN VISOR

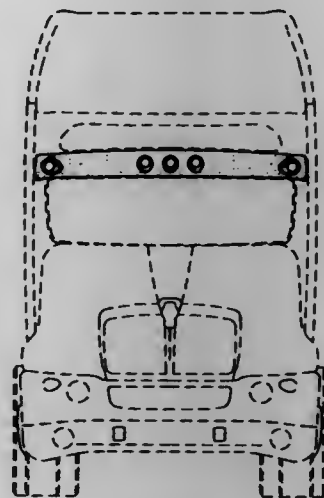
Roy L. Meryman, Renton, and Wayne K. Simons, Kent, both of Wash., assignors to PACCAR Inc., Bellevue, Wash.

Filed May 1, 1996, Ser. No. 53,890

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12-191



384,020

VEHICLE STEP COVER

Jeffery L. Snyder, Union City, and Hubert R. Stewart, Greenville, both of Ohio, assignors to Robert J. Utgard, and Jane Utgard, both of Rockford, Ohio

Continuation-in-part of Ser. No. 24,516, Jun. 15, 1994. This application Aug. 3, 1995, Ser. No. 43,722

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12-203



384,021

NOVELTY WHEEL COVER

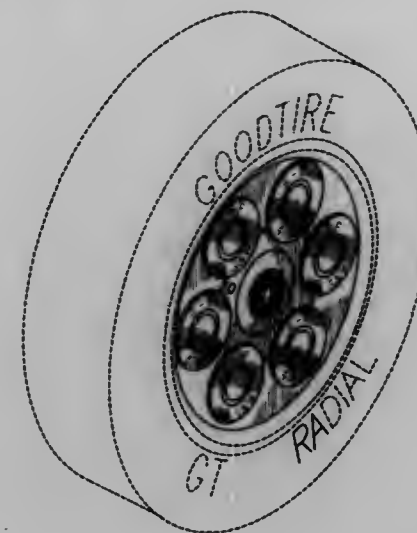
Dean M. Hoxie, 8900 Southloop Blvd., California City, Calif. 93505

Filed Sep. 5, 1995, Ser. No. 43,423

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12-204



384,022

FRONT FACE OF A WHEEL FOR A MOTOR VEHICLE

Antony-Robert Hatter, Rutesheim, Germany, assignor to Dr. Ing. h.c.F. Porsche AG, Weissach, Germany

Filed Aug. 28, 1995, Ser. No. 43,183

Claims priority, application Germany, Feb. 27, 1995, M 95 01 671.6

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12-209



384,023

AUTOMOBILE AND TRUCK WHEEL

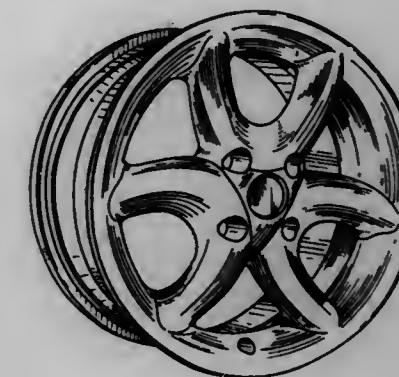
Chrysanto, Surabaya, Indonesia, assignor to PT Prima Alloy Steel Universal, Sidoarjo, Indonesia

Filed Oct. 3, 1995, Ser. No. 44,893

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12-209



384,024

AUTOMOBILE AND TRUCK WHEEL

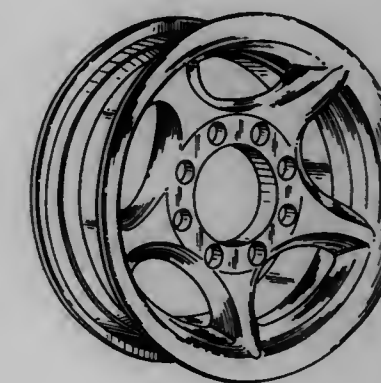
Anto Roesianto, Surabaya, Indonesia, assignor to PT Prima Alloy Steel Universal, Sidoarjo, Indonesia

Filed Oct. 3, 1995, Ser. No. 44,895

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12-209



384,025

AUTOMOBILE AND TRUCK WHEEL

Anto Roesianto, Surabaya, Indonesia, assignor to PT Prima Alloy Steel Universal, Sidoarjo, Indonesia

Filed Oct. 3, 1995, Ser. No. 44,915

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—209



384,027

AUTOMOBILE AND TRUCK WHEEL

Anto Roesianto, Surabaya, Indonesia, assignor to PT Prima Alloy Steel Universal, Gedangan, Indonesia

Filed Oct. 3, 1995, Ser. No. 44,919

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—209



384,026

AUTOMOBILE AND TRUCK WHEEL

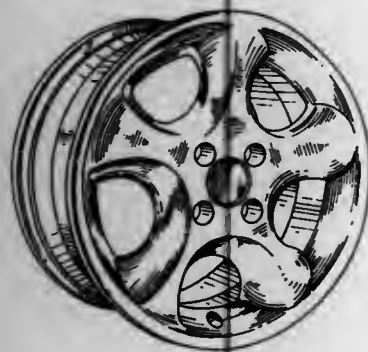
Chrysanto, Surabaya, Indonesia, assignor to PT Prima Alloy Steel Universal, Sidoarjo, Indonesia

Filed Oct. 3, 1995, Ser. No. 44,918

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—209



384,028

TWIN-HULLED BOAT

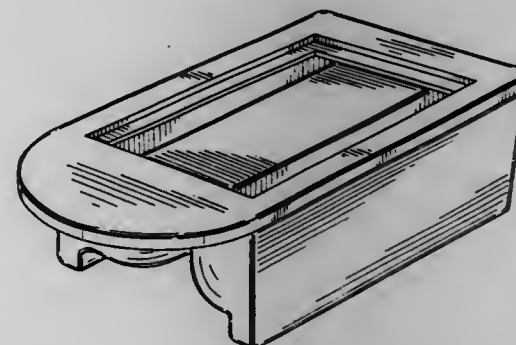
Sidney E. Veazey, King George, Va., assignor to S. E. Ventures, Inc., King George, Va.

Continuation of Ser. No. 224,675, Apr. 7, 1994. This application Jan. 18, 1996, Ser. No. 49,159

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—300



384,029

AUTOMOTIVE DOOR POST COVER

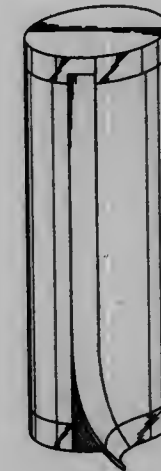
Timothy L. Knott, 11423-4 Upper Applegate Rd., Jacksonville, Ore. 97530

Filed Mar. 1, 1996, Ser. No. 51,067

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—400



384,031

BATTERY PACK

Tat Nin Lui, Hong Kong, Hong Kong, assignor to Choon Nang Electrical Appliance Mfty., Ltd., Hong Kong

Filed Dec. 29, 1995, Ser. No. 48,466

Claims priority, application United Kingdom, Jul. 5, 1995, 2048618

Term of patent 14 years

LOC (6) Cl. 13 - 02

U.S. Cl. D13—103



384,030

WINDSHIELD MOUNTED RADIO HOUSING

John J. Lazzaroni, and Melinda K. Carevich, both of 1415 S. Cherry, Tucson, Ariz. 85713-1997

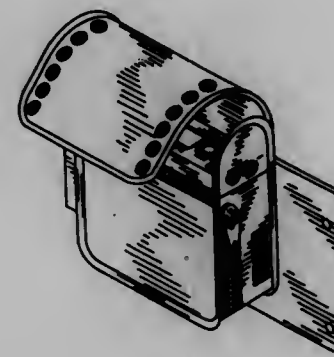
Filed Dec. 5, 1995, Ser. No. 47,491

The portion of the term of this patent subsequent to Oct. 22, 2010, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—422



384,032

BATTERY PACK

Tat Nin Lui, Hong Kong, Hong Kong, assignor to Choon Nang Electrical Appliance Mfty., Ltd., Hong Kong

Filed Dec. 29, 1995, Ser. No. 48,471

Claims priority, application United Kingdom, Jul. 5, 1995, 2048617

Term of patent 14 years

LOC (6) Cl. 13 - 02

U.S. Cl. D13—103



384,033

ENGINE-DRIVEN ELECTRIC GENERATOR FOR WELDING

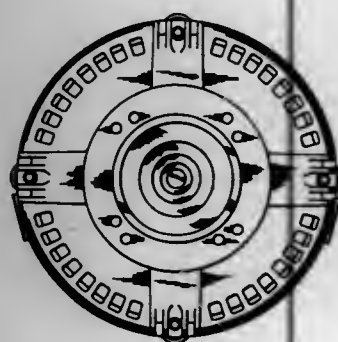
Masanobu Takeda; Yasumasa Mizuno; Shunichi Tetsui, all of Kawagoe, and Hirotaka Yamamoto, Tokyo, all of Japan, assignors to Denyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 2, 1996, Ser. No. 52,658

Term of patent 14 years

LOC (6) Cl. 13 - 02

U.S. Cl. D13-114



384,035

FIBER OPTIC CONNECTOR JACK

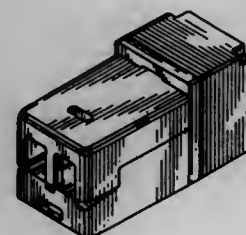
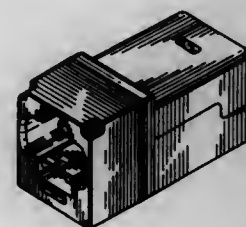
Ralph J. Kuprewicz, Norridge; Randall D. Gritters, Lansing, and Richard L. Akins, Wheaton, all of Ill., assignors to Panduit Corp., Tinley Park, Ill.

Filed Mar. 11, 1996, Ser. No. 51,486

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13-133



384,036

ELECTRICAL ADAPTER PLUG

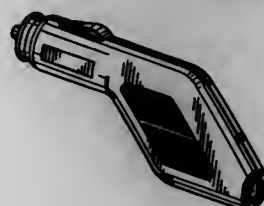
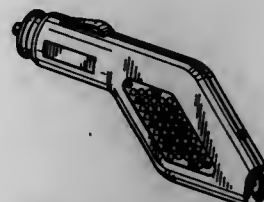
John D. Janci, Elgin, Ill., assignor to SAFCO Corporation, Rosemont, Ill.

Filed Feb. 5, 1996, Ser. No. 49,954

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13-144



384,034

FIBER OPTIC CONNECTOR PLUG

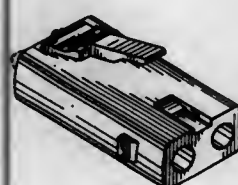
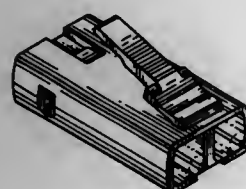
Ralph J. Kuprewicz, Norridge; Randall D. Gritters, Lansing, and Richard L. Akins, Wheaton, all of Ill., assignors to Panduit Corp., Tinley Park, Ill.

Filed Mar. 11, 1996, Ser. No. 51,418

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13-133



384,037

PROCESS MONITORING CONTROLLER

Mikio Hamada, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

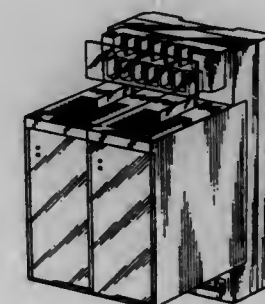
Filed Aug. 9, 1995, Ser. No. 42,411

Claims priority, application Japan, Apr. 7, 1995, 7-09687

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13-162



384,039

SCREEN PRINTER HEAD CONTROL PANEL

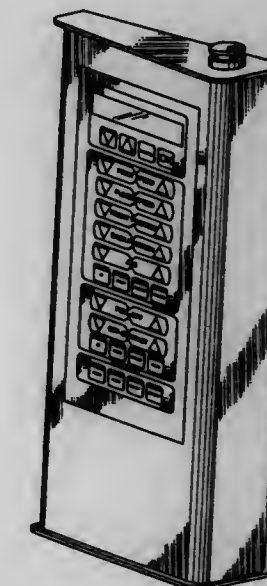
Alexander Szyszko, Bloomington; Rick Lee Fuqua, St. Charles; Thomas Burke Lyden, Schaumburg; Mariusz Smialek, Elk Grove Village, and Marek Dudek, Hoffman Estates, all of Ill., assignors to Elexon Ltd., Elk Grove Village, Ill.

Filed Oct. 25, 1995, Ser. No. 45,646

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13-164



384,038

FAN SPEED AND LIGHT DIMMER CONTROLLER

Jen-Fa Ko, Taichung Hsien, Taiwan, assignor to Well Tec Precision Industry Co., Ltd., Taichung Hsien, Taiwan

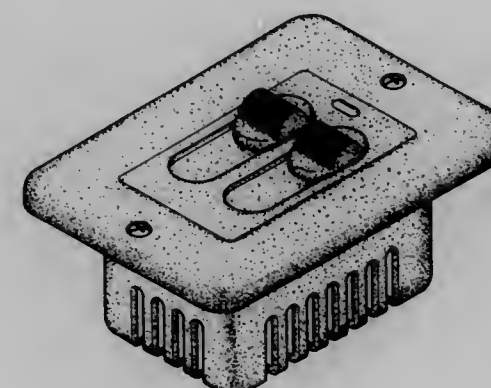
Filed Sep. 15, 1995, Ser. No. 44,027

The portion of the term of this patent subsequent to Jan. 4, 2008, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13-162



384,040

HEAT SINK

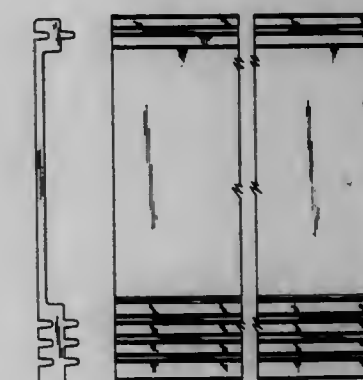
Wayne R. Frerichs, Andover, Mass., and Jeff J. Panek, Derry, N.H., assignors to National Northeast Corporation, Lawrence, Mass.

Filed Apr. 19, 1996, Ser. No. 53,360

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13-179



384,041
CABINET

Lars Gallasch, Meissen, Germany, assignor to Knurr-Mechanik für die Elektronik AG, Munich, Germany

Filed May 2, 1996, Ser. No. 53,962

Claims priority, application Germany, Nov. 9, 1995, M 95 08 934.9

Term of patent 14 years
LOC (6) Cl. 06 - 04

U.S. Cl. D13—184



384,043
PERSONAL COMPUTER

Hidetoshi Tamaki, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

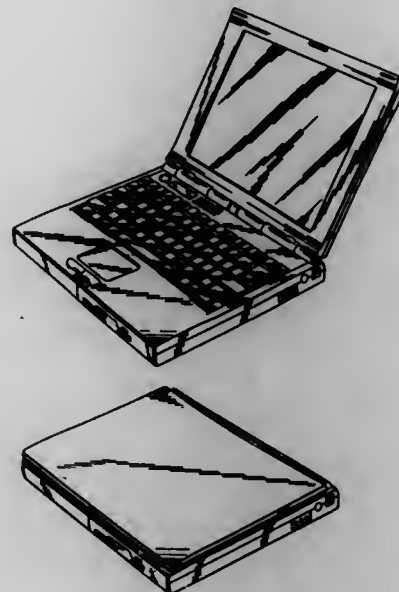
Filed Jun. 27, 1996, Ser. No. 56,389

Claims priority, application Japan, Dec. 27, 1995, 7-39824

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—106



384,042

COMPUTER HOUSING

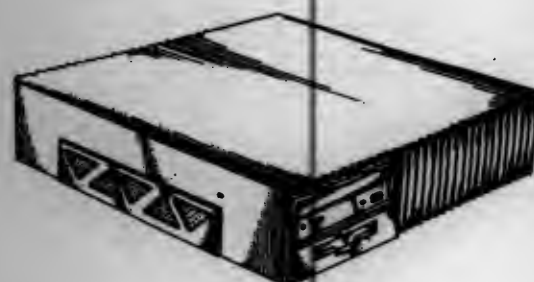
Mike Antonczak, Aptos; Michael Dann, Mountain View; Philip G. Yurkonis, Campbell; Robert J. Lajara, San Jose; Herbert Pfelfer, and Paul Montgomery, both of San Francisco, all of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Nov. 7, 1995, Ser. No. 46,107

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—100



384,044

PORT REPLICATING UNIT FOR A COMPUTER

Yoichi Tanimura, Nara-ken, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

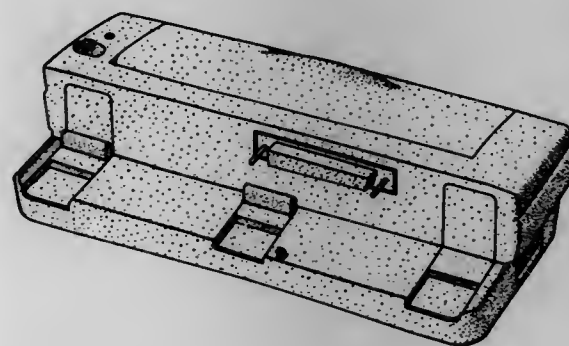
Filed Jun. 27, 1996, Ser. No. 56,388

Claims priority, application Japan, Dec. 27, 1995, 7-39823

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—107



384,045

OPTICAL DISC DRIVE

Masafumi Ito, and Shigeru Hasegawa, both of Musashino, Japan, assignors to TEAC Corporation, Tokyo, Japan

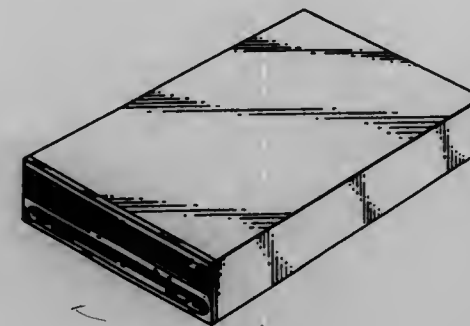
Filed May 7, 1996, Ser. No. 54,152

Claims priority, application Japan, Nov. 8, 1995, 7-33674

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—109



384,047

COMPUTER TRACKBALL

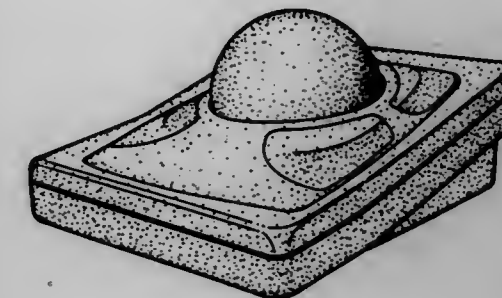
Mark A. Edwards, Dublin, and Robin Chu, San Francisco, both of Calif., assignors to Kensington Microwave Limited, San Mateo, Calif.

Filed Feb. 9, 1996, Ser. No. 50,150

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—114



384,046

VISUAL DISPLAY UNIT

Markus Oates, Near Farnham, United Kingdom, assignor to International Business Machines Corporation, Armonk, N.Y.

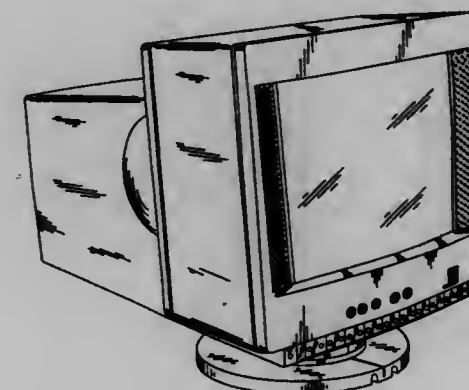
Filed Apr. 24, 1996, Ser. No. 53,550

Claims priority, application United Kingdom, Oct. 25, 1995, 2051407

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—113



384,048

COMBINED STYLUS MOUNT AND CORRESPONDING STYLUS FOR A COMPUTER MOUSE

Paula J. Myers, 19933 Trinity St., Detroit, Mich. 48219

Filed Apr. 8, 1996, Ser. No. 52,905

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—114



384,049

ICON OF A GROUP OF TWO-WAY RADIOS FOR A COMPUTER DISPLAY SCREEN

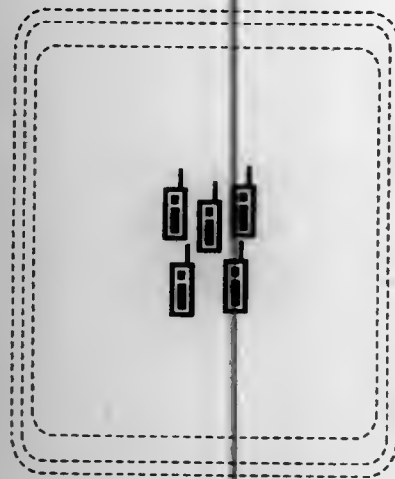
Paula Arnone, Hanover Park, Ill., assignor to Motorola, Inc.,
Schaumburg, Ill.

Filed Jun. 29, 1993, Ser. No. 10,195

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—114.3



384,050

FOR LOOP ICON FOR A DISPLAY SCREEN OF A PROGRAMMED COMPUTER SYSTEM

Jeffrey L. Kodosky, Travis County, Tex., assignor to National
Instruments Corporation, Austin, Tex.

Continuation-in-part of Ser. No. 126,163, Sep. 22, 1993, Pat.

No. 5,481,741, which is a continuation-in-part of Ser. No.

979,416, Nov. 19, 1992, Pat. No. 5,291,587, which is a continu-

ation of Ser. No. 376,257, Jul. 6, 1989, abandoned, which is a

continuation of Ser. No. 851,569, Apr. 14, 1986, Pat. No.

4,901,221, and a continuation-in-part of Ser. No. 380,329, Jul.

12, 1989, Pat. No. 5,301,336, which is a continuation of Ser.

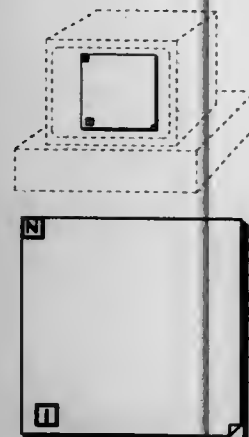
No. 923,127, Oct. 24, 1986, Pat. No. 4,914,568. This applica-

tion Mar. 16, 1994, Ser. No. 19,991

Term of patent 14 years

LOC (6) Cl. 14 - 99

U.S. Cl. D14—114.3



384,051

SEQUENCE STRUCTURE ICON FOR A DISPLAY SCREEN OF A PROGRAMMED COMPUTER SYSTEM

Jeffrey L. Kodosky, Travis County, Tex., assignor to National
Instruments Corporation, Austin, Tex.

Continuation-in-part of Ser. No. 126,163, Sep. 22, 1993, Pat.

No. 5,481,741, which is a continuation-in-part of Ser. No.

979,416, Nov. 19, 1992, Pat. No. 5,291,587, which is a continu-

ation of Ser. No. 376,257, Jul. 6, 1989, abandoned, which is a

continuation of Ser. No. 851,569, Apr. 11, 1986, abandoned,

and a continuation-in-part of Ser. No. 380,329, Jul. 12, 1989,

Pat. No. 5,301,336, which is a continuation of Ser. No.

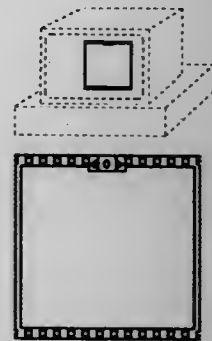
923,127, Oct. 24, 1986, Pat. No. 4,914,568. This application

Mar. 16, 1994, Ser. No. 20,025

Term of patent 14 years

LOC (6) Cl. 14 - 99

U.S. Cl. D14—114.3



384,052

WHILE LOOP ICON FOR A DISPLAY SCREEN OF A PROGRAMMED COMPUTER SYSTEM

Jeffrey L. Kodosky, Travis County, Tex., assignor to National
Instruments Corporation, Austin, Tex.

Continuation-in-part of Ser. No. 126,163, Sep. 22, 1993, Pat.

No. 5,481,741, which is a continuation-in-part of Ser. No.

979,416, Nov. 19, 1992, Pat. No. 5,291,587, which is a continu-

ation of Ser. No. 376,257, Jul. 6, 1989, abandoned, which is a

continuation of Ser. No. 851,569, Apr. 11, 1986, abandoned,

and a continuation-in-part of Ser. No. 380,329, Jul. 12, 1989,

Pat. No. 5,301,336, which is a continuation of Ser. No.

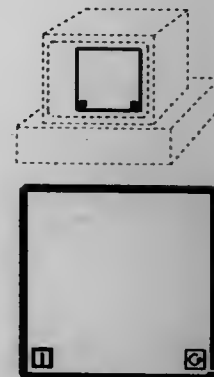
923,127, Oct. 24, 1986, Pat. No. 4,914,568. This application

Mar. 16, 1994, Ser. No. 20,281

Term of patent 14 years

LOC (6) Cl. 14 - 99

U.S. Cl. D14—114.3



384,053

SIDE ELEMENT OF A SHOE

Wilson W. Smith, III, Beaverton, Oreg., assignor to Nike, Inc.,
Beaverton, Oreg.

Filed Nov. 18, 1996, Ser. No. 62,517

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



384,056

PROJECTION TELEVISION

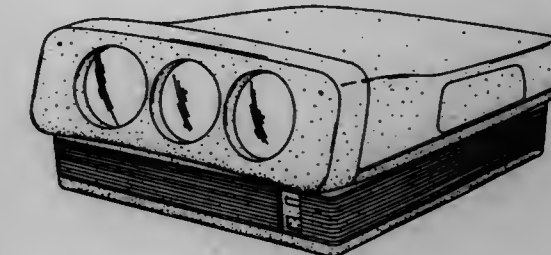
Richard K. Althaus, Long Grove; Gregory E. Gronowski,
Cicero, and Tom L. Sorensen, Naperville, all of Ill., assignors
to Zenith Electronics Corporation, Glenview, Ill.

Filed Mar. 22, 1995, Ser. No. 36,555

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—128



384,054

Patent Not Issued For This Number

384,057

VIDEO CASSETTE RECORDER

Myun Woo Lee, Seoul; Ja Ryung Koo, Kyunggi-do; Eui Jeong
Kim, and Jae Hyung Byun, both of Seoul, all of Rep. of
Korea, assignors to LG Electronics Inc., Seoul, Rep. of
Korea

Filed Sep. 19, 1995, Ser. No. 44,176

Claims priority, application Rep. of Korea, Mar. 22, 1995,
95-5041

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—135

384,055

REMOTE CONTROLLED DIGITAL MUSIC CARTRIDGE

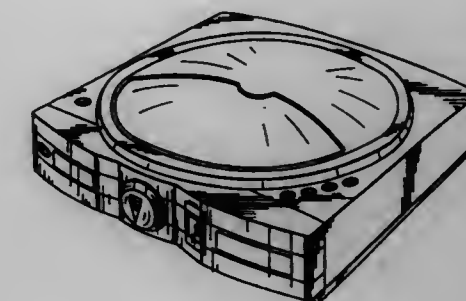
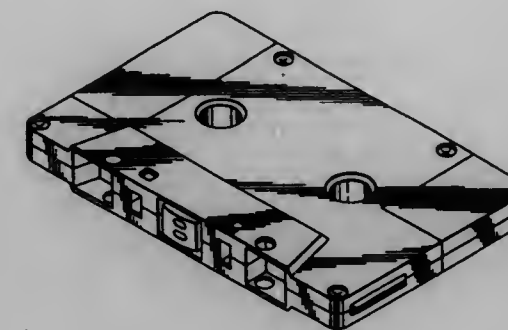
Chin-Kuang Luo, Taichung, Taiwan, assignor to Sycom Inter-
national Corp., Taichung, Taiwan

Filed Sep. 25, 1996, Ser. No. 56,168

Term of patent 14 years

LOC (6) Cl. 14 - 99

U.S. Cl. D14—121



384,058
SELF-CLEANING HAIR BRUSH
 Alain Pinon, 104 W. 70 St., Apt. 7B, New York, N.Y. 10023
 Filed Mar. 8, 1996, Ser. No. 51,286
 Term of patent 14 years
 LOC (6) Cl. 04 - 02
 U.S. Cl. D4-136



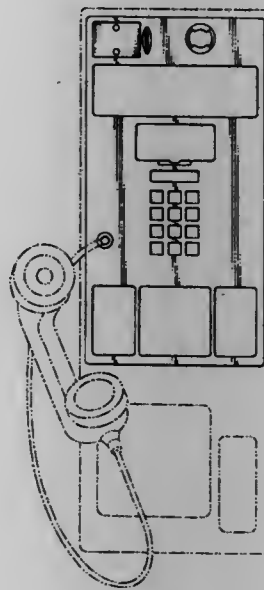
384,060
FRONT COVER FOR A COMMUNICATION DEVICE
 Robert J. Kelley, Indianapolis, Ind., and Tyler D. Jensen, Sunrise, Fla., assignors to Motorola, Inc., Schaumburg, Ill.
 Filed Jul. 29, 1996, Ser. No. 57,650
 Term of patent 14 years
 LOC (6) Cl. 14 - 03
 U.S. Cl. D14-138



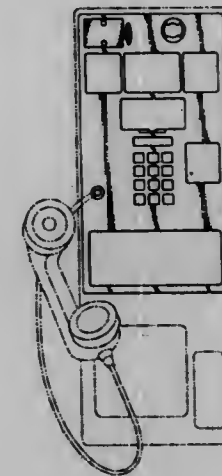
384,059
HANDHELD TWO-WAY RADIO WITH HINGED COVER
 Jack K. Hockenberry, Lea, and Kris J. Lambrecht, Burnsville, both of Minn., assignors to E.F. Johnson Company, Burnsville, Minn.
 Filed Apr. 11, 1995, Ser. No. 37,351
 Term of patent 14 years
 LOC (6) Cl. 14 - 03
 U.S. Cl. D14-137



384,061
FACE PANEL FOR A COIN TELEPHONE BOX
 James R. DeArkland, 8119 Buena Fortuna, Carpinteria, Calif. 93013
 Filed Sep. 20, 1996, Ser. No. 60,065
 Term of patent 14 years
 LOC (6) Cl. 14 - 03
 U.S. Cl. D14-146



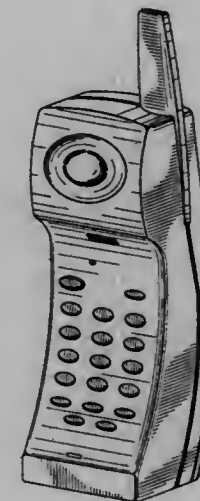
384,062
FACE PANEL FOR A COIN TELEPHONE BOX
 James R. DeArkland, 8119 Buena Fortuna, Carpinteria, Calif. 93013
 Filed Sep. 20, 1996, Ser. No. 60,075
 Term of patent 14 years
 LOC (6) Cl. 14 - 03
 U.S. Cl. D14-146



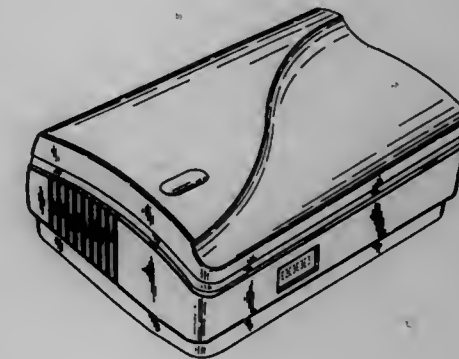
384,064
TELEPHONE
 Chiu Mei Huang, 7th Fl., No. 45, Sec. 4, Hsin Yi Rd., Taipei, Taiwan
 Filed Jan. 3, 1996, Ser. No. 48,532
 Term of patent 14 years
 LOC (6) Cl. 14 - 03
 U.S. Cl. D14-143



384,063
TELEPHONE HANDSET
 Anthony Solomita, and Lu Ann Paletta, both of Norwalk, Conn., assignors to Conair Corporation, Stamford, Conn.
 Filed Dec. 4, 1995, Ser. No. 47,406
 Term of patent 14 years
 LOC (6) Cl. 14 - 03
 U.S. Cl. D14-147



384,065
COVER FOR A WIRELESS BASE STATION
 Kevin Lynn Bice, Arvada, Colo.; Hugo James Davidson, Victoria, Australia, and Bruce W. Gardner, Westminster, Colo., assignors to Lucent Technologies Inc., Murray Hill, N.J.
 Filed Dec. 6, 1995, Ser. No. 47,540
 Term of patent 14 years
 LOC (6) Cl. 14 - 03
 U.S. Cl. D14-149



384,066

GSM FIXED CELLULAR TERMINAL

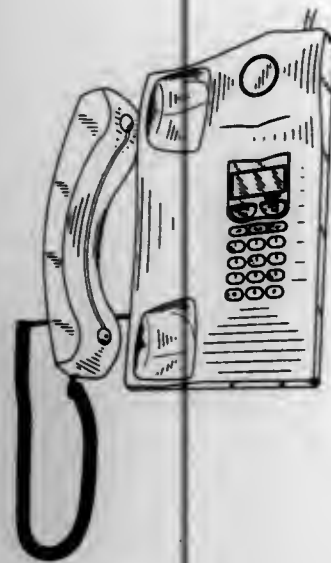
David Göran Achates Crafoord, Stockholm, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
Filed Oct. 13, 1995, Ser. No. 45,236

Claims priority, application Sweden, Apr. 25, 1995, 950857

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—151



384,068

SET OF AUDIO COMPONENTS

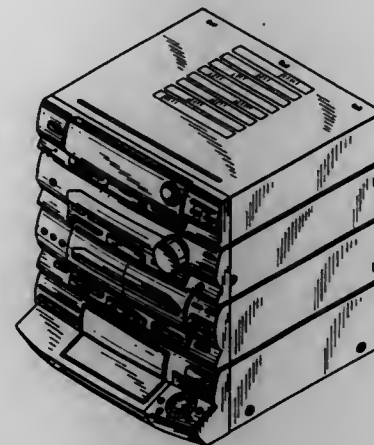
Naofumi Yoneda, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 7, 1995, Ser. No. 47,590

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—168



384,067

RADIO CASSETTE PLAYER

Serge Kokkinis, Hong Kong, Hong Kong, assignor to Alfa Technology Ltd., Hong Kong

Filed Nov. 3, 1995, Ser. No. 46,388

Claims priority, application United Kingdom, May 11, 1995, 2047367

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—162



384,069

COMBINED RADIO, CASSETTE PLAYER AND CLOCK

Serge Kokkinis, Hong Kong, Hong Kong, assignor to Alfa Technology Ltd., Hong Kong

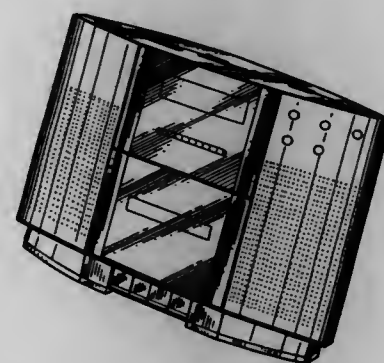
Filed Nov. 13, 1995, Ser. No. 46,385

Claims priority, application United Kingdom, May 11, 1995, 2047371

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—171



384,070

SELECTIVE CALL TRANSCEIVER

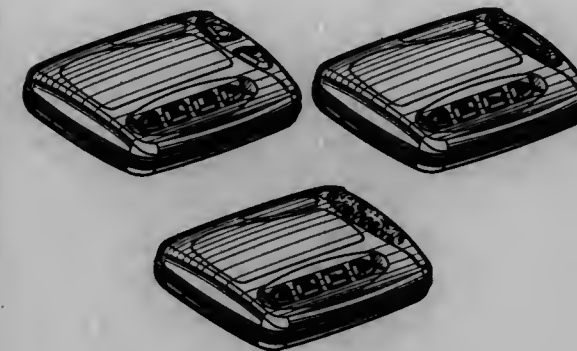
James Talmage Davis, II; Son Quang Le, both of Fort Worth, and Thomas Glenn Beaumont, Bedford, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 6, 1996, Ser. No. 54,161

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—191



384,072

RADIO

Yuet Shun Ng, Shatin, Hong Kong, assignor to Trend Power International Limited, Hong Kong, Hong Kong

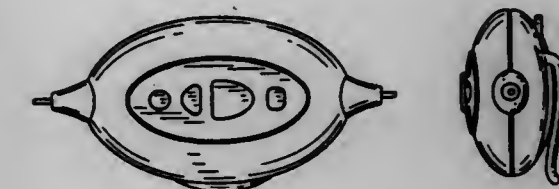
Filed Nov. 28, 1995, Ser. No. 47,142

Claims priority, application United Kingdom, Nov. 1, 1995, 2051600

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—192



384,073

RADIO

Serge Kokkinis, Hong Kong, Hong Kong, assignor to Alfa Technology Ltd., Hong Kong, Hong Kong

Filed Nov. 13, 1995, Ser. No. 46,381

Claims priority, application United Kingdom, May 11, 1995, 2047361

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—194

384,071

PORTABLE COMMUNICATION RECEIVER

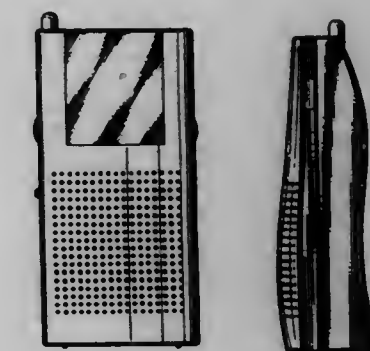
Donald Charles Guthan, Jr., and Craig Allen Lee, both of Boynton Beach, Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 9, 1996, Ser. No. 56,866

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—191

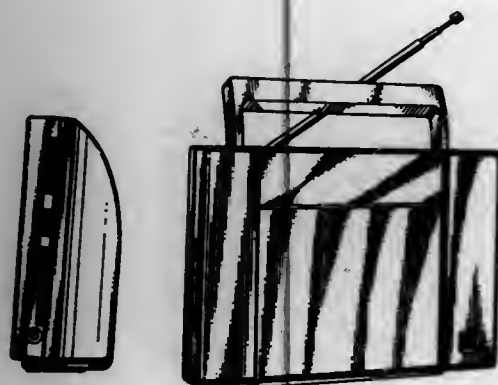


384,074
RADIO

Serge Kokkinis, Hong Kong, Hong Kong, assignor to Alfa Technology Ltd., Hong Kong, Hong Kong
Filed Nov. 13, 1995, Ser. No. 46,349
Claims priority, application United Kingdom, May 11, 1995, 2047364

Term of patent 14 years
LOC (6) Cl. 14 - 03

U.S. Cl. D14—196



384,076

MOTORCYCLE HANDLEBAR SPEAKER ENCLOSURE

John J. Lazzeroni, and Melinda K. Carevich, both of 1415 S. Cherry, Tucson, Ariz. 85713-1997

Filed Dec. 5, 1995, Ser. No. 47,492

Term of patent 14 years
LOC (6) Cl. 14 - 01

U.S. Cl. D14—216



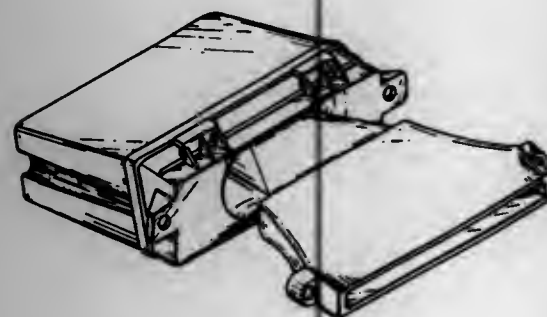
384,075
SPEAKER

Efren Hsiao, Chung Ho, Taiwan, assignor to Sea Light Trading Co., Ltd., Taipei Hsien, Taiwan

Filed May 30, 1996, Ser. No. 55,049

Term of patent 14 years
LOC (6) Cl. 14 - 01

U.S. Cl. D14—204



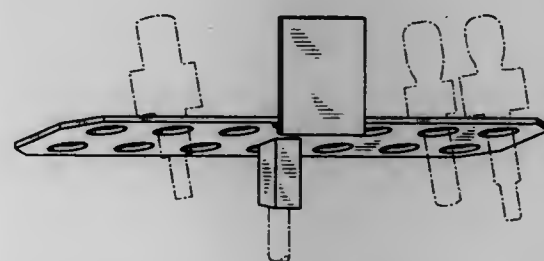
384,077

MICROPHONE HOLDER

John F. Frasse, 222 W. Shore Dr., Massapequa, N.Y. 11758
Continuation-in-part of Ser. No. 43,721, Aug. 21, 1995. This application Apr. 16, 1996, Ser. No. 53,056

Term of patent 14 years
LOC (6) Cl. 14 - 01

U.S. Cl. D14—229



384,078

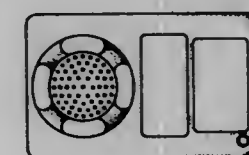
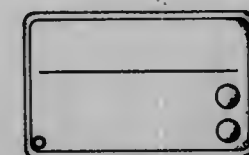
PROGRAMMABLE DIALER DEVICE

Daniel A. Henderson, 623 40th Ave., San Francisco, Calif. 94121

Filed Apr. 12, 1996, Ser. No. 52,991

Term of patent 14 years
LOC (6) Cl. 14 - 03

U.S. Cl. D14—245



384,080

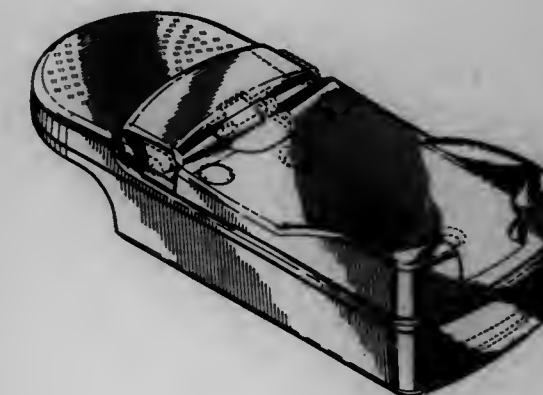
CRADLE FOR A PORTABLE DEVICE

Scott D. Beutler, Barrington; James D. Domoleczny, Round Lake Beach; Anil Verma, Palatine, and Albert L. Nagele, Wilmette, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 27, 1995, Ser. No. 44,609

Term of patent 14 years
LOC (6) Cl. 14 - 03

U.S. Cl. D14—253



384,079

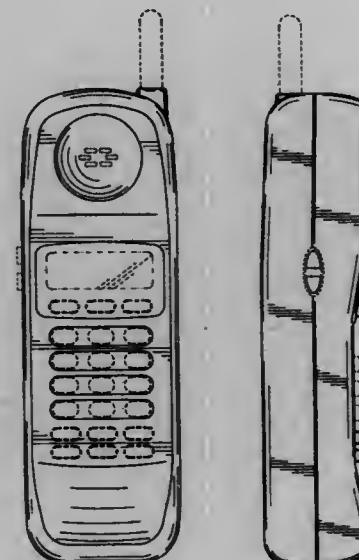
TELEPHONE HANDSET HOUSING

Joseph Chan Ka Hung, New Territories, Hong Kong, assignor to VTech Communications, Ltd., Hong Kong, Hong Kong

Filed Jan. 11, 1996, Ser. No. 48,983

Term of patent 14 years
LOC (6) Cl. 14 - 03

U.S. Cl. D14—248



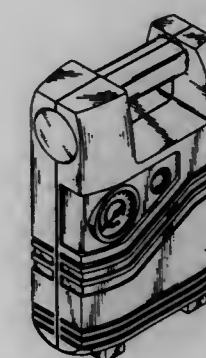
384,081

ELECTRIC AIR PUMP

Ta-chin Wang, No. 269, Sec. 2, Anho Rd., Tainan, Taiwan
Filed Jul. 16, 1996, Ser. No. 57,109

Term of patent 14 years
LOC (6) Cl. 15 - 02

U.S. Cl. D15—7



384,082

SNOW AND ICE REMOVAL DEVICE

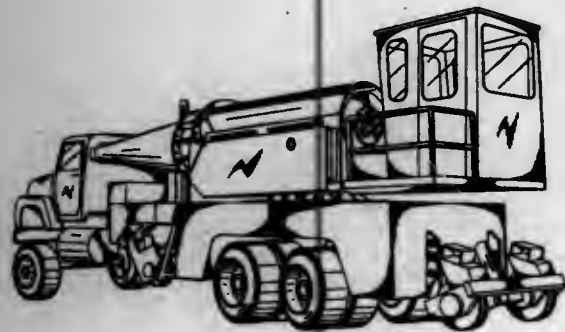
Bobby D. Lucky, Sr., 103 Winchester Rd. NE., Huntsville, Ala. 35810

Filed Dec. 1, 1995, Ser. No. 47,339

Term of patent 14 years

LOC (6) Cl. 15 - 03

U.S. Cl. D15-10



384,084

ROTARY CONE DRILL BIT

Alan Dee Huffstutler, and Harry Morales Campos, Jr., both of Grand Prairie, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

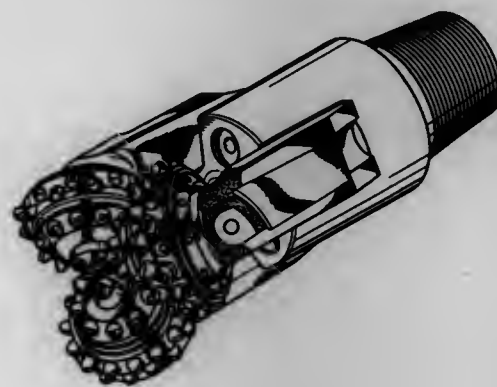
Continuation of Ser. No. 33,599, Jan. 17, 1995, abandoned.

This application Sep. 12, 1995, Ser. No. 43,782

Term of patent 14 years

LOC (6) Cl. 15 - 09

U.S. Cl. D15-139



384,083

WALK-BEHIND LAWN MOWER

Darrell W. Hinklin, Excelsior, Minn., assignor to The Toro Company, Bloomington, Minn.

Filed May 5, 1995, Ser. No. 38,436

Term of patent 14 years

LOC (6) Cl. 15 - 03

U.S. Cl. D15-14



384,085

VIDEO CAMERA COMBINED WITH VIDEO TAPE RECORDER

Tomohiro Harata, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

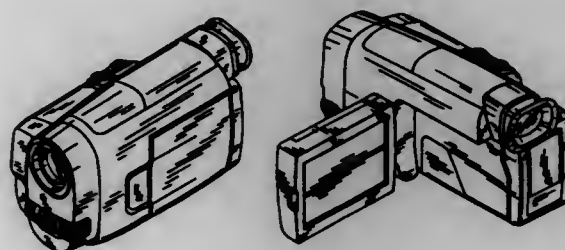
Filed Aug. 16, 1995, Ser. No. 42,751

Claims priority, application Japan, Feb. 20, 1995, 7-3990

Term of patent 14 years

LOC (6) Cl. 16 - 01

U.S. Cl. D16-202



384,086

DIGITAL STILL CAMERA

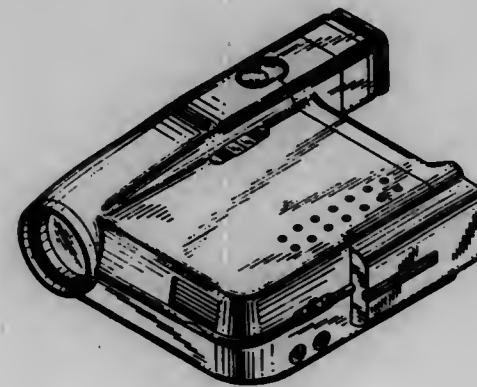
Takashi Ikenaga, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 30, 1996, Ser. No. 49,756

Term of patent 14 years

LOC (6) Cl. 16 - 01

U.S. Cl. D16-202



384,088

MEMORY CARD CAMERA

Makoto Isozaki, and Takeharu Omata, both of Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

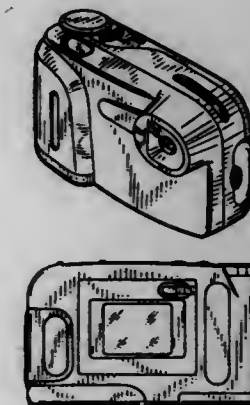
Filed Sep. 13, 1996, Ser. No. 59,559

Claims priority, application Japan, Mar. 27, 1996, 8-8786

Term of patent 14 years

LOC (6) Cl. 16 - 01

U.S. Cl. D16-202



384,087

VIDEO CAMERA

Masafumi Yamagami, Nara-ken, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

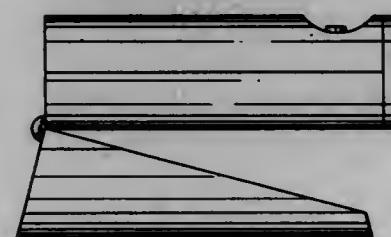
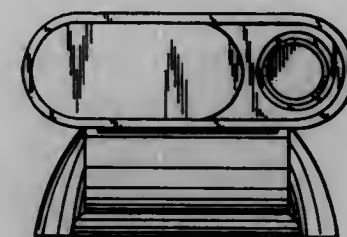
Filed Apr. 30, 1996, Ser. No. 53,815

Claims priority, application Japan, Oct. 31, 1995, 7-32965

Term of patent 14 years

LOC (6) Cl. 16 - 01

U.S. Cl. D16-202



384,089

SWIMMING GOGGLES

Tomoyuki Yashiro, Osaka, Japan, assignor to Yamamoto Kogaku Co., Ltd., Osaka, Japan

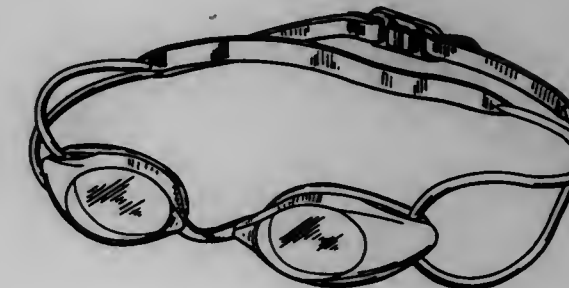
Filed Feb. 21, 1996, Ser. No. 50,504

Claims priority, application Japan, Sep. 12, 1995, 7-27031

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16-311



384,090

FRAME FOR SPECTACLES

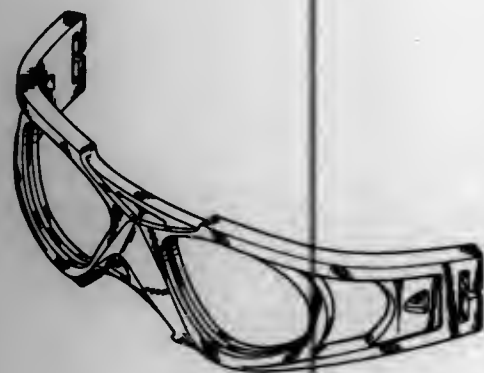
Chen Tsai Ming, Hsien, Taiwan, assignor to Gazelle Corporation, Taipei, Taiwan

Filed Aug. 23, 1996, Ser. No. 58,820

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—311



384,091

Patent Not Issued For This Number

384,092

EYEWEAR FRAME TEMPLE

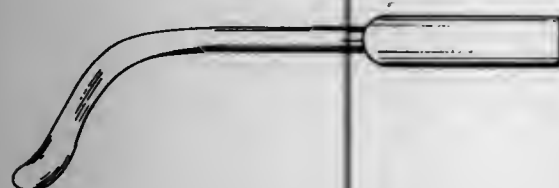
James Hall, Lincoln, R.I.; Raoul Desy, Sturbridge, and John Salce, Auburn, both of Mass., assignors to Cabot Safety Intermediate Corporation, Southbridge, Mass.

Filed May 2, 1996, Ser. No. 54,493

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—335



384,093

GUITAR

Hidehumi Oshima, Im Aeschfeld 16, CH 4147, Aesch, Switzerland

Filed Mar. 15, 1995, Ser. No. 36,206

Term of patent 14 years

LOC (6) Cl. 17 - 03

U.S. Cl. D17—14



384,094

GUITAR HEAD STOCK

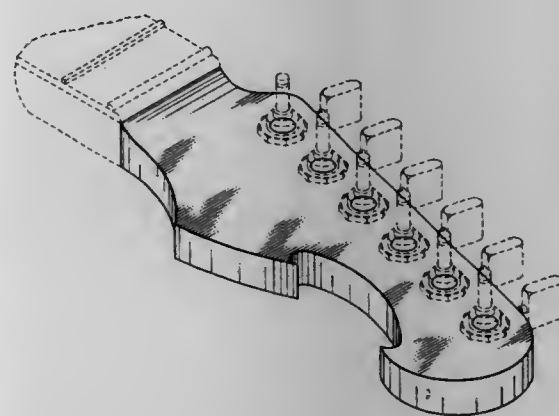
Gene F. DeFord, P.O. Box 213, Waterville, Wash. 98858

Filed Sep. 9, 1996, Ser. No. 59,337

Term of patent 14 years

LOC (6) Cl. 17 - 03

U.S. Cl. D17—20



384,095

HAND-HELD TERMINAL

Michael Coveley, Thornhill, Canada, assignor to Omega Digital Data, Inc., Concord, Canada

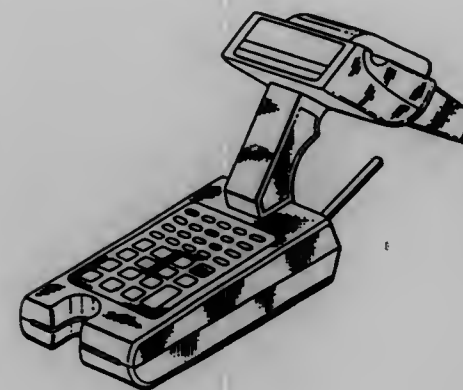
Filed Oct. 16, 1995, Ser. No. 45,291

Claims priority, application Canada, May 4, 1995, 1995-0959

Term of patent 14 years

LOC (6) Cl. 18 - 01

U.S. Cl. D18—4



384,096

STAMPER WITH CAP

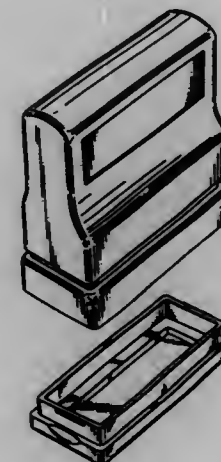
Dan Harden, Palo Alto, Calif., assignor to Dentsu Inc., Tokyo, Japan

Filed Apr. 10, 1996, Ser. No. 52,890

Term of patent 14 years

LOC (6) Cl. 19 - 02

U.S. Cl. D18—15



384,097

LASER BEAM PRINTER

Hideki Ito, Kawagoe, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

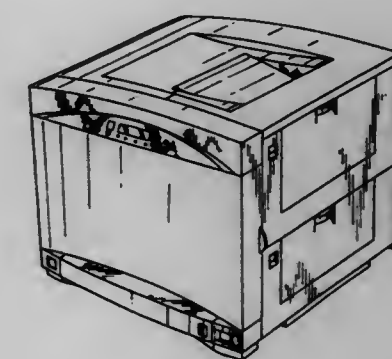
Filed Mar. 18, 1996, Ser. No. 51,744

Claims priority, application Japan, Sep. 20, 1995, 7-027794

Term of patent 14 years

LOC (6) Cl. 18 - 02

U.S. Cl. D18—55



384,098

STAMPLESS ENVELOPE

Salim G. Kara, Houston, Tex., assignor to E-Stamp Corporation, Houston, Tex.

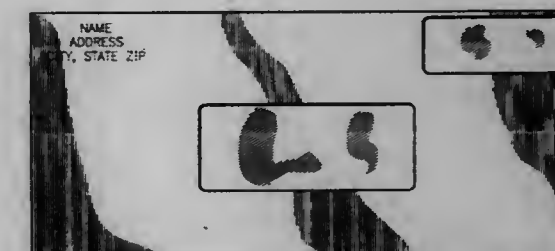
Division of Ser. No. 22,913, May 16, 1994. This application

Aug. 5, 1996, Ser. No. 57,914

Term of patent 14 years

LOC (6) Cl. 19 - 01

U.S. Cl. D19—3



384,099

CHECK BOOK

Todd M. Kunkler, Lake View Terrace, Calif., assignor to OnTrack Management Systems, Inc., Downey, Calif.

Division of Ser. No. 20,420, Mar. 25, 1994, Pat. No. Des. 365,598. This application Nov. 1, 1995, Ser. No. 45,878

Term of patent 14 years

LOC (6) Cl. 19 - 04

U.S. Cl. D19—26



384,101

ATTACHMENT FOR A BINDER OR BOOK

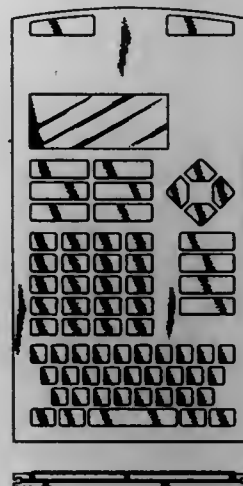
Scott W. Osiecki, Skaneateles; Brad D. Hall, Unadilla, and David A. Furth, Skaneateles, all of N.Y., assignors to Cullman Ventures, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 41,355, Jul. 12, 1995, Pat. No. Des. 375,758. This application Oct. 16, 1995, Ser. No. 45,315

Term of patent 14 years

LOC (6) Cl. 19 - 04

U.S. Cl. D19—32



384,100

BOOK WITH FLEXIBLE BAG ENCLOSURE

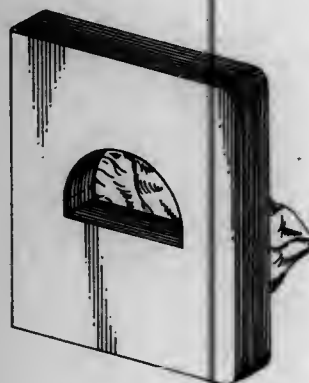
William N. Derraugh, Weston, Conn., assignor to Printlink Publishers, Inc., Monroe, Conn.

Filed Aug. 27, 1996, Ser. No. 58,880

Term of patent 14 years

LOC (6) Cl. 19 - 04

U.S. Cl. D19—26



384,102

ATTACHMENT FOR A BINDER OR BOOK

Scott W. Osiecki, Skaneateles; Brad D. Hall, Unadilla, and David A. Furth, Skaneateles, all of N.Y., assignors to Cullman Ventures, Inc., New York, N.Y.

Division of Ser. No. 41,355, Jul. 12, 1995, Pat. No. Des. 375,758. This application Jun. 10, 1996, Ser. No. 55,619

Term of patent 14 years

LOC (6) Cl. 19 - 04

U.S. Cl. D19—32



384,103

TOY BEAR WRITING IMPLEMENT

Cheng-hua Chuang, Taipei, Taiwan, assignor to Pioneer Industrial Corporation, Taipei, Taiwan

Filed Jul. 17, 1996, Ser. No. 57,158

Term of patent 14 years

LOC (6) Cl. 19 - 06

U.S. Cl. D19—42



384,105

VENTED PEN CAP

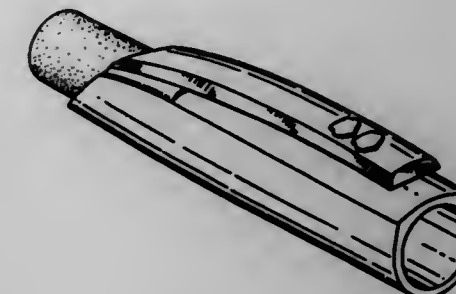
Beth Robert, Mattapoisett, Mass., and Geoff Hollington, London, England, assignors to The Gillette Company, Boston, Mass.

Filed Jun. 11, 1996, Ser. No. 55,693

Term of patent 14 years

LOC (6) Cl. 19 - 06

U.S. Cl. D19—57



384,104

BULLETIN BOARD

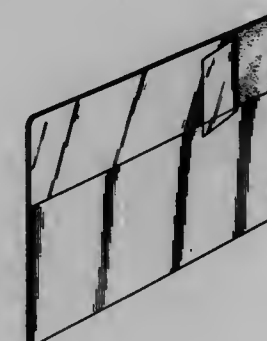
Daniel S. Krawitz, 3001 Chapel Hill Rd., Orange, Calif. 92667

Filed Oct. 10, 1995, Ser. No. 45,139

Term of patent 14 years

LOC (6) Cl. 19 - 06

U.S. Cl. D19—52



384,106

PAPER CLIP

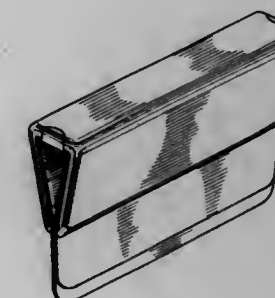
Satoshi Shinya, Sunroad No. 1-201 Yamaguchi 693-7, Tokorozawa Shi Saitama Ken 359, Japan

Filed Aug. 27, 1996, Ser. No. 58,904

Term of patent 14 years

LOC (6) Cl. 19 - 02

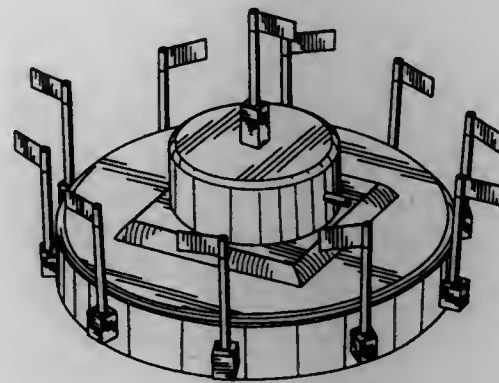
U.S. Cl. D19—65



384,107
VENDING MACHINE
 Herbert C. Davis, Newport Beach, Calif., assignor to Designer
 Fragrances, L.L.C., Santa Ana, Calif.
 Filed Jul. 26, 1995, Ser. No. 41,908
 Term of patent 14 years
 LOC (6) Cl. 20 - 01
 U.S. Cl. D20—1



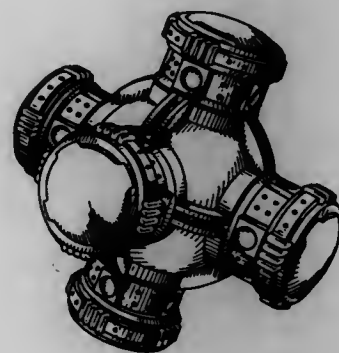
384,109
MULTIPLE COUNTER GAME
 Aldo Sirovic, 20 Statler Ave., Etobicoke, Ontario, Canada, M9B
 1G5
 Filed May 6, 1996, Ser. No. 54,049
 Term of patent 14 years
 LOC (6) Cl. 21 - 01
 U.S. Cl. D21—1



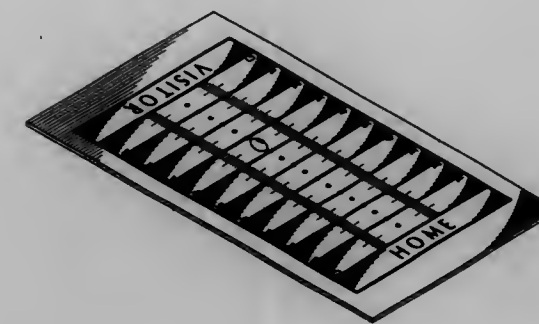
384,108
FLAT DISPLAY PANEL
 Dan A. Rinicella, Chagrin Falls, and Thomas H. Defelice,
 Canton, both of Ohio, assignors to Darko Company, Inc.,
 Twinsburg, Ohio
 Filed Oct. 6, 1995, Ser. No. 46,583
 Term of patent 14 years
 LOC (6) Cl. 20 - 02
 U.S. Cl. D20—42



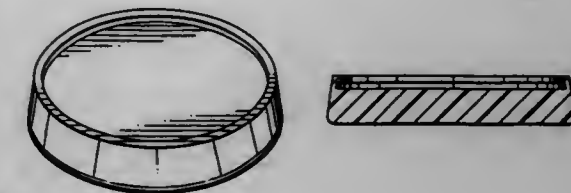
384,110
ELECTRONIC GAME HOUSING
 Zarko Stambolic, and John V. Zaruba, both of Chicago, Ill.,
 assignors to Breslow, Morrison, Terzian & Associates, LLC,
 Chicago, Ill.
 Filed Jan. 25, 1996, Ser. No. 49,462
 Term of patent 14 years
 LOC (6) Cl. 21 - 01
 U.S. Cl. D21—13



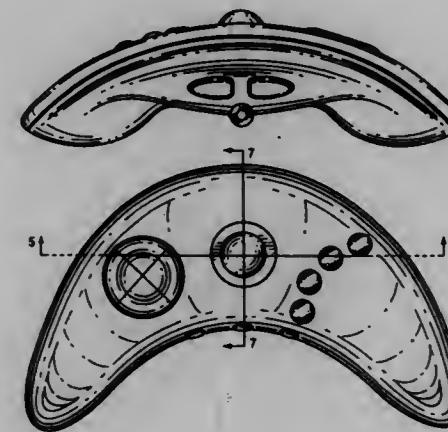
384,111
FOOTBALL GAME BOARD
 Timothy P. Dougan, 112 Parker Dr., Davis, Okla. 73030
 Filed Jan. 4, 1996, Ser. No. 48,559
 Term of patent 14 years
 LOC (6) Cl. 21 - 01
 U.S. Cl. D21—29



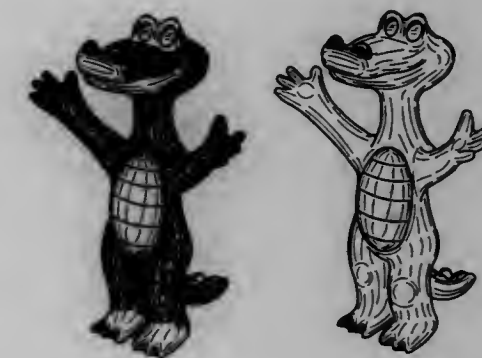
384,113
GAME PIECE
 James I. Subers, 1429 Lakeshore Dr., Branson, Mo. 65616, and
 Timothy D. Ports, Sr., 8002 Simmons St., Brooksville, Fla.
 34613
 Filed Jun. 26, 1995, Ser. No. 40,746
 Term of patent 14 years
 LOC (6) Cl. 21 - 01
 U.S. Cl. D21—53



384,112
COMPUTER GAME PLAYER CONTROLLER
 Raymond W. Riley, Santa Cruz; David W. Laituri, Palo Alto,
 and Gil Wong, San Francisco, all of Calif., assignors to Apple
 Computer, Inc., Cupertino, Calif.
 Continuation-in-part of Ser. No. 36,887, Mar. 29, 1995, aban-
 doned. This application Jun. 27, 1995, Ser. No. 40,991
 Term of patent 14 years
 LOC (6) Cl. 21 - 01
 U.S. Cl. D21—48



384,114
STANDING ALLIGATOR
 John M. Spielberg, 7536 Forsyth #207, St. Louis, Mo. 63105
 Filed Mar. 8, 1996, Ser. No. 51,405
 Term of patent 14 years
 LOC (6) Cl. 21 - 01
 U.S. Cl. D21—157

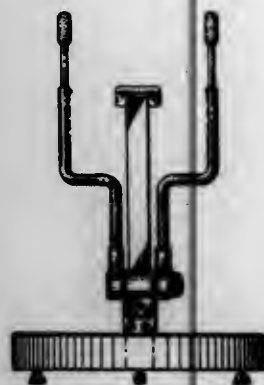


384,115

TRAMPOLINE EXERCISER

William T. Wilkinson, Sunset Dr., R.D. #1, Salem, N.J. 08079, and Richard S. Wyerman, Doylestown, Pa., assignors to William T. Wilkinson, Salem, N.J.
Division of Ser. No. 20,105, Mar. 8, 1994, Pat. No. Des. 362,478. This application Oct. 23, 1995, Ser. No. 45,512
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-191

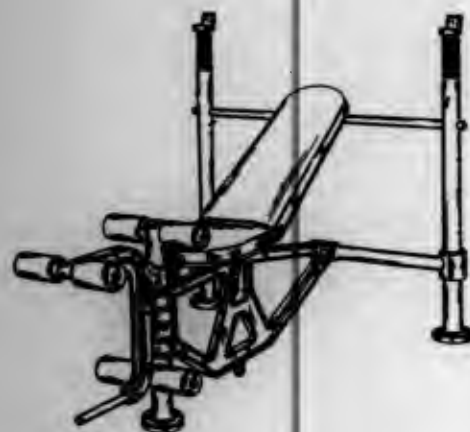


384,116

TWO-STATION HOME GYM

Paul E. Brefka, Southborough, and David G. Kmetz, Douglas, both of Mass., assignors to CSA, Inc., South Easton, Mass.
Filed Apr. 16, 1996, Ser. No. 53,070
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-191

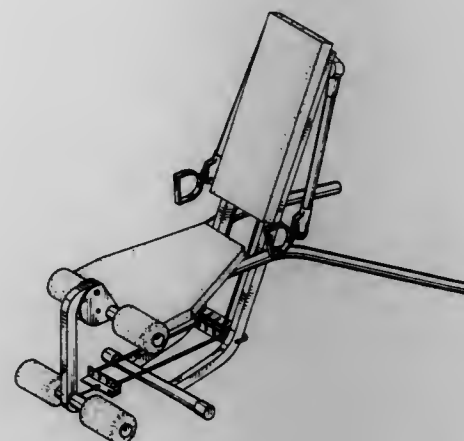


384,117

STRENGTH TRAINING APPARATUS

Gary D. Piaget; Trace O. Gordon, both of Park City, Utah; Mark R. Nestande, Chaska, Minn.; Paul M. Theisen, Shakopee, Minn.; John E. Titus, Prior Lake, Minn., and James B. Easley, Minneapolis, Minn., assignors to Fitness Master, Inc., Waconia, Minn.
Filed Nov. 15, 1995, Ser. No. 46,466
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-195



384,118

EXERCISE MACHINE

Michael Deblauw, San Jose, Calif., assignor to Healthrider Corp., Logan, Utah
Filed Mar. 5, 1996, Ser. No. 51,346
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-195

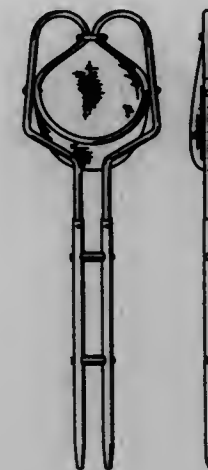


384,119

FOOTBALL PRACTICE RECEIVING DEVICE

Paul M. Huff, Rte. 1 P.O. Box 318, Delano, Tenn. 37325
Filed Sep. 7, 1995, Ser. No. 43,595
Term of patent 14 years
LOC (6) Cl. 21 - 99

U.S. Cl. D21-200

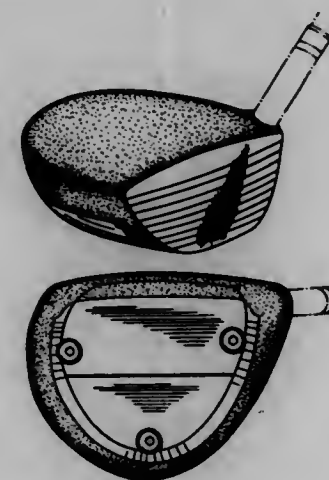


384,120

GOLF CLUB HEAD

Richard De La Cruz, Pauma Valley; Danny C. Ashcraft, Vista, and Richard E. Parente, San Diego, all of Calif., assignors to Goldwin Golf USA, Inc., Carlsbad, Calif.
Filed Jul. 5, 1994, Ser. No. 25,552
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-214

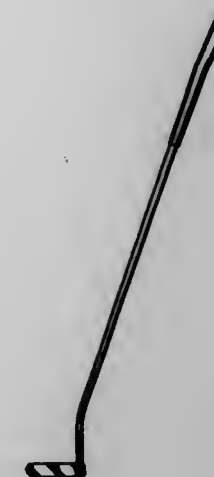


384,121

PUTTER

Tetsuji Masuda, Tokyo, Japan, assignor to World One Co., Ltd., Tokyo, Japan
Filed Nov. 8, 1995, Ser. No. 46,188
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-217



384,122

PUTTER

Tetsuji Masuda, Tokyo, Japan, assignor to World One Co., Ltd., Tokyo, Japan
Filed Nov. 8, 1995, Ser. No. 46,189
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-217



384,123
PUTTER

Tetsuji Masuda, Tokyo, Japan, assignor to World One Co., Ltd., Tokyo, Japan

Filed Nov. 8, 1995, Ser. No. 46,190

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—217



384,125
RAPID DEPLOYMENT TENT

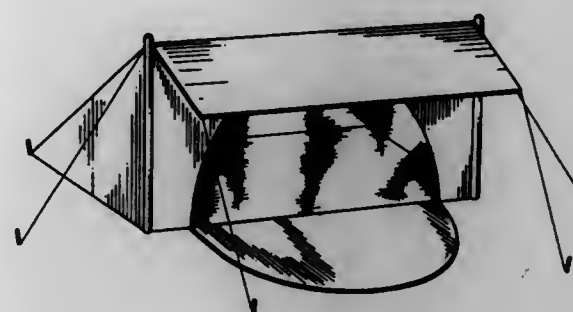
Calvin Christopher Griffin, 1164 Bishop St. Suite 124, Honolulu, HI. 96813

Filed Apr. 29, 1994, Ser. No. 22,100

Term of patent 14 years

LOC (6) Cl. 21 - 04

U.S. Cl. D21—253



384,124
PUTTER HEAD

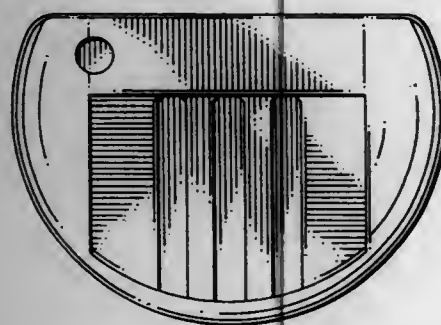
Anthony Lamanna, 18819 N. 44th Pl., Phoenix, Ariz. 85240

Filed Oct. 10, 1995, Ser. No. 45,105

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—219



384,126
BROADHEAD

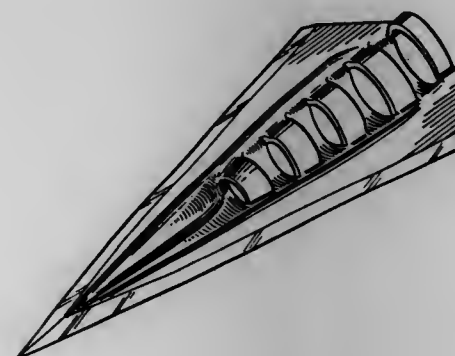
Colin Geoffrey Graham, P.O. Box 723, Wangaratta, Victoria 3676, Australia

Filed Sep. 25, 1995, Ser. No. 44,408

Term of patent 14 years

LOC (6) Cl. 22 - 03

U.S. Cl. D22—115



384,127
FISHING LURE

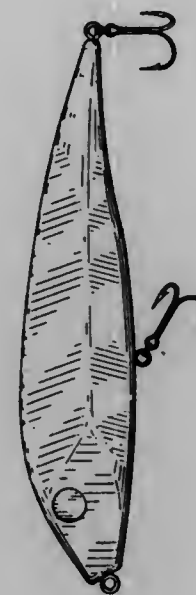
Larry E. Cross, 503 E. County Line Rd., Calimesa, Calif. 92320

Filed Mar. 5, 1996, Ser. No. 51,217

Term of patent 14 years

LOC (6) Cl. 22 - 05

U.S. Cl. D22—133



384,129
WALL BAR FOR HAND SHOWER

Horst Günter Neufeld, Velbert, and Michael Stein, Wuppertal, both of Germany, assignors to Hans Grobe GmbH & Co. KG, Schiltach, Germany

Filed Sep. 26, 1995, Ser. No. 44,569

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D23—213



384,128
WATER FILTER HOUSING

John Robert Scott, Brisbane, Australia, assignor to Scott Industries Pty Ltd., Mansfield, Australia

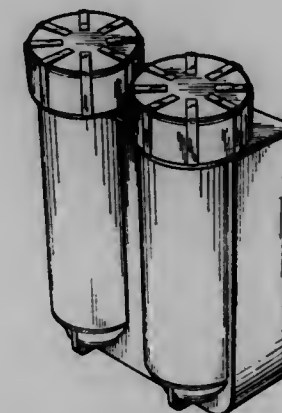
Filed Aug. 22, 1996, Ser. No. 58,769

Claims priority, application Australia, Jul. 8, 1996, 2145/96

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—209



384,130
FAUCET

Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

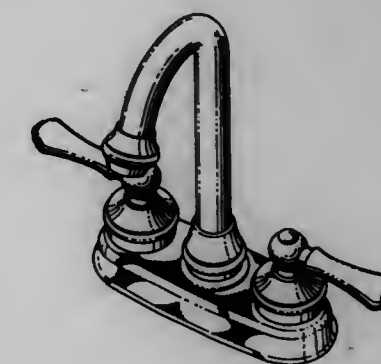
Filed Sep. 22, 1995, Ser. No. 44,340

The portion of the term of this patent subsequent to Jul. 22, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



384,131
FAUCET

Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

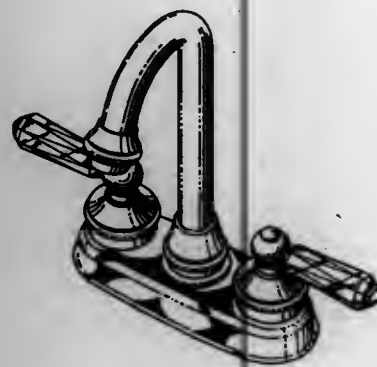
Filed Sep. 22, 1995, Ser. No. 44,347

The portion of the term of this patent subsequent to Jul. 22, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—241

384,133
FAUCET

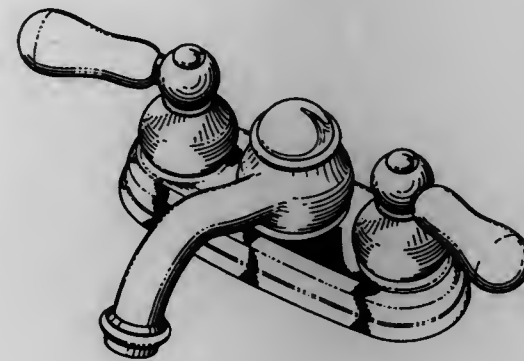
Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

Filed Apr. 4, 1996, Ser. No. 52,681

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—241

384,132
FAUCET

Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

Filed Sep. 22, 1995, Ser. No. 44,375

The portion of the term of this patent subsequent to Jul. 22, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



384,134

PLUMBING SPOUT

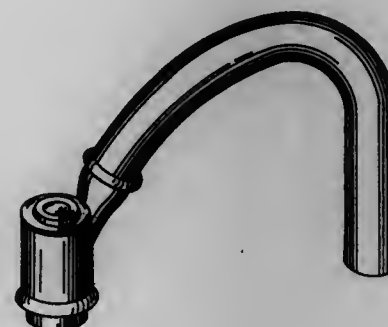
Tom E. Robbins, San Leandro, Calif., assignor to Kallista, Inc., San Leandro, Calif.

Division of Ser. No. 38,033, Apr. 26, 1995, Pat. No. Des. 375,149. This application Jul. 15, 1996, Ser. No. 56,838

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—257

384,135
LAVATORY

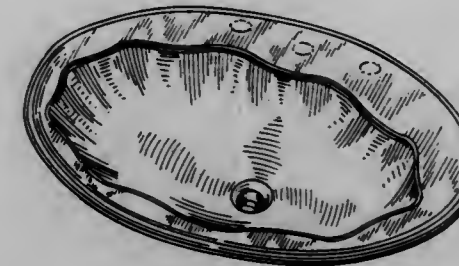
Carter J. Thomas, Port Washington, Wis., assignor to Kohler Co., Kohler, Wis.

Filed Oct. 2, 1995, Ser. No. 44,881

Term of patent 14 years

LOC (6) Cl. 23 - 02

U.S. Cl. D23—284



384,137

WALL MOUNTABLE SHOWER FIXTURE

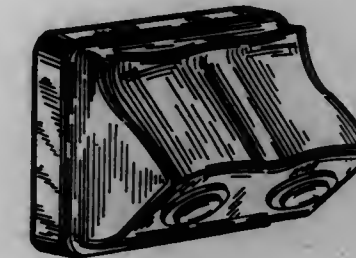
Thomas A. Bonnell, and Robert C. Giese, both of Sheboygan, Wis., assignors to Kohler Co., Kohler, Wis.

Division of Ser. No. 33,990, Jan. 25, 1995, Pat. No. Des. 372,522. This application Nov. 21, 1995, Ser. No. 47,086

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D23—304



384,136

WATER CLOSET

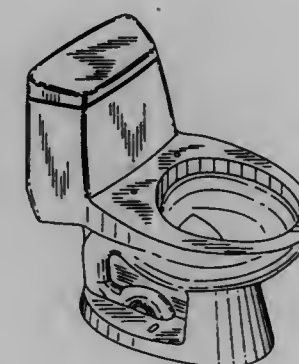
Seijiro Kawamura; Minoru Tani, and Hisayasu Sakai, all of Kitakyushu, Japan, assignors to Toto Ltd., Fukuoka-ken, Japan

Filed Jul. 24, 1995, Ser. No. 41,752

Term of patent 14 years

LOC (6) Cl. 23 - 02

U.S. Cl. D23—301



384,138

TOILET SEAT LIFTER

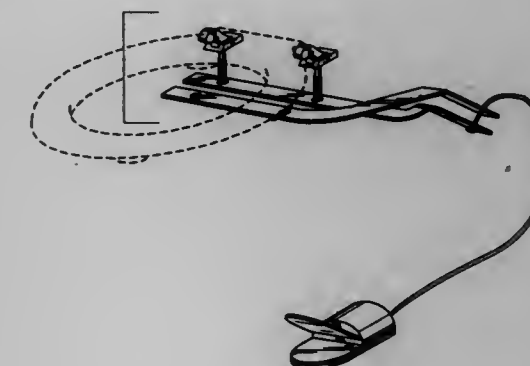
Rayner A. Jowett, Box 117, General Delivery, Shilo, MB, Canada, R0A 2A0

Filed Dec. 19, 1995, Ser. No. 48,046

Term of patent 14 years

LOC (6) Cl. 23 - 02

U.S. Cl. D23—311



384,139

TOILET SEAT HAVING A BUILT-IN COLLAPSIBLE URINAL

Robert K. Tribolet, 908 Magellan, Costa Mesa, Calif. 92626

Filed May 21, 1996, Ser. No. 54,731

Term of patent 14 years

LOC (6) Cl. 23 - 02

U.S. Cl. D23—311



384,141

MOTORCYCLE AIR CLEANER

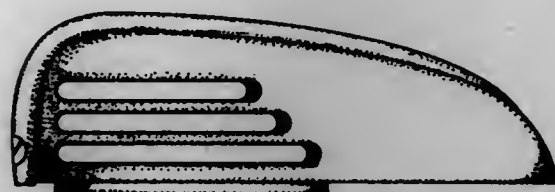
Dennis L. Goodson, 1204 W. 38th Ave., Denver, Colo. 80211

Filed Nov. 9, 1995, Ser. No. 46,222

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—364



384,140

HUMIDIFIER

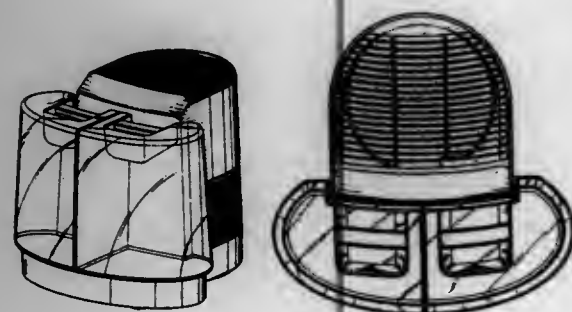
Rodney Jane', Westboro, Mass.; Jui Shang Wang, Taipei, Taiwan; Stanley Gresens, Homewood; Gregory Holderfield, Palatine, both of Ill., and John Langan, Shrewsbury, Mass., assignors to Duracraft Corp., Southborough, Mass.

Filed Oct. 30, 1995, Ser. No. 45,808

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—356



384,142

POTPOURRI SIMMER VASE

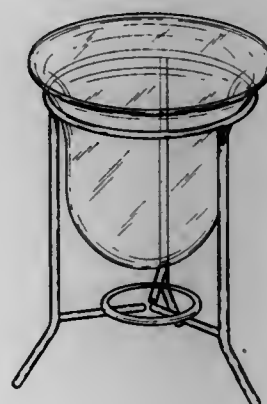
Ennio V. Racinelli, Canyon Lake, Calif., assignor to Endar Corporation, Temecula, Calif.

Filed Jun. 10, 1996, Ser. No. 55,669

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—366



384,143

POTPOURRI SIMMER VASE

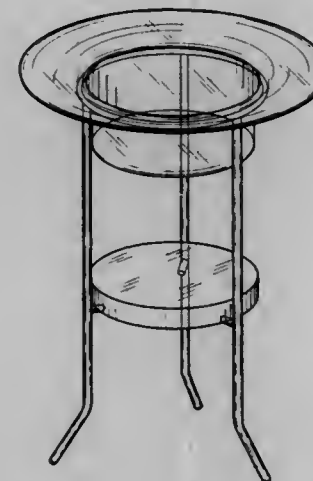
Ennio V. Racinelli, Canyon Lake, Calif., assignor to Endar Corporation, Temecula, Calif.

Filed Jun. 10, 1996, Ser. No. 55,672

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—366



384,145

COMBINED CEILING FAN AND LIGHT FIXTURE

Jan Jaspers-Fayer, Idyllwild, and Dean Dal Ponte, Los Angeles, both of Calif., assignors to Minka Lighting Inc., Corona, Calif.

Continuation of Ser. No. 37,665, Apr. 18, 1995, abandoned, which is a division of Ser. No. 17,922, Jan. 25, 1994, abandoned. This application Mar. 15, 1996, Ser. No. 51,662

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—377



384,144

PORTABLE FAN

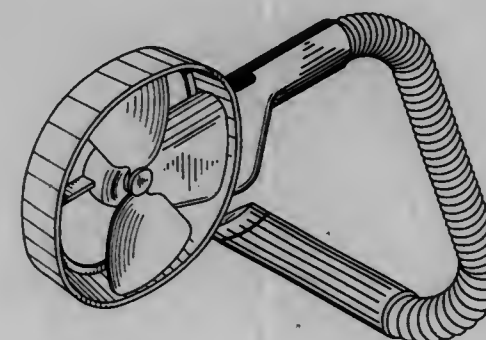
Craig A. DuBois, Trumbull, Conn., assignor to Black & Decker Inc., Newark, Del.

Filed Aug. 7, 1996, Ser. No. 58,058

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—370



384,146

LARYNGECTOMY FILTER ASSEMBLY

Rory James Maxwell Smith, North Yorkshire, Great Britain, assignor to Kapitex Healthcare Limited, Wetherby, United Kingdom

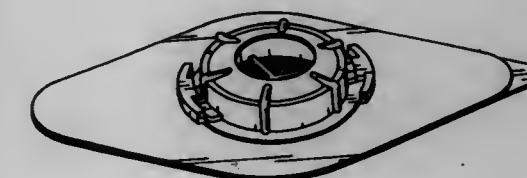
Filed Dec. 21, 1995, Ser. No. 48,161

Claims priority, application United Kingdom, Jun. 23, 1995, 2048378

Term of patent 14 years

LOC (6) Cl. 29 - 02

U.S. Cl. D24—110



384,147

RESPIRATORY FACE MASK

Jan Karlsson, Hjärup, and Carin Widerström, Höllviken, both of Sweden, assignors to AB Astra, Sodertälje, Sweden

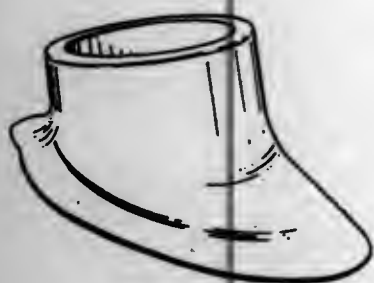
Filed Mar. 25, 1994, Ser. No. 20,460

Claims priority, application Sweden, Sep. 27, 1993, 93-2144
The portion of the term of this patent subsequent to Aug. 6, 2010, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 29 - 02

U.S. Cl. D24—110.4



384,149

EYE DROPPER BOTTLE

Victoria Usher, 520 NW. Creswell La., Albany, Oreg. 97321

Filed Sep. 29, 1995, Ser. No. 44,770

Term of patent 14 years

LOC (6) Cl. 09 - 01

U.S. Cl. D24—115



384,148

SMOKE EVACUATOR FOR AN ELECTROCAUTERY SCALPEL

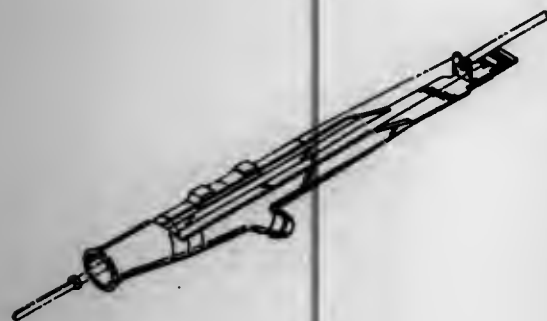
Donald R. Monson, West St. Paul, Minn., assignor to Donaldson Company, Inc., Minneapolis, Minn.

Division of Ser. No. 29,445, Oct. 6, 1994, Pat. No. Des. 373,190. This application Mar. 18, 1996, Ser. No. 51,750

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—112



384,150

COMBINED DISPOSABLE AND REUSABLE DIAPER WITH DISPOSABLE LINER FOR TODDLER

Vivian Gray, 3600 Wyntering Trail, Marietta, Ga. 30068, and Pamela G. deMonyé, 383 Bridgebrook La., Smyrna, Ga. 30082

Filed Aug. 29, 1996, Ser. No. 58,980

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D24—126



384,151

DIAPER FASTENING TAB

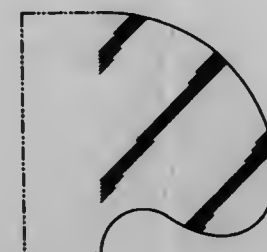
Michael C. Raufman, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Oct. 10, 1996, Ser. No. 60,890

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D24—126



384,153

TONGUE CLEANER

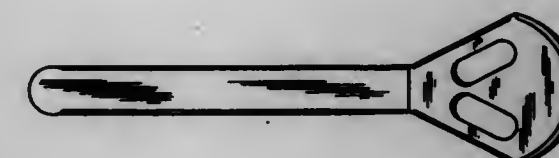
Dasan Potti, 27104 Patriot Dr., Salisbury, Md. 21801; Jon L. Richter, 1-104 Bleddyn Rd., Ardmore, Pa. 19003, and Gordon R. Neufeld, 6015 W. Valley Green Rd., Flour Town, Pa. 19031

Filed Dec. 19, 1995, Ser. No. 48,081

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—147



384,154

DENTAL CARE UNIT

Kari Malmén, Helsinki, and Jan Frojdman, Soderkulla, both of Finland, assignors to Planmeca Oy, Helsinki, Finland

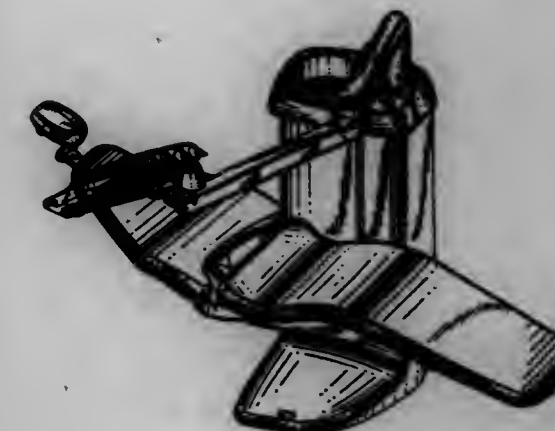
Filed Sep. 14, 1995, Ser. No. 43,905

Claims priority, application Finland, Mar. 15, 1995, 194/95

Term of patent 14 years

LOC (6) Cl. 24 - 01

U.S. Cl. D24—178



384,152

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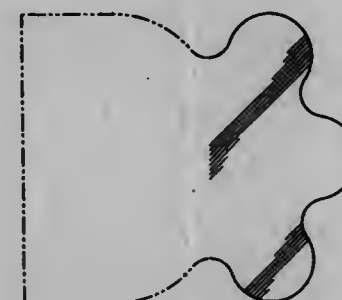
Michael C. Raufman, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Oct. 10, 1996, Ser. No. 60,891

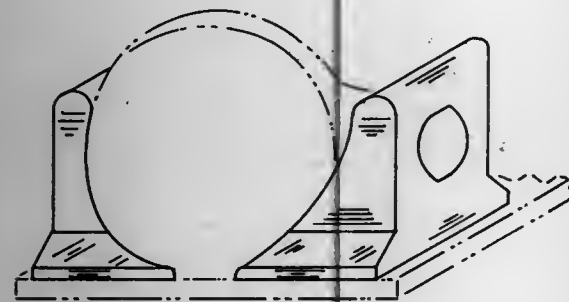
Term of patent 14 years

LOC (6) Cl. 24 - 04

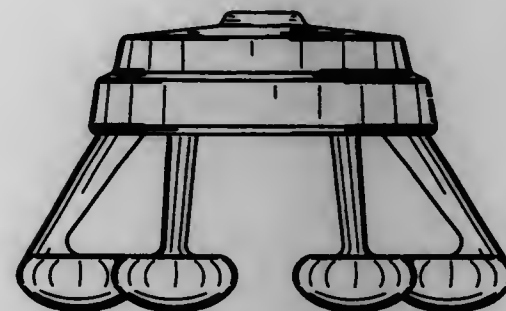
U.S. Cl. D24—126



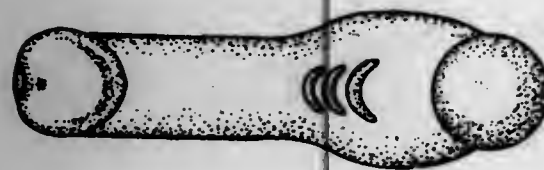
384,155
**COMBINED HELMET, HEAD AND CERVICAL SPINE
 IMMOBILIZER**
 Frank L. Crist, 220 Brush St., Portland, Mich. 48875
 Filed Jul. 18, 1995, Ser. No. 41,564
 Term of patent 14 years
 LOC (6) Cl. 24 - 04
 U.S. Cl. D24—191



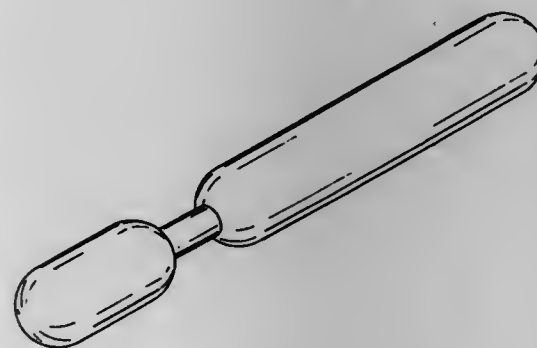
384,157
COMBINED BODY AND JOINTS MASSAGER
 Lev Kusnets, and Yoram Chen, both of Beer Sheva, Israel,
 assignors to Vital-Tech Ltd., Midreshet SDE Boker, Israel
 Filed Jul. 26, 1996, Ser. No. 57,525
 Term of patent 14 years
 LOC (6) Cl. 24 - 02
 U.S. Cl. D24—211



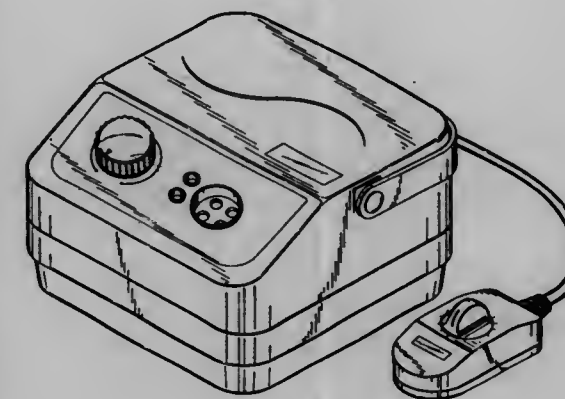
384,156
EROGENIC STIMULATOR
 Melissa Mia Kain, P.O. Box 737, Mulberry, Fla. 33860-0737
 Filed Sep. 25, 1995, Ser. No. 44,464
 Term of patent 14 years
 LOC (6) Cl. 24 - 02
 U.S. Cl. D24—200



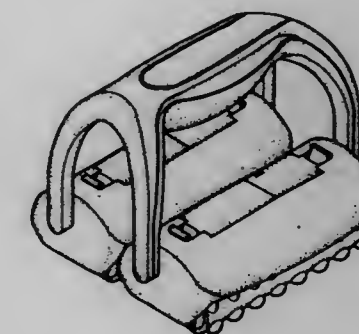
384,158
EROGENIC STIMULATOR
 Melissa Mia Kain, P.O. Box 737, Mulberry, Fla. 33860-0737
 Filed Sep. 25, 1995, Ser. No. 44,405
 The portion of the term of this patent subsequent to Dec. 17,
 2010, has been disclaimed.
 Term of patent 14 years
 LOC (6) Cl. 28 - 03
 U.S. Cl. D24—215



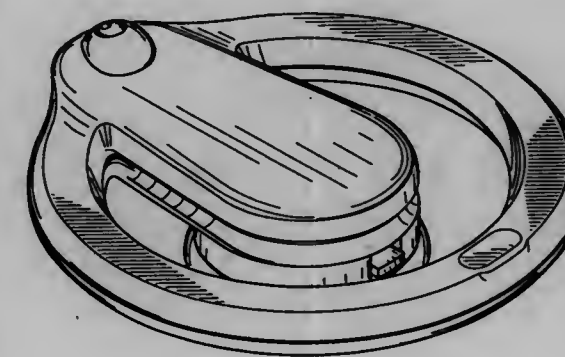
384,159
AIR-MASSAGER
 Ching-Hsiung Tsai, Taipei, Taiwan, assignor to Global Friend-
 ship Enterprise Co., Ltd., Taipei, Taiwan
 Filed Apr. 1, 1996, Ser. No. 52,621
 Term of patent 14 years
 LOC (6) Cl. 28 - 03
 U.S. Cl. D24—215



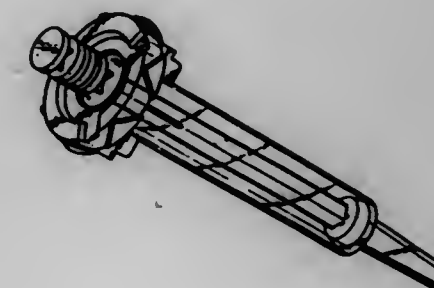
384,161
MASSAGING TOOL
 James Tseng, No. 322, Chang Chun Road, Taoyuan City, Tai-
 wan
 Filed Sep. 18, 1996, Ser. No. 59,954
 Term of patent 14 years
 LOC (6) Cl. 28 - 03
 U.S. Cl. D24—215



384,160
COMBINED BODY AND JOINT MASSAGER
 Lev Kusnets, and Yoram Chen, both of Beer Sheva, Israel,
 assignors to Vital-Tech Ltd., Midreshet Sde Boquer, Israel
 Filed Jul. 26, 1996, Ser. No. 57,524
 Term of patent 14 years
 LOC (6) Cl. 24 - 02
 U.S. Cl. D24—215



384,162
PIPETTE
 Dieter Husar, Hamburg, and Jürgen Hölsken, Wilhelmshaven,
 both of Germany, assignors to Eppendorf-Netheler-Hinz
 GmbH, Germany
 Filed Mar. 18, 1996, Ser. No. 51,806
 Claims priority, application Hague Agreement, Oct. 24,
 1995, DM/034476
 Term of patent 14 years
 LOC (6) Cl. 24 - 02
 U.S. Cl. D24—222



384,163
PIPETTE

Dieter Husar, Hamburg, and Jürgen Hölken, Wilhelmshaven, both of Germany, assignors to Eppendorf-Netheler-Hinz GmbH, Germany

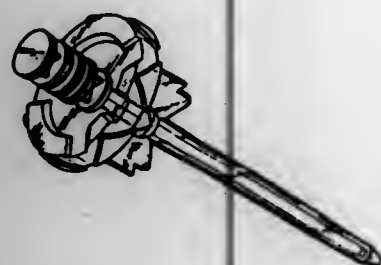
Filed Mar. 18, 1996, Ser. No. 51,807

Claims priority, application Hague Agreement, Oct. 24, 1995, DM/034476

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—222



384,165
WINDMILL

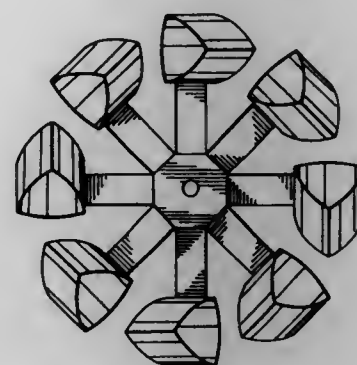
Emil Suciu, 66 Judith Cres., Brampton, Ontario, Canada, L6S 3J4

Filed Aug. 15, 1996, Ser. No. 58,438

Term of patent 14 years

LOC (6) Cl. 25 - 03

U.S. Cl. D25—1



384,164

TRANSPARENT ASSAY TESTER FOR BIOLOGICAL FLUIDS

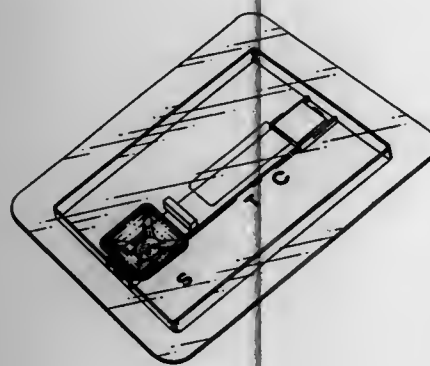
William A. Leiva, Half Moon Bay, and Ian D. Wells, Escondido, both of Calif., assignors to Medix Biotech, Inc., San Carlos, Calif.

Continuation-in-part of Ser. No. 15,399, Nov. 15, 1993, abandoned, which is a continuation of Ser. No. 918,340, Jul. 21, 1992, abandoned. This application Apr. 6, 1995, Ser. No. 37,222

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—224



384,166
COMBINED WINDOW VENTILATOR AND RAIN CATCHER

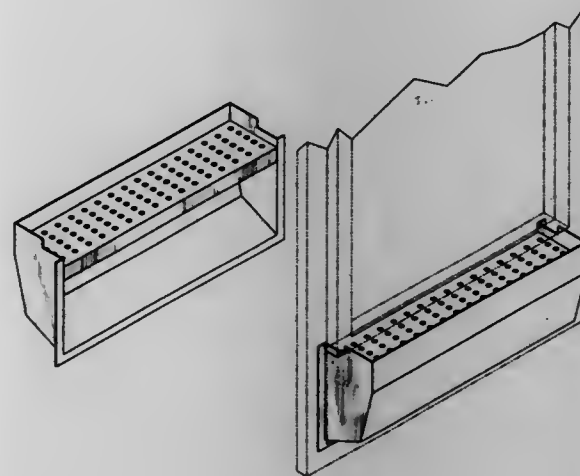
Lloyd Coates, P.O. Box 1838, Weaverille, N.C. 28787

Filed Aug. 13, 1996, Ser. No. 58,641

Term of patent 14 years

LOC (6) Cl. 25 - 02

U.S. Cl. D25—52



384,167

WINDOW AWNING

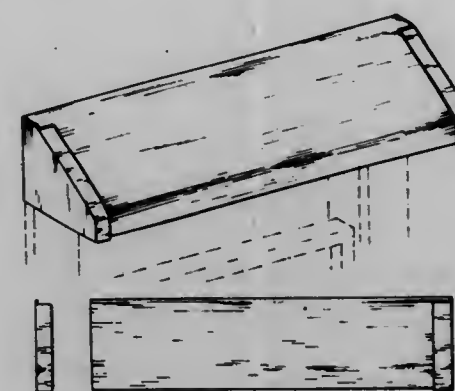
Edward Bodeau, R.R. #1 Box 4031, Hiram, Me. 04041-9718

Continuation-in-part of Ser. No. 921,710, Jul. 29, 1992. This application Sep. 19, 1994, Ser. No. 28,644

Term of patent 14 years

LOC (6) Cl. 25 - 02

U.S. Cl. D25—57



384,169

INTERLOCK

Louie Leonelli, Woodbridge, Canada, assignor to Pillar Plastics Limited, Concord, Canada

Filed Dec. 27, 1995, Ser. No. 48,396

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—119



384,168

PLANTABLE WALL BLOCK

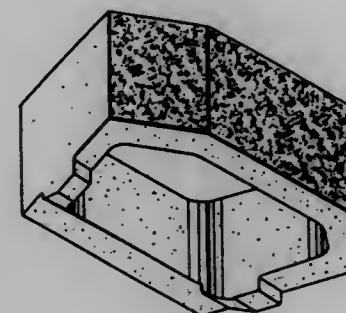
J. Michael Stevenson, San Diego, Calif., assignor to Keystone Retaining Wall & Systems, Inc., Bloomington, Minn.

Filed Oct. 23, 1995, Ser. No. 45,497

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—115



384,170

WINDOW COMPONENT EXTRUSION 7091

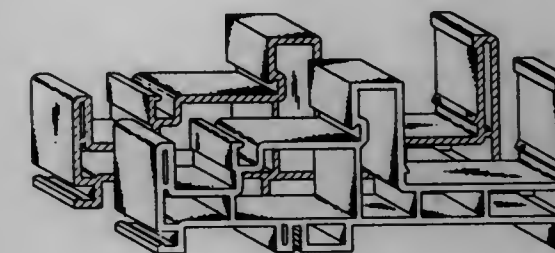
Jeffrey R. Franson, Kent, Wash., assignor to Mikron Industries, Inc., Kent, Wash.

Filed Jun. 29, 1995, Ser. No. 41,155

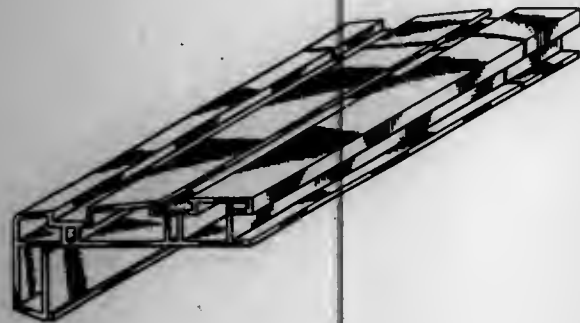
Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—124



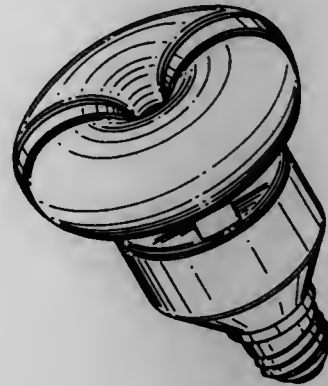
384,171
DOOR FRAME
 Louie Leonelli, Woodbridge, Canada, assignor to Pillar Plastics Limited, Concord, Canada
 Filed Dec. 27, 1995, Ser. No. 48,400
 Term of patent 14 years
 LOC (6) Cl. 25 - 01
 U.S. Cl. D25—124



384,172
PYLON
 Francois Deslaugiers, Paris, France, assignor to Electricite De France, Paris, France
 Filed Sep. 25, 1995, Ser. No. 44,424
 Claims priority, application France, Mar. 23, 1995, 95 745
 Term of patent 14 years
 LOC (6) Cl. 25 - 01
 U.S. Cl. D25—127



384,173
ELECTRODELESS COMPACT FLUORESCENT LAMP
 Valery A. Godyak; Benjamin Alexandrovich, both of Brookline, and James N. Lester, Essex, all of Mass., assignors to Osram Sylvania Inc., Danvers, Mass.
 Filed Jul. 19, 1996, Ser. No. 57,205
 Term of patent 14 years
 LOC (6) Cl. 26 - 04
 U.S. Cl. D26—3



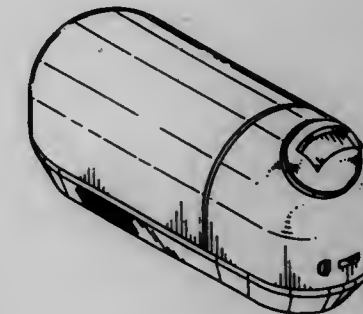
384,174
SET OF LIGHTS FOR A CHRISTMAS TREE
 Linda L. Smith, 5088 Wayburn, Detroit, Mich. 48224
 Filed Jul. 1, 1996, Ser. No. 56,486
 Term of patent 14 years
 LOC (6) Cl. 26 - 05
 U.S. Cl. D26—25



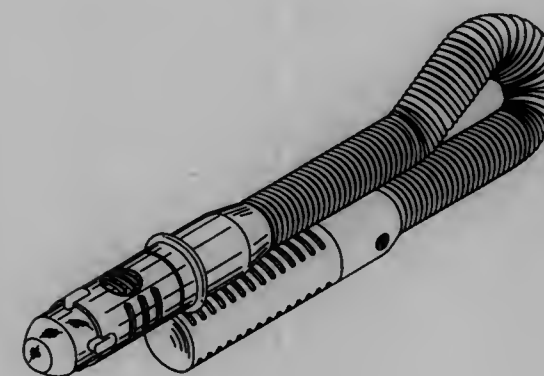
384,175
LIGHT
 Kwok Hung Liu, New Territories, Hong Kong, assignor to Germain Electronic Ltd., Hong Kong, Hong Kong
 Filed Jun. 14, 1996, Ser. No. 55,887
 Claims priority, application United Kingdom, Feb. 15, 1996, 2054155
 Term of patent 14 years
 LOC (6) Cl. 26 - 02
 U.S. Cl. D26—38



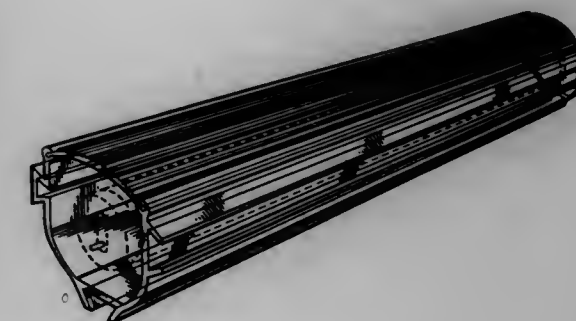
384,177
COMBINED LIGHTING FIXTURE AND SENSOR
 Kam-Wah Pun, Hong Kong, Hong Kong, assignor to Styling City Limited, Kowloon, Hong Kong
 Filed Apr. 30, 1996, Ser. No. 53,821
 Term of patent 14 years
 LOC (6) Cl. 26 - 05
 U.S. Cl. D26—51



384,176
FLEXIBLE LIGHT
 David W. Kaiser, North Haven, and Richard J. Carbone, Southbury, both of Conn., assignors to Black & Decker Inc., Newark, Del.
 Filed Sep. 5, 1996, Ser. No. 62,961
 Term of patent 14 years
 LOC (6) Cl. 26 - 02
 U.S. Cl. D26—43



384,178
TRANSPARENT EXTRUSION WITH LENS FOR ENCLOSING A LUMINESCENT LIGHTING TUBE
 Paul D. Costa, Burlingame, Calif., assignor to Videssence, Inc., Burlingame, Calif.
 Filed Jun. 26, 1996, Ser. No. 56,303
 Term of patent 14 years
 LOC (6) Cl. 26 - 05
 U.S. Cl. D26—76



384,179

WALL LANTERN

Patrick H. Ruggles, and James Hampshire, both of Solon, Ohio, assignors to Adjusta-Post Manufacturing Co., Norton, Ohio

Filed May 3, 1996, Ser. No. 53,998

Term of patent 14 years

LOC (6) Cl. 06 - 05

U.S. Cl. D26—85



384,181

LIGHT FIXTURE

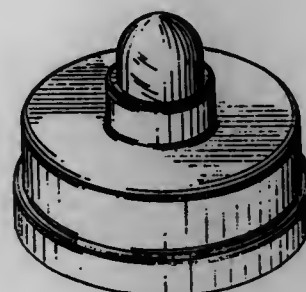
Robert W. Borden, 1525 E. Baseline Rd. #116, Tempe, Ariz. 85283

Division of Ser. No. 16,746, Dec. 23, 1993, Pat. No. Des. 366,721. This application Jan. 26, 1996, Ser. No. 49,488

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—110



384,180

LAMP

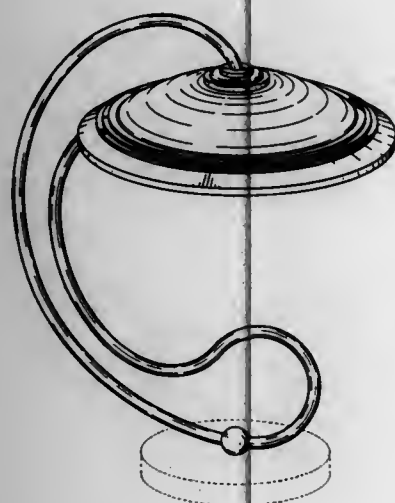
David H. Porter, Chagrin Falls, Ohio, assignor to The L.D. Kichler Co., Cleveland, Ohio

Filed May 31, 1996, Ser. No. 55,191

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—107



384,182

STAINED GLASS CROWN FOR TORCHERE LAMP SHADE

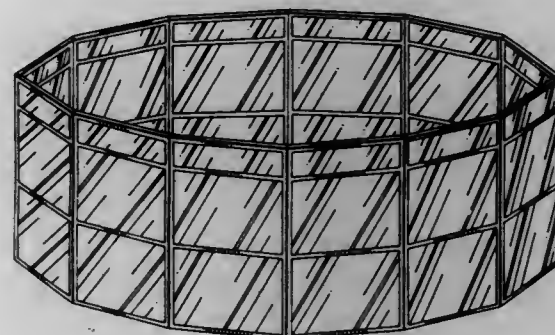
Michael J. Gresack, and Richard L. Wheelan, both of 3685 N. Federal Hwy., Pompano Beach, Fla. 33064

Filed Jun. 10, 1996, Ser. No. 55,617

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—130



384,183

LAMP SHADE

Ming-Tyan Yan, No. 2, Avenue 16, Lane 114 Yu Jen Road, Fungyung, Taichung, Taiwan

Filed Nov. 7, 1995, Ser. No. 30,734

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—134



384,184

SUN TAN OIL APPLICATOR

Don Dewey, 37443 3rd St., Fremont, Calif. 94536

Filed May 30, 1996, Ser. No. 55,152

Term of patent 14 years

LOC (6) Cl. 28 - 02

U.S. Cl. D28—7



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 23rd DAY OF SEPTEMBER, 1997

NOTE— Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A&E Manufacturing Company: *See—*
Hansen, William S., 5,669,272, Cl. 81-179,000.
- A. Menarini Industrie Farmaceutice Riunite S.R.L.: *See—*
Animati, Fabio; Arcamone, Federico; Lombardi, Paolo; and Rossi, Cristina, 5,670,534, Cl. 514-422,000.
- A P Systems (Australia) Pty., Ltd.: *See—*
Bellomo, Erasmo Mimmo, 5,669,154, Cl. 34-71,000.
- ABB Patent GmbH: *See—*
Nacke, Bernard; Aundrup, Christoph; and Mertens, Manfred, 5,671,245, Cl. 373-153,000.
Rachid, Nabil, 5,669,220, Cl. 60-654,000.
- ABB Power T&D Company, Inc.: *See—*
Hu, Yi; Hart, David; Novosel, Damir; and Smith, Robert, 5,671,112, Cl. 361-86,000.
- Abbott Laboratories: *See—*
Johnson, David K., 5,670,627, Cl. 530-388,900.
Johnson, David K., 5,670,645, Cl. 546-141,000.
Jou, Yi-Her; Stroupe, Stephen D.; and Markese, James J., 5,670,381, Cl. 436-518,000.
Kempf, Dale J.; and Norbeck, Daniel W., 5,670,675, Cl. 549-552,000.
Keogh, Alan P.; Ferris, John J.; and Maher, Pascal J., 5,669,892, Cl. 604-320,000.
Mattingly, Phillip Gregory; and Bennett, Larry Gene, 5,669,819, Cl. 436-501,000.
- Abe, Akira: *See—*
Irite, Naoko; Abe, Akira; and Yoshida, Kiyohide, 5,670,443, Cl. 502-330,000.
Yoshida, Kiyohide; Muramatsu, Gyo; Abe, Akira; and Irite, Naoko, 5,670,444, Cl. 502-331,000.
- Abe, Jun; Shirota, Masaaki; and Koya, Kazuo, to Shin-Etsu Chemical Co., Ltd. Wide-band optical fiber coupler and method for preparing the same. 5,671,309, Cl. 385-43,000.
- Abe, Kazuhide: *See—*
Nishihori, Kazuya; Kitaura, Yoshiaki; Tanabe, Yoshikazu; Aoyama, Tomonori; Suguro, Kyoichi; Okuwada, Kumi; Komatsu, Shuichi; and Abe, Kazuhide, 5,670,808, Cl. 257-310,000.
- Abe, Kimihiro: *See—*
Endo, Takayoshi; and Abe, Kimihiro, 5,669,791, Cl. 439-752,000.
- Abe, Shosaku: *See—*
Inoue, Takeshi; Matsuura, Eiji; Kuroki, Yoshio; Akino, Toyooki; and Abe, Shosaku, 5,670,328, Cl. 435-7,230.
- Abelman, Matthew M.; Pearson, Daniel A.; Vlasuk, George P.; and Webb, Thomas R., to Corvas International, Inc. α -ketoamide derivatives as inhibitors of thrombosis. 5,670,479, Cl. 514-12,000.
- Abraham, Claude; and Dolsen, Philip C., to Ardac, Inc. Current-boosted positive feedback logarithmic transresistance amplifier for currency validators. 5,670,775, Cl. 250-214,00A.
- Abrams, Richard L.: *See—*
Scheibelhoffer, Anthony S.; Abrams, Richard L.; Dusek, Dianna B.; Hammond, Dennis L.; Opalko, Robert J.; and Thompson, Ronald E., 5,670,561, Cl. 523-351,000.
- Abramson, Jeffrey M.: *See—*
Akkary, Haitham; Abramson, Jeffrey M.; Glew, Andrew F.; Hinton, Glenn J.; Konigsfeld, Kris G.; Madland, Paul D.; Joshi, Mandar S.; and Lince, Brent E., 5,671,444, Cl. 395-872,000.
- Abrishami, Ray: *See—*
Colwell, Michael; Rajsuman, Rochit; Abrishami, Ray; and Sarkari, Zarir B., 5,670,890, Cl. 324-765,000.
- ACDS Technologies, Ltd.: *See—*
Chaihorsky, Abas, 5,670,632, Cl. 536-8,000.
- Acer Peripherals, Inc.: *See—*
Hsu, Chien-Shih, 5,670,759, Cl. 200-5,00A.
- Acker, Warren Patrick; and Andrews, Gregory Paul, to International Business Machines Corporation. Method and system for sizing of graphical user interface objects for localization. 5,671,378, Cl. 395-334,000.
- Ackley, Donald E.: *See—*
Shieh, Chan-Long; Ackley, Donald E.; Maracas, George N.; and Harvey, Thomas B., III, 5,671,303, Cl. 385-12,000.
- Actel Corporation: *See—*
Chen, Wenn-Jei, 5,670,403, Cl. 437-52,000.
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- Andress, Donald L.: See—
- Houser, Clarence G.; Yao, Jame; Andress, Donald L.; and Low, William R., 5,669,234, Cl. 62-612,000.
- Andress, Keith Michael, to Siemens Corporate Research, Inc. Evidential reconstruction of vessel trees from X-ray angiograms with a dynamic contrast bolus. 5,671,265, Cl. 378-98,110.
- Andrews, Gregory Paul: See—
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- Angelo, Gerald J.; Bernasconi, Alex G.; and Dunne, Daniel P., to PACCAR Inc. Truck sun visor. 5,669,697, Cl. 362-80,000.
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- Anson, Paul Manuel: See—
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- Anthony, James M.: See—
- Colson, Wendell B.; and Anthony, James M., 5,670,000, Cl. 156-197,000.
- Antolini, Gino: See—
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- Aoi, Hajime: See—
- Mitsunaka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yukio; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126,000.
- Aoki, Hitoshi: See—
- Inoue, Hideya; Aoki, Hitoshi; Imura, Yoshio; and Tsukahara, Daiki, 5,671,453, Cl. 396-320,000.
- Aoki, Satoshi: See—
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- Aoyama, Tomonori: See—
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- Apex Medical Corp.: See—
- Lee, Daniel, 5,669,762, Cl. 417-312,000.
- Apple Computer, Inc.: See—
- Cappels, Richard D., Sr.; and Hernandez, Mathew, 5,670,985, Cl. 345-153,000.
- Capps, Stephen P.; and Beernink, Ernest H., 5,671,438, Cl. 395-802,000.
- Leak, Bruce Alan, 5,670,986, Cl. 345-154,000.
- Lhotak, Vladimir, 5,671,345, Cl. 395-133,000.
- Rakity, Philip M.; and Rustad, Mark D., 5,671,446, Cl. 395-874,000.
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- Ellwood, Stephen; and Appleby, David, 5,670,946, Cl. 340-628,000.
- Applied Materials Inc.: See—
- Sherstinsky, Semyon; Shamoulian, Shamouil; Birang, Manoocher; Mak, Alfred; and Tam, Simon W., 5,671,117, Cl. 361-234,000.
- Applied Power Inc.: See—
- Luebke, Thomas M., 5,669,258, Cl. 72-31,040.
- Appione, Alan R. Self-monitoring hand sanitizing station. 5,670,945, Cl. 340-573,000.
- Aprica Kasei Kabushiki Kaisha: See—
- Onishi, Ichiro, 5,669,623, Cl. 280-641,000.
- AptarGroup, Inc.: See—
- Cichon, Ralph J.; Moore, David G.; and Walters, Peter J., 5,669,530, Cl. 222-153,090.
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- Yamamoto, Takao; Kuribayashi, Tetsuya; Honda, Takao; Arahira, Fumihiro; and Osada, Hiroyuki, 5,671,448, Cl. 399-169,000.
- Araki, Hideo; Owashi, Hitoki; Hosokawa, Kyoichi; Nishimura, Keizo; Watanabe, Yoshizumi; and Shibata, Akira, to Hitachi, Ltd. Digital transmission signal processing system and recording/reproducing system. 5,671,095, Cl. 360-8,000.
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- Zeng, Weiping; Arata, Masami; and Banba, Tsuyoshi, 5,670,559, Cl. 523-118,000.
- Araujo, Fausto G.: See—
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- Arcamone, Federico: See—
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- Allen, Gary L.; Barksby, Nigel; Seneker, Stephen D.; and Younes, Usama E., 5,670,601, Cl. 528-76,000.
- Grey, Roger A., 5,670,674, Cl. 549-533,000.
- Shawi, Edward T., 5,670,578, Cl. 525-187,000.
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- Srivastava, Kailash Chandra; and Walia, Daman S., 5,670,345, Cl. 435-75,000.
- Arday, Inc.: See—
- Abraham, Claude; and Dolsen, Philip C., 5,670,775, Cl. 250-214,00A.
- Argavani, Zahra: See—
- Akhavan-Tafti, Hashem; Argavani, Zahra; and DeSilva, Renuka, 5,670,644, Cl. 546-103,000.
- Argillier, Jean-Francois: See—
- Audibert, Annie; Argillier, Jean-Francois; Bailey, Louise; and Reid, Paul I., 5,669,456, Cl. 175-72,000.
- Argus Machine Co. Ltd.: See—
- Ellert, James Richard, 5,670,766, Cl. 200-83,00J.
- Arias, Juan J.: See—
- Scarfone, Frank A.; and Arias, Juan J., 5,669,883, Cl. 604-167,000.
- Arimilli, Ravi Kumar: See—
- Allen, Michael Scott; Arimilli, Ravi Kumar; Kaiser, John Michael; and Lewchuk, William Kurt, 5,671,370, Cl. 395-305,000.
- Armstrong, Robert L.: See—
- Brown, James T.; and Armstrong, Robert L., 5,671,361, Cl. 395-209,000.
- Armament Systems and Procedures, Inc.: See—
- Parsons, Kevin L., 5,669,110, Cl. 24-16,0PB.
- Armentano, Donna: See—
- Gregory, Richard J.; Armentano, Donna; Couture, Larry A.; and Smith, Alan E., 5,670,488, Cl. 514-44,000.
- Armitage, John Frederick: See—
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- Armstrong, John, III, to Kurzweil Applied Intelligence, Inc. Method for organizing incremental search dictionary. 5,671,426, Cl. 395-760,000.
- Arnold, David: See—
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- Arnold, M. Brian; Augenstein, Nancy K.; Lunn, William H. W.; Ornstein, Paul L.; and Schoepf, Darryle D., to Eli Lilly and Company. Excitatory amino acid receptor antagonists. 5,670,516, Cl. 514-307,000.
- ArQuile, Inc.: See—
- Hogan, Joseph C., Jr., 5,670,480, Cl. 514-12,000.
- Asahi Glass Company Ltd.: See—
- Tanuma, Toshihiro, 5,670,249, Cl. 428-304,000.
- Asahi Kogaku Kogyo Kabushiki Kaisha: See—
- Hokamura, Satoshi; Ichinokawa, Kazuhiro; Yano, Takaaki; Takano, Masatoshi; Hirano, Masakazu; Maseki, Motohiro; Yoshida, Tatsuya; Horie, Mikio; Shirai, Masami; Ito, Eiichi; and Otsuka, Kenichiro, 5,671,466, Cl. 399-124,000.
- Negishi, Kiyoshi; Kawamura, Katsumi; Suzuki, Katsuyoshi; Orita, Hiroshi; and Suzuki, Minoru, 5,669,720, Cl. 400-120,050.
- Shimizu, Hitoshi, 5,671,449, Cl. 392-132,000.
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- Asbury, Victor O.: See—
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- Ascione, Jean Marc, to L'Oreal. Anhydrous dentifrice composition. 5,670,137, Cl. 424-49,000.
- Ascione, Jean-Marc: See—
- Allard, Delphine; and Ascione, Jean-Marc, 5,670,139, Cl. 424-59,000.
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- Jakob, Horst, 5,669,114, Cl. 24-33,00P.
- Ash, Carl Edwin; and Mysore, Narayana, to Shell Oil Company. Polyketones with enhanced tribological properties. 5,670,586, Cl. 525-539,000.
- Ashi, Yoshihiro: See—
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- Ashtiani, Kaihan Abidi, to Sony Corporation; and Materials Research Corp. Plasma producing method and apparatus including an inductively-coupled plasma source. 5,669,975, Cl. 118-723,001.
- Ashton, Sean Michael Vincent: See—
- Stepan-Sarkissian, Gagik; Grey, Debbie; Spencer, Margaret Elizabeth; Stafford, Angela Marian; Ashton, Sean Michael Vincent; and Scollick, Sandra Jane, 5,670,357, Cl. 435-192,000.
- Aster, Richard H.: See—
- Newman, Peter J.; and Aster, Richard H., 5,670,337, Cl. 435-69,100.
- Astra AB: See—
- Eek, Arne Torsten, 5,670,524, Cl. 514-330,000.
- AT&T Global Information Solutions Company: See—
- Crafts, Harold S., 5,671,397, Cl. 395-500,000.
- Atassi, Ghanem: See—
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- Atkinson, Harry, to Smiths Industries PLC. Fluid quantity gauging systems. 5,670,710, Cl. 73-61,450.
- Atkinson, Tony: See—
- Allread, Richard M.; Nicholls, David J.; Scawen, Michael D.; and Atkinson, Tony, 5,670,333, Cl. 435-69,100.
- Atlantic Richfield Company: See—
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- Payne, Richard L., 5,670,093, Cl. 261-20,000.
- Atotech USA, Inc.: See—
- McNeil, Maynard W.; Reimbold, Edward J.; and Waldron, King C., 5,669,980, Cl. 134-3,000.
- Atsumi, Kiminori: See—
- Sakuma, Shuji; Atsumi, Kiminori; and Ishizaki, Tsutomu, 5,670,827, Cl. 257-741,000.
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- Ogasawara, Yuji; Kobayashi, Hiroyoshi; Maeda, Yoshihiro; and Atsumi, Motohiro, 5,671,037, Cl. 351-158,000.
- Attix, Douglas J., to Framatome Cogema Fuels. Reconstitutable rod cluster control assembly. 5,669,729, Cl. 403-282,000.
- Auberry, Eric R.; Flannery, David L.; Jackson, Kenneth William; Seitz, David R.; and Serenius, Eric J., to Ohio Electronic Engravers, Inc. Error tolerant method and system for measuring features of engraved areas. 5,671,063, Cl. 358-299,000.
- Auburn University: See—
- Worley, Shelby D.; Sun, Gang; Sun, Wanying; and Chen, Tay-Yuan, 5,670,646, Cl. 548-301,100.
- Audia, James E.; Hirsch, Kenneth S.; Jones, Charles D.; Lawhorn, David E.; McQuaid, Loreta A.; and Weigel, Leland O., to Eli Lilly and Company. Benzo [F] quinolinones. 5,670,512, Cl. 514-290,000.
- Audia, James E.; and Neubauer, Blake L., to Eli Lilly and Company. Compositions for inhibiting bone loss. 5,670,514, Cl. 514-298,000.
- Audibert, Annie; Argillier, Jean-Francois; Bailey, Louise; and Reid, Paul I., to Institut Français du Pétrole; and Dowell Schlumberger, Inc. Process and water-based fluid utilizing hydrophobically modified cellulose derivatives as filtrate reducers. 5,669,456, Cl. 175-72,000.
- Auereschellschaft GmbH: See—
- Dahlendorf, Klaus-Dieter; Schlobohm, Joachim; Von Kopp, Günter; Dreus, Wolfgang; and Siegel, Joachim W., 5,669,375, Cl. 128-206,170.
- Augenstein, Nancy K.: See—
- Arnold, M. Brian; Augenstein, Nancy K.; Lunn, William H. W.; Ornstein, Paul L.; and Schoepf, Darryle D., 5,670,516, Cl. 514-307,000.
- August, Katherine Grace; Caldwell, Charles David; Grewe, Anthony James; Herbst, Steven M.; Singer, Howard M.; and Sizer, Theodore, II, to Lucent Technologies Inc. Interactive system for communications between a cordless telephone and a remotely operated device. 5,671,267, Cl. 379-61,000.
- Aulbach, Michael: See—
- Herrmann, Hans-Friedrich; Aulbach, Michael; and Küber, Frank, 5,670,436, Cl. 502-103,000.
- Auman, Brian Carl; and Bohm, Edgar, to Du Pont de Nemours, E. I., and Company. Polyimide films from pyromellitic dianhydride and 2,2'-bis(perfluoroalkoxy)benzidines as alignment layers for liquid crystal displays. 5,670,609, Cl. 528-353,000.
- Aumüller, Alexander: See—
- Krause, Alfred; Aumüller, Alexander; Korona, Eckhard; and Trauth, Hubert, 5,670,613, Cl. 528-423,000.
- Aundrup, Christoph: See—
- Nacke, Bernard; Aundrup, Christoph; and Mertens, Manfred, 5,671,245, Cl. 373-153,000.
- Ausimont S.p.A.: See—
- Chittofrati, Alba; and Boselli, Viviana, 5,670,088, Cl. 252-314,000.
- Aust & Taylor Medical Corporation: See—
- Aust, Gilbert M.; and Taylor, Timothy E., 5,669,926, Cl. 606-170,000.
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- Automated Solutions, Inc.: See—
- Blaisdell, Kenneth C., 5,669,204, Cl. 53-429,000.
- Averion-Mahloch, Timothy James: See—
- Przybylowicz, James Edward; Averion-Mahloch, Timothy James; and Wofford, Mark Gregory, 5,671,070, Cl. 358-487,000.
- Aviv, Haim; Gorecki, Marian; Levanon, Avigdor; Oppenheim, Amos; and Hartman, Jacob, to Bio-Technology General Corp. Bacterial expression of superoxide dismutase. 5,670,371, Cl. 435-320,100.
- Avix Inc.: See—
- Tokimoto, Toyotaro; and Yajima, Hiroshi, 5,670,971, Cl. 345-31,000.
- Awatani, Koji: See—
- Nomura, Toshihiro; Karube, Kunihiko; Hisamoto, Masaaki; and Awatani, Koji, 5,671,134, Cl. 363-132,000.
- Axia Incorporated: See—
- Mower, Morris F., 5,670,182, Cl. 425-87,000.
- Axmann, Peter, to H. C. Starck GmbH & Co., KG. Manganese (III)-doped nickel (II) hydroxide powders. 5,670,271, Cl. 429-59,000.
- Aydt, Matthias; Pfertner, Kurt; Zeissner, Alexander; Thomas, Peter; and Blech, Christof, to Dr. Ing. h.c.F. Porsche AG. Folding top for vehicles, particularly passenger cars. 5,669,656, Cl. 296-116,000.
- Ayers, William L., IV: See—
- Wells, Thomas J.; and Ayers, William L., IV, 5,669,087, Cl. 5-269,000.
- Azarnia, Farah D.: See—
- Lee, Burnell; and Azarnia, Farah D., 5,669,985, Cl. 134-40,000.
- Azumaguchi, Teruhisa: See—
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- Azzouni, Ghassan H. Contact shoe assembly for a train. 5,669,472, Cl. 191-49,000.
- B.V. Optische Industrie "De Oude Delft": See—
- Rotteveel, Bart Joseph; and Brommersma, Pieter Derk, 5,669,389, Cl. 128-662,060.
- Baar, Kenneth W.; Sitachitt, Sidney; Spicer, Barry K.; Brewis, Graham H.; Minich, Arthur P.; Corsaro, Paul R.; and Berg, Paula M., to Proxima Corporation. Display panel projector and method of using same. 5,669,688, Cl. 353-119,000.
- Baardman, Frank; Bradford, Arleen Marie; Jubb, Jayne; Scheerman, Pieter; Wijngaarden, Rudolf Jacobus; Blecker, Erwin Paulus Petrus; and Van Broekhoven, Johannes Adrianus Maria, to Shell Oil Company. Process for the copolymerization of carbon monoxide with an olefinically unsaturated compound. 5,670,611, Cl. 528-392,000.
- Baba, Toshiyuki: See—
- Nagano, Koichi; Uno, Atsushi; Baba, Toshiyuki; Shimura, Takashi; and Oyama, Yuusei, 5,669,126, Cl. 29-25,350.
- Babcock & Wilcox Company, The: See—
- Pak, Sung S.; and Tolley, Archie N., 5,670,103, Cl. 264-66,000.
- Phelps, Calvin Eugene, Sr., 5,669,333, Cl. 122-6,00A.
- Babinec, Susan J., to Dow Chemical Company, The. Single compartment self-erasing electrochromic device. 5,671,082, Cl. 359-272,000.
- Babinski, Thomas E.: See—
- Wieloch, Christopher J.; Babinski, Thomas E.; and Mather, John C., 5,670,749, Cl. 174-260,000.
- Bacchi, Matthew F.: See—
- Stockstad, Troy L.; Bacchi, Matthew F.; and Brown, Martin J., 5,671,375, Cl. 395-309,000.
- Bach, Daniel Cornelius, Jr.: See—
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- Bächle, Bernhard: See—
- Schönfeld, Dieter; Bächle, Bernhard; Freitag, Martin; and Guth, Torsten, 5,669,334, Cl. 123-25,00R.
- Bachmann, Louis; and Studer, Fredi, to Teca-Print AG. Process and device for rotating an ink container used in tampon printing. 5,669,301, Cl. 101-163,000.
- Bachowski, Ronald: See—
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- Bacon, Edward M.: See—
- Desautels, Thomas; Allen, Charles E., Jr.; Huber, Joe M.; Bacon, Edward M.; Weisman, Steve M.; and Radue, Steven E., 5,669,852, Cl. 477-111,000.
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- Badami, Vivek Venugopal: See—
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- Dausch, Mark Edward; Whipple, Walter, III; Badami, Vivek Venugopal; and Jenkins, Harold John, Jr., 5,669,250, Cl. 68-12,020.
- Badley, Rickey D., to Phillips Petroleum Company. Catalyst compositions and catalytic processes. 5,670,438, Cl. 502-120,000.
- Bae, Moo Ho: See—
- Park, Song Bai; Bae, Moo Ho; and Jeon, Ki, 5,669,384, Cl. 128-661,010.
- Back, Yong Ku, to Hyundai Electronics Industries Co., Ltd. Method for forming ferroelectric thin film and apparatus therefor. 5,670,218, Cl. 427-576,000.
- Bageac, Alexandru Cristian: See—
- Golan, David Eric; Thatté, Hernant Sadashiv; and Bageac, Alexandru Cristian, 5,669,396, Cl. 128-898,000.
- Bagnuolo, Donald J. Air heater gun for joint compound with fan-shaped attachment. 5,671,321, Cl. 392-385,000.
- Bai, Tung-Shing: See—
- Wang, Hui-Po; and Bai, Tung-Shing, 5,670,508, Cl. 514-272,000.
- Baichwal, Anand R.; and Staniforth, John N., to Edward Mendell Co., Inc. Agglomerated hydrophilic complexes with multi-phasic release characteristics. 5,670,168, Cl. 424-464,000.

- Bail, Guy Le: See—
Herrero, José Mallen; Bail, Guy Le; and Feret, Jany, 5,669,420, Cl. 138-135.000.
- Baile, Clifton Augustus; Day, Jeffrey Wilson; Hampton, Thomas Riley, II; Kasser, Thomas Richard; Pike, James Brian; Smith, Jonathan Paul; and Ziemann, Lyle Elmore, to Monsanto Company. Method and device for implantation of large diameter objects in bovines. 5,670,162, Cl. 424-438.000.
- Bailey, Louise: See—
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- Bailey, Robert W., to Masco Corporation of Indiana. Compression cartridge for a faucet valve assembly. 5,669,407, Cl. 137-359.000.
- Bailey, Thomas G.: See—
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- Baird, Andrew: See—
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- Baird, William, to Saturn Machine & Welding Co., Inc. Coke oven door with multi-latch sealing system. 5,670,025, Cl. 202-248.000.
- Baker Hughes Incorporated: See—
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- Baker, Jay DeAvis: See—
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- Baker, John D.; Meikrantz, David H.; and Tuggle, Dale G., to Lockheed Martin Idaho Technologies Company. Method for the purification of noble gases, nitrogen and hydrogen. 5,669,961, Cl. 95-115.000.
- Baker Manufacturing Company: See—
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Buschur, Jeffrey J., to ITT Automotive Electrical Systems, Inc. Automotive hydraulic system and method, 5,669,461, Cl. 180-417.000.
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Buxton, Ian Richard; Critchley, Helen; Leslie, Stewart Thomas; Prater, Derek Allan; Miller, Ronald Brown; and Malkowska, Sandra Therese Antoinette, to Euro-Celtique, S.A. Pharmaceutical spheroid formulation, 5,670,172, Cl. 424-495.000.
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Campbell, Duncan Alistair; and Gilroy, Daniel, to EA Technology Limited. Method for converting ammonia in a gas stream to nitrogen, 5,670,036, Cl. 205-499.000.
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Cardin, Alan D.; Jackson, Richard L.; and Mullins, Michael J., to Merrell Pharmaceuticals Inc.; and Dow Chemical Company. The. Anti-herpes virus and cytomegalovirus polyester oligomers, 5,670,144, Cl. 424-78.080.
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Papich, Kevin S.; Bachowski, Ronald; Baumann, Stephen F.; Cargnel, Robert A.; Carlin, Gerald E.; Clements, Donald J.; Gunkel, Ronald W.; Hoffman, William H.; McKinney, Larry G.; Pajerski, A. Victor; Palko, John J.; Patrick, Edward P., Jr.; Rennekamp, Stephen J.; Scheble, Philip C.; Sharfins, William R.; Swigon, Frank P.; and Truckner, William G., 5,669,436, Cl. 164-461.000.
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- Consortio per la Ricerca Sulla Microelettronica nel Mezzogiorno: See—
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- Creighton, Andrew Malcolm: See—
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- Dalman, Robert E., to Dow Chemical Company. The printing wiring board(s) having polyimidebenzoxazole dielectric layer(s) and the manufacture thereof. 5,670,262, Cl. 428-458,000.
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- De Vry, Jean-Marie Viktor: See—
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- Drägerwerk AG: See—
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- Dupuy, Jean-Paul: See—
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- Dynex Technologies, Inc.: See—
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- Dyno Nobel Inc.: See—
- Stromquist, Donald M.; and Wathen, Boyd J., 5,670,741, Cl. 149-109.600.
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- Earleson, Walter E., to Caterpillar Inc. System for automatically controlling engine lubricating fluid flow, 5,669,464, Cl. 184-1.500.
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- Vishwakarma, Lal Chand, 5,670,654, Cl. 548-260.000.
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- Eaton, Ronald D.: See—
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 Fogarty, Terence M.: See—
 Duan, Daniel C.; Schaberg, Mark S.; Fogarty, Terence M.; Howard, William L., Jr.; and Wood, Kenneth B., 5,670,097, Cl. 264-1.240.
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 Cullen, Michael John; Meek, Bruce Allen; and Rzemien, Kevin Joseph, 5,669,347, Cl. 123-306.000.
 Drouillard, Darrell C., 5,669,337, Cl. 123-41.150.
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 Smith, Paul Frederick; Armitage, John Frederick; and Ferch, Eric Blaine, 5,671,141, Cl. 364-424.034.
 Williams, Bruce P., 5,669,336, Cl. 123-41.120.
 Ford Motor Company: See—

- Bartos, Christopher James; Dapoz, Albert James; and Bach, Daniel Cornelius, Jr., 5,669,626, Cl. 280-728.000.
 Gottfried, Gordon Edgar; and Ravi, Latha, 5,671,286, Cl. 381-13.000.
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 Pham, C. V.; Hayden, Brian J.; and Walles, Bethany J., 5,669,545, Cl. 228-1.100.
 Forester, Cynthia Fanning: See—
 Dausch, Mark Edward; Badami, Vivek Venugopal; Whipple, Walter, III; and Forester, Cynthia Fanning, 5,669,095, Cl. 8-158.000.
 Forestier, Serge: See—
 Deflandre, Andre; Forestier, Serge; Lang, Gerard; Richard, Herve; and Leduc, Madeleine, 5,670,140, Cl. 424-59.000.
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 Cummings, Kenneth R.; and Forrest, Ronald L., 5,670,191, Cl. 426-2.000.
 Forsberg, Francis C.: See—
 LeBleu, Terry L.; and Forsberg, Francis C., 5,669,221, Cl. 62-92.000.
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 Ahluwalia, Kawaljit Singh, 5,670,040, Cl. 210-198.100.
 Fournier, Thomas J.; Kohn, Bruce R.; Lee, Samuel Chu; and Mitchell, Glenn E., to Envirotec Systems Corp. Apparatus and method for effecting wireless discourse between computer and technician in testing motor vehicle emission control systems, 5,671,158, Cl. 364-514.000.
 Fox, Roger Harrington, to Novamedix Limited. Method for focused delivery of venous flow for artificial impulse compression of an anatomical foot pump, 5,669,872, Cl. 601-152.000.
 Fox, William D.: See—
 Schulze, Dale R.; Paraschac, Joseph; Fox, William D.; Setser, Michael E.; Wales, Kenneth S.; and Zeiner, Mark S., 5,669,544, Cl. 227-176.100.
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 Murray, Robert R.; Fraczek, Stephen P.; and Jackson, Dale H., 5,669,158, Cl. 34-393.000.
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 Attix, Douglas J., 5,669,729, Cl. 403-282.000.
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 Pernet, Michel, 5,670,769, Cl. 235-441.000.
 France, Jack Wayne, Sr.: See—
 Ware, Kenneth Marvin; France, Jack Wayne, Sr.; and Williams, Jeffrey A., 5,669,810, Cl. 452-193.000.
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 Flipeaux, Jean-Luc, 5,671,268, Cl. 379-68.000.
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 Francis, John Peter, to Amot Controls Limited. Turbocharger intercooler control means, 5,669,363, Cl. 123-563.000.
 Francotyp-Postalia GmbH: See—
 Windel, Harald; Reisinger, Frank; Freytag, Claus; Kubatzki, Ralf; Bischoff, Enno; Wagner, Andreas; Rieckhoff, Peter; Hansel, Marcus; and Günther, Stephan, 5,671,146, Cl. 364-464.200.
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 Madsen, Ernest L.; Zagzebski, James A.; Frank, Gary R.; and Rownd, Jason J., 5,670,719, Cl. 73-619.000.
 Frank, Kurt: See—
 Kleppner, Stephan; and Frank, Kurt, 5,669,359, Cl. 123-509.000.
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 Hintsche, Rainer; Paeschke, Manfred; Schnakenberg, Uwe; and Wollenberger, Ulla, 5,670,031, Cl. 204-412.000.
 Fèchet, Jean M. J.; Haque, Shah A.; Steinke, Joachim Hans Georg; and Wang, Hsien-Chang, to Exxon Chemical Patents Inc.; and Cornell Research Foundation, Inc. Metallation and functionalization of polymers and copolymers, 5,670,581, Cl. 525-333.300.
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 Freitag, Martin: See—
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 French, Roy C.: See—
 Ahlquist, Paul G.; and French, Roy C., 5,670,353, Cl. 435-172.300.
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 Fridlin, C. C.: See—
 Blackwell, Steven R.; Pearson, John Timothy; and Fridlin, C. C., 5,671,251, Cl. 375-222.000.
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 Friend, Richard H.: See—
 Halls, Jonathan J. M.; and Friend, Richard H., 5,670,791, Cl. 257-40.000.
 Friese, Karl-Hermann; Weyl, Helmut; Nees, Siegfried; and Wiedenmann, Hans-Martin, to Robert Bosch GmbH. Electro-chemical measuring sensor with a potential-free sensor element and method for producing it, 5,670,032, Cl. 204-424.000.
 Frisina, Ferruccio: See—
 Ferla, Giuseppe; and Frisina, Ferruccio, 5,670,392, Cl. 437-29.000.
 Fritz Hartmann Gerätebau GmbH & Co. KG: See—
 von Ende, Hermann, 5,669,489, Cl. 200-570.000.
 Frounfelker, Carl R. Thermal controlled plant protector, 5,669,177, Cl. 47-21.000.
 Fröwis, Markus: See—
 Janssen, Rupert; Fröwis, Markus; and Guillon, Luc, 5,669,589, Cl. 248-65.000.
 Fryar, Richard D., Jr.: See—
 Conway, Anthony J.; Conway, Philip J.; and Fryar, Richard D., Jr., 5,670,111, Cl. 264-512.000.
 Frye, Günter: See—
 Ortmann, Helmut; Frye, Günter; Böhm, Rainer; and Lübken, Manfred, 5,670,735, Cl. 102-202.000.
 Fu, Yi-Chang: See—
 Scheibel, Jeffrey John; Connor, Daniel Stedman; Fu, Yi-Chang; Bodet, Jean-Francois; Brown, Lesley Alexandra; Vinson, Phillip Kyle; and Reilman, Randall Thomas, 5,669,984, Cl. 134-25.200.
 Fuchs, Alexander: See—
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 Fuji Electric Co., Ltd.: See—
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 Fuji Kogyo Kabushiki Kaisha: See—
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 Fuji Photo Film Co., Ltd.: See—
 Chen, Lan Bo; and Shishido, Tadao, 5,670,530, Cl. 514-366.000.
 Iwaki, Yasuharu, 5,671,041, Cl. 355-38.000.
 Kato, Eiichi; and Osawa, Sadao, 5,670,283, Cl. 430-46.000.
 Kubo, Takashi; Kimura, Tsutomu; Shirane, Hideto; and Hirai, Masayoshi, 5,671,458, Cl. 396-436.000.
 Matsumoto, Kazuhiko; Noro, Masaki; Okamura, Hisashi; and Ishikawa, Shun-ichi, 5,670,292, Cl. 430-138.000.
 Naruse, Yasuhito; Kamitani, Kiyoshi; Uesugi, Akio; Kakei, Tsutomu; and Morohoshi, Gouichi, 5,670,293, Cl. 430-165.000.
 Okazaki, Yoji, 5,671,240, Cl. 372-19.000.
 Oshida, Eizi, 5,671,299, Cl. 382-307.000.
 Seikai, Hiroshi, 5,671,452, Cl. 396-318.000.
 Shibata, Hiromi; and Ito, Akira, 5,671,289, Cl. 382-129.000.
 Takahashi, Koji; and Terashita, Takaaki, 5,671,060, Cl. 356-405.000.
 Yasuda, Keisuke, 5,671,469, Cl. 399-197.000.
 Fuji Photo Optical Co., Ltd.: See—
 Yamakawa, Hiromitsu, 5,671,094, Cl. 359-679.000.
 Fuji Polymeritech Co., Ltd.: See—
 Shima, Mitsunori, 5,669,486, Cl. 200-314.000.
 Fuji Systems Corporation: See—
 Igarashi, Akira, 5,669,930, Cl. 606-191.000.
 Fuji Xerox Co., Ltd.: See—
 Akashi, Ryojiro; Ninomiya, Masanobu; Uematsu, Takashi; and Morikawa, Takashi, 5,670,083, Cl. 252-299.010.
 Akashi, Ryojiro; Morikawa, Takashi; Ninomiya, Masanobu; and Uematsu, Takashi, 5,671,211, Cl. 369-275.100.
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 Fujie, Hiroto: See—
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 Fujii, Ayako: See—
 Tamura, Masaaki; Fujii, Ayako; Kobari, Yoshiko; Nagano, Mamoru; Watanabe, Kiyoshi; Morinaga, Hidehiko; Koyama, Shigeki; and Sawada, Yoshikazu, 5,671,346, Cl. 395-171.000.

Fujii, Yasutoshi: See—
Takahashi, Yoshiharu; Yamada, Minoru; Nojima, Yoshiyuki; and Fujii, Yasutoshi, 5,671,451, Cl. 396-310.000.

Fujii, Yoshio: See—
Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; Ito, Mitsuo; Umesato, Fuminori, deceased, 5,670,379, Cl. 436-161.000.

Fujikin Incorporated: See—
Nishino, Koji; Ikeda, Nobukazu; Morimoto, Akihiro; Minami, Yukio; Kawada, Koji; Dohi, Ryosuke; and Fukuda, Hiroyuki, 5,669,408, Cl. 137-487.500.

Yoshikawa, Kazuhiro; and Kojima, Tetsuya, 5,669,596, Cl. 251-335.200.

Fujima, Hiroya: See—
Haginaka, Jun; Wada, Hiroo; and Fujima, Hiroya, 5,670,629, Cl. 530-395.000.

Fujimori, Naoki: See—
Nishibayashi, Yoshiki; Shikata, Shin-ichi; Fujimori, Naoki; and Kobayashi, Takeshi, 5,670,796, Cl. 257-77.000.

Fujimoto, Masahisa; Nishio, Koji; and Saitoh, Toshihiko, to Sanyo Electric Co., Ltd. Ion conductive material for secondary battery, 5,670,275, Cl. 429-218.000.

Fujisawa Pharmaceutical Co., Ltd.: See—
Kawai, Yoshio; Yamazaki, Hitoshi; Tanaka, Hirokazu; and Oku, Teruo, 5,670,503, Cl. 514-243.000.

Matsuo, Masaaki; Hagiwara, Daijiro; Manabe, Takashi; Konishi, Nobukiyo; Shigenaga, Shinji; Murano, Kenji; Matsuda, Hiroshi; and Miyake, Hiroshi, 5,670,505, Cl. 514-253.000.

Matsuo, Masaaki; Tsuji, Kiyoshi; Ogino, Takashi; and Konishi, Nobukiyo, 5,670,533, Cl. 514-106.000.

Fujishiro, Takatsugu: See—
Kimura, Noriyuki; Suzuki, Minoru; Sakamoto, Kouji; Noguchi, Kouichi; Deki, Tsuyoshi; Matsushiro, Hiroyuki; Sasaki, Eiichi; Fujishiro, Takatsugu; and Kobayashi, Chiyoaki, 5,671,465, Cl. 399-119.000.

Fujita, Miyuki: See—
Hirabayashi, Hiromitsu; Nagoshi, Shigeyasu; Koitabashi, Noribumi; Sugimoto, Hitoshi; Fujita, Miyuki; Gotoh, Fumihiko; and Uetsuki, Masaya, 5,671,000, Cl. 347-86.000.

Fujita, Ryoichi: See—
Okado, Kenji; Ugai, Toshiyuki; Fujita, Ryoichi; Kanbayashi, Makoto; Takiguchi, Tsuyoshi; Ichikawa, Yasuhiro; and Iida, Wakashi, 5,670,288, Cl. 430-122.000.

Fujita, Suguru; and Hasegawa, Makoto, to Matsushita Electrical Industrial Co., Ltd. Electric power receiving and supplying circuit, 5,671,133, Cl. 363-126.000.

Fujitsu Limited: See—
Hashimoto, Koichi, 5,670,017, Cl. 156-643.100.

Higashitani, Masaaki; and Hasegawa, Masatomo, 5,671,239, Cl. 371-51.100.

Higuchi, Mitsuo, 5,671,180, Cl. 365-185.210.

Igura, Koichi, 5,671,186, Cl. 365-203.000.

Ito, Nobutaka; Murakami, Kanako; and Nakajima, Shuichi, 5,671,167, Cl. 364-578.000.

Iwai, Takashi; and Nakano, Motoo, 5,670,885, Cl. 324-550.000.

Kawasaki, Kenichi, 5,670,909, Cl. 317-543.000.

Koide, Masateru; and Ikeda, Hiroshi, 5,670,067, Cl. 219-121.680.

Miyata, Maki; Iura, Akihiko; and Murata, Akio, 5,670,770, Cl. 235-462.000.

Nakao, Hiroshi; and Mori, Toshihiko, 5,670,800, Cl. 257-190.000.

Subasingha, Chammika; and Watanabe, Yoshihiro, 5,671,216, Cl. 370-230.000.

Tabuchi, Haruhiko; Kumai, Tsugio; Sasaki, Seimi; and Miura, Kazunori, 5,671,315, Cl. 385-137.000.

Takashi, Toru; and Tanizawa, Tetsu, 5,670,894, Cl. 326-27.000.

Watanabe, Mitsuo; Sato, Shinichi; and Shinoda, Ichiro, 5,670,771, Cl. 235-462.000.

Yamamoto, Shinji; Tayama, Hideyuki; and Yamaguchi, Shuji, 5,670,952, Cl. 340-825.520.

Fukae, Kimitoshi: See—
Takehara, Nobuyoshi; and Fukae, Kimitoshi, 5,669,987, Cl. 136-244.000.

Fukagai, Toshio: See—
Kishi, Hiroyuki; Fukagai, Toshio; Taniguchi, Kiyoshi; and Inoue, Tomohiro, 5,670,284, Cl. 430-58.000.

Fukang, Jiang: See—
Zaiting, Li; Chaogang, Xie; Wenyuan, Shi; Fukang, Jiang; Shunhua, Liu; Renman, Pan; and Shichun, Li, 5,670,037, Cl. 208-114.000.

Fukano, Masahiko, to Mita Industrial Co., Ltd. Press roller supported at opposite ends and at an interior portion, 5,671,474, Cl. 399-331.000.

Fukase, Makoto: See—
Hironaka, Katsuhito; and Fukase, Makoto, 5,669,731, Cl. 403-405.100.

Fukuda, Hideki: See—
Kitahara, Koichi; Otsuka, Kenji; Hatakeyama, Toshiya; and Fukuda, Hideki, 5,670,445, Cl. 502-406.000.

Fukuda, Hiroyuki: See—
Nishino, Koji; Ikeda, Nobukazu; Morimoto, Akihiro; Minami, Yukio; Kawada, Koji; Dohi, Ryosuke; and Fukuda, Hiroyuki, 5,669,408, Cl. 137-487.500.

Fukuda, Kazuyuki: See—
Yuhara, Toshiya; Iitsuka, Hisao; Fukuda, Kazuyuki; Shimaoka, Makoto; and Kumazawa, Tetsuo, 5,671,316, Cl. 385-137.000.

Fukuda, Yutaka: See—
Kanno, Tatsuya; and Fukuda, Yutaka, 5,670,604, Cl. 528-196.000.

Fukui, Hiroshi: See—
Mitsuoka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yukuo; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126.000.

Fukumoto, Minoru: See—
Kurahashi, Yasufumi; and Fukumoto, Minoru, 5,669,226, Cl. 62-227.000.

Fukunaga, Masami, to Enplas Corporation. IC socket, 5,669,780, Cl. 439-266.000.

Fukushima, Hirotaka, to Exedy Corporation. Flexible plate for transmitting torque, 5,669,820, Cl. 464-98.000.

Fukuzawa, Keiji: See—
Nakagawa, Yutaka; Kajiura, Tadashi; Fukuzawa, Keiji; and Yuzawa, Keiji, 5,670,902, Cl. 327-99.000.

Fulghum Industries, Inc.: See—
Hoover, Larry, 5,669,428, Cl. 144-245.200.

Fulkerson, Gary E.: See—
Eilers, Gregory L.; Fulkerson, Gary E.; and Christopherson, Sven A., 5,669,654, Cl. 296-26.000.

Full Circle Company: See—
Geffen, Benjamin, 5,669,494, Cl. 206-308.100.

Fullalove, Nicholas Jonathan: See—
Grant, Philip; Becker, Michael Christopher; Brassington, David; Butler, Philip Samuel; Hutson, Steven Graham; Fullalove, Nicholas Jonathan; and Preston, Leslie Douglas, 5,670,845, Cl. 315-77.000.

Fuller, Graham; Banks, Anthony John; and Anderson, Raymond Gale, to Carlsberg-Tetley Brewing Limited. Beverage container having interior secondary chamber for foam generation and method for producing same, 5,670,194, Cl. 426-112.000.

Fuller, John Michael: See—
Griffin, Nigel Dennis; and Fuller, John Michael, 5,669,271, Cl. 76-108.200.

Fuller, Robert T., to Harris Corporation. Method and apparatus for radiation hardened isolation, 5,670,413, Cl. 437-69.000.

Fuller, Trevor Alan: See—
Wall, Robin Christopher; and Fuller, Trevor Alan, 5,669,356, Cl. 123-467.000.

Funai Electric Co., Ltd.: See—
Suzuki, Hirotatsu, 5,671,016, Cl. 348-377.000.

Fung, Henry Tat; and Mitchell, Phillip Merle, to Vadem Corporation. Mappable functions from single chip/multi-chip processors for computers, 5,671,433, Cl. 395-800.000.

Furukawa, Nobuya: See—
Koga, Hisamitsu; Kumagai, Naotake; Ohwada, Tomiji; Furukawa, Nobuya; Kato, Masaaki; and Kawamura, Nobuyuki, 5,670,830, Cl. 307-10.100.

Furumiya, Shigeru: See—
Kamioka, Yuichi; Koishi, Kenji; Ogata, Daisuke; and Furumiya, Shigeru, 5,671,209, Cl. 369-116.000.

Furuya, Shouichi, to Shimizu, Toshiro. Air flow rate regulation apparatus for air pump, 5,669,410, Cl. 137-511.000.

Fusion Medical Technologies, Inc.: See—
Sawyer, Philip N., 5,669,934, Cl. 606-213.000.

Futamura, Masao: See—
Mizuno, Masahiro; Futamura, Masao; and Muto, Yukiyo, 5,671,410, Cl. 395-615.000.

Futamura, Shoji; and Unno, Keizo, to Institute of Technology Precision Electrical Discharge Work's. Index-feed machining system, 5,669,128, Cl. 29-33.000.

Futamura, Tatsuya, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Push lock switch with dual function self-biasing slider contact, 5,670,762, Cl. 200-16.000.

Fuyama, Moriaki: See—
Mitsuoka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yukuo; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126.000.

Fyson, John Richard; and Evans, Gareth Bryn, to Eastman Kodak Company. Method of processing photographic silver halide materials, 5,670,300, Cl. 430-373.000.

G & H Technology, Inc.: See—
Hyatt, Hugh M., 5,669,381, Cl. 428-402.000.

G. D. Searle & Co.: See—
Huang, Hong-Chih; and Reitz, David R., 5,670,510, Cl. 514-278.000.

Nugent, Sean T.; and Mueller, Richard A., 5,670,650, Cl. 548-491.000.

Talley, John J.; Bertenshaw, Stephen R.; Graneto, Matthew J.; and Rogier, Donald J., 5,670,532, Cl. 514-403.000.

G.D. Societa' per Azioni: See—
Neri, Armando; and Turra, Mario, 5,669,481, Cl. 198-347.300.

Gabbittas, Victor: See—
Rice, Joseph; and Gabbittas, Victor, 5,669,205, Cl. 53-430.000.

Gable, Richard J.: See—
Carson, Dean E.; and Gable, Richard J., 5,669,790, Cl. 439-668.000.

Gabrielson, Kurt D.; and Conner, Rodney R., to Georgia-Pacific Resins, Inc. Process for producing a dispersed novolac resin and use in a binder system for thermal insulation, 5,670,571, Cl. 524-604.000.

Gabrilove, Janice L.: See—

Welte, Karl; Platzer, Erich; Gabrilove, Janice L.; Mertelsm, Roland; and Moore, Malcolm A. S., 5,670,146, Cl. 424-85.100.

Gadducci, Paolo: See—
Moloney, David; and Gadducci, Paolo, 5,670,904, Cl. 327-277.000.

Gade, Niels: See—
Hansen, Henning Max; Pedersen, Hans Jørgen; Voss, Frands Wulff; and Gade, Niels, 5,670,723, Cl. 73-861.120.

Gadkari, Avinash Chandrakant: See—
Meka, Prasadaro; Imanishi, Kunihiko; Licciardi, Gary Frederick; and Gadkari, Avinash Chandrakant, 5,670,595, Cl. 526-336.000.

Gaffney, Thomas D.; Lam, Stephen T.; Hill, Dwight Steven; Stein, Jeffrey I.; and Ligon, James M., to Novartis Finance Corporation. Genomic DNA encoding a pseudomonas global transcriptional activation element and its use in activating gene expression, 5,670,350, Cl. 435-172.300.

Gagné, Robert R.; Marocco, Matthew Louis, III; Trimmer, Mark Steven; and Hendricks, Neil H., to Maxdem Incorporated. Macromonomers having reactive end groups, 5,670,564, Cl. 524-99.000.

Gagnebien, Didier: See—
Grollier, Jean-Francois; Cantin, Herve; and Gagnebien, Didier, 5,670,487, Cl. 514-35.000.

Gala-Gem Inc.: See—
Gregory, Antone G., 5,670,196, Cl. 426-580.000.

Gale, William Arthur: See—
Cattlett, Jason A.; Gale, William Arthur; and Lewis, David Dolan, 5,671,333, Cl. 395-20.000.

Galena, a.s.: See—
Stuchlik, Milan; Pavelek, Zdenek; and Markovic, Lubo, 5,670,478, Cl. 514-11.000.

Galica, Theodore R.: See—
Sheu, Lien-Lung; Ramachandran, Ramakrishnan; and Galica, Theodore R., 5,670,125, Cl. 423-239.200.

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Gallagher, Michael J.: See—
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- Griffin, Nigel Dennis; and Fuller, John Michael, to Camco Drilling Group Limited of Hycalog. Elements faced with superhard material. 5,669,271, Cl. 76-108.200.
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- Gysel, Hermann; See—
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- H. C. Starck GmbH & Co., KG; See—
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- Hagemeyer, Roland L., to Louis Berkman Company, The. Conveyor for particulate material. 5,669,531, Cl. 222-153.140.
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- Hammond, John M. Enclosures and accessories for sport utility vehicles, vans, and minivans. 5,669,655, Cl. 296-26.000.
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- Hampton, Thomas Riley, II; See—
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- Hanita Lenses; See—
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- Hanlon, William S. Louvered apparatus for the regulation of solar light and heat radiation through windows and the like. 5,669,179, Cl. 49-64.000.
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- Hansen, James Jens; See—
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Fréchet, Jean M. J.; Haque, Shah A.; Steinke, Joachim Hans Georg; and Wang, Hsien-Chang, 5,670,581, Cl. 525-333.000.

Hara, Shinichi: See—
Carnahan, Josette Francoise; Hara, Shinichi; Lu, Hsieng Sen; Mayer, John Philip; and Yoshinaga, Steven Kiyoshi, 5,670,342, Cl. 435-69.700.

Hara, Takashi: See—
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Hara, Yukihiko; and Honda, Miwa, to Mitsui Norin Co., Ltd. Reducing tyrosinase activity, 5,670,154, Cl. 424-195.100.

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Harada, Shoji: See—
Ueyama, Tomoyuki; Harada, Shoji; Nakamata, Toshiaki; Shibata, Masuo; Doi, Toshimitsu; Ogawa, Shunichi; Matsumoto, Ichiro; and Nakai, Hiroshi, 5,670,071, Cl. 219-130.510.

Harada, Takamasa; Itoh, Haruhiko; Uchida, Masami; and Nozawa, Fumie, to Hoechst Aktiengesellschaft. Alignment layer material for liquid crystal display devices, 5,670,084, Cl. 252-299.010.

Harada, Takashi: See—
Kotani, Tomoyuki; Endo, Kazuo; Sakamoto, Seiji; Harada, Takashi; Masuda, Naohiro; Inagaki, Masashi; and Kawaguchi, Chikakazu, 5,670,236, Cl. 428-141.000.

Haraguchi, Youichi; and Kumazawa, Kenichi, to Tachi-S Co., Ltd. Leather trim cover assembly for vehicle seat and method for forming the same, 5,669,670, Cl. 297-452.610.

Harari, Eliyahou; Norman, Robert D.; and Mehrotra, Sanjay, to SanDisk Corporation. Flash eeprom system with defect handling, 5,671,229, Cl. 371-10.200.

Harco Manufacturing Company: See—
Harris, Frank E., 5,670,757, Cl. 181-264.000.

Hardin, William C., Jr.: See—
Hughes, Robert J.; Leonard, Michael S.; and Hardin, William C., Jr., 5,669,155, Cl. 34-115.000.

Harding, Donald E.: See—
LaBerge, Paul A.; Wiedenman, Gregory B.; and Harding, Donald E., 5,671,369, Cl. 395-287.000.

Hardouin DuParc, Ludovic: See—
Flee, Dominique; and Hardouin DuParc, Ludovic, 5,670,568, Cl. 524-436.000.

Hardy, Stephen N., to RTC Industries, Inc. Gravity feed dispenser, 5,669,527, Cl. 221-191.000.

Hare, David George: See—
Mallows, Jeffrey; Easton, Richard William; Hare, David George; Rust, Steven James; and Stamp, Gary, 5,669,539, Cl. 226-24.000.

Harford, Debra W., to Hoechst Celanese Corporation. Geogrid composed of polyethylene terephthalate and polyolefin bicomponent fibers, 5,669,796, Cl. 442-220.000.

Harkin, Patrick A.: See—
Suboh, Abdel Hamid; Harkin, Patrick A.; and Hecht, Stuart, 5,670,983, Cl. 345-132.000.

Harland, Richard M.; and Smith, William C., to University of California, The Regents of the. Dorsal tissue affecting factor (noggin) and compositions comprising same, 5,670,481, Cl. 514-42.000.

Harlow, Grant William Roland: See—
York, Allan Brent; Harlow, Grant William Roland; and Matheson, George Everett, 5,671,306, Cl. 385-36.000.

Harmon, J. Paul: See—
Elliot, Joseph R.; Harmon, J. Paul; Kawamura, Naoto; and Altendorf, John M., 5,671,001, Cl. 347-87.000.

Harold, Raymond W.: See—
Deweese, Thomas Gerret; Darlington, Orice; Volponi, Jerry A.; Harold, Raymond W.; Felipe, Kenneth T.; Griffey, Lee; and Heiskell, Ronald E., 5,669,209, Cl. 53-490.000.

Harpold, Michael Miller: See—
Akong, Michael Anthony; Harpold, Michael Miller; Velicelebi, Gonul; and Brust, Paul, 5,670,113, Cl. 422-63.000.

Harrell, Chandlee Bryant, to Silicon Graphics, Inc. Apparatus for efficiently accessing graphic data for rendering on a display, 5,671,401, Cl. 395-505.000.

Harrington, Philip Mark: See—
Crews, Alvin Donald, Jr.; Harrington, Philip Mark; Karp, Gary Mitchell; Gill, Simon David; and Dieterich, Petra, 5,670,641, Cl. 544-221.000.

Harris Corporation: See—
Cotreau, Gerald Michael, 5,671,271, Cl. 379-382.000.

Croft, Gregg D., 5,670,799, Cl. 257-173.000.

Fuller, Robert T., 5,670,413, Cl. 437-69.000.

Toh, Hong Seng; Eickmann, Frederick P.; and Clark, James V., 5,669,599, Cl. 269-8.000.

Harris, Frank E., to Harco Manufacturing Company. Exhaust silencer for engines and generators, 5,670,757, Cl. 181-264.000.

Harris, Ronald B. Linear solids removal unit, 5,670,039, Cl. 210-138.000.

Harris, Thomas J.: See—
Jackson, Barrie W.; and Harris, Thomas J., 5,670,702, Cl. 560-208.000.

Harrison, Edward R.: See—
Millier, Marshall A.; Harrison, Edward R.; and Needham, Bradford, 5,671,342, Cl. 395-118.000.

Hart, David: See—

Hu, Yi; Hart, David; Novosel, Damir; and Smith, Robert, 5,671,112, Cl. 361-86.000.

Hart, Marshall B.: See—
Montague, Wade A.; Whiton, John H.; Hart, Marshall B.; Morgan, Roger J.; and Arnold, David, 5,670,922, Cl. 335-35.000.

Hart Schaffner & Marx: See—
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Hartley, Richard Ian: See—
Curwen, Rupert William Meldrum; and Hartley, Richard Ian, 5,669,382, Cl. 128-653.100.

Hartman, Frederick Anthony: See—
Sivik, Mark Robert; and Hartman, Frederick Anthony, 5,670,466, Cl. 510-102.000.

Hartman, Jacob: See—
Aviv, Haim; Gorecki, Marian; Levanon, Avigdor; Oppenheim, Amos; and Hartman, Jacob, 5,670,371, Cl. 435-320.100.

Haruki, Takashi, to Sharp Kabushiki Kaisha. Apparatus for manufacturing a display device and a method of manufacturing the display device, 5,671,029, Cl. 349-96.000.

Harvey, Julie: See—
Whittlesey, Saunders N.; and Harvey, Julie, 5,671,055, Cl. 356-376.000.

Harvey, Thomas B., III: See—
Shieh, Chan-Long; Ackley, Donald E.; Maracas, George N.; and Harvey, Thomas B., III, 5,671,303, Cl. 385-12.000.

Hasbun, Robert N., to Intel Corporation. Method and apparatus for performing write operations in multi-level cell storage device, 5,671,388, Cl. 395-430.000.

Hasegawa, Etsuo; Sudo, Masatoshi; Nagasawa, Toshiya; and Yoshii, Keiichi, to Nippondenso Co., Ltd. Laminated type heat exchanger, 5,669,439, Cl. 165-153.000.

Hasegawa, Hiroshi: See—
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Hasegawa, Makoto: See—
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Hasegawa, Masatomo: See—
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Haseltine, Eric C.: See—
Monroe, Marshall M.; Haseltine, Eric C.; and Adamson, William G., 5,671,091, Cl. 359-635.000.

Hashemi, Ebrahim; and Schulze, Martin E., to Hitachi Computer Products America, Inc. Apparatus and method for providing data redundancy and reconstruction for redundant arrays of disk drives, 5,671,349, Cl. 395-182.040.

Hashimoto, Jiro: See—
Kita, Kazuo; Ohtani, Takashi; and Hashimoto, Jiro, 5,670,464, Cl. 508-562.000.

Hashimoto, Kiyokazu: See—
Yamauchi, Eiji; Hashimoto, Kiyokazu; Oka, Hidemi; Kashi, Takao; Hidaka, Iwao; and Yamamoto, Yoshiki, 5,671,260, Cl. 375-372.000.

Hashimoto, Koichi, to Fujitsu Limited. Method of manufacturing semiconductor device, 5,670,017, Cl. 156-643.100.

Hashimoto, Shigeharu; and Ito, Tadato, to NGK Insulators, Ltd. Structure of electrode unit, 5,670,746, Cl. 174-65.00R.

Hashitani, Hideki: See—
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Hashizume, Junichiro: See—
Takei, Tetsuya; and Hashizume, Junichiro, 5,670,286, Cl. 430-66.000.

Hasper, Pat K.; and Hasper, Wolfgang A. Valve assembly for use with a bottle or a container, 5,669,427, Cl. 141-364.000.

Hasper, Wolfgang A.: See—
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Hastreiter, Jacob John, Jr.: See—
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Hata, Masaharu: See—
Moriguchi, Akisada; Yumoto, Osamu; Hata, Masaharu; Saito, Hironori; and Azumaguchi, Teruhisa, 5,670,868, Cl. 323-313.000.

Hatakeyama, Toshiya: See—
Kitahara, Koichi; Otsuka, Kenji; Hatakeyama, Toshiya; and Fukuda, Hideki, 5,670,445, Cl. 502-406.000.

Hatakeyama, Yuji: See—
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Hatano, Hiroshi; Yoshii, Ichiro; and Takatsuka, Satoru, to Kabushiki Kaisha Toshiba. Semiconductor device, 5,670,816, Cl. 257-394.000.

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Hatazaki, Kaichiro, to NEC Corporation. Speech dialogue system in which a recognition and understanding process, application process, and voice input response are performed simultaneously with voice input, 5,671,329, Cl. 395-2.620.

Hatsuda, Tsuguyasu, to Matsushita Electric Industrial Co., Ltd. Data read circuit used in semiconductor storage device, 5,671,181, Cl. 365-189.050.

Hattori, Masashi: See—
Moroto, Shuzo; Taniguchi, Takao; Miyagawa, Shoichi; Sakakibara, Shiro; Tsukamoto, Kazumasa; Inuzuka, Takeshi; and Hattori, Masashi, 5,669,846, Cl. 475-211.000.

Hattori, Yasuji: See—
Inoue, Akira; Hattori, Yasuji; Yamashita, Katsuya; Ohtsuki, Fumio; and Katsuyama, Yutaka, 5,671,308, Cl. 385-37.000.

Hauser, Eberhard; and Eigeldinger, Norbert, to Deutsche Thomson Brandt GmbH. Remote control method and device, 5,670,958, Cl. 341-176.000.

Hauter, Bradley David. Soccer training apparatus, 5,669,837, Cl. 473-576.000.

Haver, Andrew W.: See—
Gearing, Thomas W.; and Haver, Andrew W., 5,669,563, Cl. 241-101.780.

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Hawkins, Daniel E.: See—
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Hayashi, Kazuhiko, to Toyota Jidosha Kabushiki Kaisha. Antitheft apparatus and method for an automobile, 5,670,933, Cl. 340-426.000.

Hayashi, Masaaki: See—
Mitsunaka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shirosaki, Yoshihiro; Aoi, Hajime; Saitoh, Yuko; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126.000.

Hayashi, Satoru, to Mitsubishi Denki Kabushiki Kaisha. Metal base board and electronic equipment using the same, 5,670,241, Cl. 428-209.000.

Hayashi, Takehisa: See—
Kondo, Nobukazu; Kaneko, Seiji; Okazawa, Koichi; Gemma, Hideaki; Mochida, Tetsuya; and Hayashi, Takehisa, 5,671,371, Cl. 395-306.000.

Hayashihara, Hiroshi: See—
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Hayatani, Akira: See—
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Hayden, Brian J.: See—
Pham, C. V.; Hayden, Brian J.; and Walles, Bethany J., 5,669,545, Cl. 228-1.100.

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Haynes, Nancy Ann: See—
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Hays, Byron G., to Engelhard Corporation. Pigment compositions, 5,669,967, Cl. 106-496.000.

He, Thomas: See—
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Headrick, Richard T.: See—
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Health Research, Inc.: See—
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Healy, Kevin E.; and Dorfman, Gary S. Biodegradable stent, 5,670,161, Cl. 424-426.000.

Heat System Research & Industry, Inc.: See—
Hamada, Yoshitaka; and Kameyama, Yo, 5,670,259, Cl. 428-450.000.

Heath, Gary, to Condryne Technology, Inc. Single-phase induction motor safety controller, 5,670,858, Cl. 318-768.000.

Hebrew University of Jerusalem, Yissum Research Development Company of the: See—
Shoseyov, Oded; Shpiegel, Itai; Goldstein, Marc A.; and Doi, Roy H., 5,670,623, Cl. 530-350.000.

Hecht, Stuart: See—
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Heck, Ernst; Mueller, Marcel; and Weber, Adrian, to Nestec S.A. Die assembly for extruding edible substances, 5,670,185, Cl. 425-133.100.

Hedblom, Thomas P.; and Bradshaw, T. Ian, to Minnesota Mining and Manufacturing Company. Patterned pavement markings with upright retroreflectors, 5,670,227, Cl. 428-48.000.

Heeres, Hero Jan: See—
Bronco, Simon; Consiglio, Giambattista; Di Benedetto, Silvia; Drent, Eit; Heeres, Hero Jan; Van Broekhoven, Johannes Adrianus Maria; and Reynhout, Marinus Johannes, 5,670,440, Cl. 502-162.000.

Hefferon, Eugene Paul: See—
Glasen, Steven Gardner; Halma, Marten Jan; Hefferon, Eugene Paul; and Johnson, Francis Edward, 5,671,441, Cl. 395-828.000.

Hefler, Gregory W.: See—
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Heggin, Andreas; Pulli, Giuseppe; and Brühlmann, Manuel, to Staefa Control System SCS AG. Control valve having an actuating drive and method therefor, 5,669,413, Cl. 137-554.000.

Hegner, Frank; and Klähn, Thomas, to Endress + Hauser GmbH + Co. Method for making an interface connection through an insulating part, 5,670,063, Cl. 219-85.220.

Hehle, Josef: See—

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Heidelberger Druckmaschinen AG: See—
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Zahn, Erich Michael, 5,669,755, Cl. 414-790.100.

Heideman, Joseph E.: See—
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Heider, Marc: See—
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Heile, Francis B.: See—
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Heim, Philippe: See—
Wang, Jin-shan; Bayard, Philippe; Teyssie, Philippe; Vuillemin, Bruno; and Heim, Philippe, 5,670,591, Cl. 526-173.000.

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Heinrich, Andrew L., to Caterpillar Inc. Inductor mounting assembly, 5,670,924, Cl. 336-61.000.

Heinz, Edgar: See—
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Heinzman, Marc William; Anspaugh, Michael Patrick; Riefe, Richard Kremer; and Byers, David Michael, to General Motors Corporation. Energy absorber for motor vehicle steering column, 5,669,634, Cl. 280-777.000.

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HemaGen/PFC: See—
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Hemberger, Jürgen: See—
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Hemminger, Roland: See—
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Henderson, Daniel A.; and Townsley, Darren. Dialer programming system and device with integrated printing process, 5,671,271, Cl. 379-355.000.

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Henkel Corporation: See—
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Virrig, Michael J.; and MacKenzie, J. Murdoch, 5,670,035, Cl. 205-345.000.

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Herard, James D.: See—
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- Crosby, John; Blacker, Andrew; and Herbert, John Albert Leslie, 5,670,662, Cl. 549-291.000.
- Herbert, Toni: See—
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- Herbst, Steven M.: See—
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- Herczeg, Karen L.; and McVay, David M., to Eastman Kodak Company, Hybrid digital image printer with halftone gray scale capability, 5,671,003, Cl. 347-251.000.
- Herderich, Hans-Jürgen: See—
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- Herr, Sprenger GmbH & Co. KG: See—
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- Herman, Peter K.: See—
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- Hernandez, Bernardo; Horton, Raymond Robert; Noyan, Ismail Cevdet; and Palmer, Michael Jon, to International Business Machines Corporation, High efficiency thermal interposer, 5,669,437, Cl. 165-47.000.
- Hernandez, Mathew: See—
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- Herrero, José Mallen; Bail, Guy Le; and Feret, Jany, Casing and flexible tubular conduit comprising such a casing and process for producing it, 5,669,420, Cl. 138-135.000.
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- Herrmann, Gebhard: See—
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- Herrmann, Hans-Friedrich; Aulbach, Michael; and Küber, Frank, to Hoechst AG, Metalocene compound, 5,670,436, Cl. 502-103.000.
- Herz, William S., to Sony Corporation; and Sony Electronics Inc., Variable speed playback of digital video stored in a non-tape media, 5,671,318, Cl. 386-68.000.
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- Hess, Dieter W.: See—
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- Hessen, Thomas A.: See—
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- Heugle, Bernhard: See—
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- Hewlett-Packard Company: See—
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- Hewlett-Packard Company: See—
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- Geisow, Adrian Derek; Wells, Andrew David; Marriott, Roy Stephen; and Buriks, Adrian Arnold, 5,671,326, Cl. 395-1.000.
- Jensen, Philip E., 5,670,981, Cl. 345-118.000.
- Joslin, Arnold L., 5,669,512, Cl. 211-41.000.
- Markstein, Peter; and Karp, Alan H., 5,671,170, Cl. 364-748.000.
- Maxwell, Peter C., 5,671,150, Cl. 364-488.000.
- McKim, James B., Jr.; and Kenny, John F., Jr., 5,671,147, Cl. 364-481.000.
- Prouty, Bryan G.; and Rentschler, Eric M., 5,671,373, Cl. 395-307.000.
- Santon, John C.; and Bauman, Joseph Henry, 5,669,721, Cl. 400-279.000.
- Thiele, Karl E.; Hagar, Richard A.; Clark, David W.; and Witt, Jerome F., 5,669,386, Cl. 128-661.080.
- Vincent, Kent D., 5,671,059, Cl. 356-402.000.
- Heyer, Dennis: See—
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- Hibi, Hiroshi: See—
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- Hickey, Edward S., to United States of America, Navy, Space vehicle apparatus including a cellular sandwich with phase change material, 5,669,584, Cl. 244-158.00A.
- Hidaka, Iwao: See—
Yamauchi, Eiji; Hashimoto, Kiyokazu; Oka, Hidemi; Kashiro, Takao; Hidaka, Iwao; and Yamamoto, Yoshiki, 5,671,260, Cl. 375-372.000.
- Hidaka, Kazuyoshi, to International Business Machines Corporation, Method and apparatus for creating a graphic using graphic icons, 5,671,380, Cl. 395-348.000.
- Hien Electric Industries: See—
Chikiri, Kazuyoshi; and Higashi, Yukihiko, 5,670,208, Cl. 427-177.000.
- Higashi, Yukihiko: See—
Chikiri, Kazuyoshi; and Higashi, Yukihiko, 5,670,208, Cl. 427-177.000.
- Higashitani, Masaaki; and Hasegawa, Masatomo, to Fujitsu Limited, Semiconductor memory of xN type having error correcting circuit by parity, 5,671,239, Cl. 371-51.100.
- Higgins, Scott W., Locking strap, 5,669,253, Cl. 70-18.000.
- Higgs, Julian Morris: See—
Southam, Dennis Owen, 5,670,095, Cl. 261-97.000.
- Higuchi, Mitsuo, to Fujitsu Limited, Semiconductor memory device with function of preventing loss of information due to leak of charges or disturbing, 5,671,180, Cl. 365-185.210.
- Higuchi, Yoshinari: See—
Ito, Masanobu; Motohashi, Shunji; and Higuchi, Yoshinari, 5,671,014, Cl. 348-239.000.
- Hikata, Takeshi: See—
Sato, Kenichi; and Hikata, Takeshi, 5,670,459, Cl. 505-230.000.
- Hilberg, Harold P.: See—
Lawer, C. B.; Dunfee, David E.; Hilberg, Harold P.; and Amato, Philip S., Jr., 5,670,747, Cl. 174-74.00R.
- Hildebrandt, Wolfgang: See—
Schreiber, Hans; Seigert, Peter; Konegen, Herbert; and Hildebrandt, Wolfgang, 5,670,461, Cl. 508-117.000.
- Hilite Industries, Inc.: See—
Blair, Richard L., 5,670,213, Cl. 427-318.000.
- Hill, Donald G.: See—
Rosenman, Daniel C.; and Hill, Donald G., 5,669,935, Cl. 606-232.000.
- Hill, Dwight Steven: See—
Gaffney, Thomas D.; Lam, Stephen T.; Hill, Dwight Steven; Stein, Jeffrey I.; and Ligon, James M., 5,670,350, Cl. 435-172.300.
- Hill, Jack O'Neil, Arrow with marking head, 5,669,836, Cl. 473-574.000.
- Hill, James Arnold; Marsh, Gregory Alan; and Smith, Myron Lee, to General Electric Company, Shuttered radiator system with control, 5,669,311, Cl. 105-62.200.
- Hill, Joe C., Salt-resin plastic products and process, 5,670,574, Cl. 525-61.000.
- Hill, Jonathan W., to Control Devices, Inc., Photosensor to detect the direction of incidence and intensity of optical radiation, 5,670,774, Cl. 250-203.400.
- Hill, Steve: See—
Dorow, Glen; Hill, Steve; and Maune, Dean, 5,669,532, Cl. 222-401.000.
- Hillion, Gérard: See—
Durand, Daniel; Hillion, Gérard; and Sarrazin, Patrick, 5,670,437, Cl. 502-104.000.
- Hillyard, David R.: See—
Shon, Ki-Joon; Yoshikami, Doju; Marsh, Maren; Cruz, Lourdes J.; Hillyard, David R.; and Olivera, Baldomero M., 5,670,622, Cl. 530-324.000.
- Hilpert, Hans, to Hoffmann-La Roche Inc., Process for the manufacture of (4,5)-trans-oxazolidines, 5,670,653, Cl. 548-229.000.
- Hilti Aktiengesellschaft: See—
Rupprecht, Hans; and von Keudell, Leopold, 5,669,371, Cl. 125-13.010.
- Hilti Aktiengesellschaft: See—
Janssen, Rupert; Fröwis, Markus; and Guillon, Luc, 5,669,589, Cl. 248-65.000.
- Ludwig, Wolfgang; and Leibhard, Erich, 5,669,199, Cl. 52-704.000.
- Stampf, Hans; Höffe, Siegfried; and Hintersteiner, Walter, 5,669,260, Cl. 72-177.000.
- Hind, Michael James: See—
Carini, Paul Robert; Burke, Michael George; and Hind, Michael James, 5,671,419, Cl. 395-709.000.
- Hines, Donald G., Rotary chisel, 5,669,744, Cl. 409-181.000.
- Hino, Makoto: See—
Imakawa, Susumu; Yamaguchi, Katsumi; Hino, Makoto; Michiie, Norio; and Nakajima, Tomohiro, 5,671,077, Cl. 359-204.000.
- Hintersteiner, Walter: See—
Stampf, Hans; Höffe, Siegfried; and Hintersteiner, Walter, 5,669,260, Cl. 72-177.000.
- Hinton, Glenn J.: See—
Akkary, Haltham; Abramson, Jeffrey M.; Glew, Andrew F.; Hinton, Glenn J.; Konigsfeld, Kris G.; Madland, Paul D.; Joshi, Mandar S.; and Lince, Brent E., 5,671,444, Cl. 395-872.000.
- Hintsche, Rainer; Paeschke, Manfred; Schnakenberg, Uwe; and Wollenberger, Ulla, to Fraunhofer-Gesellschaft zur angewandten Forschung e.V., Electrochemical sensor, 5,670,031, Cl. 204-412.000.
- Hipskind, Philip A.: See—
Cho, Sung Y.; Crowell, Thomas A.; Gitter, Bruce D.; Hipskind, Philip A.; Howbert, J. Jeffrey; Krushinski, Joseph H., Jr.; Lobb, Karen L.; Muehl, Brian S.; and Nixon, James A., 5,670,499, Cl. 514-231.500.
- Hirabayashi, Hiromitsu; Nagoshi, Shigeyasu; Koitabashi, Noribumi; Sugimoto, Hitoshi; Fujita, Miyuki; Gotoh, Fumihiko; and Uetsuki, Masaya, to Canon Kabushiki Kaisha, Ink jet cartridge with separately exchangeable ink tank and recording head, 5,671,000, Cl. 347-86.000.
- Hirabayashi, Hiromitsu: See—
Sugimoto, Hitoshi; Hirabayashi, Hiromitsu; Nagoshi, Shigeyasu; Koitabashi, Noribumi; Matsubara, Miyuki; Gotoh, Fumihiko; and Uetsuki, Masaya, 5,670,997, Cl. 347-30.000.
- Hirai, Masayoshi: See—
Kubo, Takashi; Kimura, Tsutomu; Shirane, Hideto; and Hirai, Masayoshi, 5,671,458, Cl. 396-436.000.
- Hirano, Hiroyuki: See—
Yokota, Hiroshi; Naito, Ryuichi; Hirano, Hiroyuki; Ishii, Katsumi; Naohara, Shinichi; Tsukada, Yoshifumi; and Matsumoto, Kanya, 5,671,201, Cl. 369-50.000.
- Hirano, Koichi: See—
Ando, Yoichi; and Hirano, Koichi, 5,669,299, Cl. 101-128.400.
- Hirano, Masakazu: See—
Hokamura, Satoshi; Ichinokawa, Kazuhiro; Yano, Takaaki; Takano, Masatoshi; Hirano, Masakazu; Maseki, Motohiro; Yoshida, Tatsuya; Horie, Mikio; Shirai, Masami; Ito, Eiichi; and Otsuka, Kenichiro, 5,671,466, Cl. 399-124.000.
- Hirao, Keiji: See—
Yoshida, Masanao; Mitani, Tadashi; Hirao, Keiji; and Ogata, Hitoshi, 5,671,196, Cl. 369-34.000.
- Hirayama, Ryo, to Victor Company Of Japan, Ltd., Apparatus for recording and reproducing video signals with preemphasis and deemphasis processes, 5,671,066, Cl. 358-335.000.
- Hiroi, Zenji: See—
Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, 5,670,458, Cl. 505-125.000.
- Hironaka, Katsuhito; and Fukase, Makoto, to Daiwa Kasei Kogyo Kabushiki Kaisha, Component retaining legs, 5,669,731, Cl. 403-405.100.
- Hirooka, Eiji: See—
Mochizuki, Mikio; Hirooka, Eiji; and Yasukawa, Makoto, 5,670,948, Cl. 340-630.000.
- Hirosawa, Toshiaki: See—
Shimoda, Junji; Tanabe, Sakiko; and Hirosawa, Toshiaki, 5,670,998, Cl. 347-50.000.
- Hirosawa, Toshio: See—
Ito, Tsutomu; Hirosawa, Toshio; Ueoka, Atsushi; Kokunishi, Motohide; Yamagishi, Tadashi; and Nakatsu, Kouichi, 5,671,354, Cl. 395-187.010.
- Hirsch, Kenneth S.: See—
Audia, James E.; Hirsch, Kenneth S.; Jones, Charles D.; Lawhorn, David E.; McQuaid, Loretta A.; and Weigel, Leland O., 5,670,512, Cl. 514-290.000.
- Hirzel, Uwe, to TRW Occupant Restraint Systems GmbH, Belt retractor, 5,669,573, Cl. 242-383.100.
- Hisa, Fumiya, to Fuji Xerox Co., Ltd., Optical scanning apparatus, 5,671,081, Cl. 359-216.000.
- Hisamoto, Masaki: See—
Nomura, Toshihiro; Karube, Kunihiko; Hisamoto, Masaaki; and Awatani, Koji, 5,671,134, Cl. 363-132.000.
- Hiss, Steven Patrick: See—
Godlewski, Wayne William; Chapman, James Dale; Diana, Gary M.; Hiss, Steven Patrick; Volo, Jane Mildred; Weil, Richard; and Underwood, Lance H., 5,671,359, Cl. 395-203.000.
- Hissong, James B.; and Studer, John E., to Xomed Surgical Products, Inc., Package and method for delivering a medical implant, 5,669,501, Cl. 206-438.000.
- Hitachi Cable, Ltd.: See—
Yuhara, Toshiyuki; Iisuka, Hisao; Fukuda, Kazuyuki; Shimaoka, Makoto; and Kumazawa, Tetsuo, 5,671,316, Cl. 385-137.000.
- Hitachi Computer Engineering Co., Ltd.: See—
Ito, Tsutomu; Hirosawa, Toshio; Ueoka, Atsushi; Kokunishi, Motohide; Yamagishi, Tadashi; and Nakatsu, Kouichi, 5,671,354, Cl. 395-187.010.
- Hitachi Computer Products America, Inc.: See—
Hashemi, Ebrahim; and Schulze, Martin E., 5,671,349, Cl. 395-182.040.
- Hitachi Denshi Kabushiki Kaisha: See—
Shimbo, Naoyuki; Okada, Toshimichi; and Watanabe, Haruki, 5,671,010, Cl. 348-157.000.
- Hitachi Instruments Engineering Co., Ltd.: See—
Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; Ito, Mitsuo; Umesato, Fuminori, deceased, 5,670,379, Cl. 436-161.000.
- Hitachi Koki Co., Ltd.: See—
Mitani, Masao, 5,670,996, Cl. 347-29.000.
- Hitachi, Ltd.: See—
Arai, Hideo; Owashi, Hitoaki; Hosokawa, Kyoichi; Nishimura, Keizo; Watatani, Yoshizumi; and Shibata, Akira, 5,671,095, Cl. 360-8.000.
- Iga, Takashi; Endou, Kaoru; Shirone, Takashi; and Umano, Yoshito, 5,669,228, Cl. 62-238.700.
- Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; Ito, Mitsuo; Umesato, Fuminori, deceased, 5,670,379, Cl. 436-161.000.
- Ito, Tsutomu; Hirosawa, Toshio; Ueoka, Atsushi; Kokunishi, Motohide; Yamagishi, Tadashi; and Nakatsu, Kouichi, 5,671,354, Cl. 395-187.010.
- Kobayashi, Masatomo; Hokuto, Hiromichi; Ohshita, Yoichi; and Sakaguchi, Minoru, 5,670,767, Cl. 218-43.000.
- Kondo, Nobukazu; Kaneko, Seiji; Okazawa, Koichi; Gemma, Hideaki; Mochida, Tetsuya; and Hayashi, Takehisa, 5,671,371, Cl. 395-306.000.
- Matsuda, Yasuhiro; Yoshida, Takashi; Shimizu, Isao; and Kohno, Takashi, 5,671,197, Cl. 369-32.000.
- Mitsuoka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yokuo; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126.000.
- Miura, Hideo; Moribe, Shunji; Kato, Hisayuki; Koike, Atsuyoshi; Ikeda, Shuji; and Nishimura, Asao, 5,670,793, Cl. 257-64.000.
- Mori, Mutsuhiro; Tanaka, Tomoyuki; Yasuda, Yasumichi; and Nakano, Yasunori, 5,670,811, Cl. 257-341.000.
- Moriguchi, Akisada; Yumoto, Osamu; Hata, Masaharu; Saito, Hironori; and Azumaguchi, Teruhisa, 5,670,868, Cl. 323-313.000.
- Nishitani, Eisuke; Tsuzuku, Susumu; Kobayashi, Shigeru; Kasahara, Osamu; Nezu, Hiroki; Ishino, Masakazu; and Tamaru, Tsuyoshi, 5,670,421, Cl. 437-192.000.
- Otori, Hiroshi; Kajigaya, Kazuhiko; Miyazawa, Kazuyuki; Kubo, Masaharu; Koike, Atsuyoshi; and Kanai, Fumiaki, 5,670,409, Cl. 437-60.000.
- Sakazume, Taku; Mitsumaki, Hiroshi; Takahashi, Katsuaki; and Tamura, Terumi, 5,670,114, Cl. 422-67.000.
- Sasano, Akira; Shirahashi, Kazuo; Matsukawa, Yuka; Taniguchi, Hideaki; Yamamoto, Hideaki; and Matsumaru, Haruo, 5,671,027, Cl. 349-46.000.
- Sato, Mitsugu, 5,670,782, Cl. 250-310.000.
- Shintani, Yooichi; Kuriyama, Kazunori; Shonai, Tohru; Kamada, Eiki; and Inoue, Kiyoshi, 5,671,382, Cl. 395-391.000.
- Tomooka, Keiji; Sakakida, Naohiro; Nishimura, Shin; Ashi, Yoshihiro; Matsuda, Hironari; Aoki, Satoshi; Nakano, Yukio; Takatori, Masahiro; Kazawa, Toru; Sasaki, Shinya; Takeyari, Kyoji; and Nakano, Hiroyuki, 5,671,074, Cl. 359-163.000.
- Usagawa, Toshiyuki; Sawada, Akemi; and Tominaga, Kenichi, 5,670,804, Cl. 257-279.000.
- Yamagami, Hajime; and Tsunehiro, Takashi, 5,670,969, Cl. 345-1.000.
- Hiwin Technologies Corporation: See—
Chang, Chao Song, 5,669,716, Cl. 384-43.000.
- HL & H Timber Products (Proprietary) Limited: See—
Clarke, Graham Heath, 5,669,739, Cl. 405-289.000.
- Hluchyj, Michael G.: See—
Humblet, Pierre A.; Hluchyj, Michael G.; Lee, Whay Chiou; and Constantin, Robert, 5,671,357, Cl. 395-200.110.
- Ho, Anthony: See—
Wong-Staal, Flossie; Yu, Mang; Yamada, Osamu; Ojwang, Joshua O.; Leavitt, Markley C.; and Ho, Anthony, 5,670,361, Cl. 435-240.200.
- Ho, Herbert L.: See—
Hammerl, Erwin; Mandelman, Jack A.; Ho, Herbert L.; Shiozawa, Junichi; and Stengl, Reinhard Johannes, 5,670,805, Cl. 257-301.000.
- Ho, Hsin Chien, Circuit board locating device, 5,671,124, Cl. 361-758.000.
- Ho, Jen-hsin: See—
Tsai, Shi-chour; and Ho, Jen-hsin, 5,669,318, Cl. 112-169.000.
- Ho, Lin Yuan, Tool chuck, 5,669,616, Cl. 279-62.000.
- Ho, Loc: See—
Zamansky, Vladimir M.; Ho, Loc; and Seeker, William Randall, 5,670,122, Cl. 423-210.000.
- Ho, Sung-Chao, Leg exercising apparatus, 5,669,863, Cl. 482-129.000.
- Ho, Win-Sow Winston; Sartori, Guido; Thaler, Warren A.; and Dalrymple, David C., to Exxon Research & Engineering Company, Separating aromatics from non-aromatics by polyimide-polyester membrane, 5,670,052, Cl. 210-651.000.
- Hobbs, Douglas W.: See—
Evans, Ben E.; Hobbs, Douglas W.; Pawluczyk, Joseph M.; Pettibone, Douglas J.; Rittle, Kenneth E.; and Williams, Peter D., 5,670,509, Cl. 514-278.000.
- Hochiki Corporation: See—
Nagashima, Tetsuya, 5,670,947, Cl. 340-628.000.
- Hochiki Kabushiki Kaisha: See—
Ohtani, Shigeru; Ishii, Hiromitsu; and Ono, Takashi, 5,670,938, Cl. 340-506.000.
- Hock, Christopher: See—
Barnes, Michael W.; Taylor, Robert D.; Hock, Christopher; Jordan, Michael P.; Cox, Matthew A.; and Ward, Alan J., 5,670,740, Cl. 149-62.000.
- Hockley, Bernard: See—
Pryor, Timothy R.; Hockley, Bernard; Liptay-Wagner, Nick; Hageniers, Omer L.; and Pastorius, W. J., 5,670,787, Cl. 250-559.310.
- Hodges, Craig Clark: See—
Fennell, Martin John; and Hodges, Craig Clark, 5,670,707, Cl. 73-1.00G.
- Hodgson, Richard J.: See—
Hanzlik, Cheryl A.; Hodgson, Richard J.; and Fioravanti, Alexander J., 5,670,289, Cl. 430-124.000.
- Hodson, Lester L.; and Primm, Charles E., to Texas Instruments Incorporated, Multimedia field emission device projection system, 5,669,690, Cl. 353-122.000.
- Hoechst AG: See—
Herrmann, Hans-Friedrich; Aulbach, Michael; and Küber, Frank, 5,670,436, Cl. 502-103.000.
- Hoechst Aktiengesellschaft: See—
Foedde, Hartmut; Schafheutle, Markus A.; Voelker, Achim; Wehner, Susanne; and Klein, Klausjoerg, 5,670,441, Cl. 502-200.000.
- Griesbacher, Thomas; and Lembeck, Fred, 5,670,619, Cl. 530-314.000.
- Harada, Takamasa; Itoh, Haruhiko; Ubukata, Masami; and Nozawa, Fumie, 5,670,084, Cl. 252-299.010.
- Küber, Frank; and Riedel, Michael, 5,670,681, Cl. 556-53.000.
- Neubacher, Marc; Bock, Joachim; Lang, Christoph; Preisler, Eberhard; and Weis, Helga, 5,670,434, Cl. 501-123.000.
- Ott, Jürgen; Schön, Manfred; Adam, Wilhelm; Scholl, Frank; and Wolf, Alfons, 5,670,572, Cl. 524-720.000.
- Scheckenbach, Helmut; and Schleicher, Andreas, 5,670,569, Cl. 524-500.000.

- Yokota, Hiroshi; Naito, Ryuichi; Hirano, Hiroyuki; Ishii, Katsumi; Naohara, Shinichi; Tsukada, Yoshifumi; and Matsumoto, Kanya, 5,671,201, Cl. 369-50.000.
- Hirano, Koichi: See—
Ando, Yoichi; and Hirano, Koichi, 5,669,299, Cl. 101-128.400.
- Hirano, Masakazu: See—
Hokamura, Satoshi; Ichinokawa, Kazuhiro; Yano, Takaaki; Takano, Masatoshi; Hirano, Masakazu; Maseki, Motohiro; Yoshida, Tatsuya; Horie, Mikio; Shirai, Masami; Ito, Eiichi; and Otsuka, Kenichiro, 5,671,466, Cl. 399-124.000.
- Hirao, Keiji: See—
Yoshida, Masanao; Mitani, Tadashi; Hirao, Keiji; and Ogata, Hitoshi, 5,671,196, Cl. 369-34.000.
- Hirayama, Ryo, to Victor Company Of Japan, Ltd., Apparatus for recording and reproducing video signals with preemphasis and deemphasis processes, 5,671,066, Cl. 358-335.000.
- Hiroi, Zenji: See—
Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, 5,670,458, Cl. 505-125.000.
- Hironaka, Katsuhito; and Fukase, Makoto, to Daiwa Kasei Kogyo Kabushiki Kaisha, Component retaining legs, 5,669,731, Cl. 403-405.100.
- Hirooka, Eiji: See—
Mochizuki, Mikio; Hirooka, Eiji; and Yasukawa, Makoto, 5,670,948, Cl. 340-630.000.
- Hirosawa, Toshiaki: See—
Shimoda, Junji; Tanabe, Sakiko; and Hirosawa, Toshiaki, 5,670,998, Cl. 347-50.000.
- Hirosawa, Toshio: See—
Ito, Tsutomu; Hirosawa, Toshio; Ueoka, Atsushi; Kokunishi, Motohide; Yamagishi, Tadashi; and Nakatsu, Kouichi, 5,671,354, Cl. 395-187.010.
- Hirsch, Kenneth S.: See—
Audia, James E.; Hirsch, Kenneth S.; Jones, Charles D.; Lawhorn, David E.; McQuaid, Loretta A.; and Weigel, Leland O., 5,670,512, Cl. 514-290.000.
- Hirzel, Uwe, to TRW Occupant Restraint Systems GmbH, Belt retractor, 5,669,573, Cl. 242-383.100.
- Hisa, Fumiya, to Fuji Xerox Co., Ltd., Optical scanning apparatus, 5,671,081, Cl. 359-216.000.
- Hisamoto, Masaki: See—
Nomura, Toshihiro; Karube, Kunihiko; Hisamoto, Masaaki; and Awatani, Koji, 5,671,134, Cl. 363-132.000.
- Hiss, Steven Patrick: See—
Godlewski, Wayne William; Chapman, James Dale; Diana, Gary M.; Hiss, Steven Patrick; Volo, Jane Mildred; Weil, Richard; and Underwood, Lance H., 5,671,359, Cl. 395-203.000.
- Hissong, James B.; and Studer, John E., to Xomed Surgical Products, Inc., Package and method for delivering a medical implant, 5,669,501, Cl. 206-438.000.
- Hitachi Cable, Ltd.: See—
Yuhara, Toshiyuki; Iisuka, Hisao; Fukuda, Kazuyuki; Shimaoka, Makoto; and Kumazawa, Tetsuo, 5,671,316, Cl. 385-137.000.
- Hitachi Computer Engineering Co., Ltd.: See—
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- Hitachi Computer Products America, Inc.: See—
Hashemi, Ebrahim; and Schulze, Martin E., 5,671,349, Cl. 395-182.040.
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Shimbo, Naoyuki; Okada, Toshimichi; and Watanabe, Haruki, 5,671,010, Cl. 348-157.000.
- Hitachi Instruments Engineering Co., Ltd.: See—
Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; Ito, Mitsuo; Umesato, Fuminori, deceased, 5,670,379, Cl. 436-161.000.
- Hitachi Koki Co., Ltd.: See—
Mitani, Masao, 5,670,996, Cl. 347-29.000.
- Hitachi, Ltd.: See—
Arai, Hideo; Owashi, Hitoaki; Hosokawa, Kyoichi; Nishimura, Keizo; Watatani, Yoshizumi; and Shibata, Akira, 5,671,095, Cl. 360-8.000.
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- Matsuda, Yasuhiro; Yoshida, Takashi; Shimizu, Isao; and Kohno, Takashi, 5,671,197, Cl. 369-32.000.
- Mitsuoka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yokuo; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126.000.
- Miura, Hideo; Moribe, Shunji; Kato, Hisayuki; Koike, Atsuyoshi; Ikeda, Shuji; and Nishimura, Asao, 5,670,793, Cl. 257-64.000.
- Mori, Mutsuhiro; Tanaka, Tomoyuki; Yasuda, Yasumichi; and Nakano, Yasunori, 5,670,811, Cl. 257-341.000.
- Moriguchi, Akisada; Yumoto, Osamu; Hata, Masaharu; Saito, Hironori; and Azumaguchi, Teruhisa, 5,670,868, Cl. 323-313.000.
- Nishitani, Eisuke; Tsuzuku, Susumu; Kobayashi, Shigeru; Kasahara, Osamu; Nezu, Hiroki; Ishino, Masakazu; and Tamaru, Tsuyoshi, 5,670,421, Cl. 437-192.000.
- Otori, Hiroshi; Kajigaya, Kazuhiko; Miyazawa, Kazuyuki; Kubo, Masaharu; Koike, Atsuyoshi; and Kanai, Fumiaki, 5,670,409, Cl. 437-60.000.
- Sakazume, Taku; Mitsumaki, Hiroshi; Takahashi, Katsuaki; and Tamura, Terumi, 5,670,114, Cl. 422-67.000.
- Sasano, Akira; Shirahashi, Kazuo; Matsukawa, Yuka; Taniguchi, Hideaki; Yamamoto, Hideaki; and Matsumaru, Haruo, 5,671,027, Cl. 349-46.000.
- Sato, Mitsugu, 5,670,782, Cl. 250-310.000.
- Shintani, Yooichi; Kuriyama, Kazunori; Shonai, Tohru; Kamada, Eiki; and Inoue, Kiyoshi, 5,671,382, Cl. 395-391.000.
- Tomooka, Keiji; Sakakida, Naohiro; Nishimura, Shin; Ashi, Yoshihiro; Matsuda, Hironari; Aoki, Satoshi; Nakano, Yukio; Takatori, Masahiro; Kazawa, Toru; Sasaki, Shinya; Takeyari, Kyoji; and Nakano, Hiroyuki, 5,671,074, Cl. 359-163.000.
- Usagawa, Toshiyuki; Sawada, Akemi; and Tominaga, Kenichi, 5,670,804, Cl. 257-279.000.
- Yamagami, Hajime; and Tsunehiro, Takashi, 5,670,969, Cl. 345-1.000.
- Hiwin Technologies Corporation: See—
Chang, Chao Song, 5,669,716, Cl. 384-43.000.
- HL & H Timber Products (Proprietary) Limited: See—
Clarke, Graham Heath, 5,669,739, Cl. 405-289.000.
- Hluchyj, Michael G.: See—
Humblet, Pierre A.; Hluchyj, Michael G.; Lee, Whay Chiou; and Constantin, Robert, 5,671,357, Cl. 395-200.110.
- Ho, Anthony: See—
Wong-Staal, Flossie; Yu, Mang; Yamada, Osamu; Ojwang, Joshua O.; Leavitt

Weichert, Andreas; Lang, Hans-Jochen; Kleemann, Heinz-Werner; Scholz, Wolfgang; and Albus, Udo, 5,670,544, Cl. 514-618.000.
Hoechst Celanese Corporation: See—
Harford, Debra W., 5,669,796, Cl. 442-220.000.
Hoechst Treva GmbH & Co KG: See—
Disselbeck, Dieter; and Wellenholter, Herbert, 5,670,278, Cl. 429-234.000.
Hoeller, Robert, to Zellweger Luwa AG: Method and apparatus for assessing the effect of yarn faults on woven or knitted fabrics, 5,671,061, Cl. 356-429.000.
Hoen, Cuyler: See—
Anderson, Glenn E.; Mazurkowski, Alan; and Hoen, Cuyler, 5,669,638, Cl. 292-111.000.
Hoffman, Birgit, deceased (by Horst Hoffman): See—
Eckstein, Elke; Hoffman, Birgit, deceased; Kiewra, Edward William; Kocon, Waldemar Walter; and Weiss, Marc Jay, 5,670,018, Cl. 156-643.100.
Hoffman, Edward D.: See—
Alfors, Eugene D.; Cox, Ronald G.; Hoffman, Edward D.; and Murdock, Joseph K., 5,670,875, Cl. 324-202.000.
Hoffman, Horst: See—
Eckstein, Elke; Hoffman, Birgit, deceased; Kiewra, Edward William; Kocon, Waldemar Walter; and Weiss, Marc Jay, 5,670,018, Cl. 156-643.100.
Hoffman, James R.; and Massmann, Robert F., to Cincinnati Milacron Inc.: Transport system for workpieces, 5,669,751, Cl. 414-751.000.
Hoffman, William H.: See—
Papich, Kevin S.; Bachowski, Ronald; Baumann, Stephen F.; Cargnel, Robert A.; Carlin, Gerald E.; Clements, Donald J.; Gunkel, Ronald W.; Hoffman, William H.; McKinney, Larry G.; Pajerski, A. Victor; Palko, John J.; Patrick, Edward P., Jr.; Rennekamp, Stephen J.; Scheble, Philip C.; Sharkins, William R.; Swigon, Frank P.; and Truckner, William G., 5,669,436, Cl. 164-461.000.
Hoffmann, Erhard-Günther: See—
Buysch, Hans-Josef; Jansen, Ursula; Ooms, Pieter; Hoffmann, Erhard-Günther; and Schenke, Bernd-Ulrich, 5,670,029, Cl. 203-91.000.
Hoffmann-La Roche Inc.: See—
Alig, Leo; Hadvary, Paul; Hürzeler, Marianne; Müller, Marcel; Steiner, Beat; and Weller, Thomas, 5,670,115, Cl. 514-304.000.
Hilpert, Hans, 5,670,653, Cl. 548-229.000.
Rogers-Evans, Mark; and Spurr, Paul, 5,670,640, Cl. 540-498.000.
Höfle, Siegfried: See—
Stampf, Hans; Höfle, Siegfried; and Hintersteiner, Walter, 5,669,260, Cl. 72-177.000.
Hofsäss, by Benjamin Michael, legal representative: See—
Hofsäss, Peter, deceased; Hofsäss, by Ulrika, legal representative; Hofsäss, by Marcel Peter, legal representative; Hofsäss, by Denise Petra, legal representative; Hofsäss, by Henrik Peter, legal representative; Hofsäss, by Carola Rika, legal representative; and Hofsäss, by Benjamin Michael, legal representative, 5,670,930, Cl. 337-380.000.
Hofsäss, by Carola Rika, legal representative: See—
Hofsäss, Peter, deceased; Hofsäss, by Ulrika, legal representative; Hofsäss, by Marcel Peter, legal representative; Hofsäss, by Denise Petra, legal representative; Hofsäss, by Henrik Peter, legal representative; Hofsäss, by Carola Rika, legal representative; and Hofsäss, by Benjamin Michael, legal representative, 5,670,930, Cl. 337-380.000.
Hofsäss, by Denise Petra, legal representative: See—
Hofsäss, Peter, deceased; Hofsäss, by Ulrika, legal representative; Hofsäss, by Marcel Peter, legal representative; Hofsäss, by Denise Petra, legal representative; Hofsäss, by Henrik Peter, legal representative; Hofsäss, by Carola Rika, legal representative; and Hofsäss, by Benjamin Michael, legal representative, 5,670,930, Cl. 337-380.000.
Hofsäss, by Henrik Peter, legal representative: See—
Hofsäss, Peter, deceased; Hofsäss, by Ulrika, legal representative; Hofsäss, by Marcel Peter, legal representative; Hofsäss, by Denise Petra, legal representative; Hofsäss, by Henrik Peter, legal representative; Hofsäss, by Carola Rika, legal representative; and Hofsäss, by Benjamin Michael, legal representative, 5,670,930, Cl. 337-380.000.
Hofsäss, by Carola Rika, legal representative: See—
Hofsäss, Peter, deceased; Hofsäss, by Ulrika, legal representative; Hofsäss, by Marcel Peter, legal representative; Hofsäss, by Denise Petra, legal representative; Hofsäss, by Henrik Peter, legal representative; Hofsäss, by Carola Rika, legal representative; and Hofsäss, by Benjamin Michael, legal representative, 5,670,930, Cl. 337-380.000.
Hofsäss, by Benjamin Michael, legal representative: See—
Hofsäss, Peter, deceased; Hofsäss, by Ulrika, legal representative; Hofsäss, by Marcel Peter, legal representative; Hofsäss, by Denise Petra, legal representative; Hofsäss, by Henrik Peter, legal representative; Hofsäss, by Carola Rika, legal representative; and Hofsäss, by Benjamin Michael, legal representative, 5,670,930, Cl. 337-380.000.
Hofsäss, by Ulrika, legal representative: See—
Hofsäss, Peter, deceased; Hofsäss, by Ulrika, legal representative; Hofsäss, by Marcel Peter, legal representative; Hofsäss, by Denise Petra, legal representative; Hofsäss, by Henrik Peter, legal representative; Hofsäss, by Carola Rika, legal representative; and Hofsäss, by Benjamin Michael, legal representative, 5,670,930, Cl. 337-380.000.
Hogan, Brigid L. M., to Vanderbilt University: Pluripotential embryonic stem cells and methods of making same, 5,670,372, Cl. 435-240.200.
Hogan, Joseph C., Jr., to ArQule, Inc.: Method of making polymers having specific properties, 5,670,480, Cl. 514-12.000.
Hogan, Michael E.: See—

Eggers, Mitchell D.; Hogan, Michael E.; Beattie, Kenneth Loren; Shumaker, John; Ehrlich, Daniel J.; and Hollis, Mark, 5,670,322, Cl. 435-6.000.
Höhe, Kurt; Katzmaier, Hans; and Ludwig, Josef, to Reinz-Dichtungs-Gesellschaft mbH: Metal gasket with beaded cover plates and sandwich sheet having nonparallel approaching edge, 5,669,615, Cl. 277-235.00B.
Hohl, Günther: See—
Mueller, Klaus; Heugle, Bernhard; Herzog, Kurt; Oehler, Martin; Hohl, Günther; and Herderich, Hans-Jürgen, 5,669,675, Cl. 303-119.200.
Hokamura, Satoshi; Ichinokawa, Kazuhiro; Yano, Takaaki; Takano, Masatoshi; Hirano, Masakazu; Maseki, Motohiro; Yoshida, Tatsuya; Horie, Mikio; Shirai, Masami; Ito, Eiichi; and Otsuka, Kenichiro, to Asahi Kogaku Kogyo Kabushiki Kaisha: Electrophotographic apparatus and sheet guide mechanism, 5,671,466, Cl. 399-124.000.
Hokuto, Hiromichi: See—
Kobayashi, Masatomo; Hokuto, Hiromichi; Ohshita, Yoichi; and Sakaguchi, Minoru, 5,670,767, Cl. 218-43.000.
Holcomb, Glen; and Reed, William, to TrioVing a.s.: Electronic lock system with occupancy block, 5,670,940, Cl. 340-543.000.
Hollaway, Jerrell P.: Full power light control, 5,670,846, Cl. 315-151.000.
Hollingshead, Judith Ann: See—
Trinh, Toan; Cappel, Jerome Paul; Geis, Philip Anthony; Hollingshead, Judith Ann; McCarty, Mark Lee; and Zwerdling, Susan Schmaedecke, 5,670,475, Cl. 510-470.000.
Hollis, Mark: See—
Eggers, Mitchell D.; Hogan, Michael E.; Beattie, Kenneth Loren; Shumaker, John; Ehrlich, Daniel J.; and Hollis, Mark, 5,670,322, Cl. 435-6.000.
Hollis, Thomas J., to Hollis, Thomas J.: System for controlling the state of a flow control valve, 5,669,335, Cl. 123-41.100.
Hollman, Richard F.: See—
Elliott, David J.; Hollman, Richard F.; Yans, Francis M.; and Singer, Daniel K., 5,669,979, Cl. 134-1.000.
Holman, Perry A., Jr.: See—
Bennet, Ronika A.; Hall, Jeffrey S.; Holman, Perry A., Jr.; Johnson, Lyle D.; and Kirkwood, Matthew D., 5,671,161, Cl. 364-560.000.
Holmes, Douglas B.: See—
Velasquez, David A.; Holmes, Douglas B.; and Goglin, E. Lawrence, 5,670,273, Cl. 429-162.000.
Holmes, Martin E.: See—
Painter, Paige M.; and Holmes, Martin E., 5,669,485, Cl. 200-308.000.
Holmes, Todd: See—
Zhang, Shuguang; Lockshin, Curtis; Rich, Alexander; and Holmes, Todd, 5,670,483, Cl. 514-14.000.
Holzwarth, Robert K.: See—
Ryan, Thomas B.; Holzwarth, Robert K.; and May, Kenneth A., 5,671,144, Cl. 364-426.029.
Holzworth, Monta R.: See—
Dixit, Pankaj; Ingram, William P., III; Holzworth, Monta R.; and Klein, Richard, 5,670,419, Cl. 437-189.000.
Homan, Akinori; Ishikawa, Kiyonori; and Okuda, Hirofumi, to Toyota Jidosha Kabushiki Kaisha; and Zexel Corporation: Lubrication system for a parallel-axis differential, 5,669,844, Cl. 475-160.000.
Homuth, James R.: See—
Somerson, Steven K.; Tissot, Kevin G.; and Homuth, James R., 5,669,379, Cl. 128-204.210.
Honda Giken Kogyo Kabushiki Kaisha: See—
Kondo, Noboru; and Nishida, Kenzo, 5,669,848, Cl. 477-64.000.
Maki, Hidetaka; Akazaki, Shusuke; and Nishimura, Yoichi, 5,669,368, Cl. 123-681.000.
Nakao, Yasuhiro; and Sugaya, Kunitoshi, 5,669,434, Cl. 164-97.000.
Niizawa, Tsunefumi; Yoshikawa, Haruhiko; and Yamamoto, Kazuhisa, 5,669,280, Cl. 91-31.000.
Ohtaka, Akihiko; Yoshitoshi, Nobuyuki; Kimura, Shigeo; Houjou, Take-toshi; and Niimiya, Kazuya, 5,670,756, Cl. 181-256.000.
Ushirono, Akihiko; Sugai, Takashi; and Okuyama, Takahiro, 5,669,341, Cl. 123-90.110.
Honda, Kiyohiko: See—
Negishi, Ryuchiro; Sekiguchi, Kiyonori; Nagoshi, Koichi; Saza, Hiroshi; and Honda, Kiyohiko, 5,671,067, Cl. 358-403.000.
Honda, Miwa: See—
Hara, Yukihiko; and Honda, Miwa, 5,670,154, Cl. 424-195.100.
Honda, Takaaki; and Mitani, Shinichi, to Toshiba Machine Co., Ltd.: Zigzag heating device with downward directed connecting portions, 5,671,323, Cl. 392-418.000.
Honda, Takao: See—
Yamamoto, Takeo; Kuribayashi, Tetsuya; Honda, Takao; Arahira, Fumihiro; and Osada, Hiroyuki, 5,671,468, Cl. 399-169.000.
Honeywell Inc.: See—
Alfors, Eugene D.; Cox, Ronald G.; Hoffman, Edward D.; and Murdock, Joseph K., 5,670,875, Cl. 324-202.000.
Bennet, Ronika A.; Hall, Jeffrey S.; Holman, Perry A., Jr.; Johnson, Lyle D.; and Kirkwood, Matthew D., 5,671,161, Cl. 364-560.000.
Hong, Gilbert H.: Method for writing and reading data on a multi-layer recordable interferometric optical disc and method for fabricating such, 5,669,995, Cl. 156-74.000.
Honhon, Patrick: See—
Lamine, Etienne; and Honhon, Patrick, 5,670,717, Cl. 73-152.110.
Hönig, Karl: See—
Keller, Hans-Georg; and Hönig, Karl, 5,671,227, Cl. 370-509.000.
Honma, Takumi: See—

Takahashi, Kazuo; Ono, Mitsuhiro; and Honma, Takumi, 5,669,804, Cl. 451-59.000.
Honza, Takeshi: See—
Chiu, Edison H.; Numaga, Shigeki; and Honza, Takeshi, 5,670,976, Cl. 345-84.000.
Hood, Edward D.: Butt hinge fastener location marking device, 5,669,153, Cl. 33-667.000.
Hood, Larry: Ultrasonically driven blade with a radial hook that defines a circular recess, 5,669,922, Cl. 606-169.000.
Hooper, Donald F.; Tongel, Dave M.; and Evans, Michael B., to Digital Equipment Corporation: Distributed interactive multimedia service system, 5,671,225, Cl. 370-468.000.
Hoover, Larry, to Fulghum Industries, Inc.: Conveyor system for log debarking and chipping, 5,669,428, Cl. 144-245.200.
Hoover Universal, Inc.: See—
Huber, Kenneth G.; Doerer, Richard P.; and Marceau, Normand R., 5,670,211, Cl. 427-244.000.
Hoppe, Gerd, to Deckel Maho GmbH: Machine tool, 5,669,867, Cl. 483-55.000.
Höptner, Wolfgang: See—
Denz, Helmut; Moser, Winfried; Höptner, Wolfgang; Gross, Helmut; Klinker, Christian; Gerlings, Karl-Heinz; Grieser, Klemens; and Botcher, Klaus, 5,669,357, Cl. 123-481.000.
Horal, Peter: See—
Vahne, Anders; Svennerholm, Bo; Rymo, Lars; Jeansson, Stig; and Horal, Peter, 5,670,311, Cl. 435-5.000.
Horanzy, Joseph A.: See—
Glynn, Stephen David; Horanzy, Joseph A.; and Scarrow, John L., 5,671,445, Cl. 395-873.000.
Hori Glass Co., Ltd.: See—
Miyazawa, Kiyotaka, 5,669,657, Cl. 296-216.000.
Hori, Tsuguo; and Inahashi, Atsushi, to NEC Corporation: FET amplifier and bias power supply circuit for commonly amplifying multi-radio frequency (RF) signals, 5,670,911, Cl. 330-277.000.
Horie, Mikio: See—
Hokamura, Satoshi; Ichinokawa, Kazuhiro; Yano, Takaaki; Takano, Masatoshi; Hirano, Masakazu; Maseki, Motohiro; Yoshida, Tatsuya; Horie, Mikio; Shirai, Masami; Ito, Eiichi; and Otsuka, Kenichiro, 5,671,466, Cl. 399-124.000.
Horigome, Hidekazu: See—
Iizuka, Yukinori; Horigome, Hidekazu; Murayama, Akira; and Nakazawa, Shin, 5,671,154, Cl. 364-507.000.
Horiuchi, Hideki: See—
Kuriyama, Hiroshi; Kodaira, Youichi; Miyasaka, Haruyuki; and Horiuchi, Hideki, 5,669,304, Cl. 101-401.100.
Horn, Billy Lee: Magnetic holders for cylindrical objects, 5,669,516, Cl. 211-70.000.
Horn, Matthias: See—
Stumpe, Werner; Schwendemann, Bernhard; and Horn, Matthias, 5,669,678, Cl. 303-155.000.
Horn, Ronald H.; and Barwick, Lee W., to Cook Composites and Polymers Co.: Process for collecting airborne anhydrides, 5,670,660, Cl. 549-262.000.
Horne, Graham Robert; and James, Alun Pryce, to Solvay Interex Limited: Percarbonate stabilised by coating with an aqueous solution of phosphate and boron compounds, 5,670,470, Cl. 510-375.000.
Horrobin, David F.; Knowles, Philip; Manku, Mehar Singh; and McMordie, Austin, to Scotia Holdings PLC: Triglycerides of fatty acids, 5,670,540, Cl. 514-549.000.
Horst, Gary E., to Emerson Electric Co.: Variable reluctance start permanent magnet motor, 5,670,836, Cl. 310-156.000.
Horton, M. Duane; Skeem, Marcus R.; and Huber, Paul K., to Norton Company: Cutting tools having textured cutting surface, 5,669,943, Cl. 51-307.000.
Horton, Raymond Robert: See—
Hernandez, Bernardo; Horton, Raymond Robert; Noyan, Ismail Cevdet; and Palmer, Michael Jon, 5,669,437, Cl. 165-47.000.
Horton, Woodson; Lane, Mark D.; Smith, Ronald R.; and Mitchell, Timothy R., to Carrier Corporation: Electronic air cleaner, 5,669,963, Cl. 96-77.000.
Horwitz, Lawrence D., to University of Colorado: Board of Regents of the Method for the treatment of ischemic disease and reperfusion injury and the prevention of the adverse effects of reactive oxygen species, 5,670,545, Cl. 514-618.000.
Hoshiba, Akihiko: See—
Iwata, Yoshifumi; Hoshiba, Akihiko; Yoshida, Sadato; and Suzuki, Masaru, 5,669,349, Cl. 123-335.000.
Hosokawa, Kyoichi: See—
Arai, Hideo; Owashi, Hitoaki; Hosokawa, Kyoichi; Nishimura, Keizo; Watani, Yoshizumi; and Shibata, Akira, 5,671,095, Cl. 360-8.000.
Hossain, K. Omar, to Dow Chemical Company: The system and method for facilitating software development, 5,671,415, Cl. 395-701.000.
Hou, Donald; Draper, Richard W.; Lee, Gary M.; and Mas, Janet L., to Schering Corporation: Process for preparing intermediates for the synthesis of D1 antagonists, 5,670,666, Cl. 549-373.000.
Houghton, Michael: See—
Weiner, Amy J.; and Houghton, Michael, 5,670,152, Cl. 424-189.100.
Weiner, Amy J.; and Houghton, Michael, 5,670,153, Cl. 424-189.100.
Houjou, Take-toshi: See—
Ohtaka, Akihiko; Yoshitoshi, Nobuyuki; Kimura, Shigeo; Houjou, Take-toshi; and Niimiya, Kazuya, 5,670,756, Cl. 181-256.000.
Houn, Edward: See—

Lin, Yn-Tsai; Houn, Edward; and Chen, Ben, 5,669,768, Cl. 432-205.000.
Housel, Edward M.: See—
Chapman, Edward N.; and Housel, Edward M., 5,671,340, Cl. 395-101.000.
Houser, Clarence G.; Yao, Jame; Andress, Donald L.; and Low, William R., to Phillips Petroleum Company: Efficiency improvement of open-cycle cascaded refrigeration process, 5,669,234, Cl. 62-612.000.
Houston, L. L.: See—
Larrick, James W.; Houston, L. L.; and Groves, Eric S., 5,670,151, Cl. 424-183.100.
Howard, William L., Jr.: See—
Duan, Daniel C.; Schaberg, Mark S.; Fogarty, Terence M.; Howard, William L., Jr.; and Wood, Kenneth B., 5,670,097, Cl. 264-1240.
Howbert, J. Jeffrey: See—
Cho, Sung Y.; Crowell, Thomas A.; Gitter, Bruce D.; Hipakind, Philip A.; Howbert, J. Jeffrey; Krushinski, Joseph H., Jr.; Lobb, Karen L.; Muehl, Brian S.; and Nixon, James A., 5,670,499, Cl. 514-231.500.
Howell, Thomas H.: See—
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Howell, Wayne John: See—
Beilstein, Kenneth Edward, Jr.; Bertin, Claude Louis; Daubenspeck, Timothy Harrison; and Howell, Wayne John, 5,670,428, Cl. 437-205.000.
Howells, Richard Johnathon: See—
Pryce, John Edward; and Howells, Richard Johnathon, 5,669,763, Cl. 417-313.000.
Howie, Robert K., Jr., to Grigolein Company: The composite knob with an insertable position indicator, 5,669,104, Cl. 16-121.000.
Hsu, Chien-Shih, to Acer Peripherals, Inc.: Push button switch including complementary housing and actuator polygonal shapes, 5,670,759, Cl. 200-5.00A.
Hu, Chenming: See—
Forouhi, Abdul Rahim; Hamdy, Esmat Z.; Hu, Chenming; and McCollum, John L., 5,670,818, Cl. 257-530.000.
Hu, Lain-Yen: See—
Goldin, Stanley M.; Katragadda, Subbarao; Hu, Lain-Yen; Reddy, N. Laxma; Fischer, James B.; Knapp, Andrew Gannett; and Margolin, Lee David, 5,670,519, Cl. 514-313.000.
Hu, Yi; Hart, David; Novosel, Damiir; and Smith, Robert, to ABB Power T&D Company, Inc.: Digital integrator V/Hz relay for generator and transformer over-excitation protection, 5,671,112, Cl. 361-86.000.
Huang, Chun-Chu: Eyeglass temple having a spring, 5,671,036, Cl. 351-113.000.
Huang, Daniel: Screw driver, 5,669,273, Cl. 81-438.000.
Huang, Daniel C.: See—
Huang, Frank Feng Jung; and Huang, Daniel C., 5,670,013, Cl. 156-513.000.
Huang, Frank Feng Jung; and Huang, Daniel C., to Durabag Co., Inc.: Dies for manufacturing a pack of self-opening bags, 5,670,013, Cl. 156-513.000.
Huang, Fu-Chuan: Package film device, 5,669,112, Cl. 23-16.00R.
Huang, Hong-Chih; and Reitz, David R., to G. D. Searle & Co.: Pyridyl substituted spirodienes for the treatment of inflammation, 5,670,510, Cl. 514-278.000.
Huang, Ing-Jing: Shock-absorbing cushion, 5,669,161, Cl. 36-43.000.
Huang, Po-Chuan, to United Microelectronics Corporation: Apparatus for two-dimensional inverse discrete cosine transform, 5,671,169, Cl. 364-725.000.
Huang, Richard J.: See—
Cheung, Robin W.; Chan, Simon S.; and Huang, Richard J., 5,670,828, Cl. 257-773.000.
Huang, Shun-Feng: Christmas lamp socket, 5,669,707, Cl. 362-249.000.
Huang, Sun Yi; Leone-Bay, Andrea; Schmitt, Joseph Michael; and Waterman, Paul S., to Cytec Technology Corp.: Quaternized tertiary aminomethyl acrylamide polymer microemulsions with improved performance, 5,670,615, Cl. 528-486.000.
Huang, Wen-Ling Margaret; Shin, Hyungcheol; and Racanelli, Marco, to Motorola, Inc.: Semiconductor-on-insulator device having a laterally-graded channel region and method of making, 5,670,389, Cl. 437-21.000.
Huang, Yishao Max: See—
Chan, Regina K.; and Huang, Yishao Max, 5,671,368, Cl. 395-282.000.
Huang, Yuan-Chang, to Taiwan Semiconductor Manufacturing Company Ltd.: Removal process for tungsten etchback precipitates, 5,670,019, Cl. 156-643.100.
Huang, Yuan-Chang; and Yen, Shih-Kuei, to Taiwan Semiconductor Manufacturing Company, Ltd.: Process for cleaning an electrostatic chuck of a plasma etching apparatus, 5,671,119, Cl. 361-234.000.
Huang, Julie; and Liang, Mong-Song, to Taiwan Semiconductor Manufacturing Company Ltd.: Method of forming an ultra thin dielectric film for a capacitor, 5,670,431, Cl. 437-241.000.
Huber, Jon M.: See—
Desautels, Thomas; Allen, Charles E., Jr.; Huber, Jon M.; Bacon, Edward M.; Weisman, Steve M.; and Radue, Steven E., 5,669,852, Cl. 477-111.000.
Huber, Kenneth G.; Doerer, Richard P.; and Marceau, Normand R., to Hoover Universal, Inc.: Method for applying liquid to sheet material, 5,670,211, Cl. 427-244.000.
Huber, Klaus: See—
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- Huber, Mary L. B.: See—
Mynderse, Jon S.; Mabe, James A.; Turner, Jan R.; Huber, Mary L. B.; Broughton, Mary C.; Nakatsukasa, Walter M.; Creemer, Lawrence; Kirst, Herbert A.; and Martin, James W., 5,670,364, Cl. 435-252.100.
Mynderse, Jon S.; Mabe, James A.; Turner, Jan R.; Huber, Mary L. B.; Broughton, Mary C.; Nakatsukasa, Walter M.; Creemer, Lawrence; Kirst, Herbert A.; and Martin, James W., 5,670,486, Cl. 514-28.000.
- Huber, Paul K.: See—
Horton, M. Duane; Skeem, Marcus R.; and Huber, Paul K., 5,669,943, Cl. 51-307.000.
- Huebner, Fritz; and Schoeb, Gerard J., to Plascore, Inc. Honeycomb fabrication, 5,670,001, Cl. 156-197.000.
- Huehner, Karen D.: See—
Adrianson, Tim M.; Brown, Alpheus I., Jr.; Busk, G. Curtis, Jr.; Gunther, Stephen A.; Huehner, Karen D.; Mann, Joseph W.; and Yoss, James K., 5,670,197, Cl. 426-582.000.
- Huffman, Linda F.: See—
Keller, Edwin C.; Benoist, Nellie Gail; Durrell, David N.; Eaton, Ronald D.; Huffman, Linda F.; Kinney, Vickie L.; Muraco, John M.; Perry, Peggy S.; Phillips, Arville K.; Ramsey, Michael S.; Rogers, Guy; Shaw, Steven M.; Shipton, Steve R.; Sutton, Darlene W.; Walsler, Stephen M.; and Warford, Foy A., Jr., 5,669,564, Cl. 242-43.00R.
- Hufton, Peter F., to Rolls-Royce Power Engineering plc. Fossil fuel burners, 5,669,766, Cl. 431-187.000.
- Huggett, Colin E.: See—
Le, Dong Tuan; and Huggett, Colin E., 5,670,856, Cl. 318-564.000.
- Hughes Aircraft Company: See—
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- Townsend, Carl W.; and Purer, Edna M., 5,669,251, Cl. 68-58.000.
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- Hughes Danbury Optical Systems, Inc.: See—
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- Hughes Electronics: See—
Conrady, Clint; Woody, George R.; Rosas, Juvenino; Asbury, Victor O.; Ramos, Sergio; and Yeow, Eddie, 5,670,860, Cl. 320-2.000.
- Farwell, William D., 5,670,865, Cl. 323-285.000.
- Scheiber, Donald J., 5,670,877, Cl. 324-247.250.
- Smith, Ronald T., 5,669,693, Cl. 362-31.000.
- Hughes, Robert J.; Leonard, Michael S.; and Hardin, William C., Jr., to Tubular Textile LLC. Suction drum system for processing web materials particularly knitted fabrics, 5,669,155, Cl. 34-115.000.
- Hui, Jiang Hen, to Clipper Products. Integrated handle for telescoping tubes, 5,669,103, Cl. 16-115.000.
- Hull, Mark, to H.B. Fuller Licensing & Financing, Inc. Method for tackless packaging of hot melt adhesive, 5,669,207, Cl. 53-440.000.
- Hultman, David A.: See—
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- Humanicare International, Inc.: See—
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- Humphrey, Doyce. Safety device for a cooking range, 5,669,372, Cl. 126-24.000.
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- Hung, Deborah T.: See—
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- Hunt, Tracy K., to Henkel Corporation. Recovery of tocopherols, 5,670,669, Cl. 549-413.000.
- Hunt-Wesson, Inc.: See—
Rothbart, Michael A., 5,670,678, Cl. 554-191.000.
- Hunter Douglas, Inc.: See—
Colson, Wendell B.; and Anthony, James M., 5,670,000, Cl. 156-197.000.
- Hunzelmann, Herbert: See—
Bauer, Dieter; Bochart, Ralf; Damsch, Herbert; Helms, Werner; Hemminger, Roland; Hunzelmann, Herbert; Kurz, Volker; Schirmacher, Roland; and Wolf, Walter, 5,669,440, Cl. 165-177.000.
- Huq, Ruquiyah Ismat Arif; and Plus, Dora, to Thomson Consumer Electronics, S.A. Data line drivers with common reference ramp display, 5,670,979, Cl. 345-100.000.
- Hur, Hoon, to LG Semicon Co., Ltd. Method of forming a metal pattern in manufacturing a semiconductor device, 5,670,298, Cl. 430-318.000.
- Hürzeler, Marianne: See—
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- Husain, Anwar, to LAM Research Corporation. Multilayered electrostatic chuck and method of manufacture thereof, 5,671,116, Cl. 361-234.000.
- Hutson, Steven Graham: See—
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- Huzjak, George P. Trolling motor extension handle bracket, 5,669,322, Cl. 114-146.000.
- Hwang, J. D.: See—
Fang, Y. K.; and Hwang, J. D., 5,670,414, Cl. 437-100.000.
- Hwang, Young-mo: See—
Lee, Hang-woo; Lee, Sang-hak; Chee, Joseph Kilwhan; Hwang, Young-mo; Tsvetkov, Yuri V.; Semenenko, Alexander V.; and Kuratov, Ivan I., 5,671,232, Cl. 372-22.000.
- Hyatt, Hugh M., to G & H Technology, Inc. Electrical overstress pulse protection, 5,669,381, Cl. 428-402.000.
- Hyatt, John Anthony, to Eastman Chemical Company. Crystalline tocotrienol esters, 5,670,668, Cl. 549-410.000.
- Hyde, John W.; Schwartz, Abby M.; and Brown, David A., to Intel Corporation. Integrated circuit package with internally readable permanent identification of device characteristics, 5,670,825, Cl. 257-730.000.
- Hyodo, Kenji: See—
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Crafts, Harold S., 5,671,397, Cl. 395-500.000.
- Hyundai Electronics Industrial Co., Ltd.: See—
Ahn, Hey-Song, 5,671,071, Cl. 358-498.000.
- Hyundai Electronics Industries Co., Ltd.: See—
Baek, Yong Ku, 5,670,218, Cl. 427-576.000.
- Cho, Gyung-Su, 5,670,427, Cl. 437-195.000.
- Choi, Kyeong Keum, 5,670,420, Cl. 437-189.000.
- Chun, Sung Moon; and Lee, Geum Ock, 5,671,024, Cl. 348-699.000.
- Kim, Dae Hyun; and Shin, Yun Seob, 5,670,908, Cl. 327-543.000.
- Lee, Young; and Moon, Nam-Soo, 5,671,292, Cl. 382-218.000.
- Yin, Sung Wook; and Kim, Yun Ki, 5,670,398, Cl. 437-40.TFT.
- Hyundai Motor Company: See—
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- Kang, Sun Won, 5,669,642, Cl. 292-336.300.
- Hyundai Motor Company, Ltd.: See—
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- I, Chih-Lin; and Sabnani, Krishan Kumar, to Lucent Technologies Inc. Controlling power and access of wireless devices to base stations which use code division multiple access, 5,671,218, Cl. 370-252.000.
- I-Tech Corporation: See—
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- Ichel, Glenn K. Waterpower pressure washer, 5,669,558, Cl. 239-311.000.
- Ichikawa, Yasuhiro: See—
Okado, Kenji; Ugai, Toshiyuki; Fujita, Ryoichi; Kanbayashi, Makoto; Takiguchi, Tsuyoshi; Ichikawa, Yasuhiro; and Iida, Wakashi, 5,670,288, Cl. 430-122.000.
- Ichinohe, Shoji: See—
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- Ichinokawa, Kazuhiro: See—
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- Ichrist, Raymond J.: See—
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- ICON Health & Fitness, Inc.: See—
Watterson, Scott R.; Dalebout, William T.; Miller, Frank Troy; Hammer, Rodney L.; and Wooden, Jason Lee, 5,669,857, Cl. 482-54.000.
- Ida, Michel; and Montmayeu, Brigitte, to Commissariat à l'Energie Atomique. Process of forming holes in a photosensitive resin layer to produce cathodes with microtips, 5,669,800, Cl. 445-25.000.
- Idemitsu Kosan Co., Ltd.: See—
Takeuchi, Mizutomo; Shouzaki, Hajime; Tomotsu, Norio; and Kuramoto, Masahiko, 5,670,587, Cl. 526-119.000.
- Tazaki, Toshinori; and Machida, Shuji, 5,670,580, Cl. 525-240.000.
- Idota, Tadashi: See—
Takahashi, Nobuaki; Asakawa, Sadao; Dousako, Shun-Ichi; and Idota, Tadashi, 5,670,201, Cl. 426-648.000.
- Iga, Takashi; Endou, Kaoru; Shiroe, Takashi; and Uwano, Yoshito, to Hitachi, Ltd. System for utilizing exhaust heat of stationary induction apparatus, 5,669,228, Cl. 62-238.700.
- Igarashi, Akira, to Fuji Systems Corporation. Sient for intracorporeal retention, 5,669,930, Cl. 606-191.000.
- Igarashi, Yoshiaki: See—
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- Igari, Fubito: See—
Ishii, Shuichi; and Igari, Fubito, 5,671,099, Cl. 360-69.000.
- Igura, Koichi, to Fujitsu Limited. Semiconductor memory device having bit line precharger, 5,671,186, Cl. 365-203.000.
- Ihara Chemical Industry Co., Ltd.: See—
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- Ii, Kazuyoshi. Apparatus for separating whey from a slurry-like material, 5,669,291, Cl. 99-459.000.
- Iida, Kazuhiko, to Seiko Epson Corporation. Paper feed control system in printing unit, 5,671,163, Cl. 364-562.000.

- Iida, Kenji; Ono, Shuji; and Kobayashi, Ken, to SMC Kabushiki Kaisha; and Matsushita Electric Industrial Co., Ltd. Cylinder apparatus, 5,669,283, Cl. 92-117.00A.
- Iida, Tomohide: See—
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- Iida, Wakashi: See—
Okado, Kenji; Ugai, Toshiyuki; Fujita, Ryoichi; Kanbayashi, Makoto; Takiguchi, Tsuyoshi; Ichikawa, Yasuhiro; and Iida, Wakashi, 5,670,288, Cl. 430-122.000.
- Iida, Yoshikazu: See—
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- Iizumi, Yuhji: See—
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- Iitsuka, Hisao: See—
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- Iizuka, Tetsuya: See—
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- Iizuka, Yoshio: See—
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- Iizuka, Yukinori; Horigome, Hidekazu; Murayama, Akira; and Nakazawa, Shin, to NKK Corporation. Signal processing method and signal processing device for ultrasonic inspection apparatus, 5,671,154, Cl. 364-507.000.
- Ijima, Yoshiaki: See—
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- Ikeda, Hiroyuki, to Sony Corporation. Thin-film transistor array for display, 5,670,795, Cl. 257-72.000.
- Ikeda, Keiji, to Yamahata Hatsudoki Kabushiki Kaisha. Watercraft, 5,669,326, Cl. 114-363.000.
- Ikeda, Naoyasu: See—
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- Ikeda, Nobukazu: See—
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- Ikeda, Shuji: See—
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- Ikeda, Tamotsu: See—
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- Ikemura, Kunio: See—
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- Ikenoue, Yoshikazu; Kumashiro, Hideo; and Nakatani, Munehiro, to Minolta Camera Kabushiki Kaisha. Image forming apparatus and copy management system, 5,671,277, Cl. 380-7.000.
- Illinois Institute of Technology: See—
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- Illinois Tool Works Inc.: See—
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- Parker, Eric G.; van Boven, Albert Willem; and Amdahl, Samuel P., 5,669,695, Cl. 362-66.000.
- Imabeppu, Katsuyoshi: See—
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- Imai, Mitsuru: See—
Sasaki, Kenichi; Saito, Takayuki; Nakajima, Ken; and Imai, Mitsuru, 5,670,094, Cl. 261-27.000.
- Imaizumi, Tsutomu, to Yamahata Corporation. Automatic performance device capable of making custom performance data by combining parts of plural automatic performance data, 5,670,731, Cl. 84-613.000.
- Imakawa, Susumu; Yamaguchi, Katsumi; Hino, Makoto; Michiie, Norio; and Nakajima, Tomohiro, to Ricoh Company, Ltd. Multi-beam light source device and optical scanning apparatus using the multi-beam source device, 5,671,077, Cl. 359-204.000.
- Imanishi, Kunihiko: See—
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- Imation Corp.: See—
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- Immisch, Ulrich: See—
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- Immunex Corporation: See—
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- Immuno Aktiengesellschaft: See—
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- Immunomedics, Inc.: See—
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- IMO Industries, Inc.: See—
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- Imperial Chemical Industries PLC: See—
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- Mackey, Paul William, 5,670,553, Cl. 521-128.000.
- Imura, Yoshio: See—
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- Ina, Hiroyuki; and Mori, Hidehito, to Nippondenso Co., Ltd. Anti-theft device having minimal power consumption characteristics, 5,670,934, Cl. 340-426.000.
- Ina Walzinger Schaeffler KG: See—
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- Speil, Walter, 5,669,342, Cl. 123-90.160.
- Inaba, Akira: See—
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- Inaba, Shiochi: See—
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- Inaba, Yukio; Ueno, Yohsuke; Watanabe, Masahiko; and Nishida, Yukihiko, to Ube Industries, Ltd. Process for preparing high purity hydrogen peroxide aqueous solution, 5,670,028, Cl. 203-86.000.
- Inagaki, Masashi: See—
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- Inahashi, Atsushi: See—
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- Inamori, Masahito: See—
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- Inanaga, Masayuki; and Okuda, Shouchiro, to Matsushita Electric Industrial Co., Ltd. Retractable flexible transmit/receive antenna which operates in a collapsed and extended position, 5,670,968, Cl. 343-901.000.
- Indiana Mills and Manufacturing, Inc.: See—
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- Industrial Technology, Inc.: See—
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- Industrial Technology Research Institute: See—
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- Dai, Chang-Ming, 5,670,281, Cl. 430-5.000.
- Dai, Chang-Ming, 5,670,404, Cl. 437-52.000.
- Tsai, Chun-hui, 5,670,296, Cl. 430-312.000.
- Industrie Chimiche Caffaro S.p.A.: See—
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- Inflight Financial Services Ltd.: See—
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- Ingersoll-Rand Company: See—
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- Ingram, Keith W., to Owens-Illinois Closure Inc. Method and apparatus for compression molding plastic articles, 5,670,100, Cl. 264-40.500.
- Ingram, William P., III: See—
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- Inmos Limited: See—
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- Innovation Associates, Inc.: See—
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- Innovatron Industries, Société Anonyme: See—
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- Inoue, Akira; Hattori, Yasuji; Yamashita, Katsuya; Ohtsuki, Fumio; and Katsuyama, Yutaka, to Sumitomo Electric Industries, Ltd.; and Nippon Telegraph and Telephone Corporation. Optical waveguide having diffraction grating area and method of fabricating the same, 5,671,308, Cl. 385-37.000.
- Inoue, Hideya; Aoki, Hitoshi; Imura, Yoshio; and Tsukahara, Daiki, to Nikon Corporation. Camera with device for identifying used film magazine, 5,671,453, Cl. 396-320.000.
- Inoue, Kiyoshi: See—
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- Inoue, Shuji; and Ozawa, Kazuhisa, to Intel Corporation. IC socket permitting checking connected state between IC socket and printed wiring board, 5,669,783, Cl. 439-331.000.
- Inoue, Tadashi; Tsuru, Kiyoshi; Okimoto, Shinichi; Yamamura, Naokazu; Yamamoto, Tetsuo; and Haiji, Hirohisa, to NKK Corporation. Ni-Fe magnetic alloy and method for producing thereof, 5,669,989, Cl. 148-312.000.
- Inoue, Takeshi; Matsuura, Eiji; Kuroki, Yoshio; Akino, Toyooki; and Abe, Shosaku, to Yamasa Corporation. Monoclonal antibodies to human pulmonary surfactant apoprotein D and use thereof, 5,670,328, Cl. 435-7.230.

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Gavish, Dan, 5,671,396, Cl. 395-500.000.
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Millier, Marshall A.; Harrison, Edward R.; and Needham, Bradford, 5,671,342, Cl. 395-118.000.
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Valentine, Robert, 5,671,383, Cl. 395-391.000.
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Cox, Harry David; Littell, Connie Fassett; Shroedl, Richard Michael; Trumpetto, John Amodio; and Vanca, Michael Stephen, 5,669,972, Cl. 118-504.000.
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Glassen, Steven Gardner; Halma, Marten Jan; Hefferon, Eugene Paul; and Johnson, Francis Edward, 5,671,441, Cl. 395-828.000.
Hambrick, Geoffrey Martin; and Rogers, Judd Thomas, 5,671,360, Cl. 395-209.000.
Hammerl, Erwin; Mandelman, Jack A.; Ho, Herbert L.; Shiozawa, Junichi; and Stengl, Reinhard Johannes, 5,670,805, Cl. 257-301.000.

Hernandez, Bernardo; Horton, Raymond Robert; Noyan, Ismail Cevdet; and Palmer, Michael Jon, 5,669,437, Cl. 165-47.000.
Hidaka, Kazuyoshi, 5,671,380, Cl. 395-348.000.
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Lauffer, John Matthew; Russell, David John; and Hansen, James Jens, 5,670,750, Cl. 174-262.000.
Lavin, Mark A.; and Liebmann, Lars W., 5,671,152, Cl. 364-490.000.
Lynne, Kenton Jerome, 5,671,334, Cl. 395-21.000.
Machesney, Brian John; Mandelman, Jack Allan; and Nowak, Edward Joseph, 5,670,388, Cl. 437-21.000.
Magee, Robert Arthur, 5,669,136, Cl. 29-830.000.
Miclette, Darren, deceased; and Rogalski, Mark D., 5,671,417, Cl. 395-704.000.
Price, Warren Everett; and Uplinger, Kenneth Allen, 5,671,372, Cl. 395-307.000.
Sakamoto, Masaharu; Kobayashi, Mei; Saito, Takashi; and Nishimura, Masafumi, 5,671,330, Cl. 395-2.770.
Sawa, Tsutomu; Takenoshita, Hiroyuki; Hada, Toshiki; and Komatsu, Hirohide, 5,669,605, Cl. 271-314.000.
Scalia, Lorenzo; and Sewing, Barry Donald, 5,670,187, Cl. 425-224.000.
Shekita, Eugene Jon; and Young, Honesty Cheng, 5,671,403, Cl. 395-603.000.
Stauffer, David Robert; and McMahon, Rebecca Stempski, 5,671,443, Cl. 395-845.000.
Takahashi, Kohji; Matsuda, Hiroshi; and Takahashi, Keishi, 5,671,104, Cl. 360-105.000.
Wang, David T., 5,671,356, Cl. 395-200.030.
Wu, Kun-Lung; and Yu, Philip Shi-Lung, 5,671,405, Cl. 395-607.000.
Zhao, Albert Z., 5,670,982, Cl. 345-126.000.
International Paper Company: See—
Yin, Caifang; and Hung, Christopher P., 5,670,020, Cl. 162-29.000.
International Superconductivity Technology Center: See—
Adachi, Seiji; Jin, Changbin; Wu, Xiao-Jing; Yamauchi, Hisao; and Tanaka, Shoji, 5,670,457, Cl. 505-125.000.
Intertech Corporation: See—
Worsham, Jack W., 5,669,096, Cl. 15-21.200.
Intevep, S.A.: See—
Chirinos, Maria Luisa; Taylor, Alistair Stewart; and Taylor, Spencer Edwin, 5,670,087, Cl. 252-311.500.
Intravascular Research Limited: See—
Dickinson, Robert Julian; and Rothman, Martin Terry, 5,669,878, Cl. 604-95.000.
Inui, Kazuo: See—
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Inushima, Takashi; Vaitkus, Rimantas; and Teramoto, Satoshi, to Semiconductor Energy Laboratory Co., Ltd. Photosensitive device and two frequency driving method thereof. 5,670,777, Cl. 250-214.100.
Inuzuka, Takeshi: See—
Moroto, Shuzo; Taniguchi, Takao; Miyagawa, Shoichi; Sakakibara, Shiro; Tsukamoto, Kazumasa; Inuzuka, Takeshi; and Hattori, Masashi, 5,669,846, Cl. 475-211.000.
Inventio AG: See—
Anderegg, Kurt; Oesch, Guido; and Stettler, Andreas, 5,669,999, Cl. 156-173.000.
Iomega Corporation: See—
Sumner, Wayne A.; Bracken, Allen T.; Griffith, David W.; Jones, David E.; and Rich, Edward L., 5,671,109, Cl. 360-133.000.
Ippolito, Joseph P.: See—
Taylor, Daniel; Ippolito, Joseph P.; and Rempter, I. M., 5,670,244, Cl. 428-213.000.
Iritani, Kunio: See—
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Irite, Naoko; Abe, Akira; and Yoshida, Kiyohide, to Kabushiki Kaisha Riken. Exhaust gas cleaner and method for cleaning exhaust gas. 5,670,443, Cl. 502-330.000.
Irite, Naoko: See—
Yoshida, Kiyohide; Muramatsu, Gyo; Abe, Akira; and Irite, Naoko, 5,670,444, Cl. 502-331.000.
Irvine, Renee Jane: See—
Mehansho, Haile; and Irvine, Renee Jane, 5,670,344, Cl. 426-74.000.
Isco, Inc.: See—
Davison, Dale Alan; and Walters, Henry LeRoy, 5,670,048, Cl. 210-634.000.
Ishaque, Ahmad Nadeem: See—
Piccone, Dante Edmond; Ishaque, Ahmad Nadeem; Castleberry, Donald Earl; Rougeot, Henri Max; and Menditto, Peter, 5,670,383, Cl. 437-3.000.
Ishibashi, Hiromichi: See—
Yamaguchi, Osamu; Moriya, Mitsuro; Yamaguchi, Hiroyuki; Kanda, Yoshihiro; and Ishibashi, Hiromichi, 5,671,200, Cl. 369-44.280.
Ishida Co., Ltd.: See—
Nakajima, Masayoshi, 5,670,752, Cl. 177-145.000.
Ishida, Hideo, to NEC Corporation. Image processing system and method for converting YCbCr data composed of luminance and chroma into RGB data of three primary colors. 5,671,022, Cl. 348-659.000.
Ishida, Hiromi: See—
Takatani, Takayuki; and Ishida, Hiromi, 5,670,576, Cl. 525-132.000.
Ishida, Nobuaki. Cartridge connection mechanism. 5,669,781, Cl. 439-326.000.
Ishida, Setsuko: See—

Tobita, Osamu, 5,669,239, Cl. 63-12.000.
Ishiguro, Yasuyuki; Kimura, Kazuhiro; Yamaguchi, Hiroaki; Tsuji, Hiroyuki; and Watanabe, Masaru, to Mita Industrial Co., Ltd. Image forming machine with cleaning drum brush driven by rotating drum. 5,671,476, Cl. 399-354.000.
Ishii, Hiromitsu: See—
Ohtani, Shigeru; Ishii, Hiromitsu; and Ono, Takashi, 5,670,938, Cl. 340-506.000.
Ishii, Katsumi: See—
Yokota, Hiroshi; Naito, Ryuichi; Hirano, Hiroyuki; Ishii, Katsumi; Naohara, Shinichi; Tsukada, Yoshifumi; and Matsumoto, Kanya, 5,671,201, Cl. 369-50.000.
Ishii, Naoki: See—
Onishi, Makoto; Shimura, Kenichi; and Ishii, Naoki, 5,670,558, Cl. 523-112.000.
Ishii, Shuichi; and Igari, Fubito, to Kabushiki Kaisha Toshiba. Magnetic recording apparatus with power conservation feature. 5,671,099, Cl. 360-69.000.
Ishii, Tetsuichi, to Ricoh Company, Ltd. Toner cartridge avoiding spillage of toners. 5,671,461, Cl. 399-27.000.
Ishikawa Gasket Co., Ltd.: See—
Udagawa, Tsunekazu, 5,669,614, Cl. 277-235.00B.
Ishikawa, Kiyonari: See—
Homan, Akinori; Ishikawa, Kiyonari; and Okuda, Hirofumi, 5,669,844, Cl. 475-160.000.
Ishikawa, Masanobu: See—
Sakamoto, Kazunori; Ishikawa, Masanobu; Onoda, Atsushi; and Ito, Koji, 5,670,764, Cl. 200-61.45R.
Ishikawa, Shun-ichi: See—
Matsumoto, Kazuhiko; Noro, Masaki; Okamura, Hisashi; and Ishikawa, Shun-ichi, 5,670,292, Cl. 430-138.000.
Ishikawa, Takashi: See—
Hyodo, Yoshihiko; Matsuo, Hiroki; and Ishikawa, Takashi, 5,669,360, Cl. 123-520.000.
Ishikawa, Takayasu; Kikuchi, Toshihiro; Kawabe, Takashi; Whiteford, John R.; and White, James R., to Sony Corporation; and Sony Electronics Inc. Mirror securing device. 5,669,681, Cl. 312-7.200.
Ishikawa, Tomoji: See—
Maruta, Takayuki; Takashima, Hiroshi; Ishikawa, Tomoji; Sugihara, Kazuyuki; Kato, Shinji; and Kosuge, Katsuhiko, 5,671,470, Cl. 399-235.000.
Ishikawajima-Harima Heavy Industries, Co., Ltd.: See—
Hamada, Kouki; Mizusawa, Minoru; and Koga, Minoru, 5,670,269, Cl. 429-20.000.
Ishino, Masakazu: See—
Nishitani, Eisuke; Tsuzuku, Susumu; Kobayashi, Shigeru; Kasahara, Osamu; Nezu, Hiroki; Ishino, Masakazu; and Tamaru, Tsuyoshi, 5,670,421, Cl. 437-192.000.
Ishino, Tsutomu; Maruyama, Ryoichi; and Ota, Shingo, to Kabushiki Kaisha Komatsu Seisakusho. Response control system for hydrostatic-mechanical transmissions. 5,671,137, Cl. 364-424.090.
Ishizaki, Tsutomu: See—
Sakuma, Shuji; Atsumi, Kiminori; and Ishizaki, Tsutomu, 5,670,827, Cl. 257-741.000.
Ishizu, Tohru; Shoda, Masahiro; and Akagawa, Keiichi, to Nikon Corporation. Method for producing a solid state imaging device. 5,670,382, Cl. 437-2.000.
ISIS Pharmaceuticals, Inc.: See—
Cook, Phillip Dan; and Kawasaki, Andrew Mamoro, 5,670,633, Cl. 536-23.100.
Isobe, Ryosuke; Wakamatsu, Hideaki; Saitoh, Akira; and Seki, Akihiko, to Konica Corporation; and TDK Corporation. Magnetic recording medium comprising a magnetic layer containing ferromagnetic metallic powder, binder, and aliphatic acid. 5,670,245, Cl. 428-216.000.
Isoc, Youichi; and Morishita, Tatsuo, to Kabushiki Kaisha Toshiba. Character information display apparatus for a partial and a full-screen display. 5,671,019, Cl. 348-565.000.
Isogai, Mitsuru: See—
Yamada, Takashi; Isogai, Mitsuru; Yamada, Tetsuya; and Yoneda, Satoru, 5,671,473, Cl. 399-320.000.
IsoStent, Inc.: See—
Fischell, Robert E.; and Kopp, Michael E., 5,669,932, Cl. 606-198.000.
Ito, Akira, to Meinan Machinery Works, Inc. Veneer hoisting apparatus. 5,669,602, Cl. 271-18.300.
Ito, Akira: See—
Shibata, Hiromi; and Ito, Akira, 5,671,289, Cl. 382-129.000.
Ito, Eiichi: See—
Hokamura, Satoshi; Ichinokawa, Kazuhiro; Yano, Takaaki; Takano, Masatoshi; Hirano, Masakazu; Maseki, Motohiro; Yoshida, Tatsuya; Horie, Mikio; Shirai, Masami; Ito, Eiichi; and Otsuka, Kenichiro, 5,671,466, Cl. 399-124.000.
Ito, Koji: See—
Sakamoto, Kazunori; Ishikawa, Masanobu; Onoda, Atsushi; and Ito, Koji, 5,670,764, Cl. 200-61.45R.
Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; Ito, Mitsuo; Umesato, Fuminori, deceased (by Setsuko Umesato, heiress), to Hitachi, Ltd.; and Hitachi Instruments Engineering Co., Ltd. Chromatograph system and method of use. 5,670,379, Cl. 436-161.000.
Ito, Masami: See—
Ohbayashi, Kazumi; Yamashita, Susumu; Ito, Masami; Matsuda, Kenji; Watabe, Shin; and Nakamura, Mitsuru, 5,669,229, Cl. 62-259.100.

Ito, Masanobu; Motohashi, Shunji; and Higuchi, Yoshinari, to Sony Corporation. Video apparatus with image forming means responsive to touch sensitive display. 5,671,014, Cl. 348-239.000.
Ito, Mitsuo: See—
Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; Ito, Mitsuo; Umesato, Fuminori, deceased, 5,670,379, Cl. 436-161.000.
Ito, Nobutaka; Murakami, Kanako; and Nakajima, Shuichi, to Fujitsu Limited. Method and apparatus for forming a model for use in finite element method analysis. 5,671,167, Cl. 364-578.000.
Ito, Susumu: See—
Nishimura, Koichi; Koyama, Hideki; Yoshida, Hiroko; and Ito, Susumu, 5,670,186, Cl. 425-151.000.
Ito, Tadato: See—
Hashimoto, Shigeharu; and Ito, Tadato, 5,670,746, Cl. 174-65.00R.
Ito, Takafumi: See—
Satake, Satoru; Mitoma, Yasuharu; and Ito, Takafumi, 5,669,511, Cl. 209-580.000.
Ito, Takehiko: See—
Matsumoto, Mitsunori; Bannai, Hiroyuki; and Ito, Takehiko, 5,669,777, Cl. 439-164.000.
Ito, Toshiyasu; and Nishimura, Takeshi, to Yamaichi Electronics Co., Ltd. Surface mount type IC socket. 5,669,784, Cl. 439-331.000.
Ito, Tsutomu; Hirokawa, Toshio; Ueoka, Atsushi; Kokunishi, Motohide; Yamagishi, Tadashi; and Nakatsu, Kouichi, to Hitachi, Ltd.; and Hitachi Computer Engineering Co., Ltd. Method of assisting server access by use of user authentication information held in one of servers and a method of assisting management user account for use of servers. 5,671,354, Cl. 395-187.010.
Ito, Kiyoshi; Tsutsumi, Yoshio; Tsuji, Masanori; and Tatebayashi, Ayako, to Takeda Chemical Industries, Ltd. Nitrogen-containing molecular sieving carbon, a process for preparing the same and use thereof. 5,670,124, Cl. 423-239.100.
Itoh, Haruhiko: See—
Harada, Takamasa; Itoh, Haruhiko; Ubukata, Masami; and Nozawa, Fumie, 5,670,084, Cl. 252-299.010.
Itoh, Hirozi: See—
Kato, Yoshio; and Itoh, Hirozi, 5,670,725, Cl. 73-862.541.
Itoh, Satoshi; and Iritani, Kunio, to Nippondenso Co., Ltd. Air conditioning apparatus. 5,669,231, Cl. 62-210.000.
ITT Automotive Electrical Systems, Inc.: See—
Buchanan, Harry C., Jr.; and Buschur, Jeffrey J., 5,669,986, Cl. 134-42.000.
Buschur, Jeffrey J., 5,669,461, Cl. 180-417.000.
ITT Automotive Europe GmbH: See—
Gräber, Johannes, 5,671,143, Cl. 364-426.016.
Iura, Akihiko: See—
Miyata, Maki; Iura, Akihiko; and Murata, Akio, 5,670,770, Cl. 235-462.000.
Ivers, Richard, to Cambridge Technology, Inc. Optical position detector for determining the angular position of a rotatable element. 5,671,043, Cl. 356-138.000.
Ivy Laboratories, Inc.: See—
Grimm, C. Louis, 5,669,890, Cl. 604-272.000.
Iwai, Takashi; and Nakano, Motoo, to Fujitsu Limited. Semiconductor device. 5,670,885, Cl. 324-550.000.
Iwaki, Yasuharu, to Fuji Photo Film Co., Ltd. Exposure control method and apparatus for photographic printer. 5,671,041, Cl. 355-38.000.
Iwamoto, Keiichi; and Nishikawa, Yukinobu, to Sanyo Electric Co., Ltd. Refrigerating unit. 5,669,232, Cl. 62-296.000.
Iwasaki, Masaya, to Nikon Corporation. Method and apparatus for measuring position of pattern formed on a substrate having a thickness. 5,671,054, Cl. 356-375.000.
Iwata, Hiroshi, to NEC Corporation. Semiconductor light-emitting device with quantum well structure. 5,670,789, Cl. 257-13.000.
Iwata, Hiroshi: See—
Okubo, Masao; Murakami, Nobuyuki; Katahira, Kouji; Iwata, Hiroshi; and Okubo, Kazumasa, 5,670,889, Cl. 324-760.000.
Iwata, Kazumi: See—
Yokouchi, Kentaro; Nemoto, Shigeru; and Iwata, Kazumi, 5,671,204, Cl. 369-60.000.
Iwata, Yoshifumi; Hoshiba, Akihiko; Yoshida, Sadato; and Suzuki, Masaru, to Sanshin Kogyo Kabushiki Kaisha. Engine control system for marine propulsion. 5,669,349, Cl. 123-335.000.
Izu, Masatsugu; and Dotter, Buddie R., II, to Energy Conversion Devices, Inc. Modified silicon oxide barrier coatings produced by microwave CVD deposition on polymeric substrates. 5,670,224, Cl. 428-35.800.
Izukawa, Kazuhiro: See—
Nagata, Toru; and Izukawa, Kazuhiro, 5,671,455, Cl. 396-390.000.
Izuwa, Akio: See—
Takenaka, Hiroyuki; Tosaka, Yorishige; Sahara, Yasunobu; Maruyama, Yoshiaki; Yamane, Hidenori; and Izuwa, Akio, 5,669,988, Cl. 148-210.000.
J.M. Voith GmbH: See—
Müller, Robert; Mühlberger, Uwe; and Wüst, Bernhard, 5,670,835, Cl. 310-58.000.
Jabri, Mohamed Iyad: See—
Wild, Ulrich H. H.; and Jäbri, Mohamed Iyad, 5,671,351, Cl. 395-183.140.
Jackson, Barrie W.; and Harris, Thomas J., to Queen's University at Kingston. Liquid phase preparation of (meth)acrylate from alpha-olefin. 5,670,702, Cl. 560-208.000.

- Jackson, Dale H.: See—
Murray, Robert R.; Fraczek, Stephen P.; and Jackson, Dale H., 5,669,158, Cl. 34-393.000.
- Jackson, Kenneth William: See—
Auberry, Eric R.; Flannery, David L.; Jackson, Kenneth William; Seitz, David R.; and Serenius, Eric J., 5,671,463, Cl. 358-299.000.
- Jackson, Richard L.: See—
Cardin, Alan D.; Jackson, Richard L.; and Mullins, Michael J., 5,670,143, Cl. 424-78.080.
Cardin, Alan D.; Jackson, Richard L.; and Mullins, Michael J., 5,670,144, Cl. 424-78.080.
- Jacobs, Russel J.; Pierce, Brett A.; and Spira, Joel S., to Lutron Electronics, Co., Inc. Method of automatically assigning device addresses to devices communicating over a common data bus, 5,671,387, Cl. 395-420.000.
- Jairazbhoy, Vivek Amir; Reddy, Prathap Amerwaj; Trubilowski, John; Baker, Jay DeAvis; and Kneisel, Lawrence Leroy, to Ford Motor Company. Apparatus for storing and cooling electronic devices and/or modules in a vehicle, 5,669,813, Cl. 454-69.000.
- Jakob, Horst, to Aser. Conveyor belt joining device, 5,669,114, Cl. 24-33.00P.
- Jakubke, Hans-Dieter: See—
Kuhl, Peter; Eichhorn, Uwe; Jakubke, Hans-Dieter; Drauz, Karlheinz; and Bommarius, Andreas, 5,670,332, Cl. 435-68.100.
- James, Alun Pryce: See—
Horne, Graham Robert; and James, Alun Pryce, 5,670,470, Cl. 510-375.000.
- James River Corporation of Virginia: See—
Moody, John R., 5,669,576, Cl. 242-560.300.
- Jamet, Patrick, to Societe Industrielle de Liaisons Electriques. Cable having fine conductors, in particular optical fibers, and a method and apparatus for making a cable having fine conductors, 5,671,312, Cl. 385-100.000.
- Jaminet, Jerome F.: See—
Kulak, Richard E.; McHugh, Thomas M.; Abigian, Edward E.; Jaminet, Jerome F.; He, Thomas; Peruggi, Richard E.; Kowalczyk, Thomas M.; and Barrett, David W., 5,669,465, Cl. 187-331.000.
- Jan, Lily Y.; Jan, Yuh Nung; Kubo, Yoshihiro; Reuveny, Eithan; and Slesinger, Paul A., to University of California, The Regents of the Mammalian inward rectifier potassium channel cDNAs host cells expressing them, and screening assays using such cells, 5,670,335, Cl. 435-29.000.
- Jan, Yuh Nung: See—
Jan, Lily Y.; Jan, Yuh Nung; Kubo, Yoshihiro; Reuveny, Eithan; and Slesinger, Paul A., 5,670,335, Cl. 435-29.000.
- Jane, S.A.: See—
Jane Cabagnero, Ramon, 5,669,625, Cl. 280-647.000.
- Jane Cabagnero, Ramon, to Jane, S.A. Folding child's pushchair, 5,669,625, Cl. 280-647.000.
- Jang, Byoung Gyu: See—
Kang, Myung Goo; Kang, Seong Sik; Choi, Sung Hoon; Joung, Mun Chea; Jang, Byoung Gyu; Ryu, Kye Yeon; Yu, Hyo Chong; and Lee, Sang Jig, 5,669,568, Cl. 242-355.100.
- Jang, Dong-soo; and Choi, Jung-dal, to Samsung Electronics Co., Ltd. Semiconductor memory device including program inhibition capacitors and method for controlling program-disturb of non-selected memory cells, 5,671,176, Cl. 365-185.020.
- Jang, Jaeduk, to Hyundai Motor Company. Hydraulic control system for four-speed automatic transmission of automotive vehicle, 5,669,853, Cl. 477-133.000.
- Jang, Wen-Yueh, to Winbond Electronics Corporation. CMOS process compatible self-alignment lateral bipolar junction transistor, 5,670,822, Cl. 257-565.000.
- Jankowski, Alan F.: See—
Makowicki, Daniel M.; and Jankowski, Alan F., 5,670,252, Cl. 428-336.000.
- Jansen, Ursula: See—
Buysch, Hans-Josef; Jansen, Ursula; Ooms, Pieter; Hoffmann, Erhard-Günther; and Schenke, Bernd-Ulrich, 5,670,029, Cl. 203-91.000.
- Janson, Steven L., to Spacelaver Corporation. Mechanical automatic aisle lock, 5,669,682, Cl. 312-201.000.
- Janssen, Rupert; Fröwis, Markus; and Guillon, Luc, to Hilti Aktiengesellschaft. Pipe and cable clamp with base part and receiving strap, 5,669,589, Cl. 248-65.000.
- Jansson, Ulf: See—
Brötgerdth, Göran; and Jansson, Ulf, 5,669,948, Cl. 55-459.100.
- Japan Pionics Co., Ltd.: See—
Kitahara, Koichi; Otsuka, Kenji; Hatakeyama, Toshiya; and Fukuda, Hideki, 5,670,445, Cl. 502-406.000.
- Jaruzel, Kurt, to Paschal-Werk G. Maier GmbH. Lining board with a support with an approximately U-shaped cross section, 5,669,188, Cl. 52-127.300.
- Jarvinen, Gordon D.; Marsh, S. Fredric; and Bartsch, Richard A., to University of California Office of Technology Transfer, The Regents of the Ion exchange polymers for anion separations, 5,670,550, Cl. 521-32.000.
- Jaster, Heinz; and Najewicz, David Joseph, to General Electric Company. Refrigeration passive defrost system, 5,669,222, Cl. 62-156.000.
- Javanifard, Jahanshir J., to Intel Corporation. Low power pulse generator for smart voltage flash eeprom, 5,671,179, Cl. 365-185.330.
- Javey, Shahram: See—
Kuse, Kazushi; Mitsui, Kinichi; Ohira, Tsuyoshi; and Javey, Shahram, 5,671,379, Cl. 395-346.000.
- Jeansonne, James Roderick. Door securing system, 5,669,641, Cl. 292-259.00R.
- Jeansson, Stig: See—
Vahlne, Anders; Svennerholm, Bo; Rymo, Lars; Jeansson, Stig; and Horal, Peter, 5,670,311, Cl. 435-5.000.
- Jefferson, Harry D.: See—
Jefferson, Harry D., Jr.; and Ploeger, Dale W., 5,669,287, Cl. 99-299.000.
- Jefferson, Harry D., Jr.; and Ploeger, Dale W., to Jefferson, Harry D. Coffee and tea brewing apparatus and system, 5,669,287, Cl. 99-299.000.
- Jenck, Jean: See—
Denis, Philippe; Groselin, Jean-Michel; Jenck, Jean; Metz, Francois; and Rouyer, Paul, 5,670,701, Cl. 560-204.000.
- Jenkins, Harold John, Jr.: See—
Dausch, Mark Edward; Whipple, Walter, III; Badami, Vivek Venugopal; and Jenkins, Harold John, Jr., 5,669,250, Cl. 68-12.020.
- Jenkins, Jackson G.: See—
Burgess, David P.; Gort, Wendy M.; Haines, Ronald K.; Jenkins, Jackson G.; Kohut, Stephen J.; and Peckham, Peter, 5,670,033, Cl. 205-74.000.
- Jennings, Paul J. Ladder leveling apparatus, 5,669,462, Cl. 182-111.000.
- Jensen, Philip E., to Hewlett-Packard Company. Method for mapping a source pixel image to a destination pixel space, 5,670,981, Cl. 345-118.000.
- Jensen, Ryan N.; Williams, Claude M.; and Scott, Logan, to Omnipoint Corporation. Communication protocol for spread spectrum communication, 5,671,219, Cl. 370-280.000.
- Jeon, Ki: See—
Park, Song Bai; Bae, Moo Ho; and Jeon, Ki, 5,669,384, Cl. 128-661.010.
- Jeong, Suk-yong: See—
Oh, Jae-young; Jeong, Suk-yong; Kim, Han-sung; and Park, Jin-ho, 5,669,513, Cl. 211-41.000.
- Jerome, Rick C.; and Post, Ian R. C., to United Technologies Corporation. Method of making bipolar transistor having amorphous silicon contact as emitter diffusion source, 5,670,394, Cl. 437-31.000.
- Jerraid, Jack V.: See—
Cueller, Salome J.; Radawski, Robert J.; Barth, Michael R.; Jerraid, Jack V.; Keyes, John A.; and Gleason, Earl V., 5,669,974, Cl. 118-686.000.
- Jessup, James Lyle, to Kimberly-Clark Worldwide, Inc. Method of joining an elastic band to a continuously moving partially elastic substrate, 5,669,996, Cl. 156-85.000.
- Jin, Changqin: See—
Adachi, Seiji; Jin, Changqin; Wu, Xiao-Jing; Yamauchi, Hisao; and Tanaka, Shoji, 5,670,457, Cl. 505-125.000.
- Jochems, Stephanus Aloysius Gerardus: See—
Venema, Franciscus Ties; Timmer, Christiena Jannie; Douma, Jolanda; and Jochems, Stephanus Aloysius Gerardus, 5,670,138, Cl. 424-52.000.
- Johnsen, Lyle D.: See—
Bennet, Ronika A.; Hall, Jeffrey S.; Holman, Perry A., Jr.; Johnsen, Lyle D.; and Kirkwood, Matthew D., 5,671,161, Cl. 364-560.000.
- Johnson, Alden B.: See—
Brady, James Thomas; Johnson, Alden B.; Lui, John Chi-Shing; Menon, Jaishankar Moothedath; and Tzou, Shin-Yuan, 5,671,390, Cl. 395-440.000.
- Johnson & Johnson: See—
Cook, Sanford L.; and Villa, Joseph N., 5,669,233, Cl. 62-371.000.
- Johnson, Darrin L.; and Pierotti, L. John, to Morton International, Inc. Liquid propellant airbag inflator with auto injection combustion chamber, 5,669,631, Cl. 280-741.000.
- Johnson, David B.; Sabin, John L.; and Ockelberry, Scott B., to Morton International, Inc. Airbag tether and attachment seam, 5,669,632, Cl. 280-743.200.
- Johnson, David K., to Abbott Laboratories. Metal ion-ligand coordination complexes, antibodies directed thereto, and assays using such antibodies, 5,670,627, Cl. 530-388.900.
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- Johnson, Robert Calvin: See—
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- Johnson, Theodore A., to SIMS Deltec, Inc. Polyimide sheath for a catheter detector and method, 5,669,383, Cl. 128-657.000.
- Johnson, William J.: See—
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- Johnson, William Richard: See—
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- Johnson Worldwide Associates, Inc.: See—
Knight, Steven J.; Sarder, Mark J.; and Baumann, William R., 5,669,794, Cl. 440-63.000.
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- Jones, Charles D.: See—
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- Jones, Michael R.: See—
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- Jones, William B.: See—
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- JonesGuion, Jeannine C.: See—
Carlson, J. David; and JonesGuion, Jeannine C., 5,670,077, Cl. 252-62.520.
- Jordan, Michael P.: See—
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- Jorgensen, Glen; and Barry, Don, to ZymeQuest, Inc. Programmable controller module, 5,671,135, Cl. 364-181.000.
- Joshi, Jayesh M.: See—
Kardach, James; Cho, Sung Soo; Peterson, Nicholas B.; Lane, Thomas R.; Joshi, Jayesh M.; and Songer, Neil, 5,671,421, Cl. 395-733.000.
- Joshi, Mandar S.: See—
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- Jost, Larry T., to Southwestern Bell Technology Resources, Inc. Memory subsystem with disk meshing, controller meshing, and efficient cache buffer lookup, 5,671,385, Cl. 395-404.000.
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Moser, Thomas M.; Dolezalek, Charles R.; Jost, Michael B.; and Olson, Mark H., 5,670,722, Cl. 73-756.000.
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Rogge, Günter; and Jost-Enneking, Werner, 5,669,302, Cl. 101-216.000.
- Jou, Yi-Her; Stroupe, Stephen D.; and Markese, James J., to Abbott Laboratories. Devices for performing ion-capture binding assays, 5,670,381, Cl. 436-518.000.
- Joung, Mun Chea: See—
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- Juers, Daniel Frederick, to Du Pont de Nemours, E. I., and Company. Recycling spent hydroquinone developer and a recycled hydroquinone developer, 5,670,304, Cl. 430-399.000.
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- Julian, Charles F., to GCS Properties. Position sensing system, 5,671,160, Cl. 364-559.000.
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- Jun, Young Kwon, to LG Semicon Co., Ltd. Semiconductor memory device, 5,670,806, Cl. 257-306.000.
- Jung, Jin-Ho; and Lee, Jong-Wung. Anamorphic lens for a CCD camera apparatus, 5,671,093, Cl. 359-668.000.
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- Junge, Bodo: See—
Urbahns, Klaus; Goldmann, Siegfried; Heine, Hans-Georg; Junge, Bodo; Schohe-Loop, Rudolf; Sommermeyer, Henning; Glaser, Thomas; Wittka, Reilinde; and De Vry, Jean-Marie Viktor, 5,670,525, Cl. 514-334.000.
- Junginger, Erich: See—
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- Jungkind, Roland, to Puma AG Rudolf Dassler Sport. Shoe closure, 5,669,116, Cl. 24-68.0SK.
- Junker, Wilhelm. Pedestal mounted traffic beacon, 5,670,954, Cl. 340-908.100.
- Jüptner, Horst: See—
Baltzer, Franz; and Jüptner, Horst, 5,670,024, Cl. 201-25.000.
- K Lidstrom AB: See—
Lidström, Kjell, 5,670,848, Cl. 315-282.000.
- K R D Corporation: See—
Sawa, Tsutomu; Takenoshita, Hiroyuki; Hada, Toshiaki; and Komatsu, Hirohide, 5,669,605, Cl. 271-314.000.
- Kaba, James Timothy Christopher: See—
Bleidt, Robert; Chin, Danny; and Kaba, James Timothy Christopher, 5,671,377, Cl. 395-328.000.
- Kabushiki Kaisha Bandai: See—
Nakamichi, Kousaku; Miura, Kazunori; and Inaba, Shoichi, 5,670,184, Cl. 425-130.000.
- Kabushiki Kaisha Kawai Gakki Seisakusho: See—
Utsuni, Naoto; Ohuchi, Kuninori; Yamauchi, Kikuro; and Matsui, Haruhiko, 5,670,732, Cl. 84-645.000.
- Kabushiki Kaisha Komatsu Seisakusho: See—
Ishino, Tsutomu; Maruyama, Ryoichi; and Ota, Shingo, 5,671,137, Cl. 364-424.090.
- Kabushiki Kaisha Riken: See—
Irite, Naoko; Abe, Akira; and Yoshida, Kiyohide, 5,670,443, Cl. 502-330.000.
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Sakuma, Shuji; Atsumi, Kiminori; and Ishizaki, Tsutomu, 5,670,827, Cl. 257-741.000.
- Kabushiki Kaisha Shofu: See—
Kojima, Katsunori; Kadoma, Yoshinori; and Ikemura, Kunio, 5,670,657, Cl. 549-39.000.
- Kabushiki Kaisha Tokai Rika Denki Seisakusho: See—
Futamura, Tatsuya, 5,670,762, Cl. 200-16.00D.
- Kabushiki Kaisha Toshiba: See—
Akamine, Masami; Oshikiri, Masahiro; and Maseki, Kimio, 5,671,327, Cl. 395-2.280.
- Araki, Dai; and Narimatsu, Katsumi, 5,671,338, Cl. 395-51.000.
- Doi, Miwako; Kato, Nobuko; and Umei, Naoko, 5,670,987, Cl. 345-156.000.
- Hammerl, Erwin; Mandelman, Jack A.; Ho, Herbert L.; Shiozawa, Junichi; and Stengl, Reinhard Johannes, 5,670,805, Cl. 257-301.000.
- Hatano, Hiroshi; Yoshii, Ichiro; and Takatsuka, Satoru, 5,670,816, Cl. 257-394.000.
- Ishii, Shuichi; and Igari, Fubito, 5,671,099, Cl. 360-69.000.
- Isoe, Youichi; and Morishita, Tatsuo, 5,671,019, Cl. 348-565.000.
- Kawaguchi, Yoshihisa, 5,671,058, Cl. 356-401.000.
- Mine, Yoshitaka, 5,669,387, Cl. 128-661.090.
- Muranaga, Tetsuro; and Moriyasu, Takashi, 5,671,428, Cl. 395-772.000.
- Nishihori, Kazuya; Kitaura, Yoshiaki; Tanabe, Yoshikazu; Aoyama, Tomonori; Suguro, Kyoichi; Okuwada, Kumi; Komatsu, Shuichi; and Abe, Kazuhide, 5,670,808, Cl. 257-310.000.
- Nishimura, Kazuhiko, 5,671,427, Cl. 395-770.000.
- Numazaki, Mitsuhiro, 5,670,851, Cl. 318-106.000.
- Okada, Tadanori; and Kuwabara, Yuji, 5,671,460, Cl. 396-547.000.
- Omote, Kazuyuki, 5,671,166, Cl. 364-715.080.
- Saito, Kazuyo, 5,671,157, Cl. 364-514.00R.
- Yamaguchi, Hisao, 5,670,819, Cl. 257-536.000.
- Kabushiki Kaisha Yaskawa Denki: See—
Katamine, Kuniaki; and Matsushita, Shigeo, 5,669,269, Cl. 74-490.020.
- Kabushiki Kaishi Toshiba: See—
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- Kabushikik Kaisha Toshiba: See—
Katoh, Riichi; Tanamoto, Tetsufumi; and Takahashi, Shigeki, 5,670,790, Cl. 257-14.000.
- Kadoma, Yoshinori: See—
Kojima, Katsunori; Kadoma, Yoshinori; and Ikemura, Kunio, 5,670,657, Cl. 549-39.000.
- Kahlbaugh, Brad: See—
Dudrey, Denis J.; Kahlbaugh, Brad; and Anderson, Erlend D., 5,669,949, Cl. 55-486.000.
- Kahn, Michael, to Molecumetics, Ltd. Conformationally restricted mimetics of beta turns and beta bulges and peptides containing the same, 5,670,155, Cl. 424-208.100.
- Kai, Yoshiaki, to Matsushita Electric Industrial Co., Ltd. Fluoralkylcarboxylic acid and derivative thereof, 5,669,964, Cl. 106-2.000.
- Kaihotsu, Hideki; Shimeno, Kazuhiro; and Tometsuka, Kouji, to Kokusai Electric Co., Ltd. Wafer transfer plate, 5,669,644, Cl. 294-1.100.

Kaiser, John Michael: See—
Allen, Michael Scott; Arimilli, Ravi Kumar; Kaiser, John Michael; and Lewebuk, William Kurt, 5,671,370, Cl. 395-305.000.
Kaiser, Nancy E.: See—
Cornell, Marc D.; Kaiser, Nancy E.; and Brenden, Rita A., 5,670,169, Cl. 424-488.000.
Kajigaya, Kazuhiko: See—
Otori, Hiroshi; Kajigaya, Kazuhiko; Miyazawa, Kazuyuki; Kubo, Masaharu; Koike, Atsuyoshi; and Kanai, Fumiaki, 5,670,409, Cl. 437-60.000.
Kajita, Laura, to AMCOL International Corporation. Method and composition for clarifying waste water, 5,670,435, Cl. 502-81.000.
Kajiwara, Tadashi: See—
Nakagawa, Yutaka; Kajiwara, Tadashi; Nakazawa, Keiji; and Yuzawa, Keiji, 5,670,902, Cl. 327-99.000.
Kakamu, Shinichi: See—
Kakamu, Yoshinori; Kakamu, Shinichi; and Kakamu, Shukichi, 5,670,228, Cl. 428-49.000.
Kakamu, Shukichi: See—
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Kakei, Tsutomu: See—
Naruse, Yasuhito; Kamitani, Kiyoshi; Usugi, Akio; Kakei, Tsutomu; and Morohoshi, Gouichi, 5,670,293, Cl. 430-165.000.
Kakuwa, Kuniaki: See—
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Kamada, Eiki: See—
Shintani, Yooichi; Kuriyama, Kazunori; Shonai, Tohru; Kamada, Eiki; and Inoue, Kiyoshi, 5,671,382, Cl. 395-391.000.
Kamada, Takehiro, to Matsushita Electric Industrial Co., Ltd. Integrated circuit incorporating a test circuit, 5,671,230, Cl. 371-22.100.
Kamada, Yasukazu: See—
Yukawa, Masaji; Aketa, Masahiro; Oomoto, Kazutoshi; Kamada, Yasukazu; Hayatani, Akira; Sugimoto, Masahiko; and Yamamoto, Nobuhiko, 5,669,339, Cl. 123-41.790.
Kameya, Toru; and Takano, Katsuaki, to Taiyo Steel Co., Ltd. Composite metal sheet and method for producing it, 5,670,261, Cl. 428-457.000.
Kameyama, Yo: See—
Hamada, Yoshitaka; and Kameyama, Yo, 5,670,259, Cl. 428-450.000.
Kamio, Shigeru: See—
Shirai, Kazunari; Miyano, Hidemasa; Kamio, Shigeru; and Nakaya, Yoshimasa, 5,669,351, Cl. 123-339.210.
Shirai, Kazunari; Miyano, Hidemasa; Kamio, Shigeru; and Nakaya, Yoshimasa, 5,669,353, Cl. 123-399.000.
Kamioka, Makoto: See—
Katsumata, Yoshikazu; Mizoguchi, Yoshihiro; Iijima, Yoshiaki; Kamioka, Makoto; Ejima, Yoshinori; Kishiyama, Nobuo; Noda, Yutaka; and Nakao, Eiichi, 5,671,467, Cl. 399-164.000.
Kamioka, Yuichi; Koishi, Kenji; Ogata, Dai-ichi; and Furumiya, Shigeru, to Matsushita Electric Industrial Co., Ltd. Focusing time period and power control of a multilaser diode array, 5,671,249, Cl. 369-116.000.
Kamitani, Kiyoshi: See—
Naruse, Yasuhito; Kamitani, Kiyoshi; Usugi, Akio; Kakei, Tsutomu; and Morohoshi, Gouichi, 5,670,293, Cl. 430-165.000.
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Kanai, Fumiaki: See—
Otori, Hiroshi; Kajigaya, Kazuhiko; Miyazawa, Kazuyuki; Kubo, Masaharu; Koike, Atsuyoshi; and Kanai, Fumiaki, 5,670,409, Cl. 437-60.000.
Kanbayashi, Makoto: See—
Okado, Kenji; Ugai, Toshiyuki; Fujita, Ryoichi; Kanbayashi, Makoto; Takiguchi, Tsuyoshi; Ichikawa, Yashiro; and Iida, Wakashi, 5,670,288, Cl. 430-122.000.
Kanbe, Junichiro: See—
Katagiri, Kazuharu; Yoshinaga, Kazuo; Okada, Shinjiro; and Kanbe, Junichiro, 5,671,033, Cl. 349-128.000.
Kanda, Yoshihiro: See—
Yamaguchi, Osamu; Moriya, Mitsuro; Yamaguchi, Hiroyuki; Kanda, Yoshihiro; and Ishibashi, Hiromichi, 5,671,200, Cl. 369-44.280.
Kaneko, Seiji: See—
Kondo, Nobukazu; Kaneko, Seiji; Okazawa, Koichi; Gemma, Hideaki; Mochida, Tetsuya; and Hayashi, Tachisa, 5,671,371, Cl. 395-306.000.
Kang, Myung Goo; Kang, Seong Sik; Choi, Sung Hoon; Jeong, Mun Chea; Jang, Byoung Gyu; Ryu, Kye Yeon; Yu, Hyo Chong; and Lee, Sang Jig, to Goldstar Co., Ltd. Brake device for a magnetic recording and reproducing apparatus, 5,669,568, Cl. 242-355.100.
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Kang, Myung Goo; Kang, Seong Sik; Choi, Sung Hoon; Jeong, Mun Chea; Jang, Byoung Gyu; Ryu, Kye Yeon; Yu, Hyo Chong; and Lee, Sang Jig, 5,669,568, Cl. 242-355.100.
Kang, Sun Won, to Hyundai Motor Company. Outside door handle automatic locking device for automobiles, 5,669,642, Cl. 292-336.300.
Kangiser, Greg: See—
Chipperfield, Keith E.; O'Hara, Kevin; Kangiser, Greg; and Soar, Steve, 5,670,852, Cl. 318-280.000.
Kanne, David B.: See—

Chin, Hsiao-Ling M.; Wei, Yi-Qiu; Nguyen, Nhan H.; and Kanne, David B., 5,670,453, Cl. 504-235.000.
Kanno, Masayoshi; and Okumura, Mariko, to Sony Corporation. Signal measurement method and signal measurement apparatus, 5,671,164, Cl. 364-569.000.
Kanno, Tatsuya; and Fukuda, Yutaka, to Daicel Chemical Industries, Ltd. Preparation of a polycarbonate by melt-polycondensation of a dihydric phenol and a carbonic diester, 5,670,604, Cl. 528-196.000.
Kansas State University Research Foundation: See—
Wang, Xuemin, 5,670,366, Cl. 435-252.330.
Kanzaki Kokyokai Mfg. Co., Ltd.: See—
Matsufuji, Mizuya, 5,669,479, Cl. 192-87.150.
Kao Corporation: See—
Kita, Kazuo; Ohtani, Takashi; and Hashimoto, Jiro, 5,670,464, Cl. 508-562.000.
Kao, Joseph P. Y.; and Keitz, Paul F., to University Of Maryland Biotechnology Institute. Photosensitive organic compounds that release carbon monoxide upon illumination, 5,670,664, Cl. 549-336.000.
Kapila, Vineet: See—
Csongor, Desider G.; Lasch, Edward J.; Kapila, Vineet; and Schott, Nick R., 5,670,112, Cl. 264-572.000.
Kapoor, Ashok K., to LSI Logic Corporation. Method of making combined metal oxide semiconductor and junction field effect transistor device, 5,670,393, Cl. 437-29.000.
Karacay, Habibe: See—
Griffiths, Gary L.; Hansen, Hans J.; and Karacay, Habibe, 5,670,132, Cl. 424-1.110.
Karai, Denes: See—
Bidville, Marc; Devey, Kieran; and Karai, Denes, 5,670,990, Cl. 345-164.000.
Kardach, James; Cho, Sung Soo; Peterson, Nicholas B.; Lane, Thomas R.; Joshi, Jayesh M.; and Songer, Neil, to Intel Corporation. Serial interrupt bus protocol, 5,671,421, Cl. 395-733.000.
Kardex Systems, Inc.: See—
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Karl Mayer Textilmaschinenfabrik GmbH: See—
Mista, Kresimir; and Fischer, Joachim, 5,669,248, Cl. 66-205.000.
Karlis, Robert G.; and Vinther, Gordon A., to Clix Products, Inc. Sheet of paper clips with a single leg attachment, 5,669,726, Cl. 402-4.000.
Karlo, Rudolph A.: See—
Claassen, George R.; Wilson, Irvin A.; Rayburn, David B.; McLaughlin, John L.; Karlo, Rudolph A.; and Marietti, Jeffrey L., 5,669,952, Cl. 65-106.000.
Karner & Company Aktiebolag: See—
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Karp, Gary Mitchell: See—
Crews, Alvin Donald, Jr.; Harrington, Philip Mark; Karp, Gary Mitchell; Gill, Simon David; and Dietenich, Petra, 5,670,641, Cl. 544-221.000.
Karube, Kunihiko: See—
Nomura, Toshihiro; Karube, Kunihiko; Hisamoto, Masaaki; and Awatani, Koji, 5,671,134, Cl. 363-132.000.
Kary, John J.: See—
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Kasahara, Osamu: See—
Nishitani, Eiuke; Tsuzuku, Susumu; Kobayashi, Shigeru; Kasahara, Osamu; Nezu, Hiroki; Ishino, Masakazu; and Tamaru, Tsuyoshi, 5,670,421, Cl. 437-192.000.
Kase, Hiroshi: See—
Suzuki, Fumio; Shimada, Junichi; Koike, Nobuaki; Kase, Hiroshi; Nakamura, Joji; Shiozaki, Shizuo; and Nonaka, Hiromi, 5,670,498, Cl. 514-212.000.
Kashii, Masaharu: See—
Yasuhara, Nae; Kashii, Masaharu; Marusawa, Miyuki; Iizuka, Yoshio; and Murayama, Satoru, 5,670,992, Cl. 345-173.000.
Kashimura, Tsugunori: See—
Oka, Hideaki; Kashimura, Tsugunori; Yokota, Shinichi; and Hayashihara, Hiroshi, 5,670,608, Cl. 528-322.000.
Kashiro, Takao: See—
Yamauchi, Eiji; Hashimoto, Kiyokazu; Oka, Hideaki; Kashiro, Takao; Hidaka, Iwao; and Yamamoto, Yoshiki, 5,671,260, Cl. 375-372.000.
Kashiwabara, Masuo, to Unisia Jecs Corporation. Control apparatus for vehicle, 5,669,847, Cl. 477-46.000.
Kashiwazaki, Akio: See—
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Kashiwazaki, Masami; Unishi, Masaki; and Koike, Hisashi, to Canon Kabushiki Kaisha. Image processing apparatus and method therefor, 5,671,341, Cl. 395-112.000.
Kass, Carl F.; and Little, Arthur W. Heating system shut-off system with radio/ultrasound communication between detector and existing safety switch or fuel valve, 5,670,074, Cl. 219-481.000.
Kasser, Thomas Richard: See—
Baile, Clifton Augustus; Day, Jeffrey Wilson; Hampton, Thomas Riley, II; Kasser, Thomas Richard; Pike, James Brian; Smith, Jonathan Paul; and Ziemann, Lyle Elmore, 5,670,162, Cl. 424-438.000.
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Katagiri, Kazuharu; Yoshinaga, Kazuo; Okada, Shinjiro; and Kanbe, Junichiro, to Canon Kabushiki Kaisha. Liquid crystal device having mixture of cholesteric and smectic liquid crystals and alignment treatment on only one substrate, 5,671,033, Cl. 349-128.000.
Katagiri, Moriya: See—
Yokoyama, Kunio; Katagiri, Moriya; Sakurai, Hidenori; Kitahara, Yoshiyuki; Miyazaki, Hiroaki; and Suzuki, Tatsuya, 5,671,457, Cl. 396-411.000.
Katahara, Keith W.; Lara, Pedro F.; and Riggs, Kenneth R., to Atlantic Richfield Company. Inspecting a conductive object with a steady state magnetic field and induced eddy current, 5,670,878, Cl. 324-221.000.
Katahira, Kouji: See—
Okubo, Masao; Murakami, Nobuyuki; Katahira, Kouji; Iwata, Hiroshi; and Okubo, Kazumasa, 5,670,889, Cl. 324-760.000.
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Kataoka, Naoki: See—
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Kato, Shinji: See—
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Jubran, Nusrallah; Katritzky, Alan R.; and Ugro, Josef V., Jr., 5,670,446, Cl. 503-201.000.
Katsumata, Yoshiakazu; Mizoguchi, Yoshihiro; Iijima, Yoshiaki; Kamioka, Makoto; Ejima, Yoshinori; Kishiyama, Nobuo; Noda, Yutaka; and Nakao, Eiichi, to Matsushita Electric Industrial Co., Ltd. Color image-forming apparatus adapted to stabilize contact between endless belt-like photosensitive medium and developing roller, 5,671,467, Cl. 399-164.000.
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Katsuta, Kazuo, to Tachi-S Co., Ltd. Device for assembling a seat back of a seat, 5,669,130, Cl. 29-91.500.
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Sonenberg, Nahum; Katze, Michael G.; Roy, Sophie; Koromilas, Antonis E.; and Barber, Glen H., 5,670,330, Cl. 435-15.000.
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Kaufmann, James R.; and Rasmussen, Kirk H., to Morton International, Inc. Air bag cushion protection during both normal and out of position deployments, 5,669,628, Cl. 280-739.000.
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 Kita, Kazuo; Ohtani, Takashi; and Hashimoto, Jiro, to Kao Corporation. Additive for lubricating oils for diesel engines and lubricating oil compositions containing the same. 5,670,464, Cl. 508-562.000.
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 Yokoyama, Kunio; Katagiri, Moriya; Sakurai, Hidenori; Kitahara, Yoshiyuki; Miyazaki, Hiroaki; and Suzuki, Tatsuya, 5,671,457, Cl. 396-411.000.

Kitamura, Yoshihiro, to NEC Corporation. Charge converter provided in an ion implantation apparatus. 5,670,785, Cl. 250-423.00R.
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 Kiwa, Kenji: See—
 Hagiwara, Minoru; Kiwa, Kenji; Ogita, Tatsuya; and D'Haenens, Luc Germain Pierre Joseph, 5,670,010, Cl. 156-330.900.
 Kiyomiya, Shinsuke: See—
 Shinohara, Susumu; and Kiyomiya, Shinsuke, 5,669,362, Cl. 123-520.000.
 Kizima, Kaoru, to TDK Corporation. Piezoelectric sounder. 5,670,932, Cl. 340-384.600.
 Klähn, Thomas: See—
 Hegner, Frank; and Klähn, Thomas, 5,670,063, Cl. 219-85.220.
 Klapdor, Astrid; Knott, Wilfried; and Windbiel, Dagmar, to Th. Goldschmidt AG. Method for synthesizing aluminum hydride. 5,670,129, Cl. 423-645.000.
 Kleemann, Heinz-Werner: See—
 Weichert, Andreas; Lang, Hans-Jochen; Kleemann, Heinz-Werner; Scholz, Wolfgang; and Albus, Udo, 5,670,544, Cl. 514-618.000.
 Klein, Dean A.; and Anderson, Eric D., to Micron Electronics, Inc. Multi-drive virtual mass storage device and method of operating same. 5,671,439, Cl. 395-821.000.
 Klein, Klausjörg: See—
 Foedde, Hartmut; Schafheutle, Markus A.; Voelker, Achim; Wehner, Susanne; and Klein, Klausjörg, 5,670,441, Cl. 502-200.000.
 Klein, Richard: See—
 Dixit, Pankaj; Ingram, William P., III; Holzworth, Monta R.; and Klein, Richard, 5,670,419, Cl. 437-189.000.
 Klemm, Per: See—
 Molin, Søren; Andersson, Poul Kirketerp; Gerdes, Kenn Axø; and Klemm, Per, 5,670,370, Cl. 435-320.100.
 Klemm, Peter; and Schumann, Burkhard, to Schuler Pressen GmbH & Co. Process for supplying energy to electronically controlled press drives. 5,669,294, Cl. 100-35.000.
 Klemme, Kirk; and Robertson, Ronald D., to Sealright Co., Inc. Non-round container having multiple storage compartments. 5,669,550, Cl. 229-4.500.
 Kleppner, Stephan; and Frank, Kurt, to Robert Bosch GmbH. Fuel supply unit. 5,669,359, Cl. 123-509.000.
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 Simon, Morris; Kleshinski, Stephen J.; and Kinst, Thomas F., 5,669,933, Cl. 600-200.000.
 Kline, Patrick Joseph: See—
 Brownstein, Scott Alan; Lentz, Joseph Paul; Cushman, Thomas Richard; and Kline, Patrick Joseph, 5,671,202, Cl. 369-58.000.
 Klink, Christian: See—
 Denz, Helmut; Moser, Winfried; Höpfer, Wolfgang; Gross, Helmut; Klink, Christian; Gerlings, Karl-Heinz; Grieser, Klemens; and Bot-tcher, Klaus, 5,669,357, Cl. 123-481.000.
 Klinkhammer, Ronald W., to Oral Logic, Inc. Straddle-type tooth brushing device. 5,669,097, Cl. 15-167.100.
 Klopfenstein, Jeffrey B.: See—
 Grendel, Robert W.; Klopfenstein, Jeffrey B.; Prokop, Robin K.; Reid, Stanley L.; and Willock, J. Michael, 5,670,128, Cl. 423-531.000.
 Klosin, Jerzy: See—
 Newman, Thomas H.; Klosin, Jerzy; and Nickias, Peter N., 5,670,680, Cl. 556-53.000.
 Klotz, Erhard P. A.: See—
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 Knapp, Andrew Gannett: See—
 Goldin, Stanley M.; Katragadda, Subbarao; Hu, Lain-Yen; Reddy, N. Laxma; Fischer, James B.; Knapp, Andrew Gannett; and Margolin, Lee David, 5,670,519, Cl. 514-313.000.
 Kneisel, Lawrence Leroy: See—
 Jirabzhooy, Vivek Amir; Reddy, Prathap Amerwai; Trubowski, John; Baker, Jay DeAvis; and Kneisel, Lawrence Leroy, 5,669,813, Cl. 454-69.000.
 Knepler, John T., to Bunn-O-Matic Corporation. Low water protector. 5,671,113, Cl. 361-103.000.
 Knezevich, Tricia: See—
 Moss, William F.; and Knezevich, Tricia, 5,669,683, Cl. 312-259.000.
 Knight, Steven J.; Sarder, Mark J.; and Baumann, William R., to Johnson Worldwide Associates, Inc. Apparatus for mounting a motor to a boat. 5,669,794, Cl. 440-63.000.
 Knipper, Aloysius: See—
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 Knoff, Bernd: See—
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 Knopp, Jürgen, to Siemens Aktiengesellschaft. Method for processing user program on a parallel computer system by inserting a tag during compiling. 5,671,431, Cl. 395-800.000.
 Knott, Wilfried: See—
 Klapdor, Astrid; Knott, Wilfried; and Windbiel, Dagmar, 5,670,129, Cl. 423-645.000.
 Knotts, Brian W., to NCR Corporation. Coherent copyback protocol for multi-level cache memory systems. 5,671,391, Cl. 395-470.000.
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- Horrobin, David F.; Knowles, Philip; Manku, Mehar Singh; and McMorde, Austin, 5,670,540, Cl. 514-549.000.
- Knowlton, Dennis J., to Particle Measuring Systems, Inc. Device and method for optically detecting particles in a free liquid stream. 5,671,046, Cl. 356-338.000.
- Knox, Dick Lee: See—
Besser, Gordon Lee; Davis, Cecil Glynn; Tickell, Edward Bryant, Jr.; Knox, Dick Lee; and Martin, John Dee, Jr., 5,670,931, Cl. 340-310.010.
- Knox, James E.: See—
Suehr, Susan Lynn; Kelly, William F.; Shimalla, Charles; Flesch, Frank J.; and Knox, James E., 5,670,234, Cl. 428-131.000.
- Knudsen, Bruce Alan: See—
Murray, Melissa Lea; Knudsen, Bruce Alan; King, Christopher Gus; Benz, Mark Gilbert; Zabala, Robert John; and Mantone, Anthony, 5,670,204, Cl. 427-62.000.
- Knudsen, Peter S., Jr., to Progressive Solutions, Inc. Product handling process and system. 5,669,748, Cl. 414-273.000.
- Knuebel, Georg; Bornhard, Andreas; Schaper, Ulf-Armin; Stalberg, Theo; and Markert, Thomas, to Henkel Kommanditgesellschaft auf Aktien. Process for the production of 8 α , 12-oxido-13,14,15,16-tetranorlabdane. 5,670,670, Cl. 549-458.000.
- Ko, Kenneth David: See—
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- Ko, Kyoun: See—
Koshiishi, Osamu; Mizuno, Shigeki; Kubota, Keiichi; Nishizawa, Katsuhiko; Niimura, Motoyuki; Shirotori, Hiroshi; and Ko, Kyoun, 5,669,725, Cl. 400-690.000.
- Koba, Hiroyuki, to Toyota Jidosha Kabushiki Kaisha. Bracket for a strut of a vehicle suspension and connecting structure thereof to connect such a bracket and a shock absorber. 5,669,728, Cl. 403-270.000.
- Kobari, Yoshiko: See—
Tamura, Masaaki; Fujii, Ayako; Kobari, Yoshiko; Nagano, Mamoru; Watanabe, Kiyoshi; Morinaga, Hidehiko; Koyama, Shigeki; and Sawada, Yoshikazu, 5,671,346, Cl. 395-171.000.
- Kobayashi, Chiayuko: See—
Kimura, Noriyuki; Suzuki, Minoru; Sakamoto, Kouji; Noguchi, Kouichi; Deki, Tsuyoshi; Matsushiro, Hiroyuki; Sakaki, Eiichi; Fujishiro, Takatsugu; and Kobayashi, Chiayoko, 5,671,465, Cl. 399-119.000.
- Kobayashi, Eiji: See—
Amishiro, Nobuyoshi; Nagamura, Satoru; Saito, Hiromitsu; Kobayashi, Eiji; Okamoto, Akihiko; and Gomi, Katsushige, 5,670,492, Cl. 514-63.000.
- Kobayashi, Hideki: See—
Tsunoo, Takaharu; and Kobayashi, Hideki, 5,670,696, Cl. 560-116.000.
- Kobayashi, Hiroyoshi: See—
Ogasawara, Yuji; Kobayashi, Hiroyoshi; Maeda, Yoshihiro; and Atsumi, Motohiro, 5,671,037, Cl. 351-158.000.
- Kobayashi, Junya; and Kita, Junichi, to Shimadzu Corporation. Light modulator using an asymmetrically-driven ferroelectric liquid crystal thick cell. 5,670,978, Cl. 345-94.000.
- Kobayashi, Ken: See—
Iida, Kenji; Ono, Shuji; and Kobayashi, Ken, 5,669,283, Cl. 92-117.00A.
- Kobayashi, Masatomo; Hokuto, Hiromichi; Onshita, Yoichi; and Sakaguchi, Minoru, to Hitachi, Ltd. Gas-insulated switchgear with improved insulation joint. 5,670,767, Cl. 218-43.000.
- Kobayashi, Mei: See—
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- Kobayashi, Shigeru: See—
Nishitani, Eisuke; Tsuzuku, Susumu; Kobayashi, Shigeru; Kasahara, Osamu; Nezu, Hiroki; Ishino, Masakazu; and Tamaru, Tsuyoshi, 5,670,421, Cl. 437-192.000.
- Kobayashi, Takeshi: See—
Nishibayashi, Yoshiki; Shikata, Shin-ichi; Fujimori, Naoki; and Kobayashi, Takeshi, 5,670,796, Cl. 257-77.000.
- Kobayashi, Toshio, to Fuji Jukogyo Kabushiki Kaisha. Discharge control apparatus of hydraulic pump for automatic transmission. 5,669,761, Cl. 417-302.000.
- Kobayashi, Toshio: See—
Iijima, Tkashi; Iizumi, Yuhji; and Kobayashi, Toshio, 5,669,540, Cl. 226-177.000.
- Kobori, Shigeji; Morimoto, Jotaro; and Hatakeyama, Yuji, to Toyo Chemical Co., Ltd. Inorganic hardening composition. 5,669,968, Cl. 106-696.000.
- Kochendoerfer, Richard: See—
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- Kocian, Frank: See—
Weiss, Hendrik; Kocian, Frank; and Kochendoerfer, Richard, 5,670,183, Cl. 425-110.000.
- Koccon, Waldemar Walter: See—
Eckstein, Elke; Hoffman, Birgit, deceased; Kiewra, Edward William; Koccon, Waldemar Walter; and Weiss, Marc Jay, 5,670,018, Cl. 156-643.100.
- Koczab, Jean-Pierre, to Peaudouce. Composite nonwoven material process of manufacture and its application to any absorbent article of hygiene. 5,669,798, Cl. 442-362.000.
- Kodaira, Tetsuji: See—
Sakashita, Takeshi; Shimoda, Tomoaki; Nagai, Takashi; and Kodaira, Tetsuji, 5,670,605, Cl. 528-196.000.
- Kodaira, Youichi: See—
Kuriyama, Hiroshi; Kodaira, Youichi; Miyasaka, Haruyuki; and Horiuchi, Hideki, 5,669,304, Cl. 101-401.100.
- Kodama, Kouichi, to Fuji Xerox Co., Ltd. Pixel clock generator. 5,671,069, Cl. 358-474.000.
- Kodama, Shinji, to Yazaki Corporation. Connector testing device. 5,670,884, Cl. 324-538.000.
- Kodimer, Marianne L.: See—
Bell, David R.; Ramsdell, Thomas R.; and Kodimer, Marianne L., 5,671,420, Cl. 395-712.000.
- Koebler, Klaus: See—
Borchers, Ingo U.; Laemmlein, Stephan T.; Bartels, Peter; Rausch, Achim; Faust, Markus; Coebergh, Jan A. F.; and Koebler, Klaus, 5,670,758, Cl. 181-286.000.
- Koenig & Bauer-Albert Aktiengesellschaft: See—
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- Koga, Hisamitsu; Kumagai, Naotake; Ohwada, Tomiji; Furukawa, Nobuya; Kato, Masaaki; and Kawamura, Nobuyuki, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Fuel use limiter-equipped hybrid electric car. 5,670,830, Cl. 307-10.100.
- Koga, Minoru: See—
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- Koh, Jong-Sung: See—
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- Kohdaka, Takayuki, to Yamaha Corporation. Logic circuit controlled by a plurality of clock signals. 5,670,899, Cl. 326-97.000.
- Kohl, Tammy. Hinged finger ring. 5,669,241, Cl. 63-15.200.
- Kohn, Bruce R.: See—
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- Kohn, Joachim B.; Brocchini, Stephen J.; and Schwartz, Arthur L., to Rutgers, The State University. Synthesis of tyrosine-derived diphenol monomers. 5,670,602, Cl. 528-176.000.
- Kohno, Takashi: See—
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- Kohut, Stephen J.: See—
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- Koide, Masateru; and Ikeda, Hiroshi, to Fujitsu Limited. Apparatus for laser cutting wiring in accordance with a measured size of the wiring. 5,670,067, Cl. 219-121.680.
- Koike, Atsuyoshi: See—
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- Otori, Hiroshi; Kajigaya, Kazuhiko; Miyazawa, Kazuyuki; Kubo, Masaharu; Koike, Atsuyoshi; and Kanai, Fumiyuki, 5,670,409, Cl. 437-60.000.
- Koike, Hiroki; and Kimura, Tohru, to NEC Corporation. Ferroelectric memory device. 5,671,174, Cl. 365-145.000.
- Koike, Hisashi: See—
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- Koike, Nobuaki: See—
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- Koike, Tsuneo, to NEC Corporation. Semiconductor device. 5,670,802, Cl. 257-207.000.
- Koishi, Kenji: See—
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- Koizabashi, Noribumi: See—
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- Sugimoto, Hitoshi; Hirabayashi, Hiromitsu; Nagoshi, Shigeyasu; Koizabashi, Noribumi; Matsubara, Miyuki; Gotoh, Fumihiro; and Uetsuki, Masaya, 5,670,997, Cl. 347-30.000.
- Koito Manufacturing Co., Ltd.: See—
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- Koiwa, Mitsuru: See—
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- Kojima, Katsunori; Kadoma, Yoshinori; and Ikemura, Kunio, to Kabushiki Kaisha Shofu. (Meth) acrylic ester derivatives. 5,670,657, Cl. 549-39.000.
- Kojima, Tetsuya: See—
Yoshikawa, Kazuhiro; and Kojima, Tetsuya, 5,669,596, Cl. 251-335.200.
- Kok, Jacobus Johannes: See—
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- Kokkinen, Antti: See—
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- Kokunishi, Motohide: See—
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- Kokusai Electric Co., Ltd.: See—
Kaihatsu, Hideki; Shimeno, Kazuhiro; and Tometsuka, Kouji, 5,669,644, Cl. 294-1.100.
- Kolaska, Hans; and Dreyer, Klaus, to Widia GmbH. Cermet and method of producing it. 5,670,726, Cl. 75-237.000.
- Kollar, Craig Anthony; Szerlag, Donald; and Lajack, William Charles, to General Motors Corporation. Power sliding window assembly. 5,669,181, Cl. 49-360.000.
- Komatsu, Hirohide: See—
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- Komatsu Ltd.: See—
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- Komatsu, Shuichi: See—
Nishibori, Kazuya; Kitaura, Yoshiaki; Tanabe, Yoshikazu; Aoyama, Tomonori; Suguro, Kyoichi; Okuwada, Kumi; Komatsu, Shuichi; and Abe, Kazuhide, 5,670,808, Cl. 257-310.000.
- Kometani, Shinji, to Dai Nippon Printing Co., Ltd. Recording sheet for making transparencies and method of making the same. 5,670,448, Cl. 503-227.000.
- Konami Co., Ltd.: See—
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- Kondo, Hiromasa: See—
Asano, Shinichi; Ohashi, Hiroyuki; Kondo, Hiromasa; Nojima, Kazuhiro; Imabepu, Katsuyoshi; Sakaki, Mamoru; and Suzuki, Eiichi, 5,670,242, Cl. 428-212.000.
- Kondo, Koji: See—
Miyake, Toshihiro; Kondo, Koji; Kurahashi, Takashi; Okumura, Noromaru; and Takagi, Makoto, 5,669,548, Cl. 228-224.000.
- Kondo, Noboru; and Nishida, Kenzo, to Honda Giken Kogyo Kabushiki Kaisha. Control system for automatic transmission for vehicle. 5,669,848, Cl. 477-64.000.
- Kondo, Nobukazu; Kaneko, Seiji; Okazawa, Koichi; Gemma, Hideaki; Mochida, Tetsuya; and Hayashi, Takehisa, to Hitachi, Ltd. Bus control system. 5,671,371, Cl. 395-306.000.
- Kondo, Satoru; Shimizu, Kazuma; and Sato, Yuichi, to Canon Kabushiki Kaisha. Three-dimensional modeling apparatus and method utilizing the extraction of topological data, as from two-dimensional drawings. 5,671,343, Cl. 395-119.000.
- Kondoh, Masahiro: See—
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- Kondou, Yasuhiro: See—
Matsuura, Sadahiro; Satou, Shigeru; Kondou, Yasuhiro; and Igarashi, Yoshiaki, 5,670,854, Cl. 318-432.000.
- Konegen, Herbert: See—
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- Konica Corporation: See—
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- Saito, Atsushi; and Miyagawa, Ichiro, 5,670,214, Cl. 427-356.000.
- Takahashi, Yoshiharu; Yamada, Minoru; Nojima, Yoshiyuki; and Fujii, Yasutoshi, 5,671,451, Cl. 396-310.000.
- König, Michael: See—
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- Konigsfeld, Kris G.: See—
Akary, Haltham; Abramson, Jeffrey M.; Glew, Andrew F.; Hinton, Glenn J.; Konigsfeld, Kris G.; Madland, Paul D.; Joshi, Mandar S.; and Linde, Brent E., 5,671,444, Cl. 395-872.000.
- Konishi, Nobukiyo: See—
Matsuo, Masaaki; Hagiwara, Daijiro; Manabe, Takashi; Konishi, Nobukiyo; Shigenaga, Shinji; Murano, Kenji; Matsuda, Hiroshi; and Miyake, Hiroshi, 5,670,505, Cl. 514-253.000.
- Matsuo, Masaaki; Tsuji, Kiyoshi; Ogino, Takashi; and Konishi, Nobukiyo, 5,670,533, Cl. 514-106.000.
- Koops, Roger L.: See—
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- Kooy, Ad; and Mebus, Norbert, to LuK Lamellen und Kupplungsbau GmbH. Clutch operating apparatus. 5,669,480, Cl. 192-89.210.
- Kopanakis, Georg A., to Fatz AG. Stranded wire rope or cable having multiple stranded rope elements, strand separation insert therefor and method of manufacture of the wire rope or cable. 5,669,214, Cl. 57-218.000.
- Kopp, Michael E.: See—
Fischell, Robert E.; and Kopp, Michael E., 5,669,932, Cl. 606-198.000.
- Koppe, Reiner H.; and Klotz, Erhard P. A., to U.S. Philips Corporation. Method for distortion correction of X-ray images, and device for carrying out the method. 5,671,297, Cl. 382-293.000.
- Korean Research Institute of Chemical Technology: See—
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- Korhonen, Francis J.; and Songer, Matthew N., to Pioneer Laboratories, Inc. Crosslink for implantable rods. 5,669,910, Cl. 606-61.000.
- Kormanyos, Kenneth R., to Gas Research Institute. Forced convection heating apparatus and process for heating glass sheets therewithin. 5,669,954, Cl. 65-273.000.
- Korn, Thomas, to Cypress Semiconductor Corp. Adaptive equalizer circuit including multiple equalizer units. 5,670,916, Cl. 333-18.000.
- Koromilas, Antonis E.: See—
Sonenberg, Nahum; Katze, Michael G.; Roy, Sophie; Koromilas, Antonis E.; and Barber, Glen H., 5,670,330, Cl. 435-15.000.
- Korona, Eckhard: See—
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- Koshiishi, Osamu; Mizuno, Shigeki; Kubota, Keiichi; Nishizawa, Katsuhiko; Niimura, Motoyuki; Shirotori, Hiroshi; and Ko, Kyoun, to Seiko Epson Corporation. Impact dot printer with noise suppression. 5,669,725, Cl. 400-690.000.
- Kosters, Wayne A.: See—
Bucher, Steven; and Kosters, Wayne A., 5,671,376, Cl. 395-309.000.
- Kostrzewsky, Gregory J., to Reliance Electric Industrial Co. Center flange bearing suitable for use with electrical machinery. 5,669,717, Cl. 384-144.000.
- Kosuge, Katsuhiko: See—
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- Kotaka, Hiroshi, to Sony Corporation. Lid mechanism for electronic equipment or the like. 5,671,274, Cl. 379-433.000.
- Kotani, Hideki; and Kakuwa, Kuniaki, to Konami Co., Ltd. Game machine capable of creating three-dimensional visual effects. 5,669,685, Cl. 353-28.000.
- Kotani, Tomoyuki; Endo, Kazuo; Sakamoto, Seiji; Harada, Takashi; Masuda, Narihiro; Inagaki, Masashi; and Kawaguchi, Chikakazu, to Diafoil Hoechst Company, Ltd. Biaxially oriented polyester film for magnetic recording medium. 5,670,236, Cl. 428-141.000.
- Kotec's Co., Ltd.: See—
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- Kotliar, Andrew: See—
Bochis, Richard J.; Kotliar, Andrew; Parsons, William H.; and Rupprecht, Kathleen, 5,670,504, Cl. 514-247.000.
- Kottke, Thomas W.: See—
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- Kovacs, Janos; and Munroe, Scott C., to Analog Devices, Inc. Sampled data read channel utilizing charge-coupled devices. 5,671,252, Cl. 375-316.000.
- Kowalczyk, Thomas M.: See—
Kulak, Richard E.; McHugh, Thomas M.; Ahigian, Edward E.; Jaminet, Jerome F.; He, Thomas; Peruggi, Richard E.; Kowalczyk, Thomas M.; and Barrett, David W., 5,669,465, Cl. 187-331.000.
- Kowallik, Wolfgang; Maaz, Hans Jürgen; and Soyev, Werner, to Norsk Hydro a.s. Process for treating ash. 5,670,061, Cl. 210-771.000.
- Koya, Kazuo: See—
Abe, Jun; Shiota, Masaaki; and Koya, Kazuo, 5,671,309, Cl. 385-43.000.
- Koyama, Hideki: See—
Nishimura, Koichi; Koyama, Hideki; Yoshida, Hiroko; and Ito, Susumu, 5,670,186, Cl. 425-151.000.
- Koyama, Shigeki: See—
Tamura, Masaaki; Fujii, Ayako; Kobari, Yoshiko; Nagano, Mamoru; Watanabe, Kiyoshi; Morinaga, Hidehiko; Koyama, Shigeki; and Sawada, Yoshikazu, 5,671,346, Cl. 395-171.000.
- Krämer, Rudolf; and Lutsch, Harald Michael, to Whitaker Corporation. The IDC branch connector for large range of wire sizes. 5,669,778, Cl. 439-398.000.
- Krause, Alfred; Aumüller, Alexander; Korona, Eckhard; and Trauth, Hubert, to BASF Aktiengesellschaft. N-vinyl-containing glycoluril derivatives and their use as light stabilizers and stabilizers for organic material. 5,670,613, Cl. 528-423.000.
- Krause, Matthias, to U.S. Philips Corporation. Disc-shaped transducer for a weighing system. 5,670,753, Cl. 177-211.000.
- Krause, Robert C., to Pets International, Ltd. Water bottle apparatus. 5,669,329, Cl. 119-72.500.
- Krebs, Stefan; and Reupke, Wolfgang, to Siemens Aktiengesellschaft. Method for emergency control of an internal combustion engine. 5,671,145, Cl. 364-431.040.
- Kreienbühl, Paul: See—
Bernhard, Kurt; Broz, Jiri; Hengartner, Urs; Kreienbühl, Paul; and Schiedt, Katharina, 5,670,548, Cl. 514-725.000.
- Kreklow, Peter: See—
Fatseas, Ted; Fatseas, Amy E.; Kreklow, Peter; and George, John E., 5,671,409, Cl. 395-615.000.
- Kreuter, Peter, to Meta Motoren- und Energie-Technik GmbH. Coupling gear. 5,669,266, Cl. 74-395.000.
- Kroemer, Nils; and Vossiek, Martin, to Siemens Aktiengesellschaft. Method and device for measuring the distance of an object from an ultrasonic transmission/reception unit. 5,671,190, Cl. 367-99.000.
- Kruger, James B.; Rosner, S. Jeffrey; and Wang, Ikon. Integrated circuit barrier structure. 5,670,823, Cl. 257-751.000.
- Krupa, David A.: See—
Zajackowski, Michael J.; Krupa, David A.; and Stutzman, Barbara A., 5,670,260, Cl. 428-345.000.
- Krushinski, Joseph H., Jr.: See—
Cho, Sung Y.; Crowell, Thomas A.; Gitter, Bruce D.; Hipkind, Philip A.; Howbert, J. Jeffrey; Krushinski, Joseph H., Jr.; Lobb, Karen L.; Muehl, Brian S.; and Nixon, James A., 5,670,499, Cl. 514-231.500.
- Ku, Wei-Yi: See—

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 Kubala, Zbigniew; to Dublin Company. Flowing seal assembly for a bearingless coolant union having air rotation capability. 5,669,636, Cl. 285-98.000.
 Kubatzki, Ralf: See—
 Windel, Harald; Reisinger, Frank; Freytag, Claus; Kubatzki, Ralf; Bischoff, Enno; Wagner, Andreas; Rieckhoff, Peter; Hansel, Marcus; and Günther, Stephan, 5,671,146, Cl. 364-464.000.
 Küber, Frank; and Riedel, Michael, to Hoechst Aktiengesellschaft. Process for preparing a carbon-bridged bicyclopentadiene compound. 5,670,681, Cl. 556-53.000.
 Küber, Frank: See—
 Herrmann, Hans-Friedrich; Aulbach, Michael; and Küber, Frank, 5,670,436, Cl. 502-103.000.
 Kuberasampath, Thangavel: See—
 Oppermann, Hermann; Kuberasampath, Thangavel; Rueger, David C.; and Ozkaynak, Engin, 5,670,336, Cl. 435-69.100.
 Kubo, Masaharu: See—
 Otori, Hiroshi; Kajigaya, Kazuhiko; Miyazawa, Kazuyuki; Kubo, Masaharu; Koike, Atsuyoshi; and Kanai, Fumiyuki, 5,670,409, Cl. 437-60.000.
 Kubo, Takashi; Kimura, Tsutomu; Shirane, Hideto; and Hirai, Masayoshi, to Fuji Photo Film Co., Ltd. Photographic camera with exposure size corrected for position of exit pupil of taking lens. 5,671,458, Cl. 396-436.000.
 Kubo, Yoshihiro: See—
 Jan, Lily Y.; Jan, Yuh Nung; Kubo, Yoshihiro; Reuveny, Eithan; and Slesinger, Paul A., 5,670,335, Cl. 435-29.000.
 Kubota, Akira, to Seiko Epson Corporation. Color image forming apparatus using intermediate transfer member. 5,671,464, Cl. 399-101.000.
 Kubota Corporation: See—
 Yukawa, Masaji; Aketa, Masahiro; Okamoto, Kazutoshi; Kamada, Yasukazu; Hayatani, Akira; Sugimoto, Masahiko; and Yamamoto, Nobuhiko, 5,669,339, Cl. 123-41.790.
 Kubota, Keiichi: See—
 Koshiishi, Osamu; Mizuno, Shigeki; Kubota, Keiichi; Nishizawa, Kazuhiko; Niimura, Motoyuki; Shiroto, Hiroshi; and Ko, Kyoui, 5,669,725, Cl. 400-690.000.
 Kubota, Yasushi: See—
 Shiraki, Ichiro; Kubota, Yasushi; and Yoneda, Hiroshi, 5,671,026, Cl. 349-40.000.
 Kubota, Yuichi; and Tokoro, Setsuo, to Toyota Jidosha Kabushiki Kaisha. Radar apparatus of automotive vehicle for producing accurate beam axis correction value. 5,670,963, Cl. 342-70.000.
 Kuga, Kaeko, to Rohm Co., Ltd. Outputter. 5,670,980, Cl. 345-102.000.
 Kuhl, Peter; Eichhorn, Uwe; Jakubke, Hans-Dieter; Drauz, Karlheinz; and Bonmarinus, Andreas, to Degussa Aktiengesellschaft. Enzymatic reactions and apparatus for carrying them out. 5,670,332, Cl. 435-68.100.
 Kuhn, Kenneth Darrow: See—
 Carlton, Lawrence Curtis; and Kuhn, Kenneth Darrow, 5,669,309, Cl. 104-162.000.
 Kuipers, Gerardus Henricus Maria, to Amko International B.V. Apparatus and method for separating pieces of laundry. 5,669,157, Cl. 34-321.000.
 Kulak, Richard E.; McHugh, Thomas M.; Ahigian, Edward E.; Jaminet, Jerome F.; He, Thomas; Feruggi, Richard E.; Kowalczyk, Thomas M.; and Barrett, David W., to Otis Elevator Company. Elevator hoistway door bolt lock. 5,669,465, Cl. 187-331.000.
 Kulkarni, Subhash Balakrishna: See—
 Adler, Eric; Kulkarni, Subhash Balakrishna; Mann, Randy William; Rausch, Werner Alois; and Ternullo, Luigi, Jr., 5,670,812, Cl. 257-347.000.
 Kumada, Shuichi; and Okutsu, Toshihisa, to Canon Kabushiki Kaisha. Image monitoring apparatus having a common interface for commands and input signals and monitor driver therefor. 5,671,021, Cl. 348-644.000.
 Kumada, Shuichi, to Canon Kabushiki Kaisha. Output apparatus. 5,671,339, Cl. 395-101.000.
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 Kumai, Tsugio: See—
 Tabuchi, Haruhiko; Kumai, Tsugio; Sasaki, Seimi; and Miura, Kazunori, 5,671,315, Cl. 385-137.000.
 Kumar, Anil: See—
 Leigh, Alistair; Michnick, John; Kumar, Anil; and Underiner, Gail, 5,670,506, Cl. 514-258.000.
 Kumar, Vijay Pochampalli: See—
 Chen, Xiaoqiang; and Kumar, Vijay Pochampalli, 5,671,222, Cl. 370-388.000.
 Kumashiro, Hideo: See—
 Ikenoue, Yoshikazu; Kumashiro, Hideo; and Nakatani, Munehiro, 5,671,277, Cl. 380-7.000.
 Kumazawa, Kenichi: See—
 Haraguchi, Youichiro; and Kumazawa, Kenichi, 5,669,670, Cl. 297-452.610.
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 Yuhara, Toshiya; Iitsuka, Hisao; Fukuda, Kazuyuki; Shimaoka, Makoto; and Kumazawa, Tetsuo, 5,671,316, Cl. 385-137.000.
 Kumegawa, Masahiro: See—
 Araki, Takayuki; Shimizu, Tetsuo; Yamato, Takafumi; Kumegawa, Masahiro; and Yamamoto, Yoshihisa, 5,670,593, Cl. 526-245.000.
 Kumiai Chemical Industry Co., Ltd.: See—

Suzuki, Chiharu; Masuda, Katsumi; Tamaru, Masatoshi; Inamori, Masahito; Takefuji, Nobuo; Yanagisawa, Katsutada; and Ogawa, Yasunori, 5,670,452, Cl. 504-213.000.
 Kun, Ernest; Mendeleyev, Jerome; and Kirsten, Eva. Aromatic nitro and nitroso compounds and their metabolites useful as anti-viral and anti-tumor agents. 5,670,518, Cl. 514-309.000.
 Kundel, Robert. Modular lift rail system. 5,669,518, Cl. 212-315.000.
 Kundel, Robert. Modular trench box sheeting. 5,669,738, Cl. 405-282.000.
 Kunihiro, Akira: See—
 Yoshizawa, Katsunori; and Kunihiro, Akira, 5,670,226, Cl. 428-40.100.
 Kunishi, Tsuyoshi: See—
 Toyohara, Yuichiro; and Kunishi, Tsuyoshi, 5,671,462, Cl. 399-33.000.
 Kunze, Norbert; Müller, Dieter; and Gielkens, Marc, to U.S. Philips Corporation. Magnetic tape cassette apparatus for reversible playing of magnetic tape cassettes. 5,669,570, Cl. 242-356.400.
 Kuo, Rong-Fu; and Yu, Ching-Chiang, to Behavior Tech Computer Corp. Keyboard with a universally adjusting apparatus. 5,670,991, Cl. 345-168.000.
 Kuo, So Wen; and Tsai, Chia-Shiung, to Taiwan Semiconductor Manufacturing Company Ltd. Method for reducing contact resistance. 5,670,426, Cl. 437-195.000.
 Kupcho, Kevin M.; and Delano, Maria K. Apparatus for simultaneous double sided printing. 5,670,995, Cl. 347-5.000.
 Kupersmidt, Vladimir, to Sunshine Medical Instruments, Inc. Optical phase modulator for high resolution phase measurements. 5,671,301, Cl. 385-1.000.
 Kupiecki, David; Thach, Cong; Ortiz, John E.; and Sheehan, Neil J., to Target Therapeutics, Inc. Liquid coils with secondary shape. 5,669,931, Cl. 606-191.000.
 Kurahashi, Takashi: See—
 Miyake, Toshihiro; Kondo, Koji; Kurahashi, Takashi; Okumura, Nozomu; and Takagi, Makoto, 5,669,548, Cl. 228-224.000.
 Kurahashi, Yasufumi; and Fukumoto, Minoru, to Matsushita Electric Industrial Co., Ltd. Air conditioning apparatus for a vehicle. 5,669,226, Cl. 62-227.000.
 Kuramoto, Masahiko: See—
 Takeuchi, Mizutomo; Shouzaki, Hajime; Tomotsu, Norio; and Kuramoto, Masahiko, 5,670,587, Cl. 526-119.000.
 Kuramoto, Shigefumi: See—
 Sakai, Yasuhiro; Yoneda, Tadahiyo; and Kuramoto, Shigefumi, 5,670,257, Cl. 428-402.000.
 Kurano, Takatoshi, to NEC Corporation. Duplicated arrangement for ATM switching system. 5,671,213, Cl. 370-218.000.
 Kuraray Co., Ltd.: See—
 Oka, Hideaki; Kashimura, Tsugunori; Yokota, Shinichi; and Hayashi-bara, Hiroshi, 5,670,608, Cl. 528-322.000.
 Kuratav, Ivan I.: See—
 Lee, Hang-woo; Lee, Sang-hak; Chee, Joseph Kilwhan; Hwang, Young-mo; Tsvetkov, Yuriy V.; Semenenko, Alexander V.; and Kuratav, Ivan I., 5,671,232, Cl. 372-22.000.
 Kuribayashi, Tetsuya: See—
 Yamamoto, Takeo; Kuribayashi, Tetsuya; Honda, Takao; Arahira, Fumihiko; and Osada, Hiroyuki, 5,671,468, Cl. 399-169.000.
 Kuriyama, Hiroshi; Kodaira, Youichi; Miyasaka, Haruyuki; and Horiuchi, Hideki, to Seiko Epson Corporation. Stamp unit and method of preparing stamp unit. 5,669,304, Cl. 101-401.100.
 Kuriyama, Katsuhiko; Okada, Toshiharu; Uesugi, Yuji; Mochida, Shoro; and Yamaguchi, Kazuyoshi, to Matsushita Electric Industrial Co., Ltd. Apparatus for laser processing and monitoring. 5,670,068, Cl. 219-121.680.
 Kuriyama, Kazunori: See—
 Shintani, Yooichi; Kuriyama, Kazunori; Shonai, Tohru; Kamada, Eiki; and Inoue, Kiyoshi, 5,671,382, Cl. 395-391.000.
 Kurn, Nurith: See—
 Switchenko, Arthur C.; Kurn, Nurith; Neukom, Christian; Pirio, Marcel; Berger, Donald E., Jr.; and Ullman, Edwin F., 5,670,690, Cl. 558-31.000.
 Kuroda, Masaaki, to Canon Kabushiki Kaisha. Rotary polygonal mirror and method of manufacturing the same. 5,671,193, Cl. 359-216.000.
 Kuroiwa, Akihiko: See—
 Namba, Kenryo; Kuroiwa, Akihiko; and Nakagawa, Shiro, 5,670,295, Cl. 430-270.210.
 Kuroki, Yoshio: See—
 Inoue, Takeshi; Matsuura, Eiji; Kuroki, Yoshio; Akino, Toyooki; and Abe, Shosaku, 5,670,328, Cl. 435-7.230.
 Kurtz, Andrew F., to Eastman Kodak Company. Illumination system for a film scanner. 5,671,084, Cl. 359-362.000.
 Kurz, Volker: See—
 Bauer, Dieter; Bocher, Ralf; Damsch, Herbert; Helms, Werner; Hemminger, Roland; Hunzelmann, Herbert; Kurz, Volker; Schirmacher, Roland; and Wolf, Walter, 5,669,440, Cl. 165-177.000.
 Kurzweil Applied Intelligence, Inc.: See—
 Armstrong, John, III, 5,671,426, Cl. 395-760.000.
 Kuse, Kazushi; Mitsui, Kinichi; Ohira, Tsuyoshi; and Javey, Shahram, to International Business Machines Corporation. System and method for managing windows. 5,671,379, Cl. 395-346.000.
 Kusmiss, John H. Eyeglass hinge pin repair kit. 5,669,124, Cl. 29-20.000.
 Kuwabara, Yuji: See—
 Okada, Tadanori; and Kuwabara, Yuji, 5,671,460, Cl. 396-547.000.

Kuwahara, Kenji; Takahashi, Kiyoyuki; Ueda, Hideyuki; Echigo, Noriyasu; Murai, Mikio; and Odagiri, Masaru, to Matsushita Electric Industrial Co., Ltd. Method for producing magnetic recording medium. 5,670,107, Cl. 264-234.000.
 Kuze, Tadayuki: See—
 Onishi, Junichi; Shibuya, Hideyuki; and Kuze, Tadayuki, 5,670,873, Cl. 326-174.000.
 KV Pharmaceuticals Company: See—
 Cuca, Robert C.; Lienhop, Keith S.; Riley, Thomas Charles, Jr.; Kirschner, Mitchell I.; and Levinson, R. Saul, 5,670,163, Cl. 424-439.000.
 Kwon, Ki-duck, to Samsung Display Devices Co., Ltd. Information input apparatus having functions of both touch panel and digitizer, and driving method thereof. 5,670,755, Cl. 178-19.000.
 Kyocera Corporation: See—
 Murano, Shunji, 5,671,002, Cl. 347-237.000.
 Kyowa Hakko Kogyo Co., Ltd.: See—
 Amishiro, Nobuyoshi; Nagamura, Satoru; Saito, Hiromitsu; Kobayashi, Eiji; Okamoto, Akihiko; and Gomi, Katsushige, 5,670,492, Cl. 514-63.000.
 Suzuki, Fumio; Shimada, Junichi; Koike, Nobuaki; Kase, Hiroshi; Nakamura, Joji; Shiozaki, Shizuo; and Nonaka, Hiromi, 5,670,498, Cl. 514-212.000.
 Kyriess, Karl M.: See—
 Cho, Young I.; and Kyriess, Karl M., 5,670,041, Cl. 210-222.000.
 L & P Property Management Company: See—
 Ogle, Steven E.; and Wells, Thomas J., 5,669,093, Cl. 5-720.000.
 L&P Property Management Company: See—
 Wells, Thomas J.; and Ayers, William L., IV, 5,669,087, Cl. 5-269.000.
 Labelon Corporation: See—
 Zeifang, William Joseph, 5,669,689, Cl. 353-120.000.
 LaBerge, Paul A.; Wiedenman, Gregory B.; and Harding, Donald E., to Unisys Corporation. Bus grant overlap circuit. 5,671,369, Cl. 395-287.000.
 Laboratoire Medidom S.A.: See—
 Di Napoli, Guido, 5,670,695, Cl. 560-76.000.
 Laboratoires Dolis: See—
 Franchimont, Paul, deceased; Bassleer, Corine; Angenot, Luc; and Tits, Monique, 5,670,538, Cl. 514-456.000.
 Lacey, Christopher, to Phase Metrics. Method and apparatus for rotary load/unload slider positioning. 5,671,048, Cl. 356-357.000.
 Laco, Randall J. Support harness for a person seated in a chair. 5,669,671, Cl. 297-485.000.
 Ladanyi, Marc; and Gerald, William, to Sloan-Kettering Institute for Cancer Research. Diagnostic test for the desmoplastic small round cell tumor. 5,670,317, Cl. 435-6.000.
 Laemmlein, Stephan T.: See—
 Borchers, Ingo U.; Laemmlein, Stephan T.; Bartels, Peter; Rausch, Achim; Faust, Markus; Coebergh, Jan A. F.; and Koebke, Klaus, 5,670,758, Cl. 181-286.000.
 LaFortune, Jeffrey Mark; and LeMahieu, Lynn Kirkpatrick, to Kimberly-Clark Worldwide, Inc. Absorbent article having an improved mechanical fastening system. 5,669,901, Cl. 604-391.000.
 Lahalih, Shawqui M., to King Fahd University of Petroleum and Minerals. Research Institute. Method and composition for stabilizing soil and process for making the same. 5,670,567, Cl. 524-404.000.
 Lahtinen, Mikko Petteri. Life-saving float. 5,669,795, Cl. 441-88.000.
 L'Air Liquide, Societe Anonyme Pour l'Etude et l'Exploitation des Procédés Georges Claude: See—
 Briand, Robert; and Renaudin, Marie-Hélène, 5,670,177, Cl. 424-718.000.
 Laizhong, Luo: See—
 Barnes, Michael S.; and Laizhong, Luo, 5,670,066, Cl. 219-121.580.
 Lajack, William Charles: See—
 Kollar, Craig Anthony; Szerlag, Donald; and Lajack, William Charles, 5,669,181, Cl. 49-360.000.
 Lall, Ravindar: See—
 Gorecki, James; Lall, Ravindar; and Lefferts, Robert B., 5,670,907, Cl. 327-535.000.
 LAM Research Corporation: See—
 Barnes, Michael S.; and Laizhong, Luo, 5,670,066, Cl. 219-121.580.
 Husain, Anwar, 5,671,116, Cl. 361-234.000.
 Shufflebotham, Paul Kevin; and Griffin, Christopher, 5,669,977, Cl. 118-728.000.
 Lam, Stephen T.: See—
 Gaffney, Thomas D.; Lam, Stephen T.; Hill, Dwight Steven; Stein, Jeffrey I.; and Ligon, James M., 5,670,350, Cl. 435-172.300.
 Lambda Physik Gesellschaft Zur Herstellung Von Lasern MGH: See—
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 Lambson, Charles T.; and Sanders, Paul W., to Motorola, Inc. Method for fabricating self-aligned semiconductor component. 5,670,417, Cl. 437-162.000.
 Lamine, Etienne; and Honhon, Patrick, to Baroid Technology, Inc. Method and device for detecting and/or measuring at least one geophysical parameter from a core sample. 5,670,717, Cl. 73-152.110.
 Landavazo, Antonio: See—
 Daniels, Alejandro Jose; Heyer, Dennis; Landavazo, Antonio; Leban, Johann Jakob; and Spaltenstein, Andreas, 5,670,482, Cl. 514-12.000.
 Landers, Samuel Patrick: See—
 Moseley, Dale Jay; and Landers, Samuel Patrick, 5,669,993, Cl. 152-209.000.
 Lane, Kathleen: See—

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 Lane, Mark D.: See—
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 Lane, Thomas R.: See—
 Kardach, James; Cho, Sung Soo; Peterson, Nicholas B.; Lane, Thomas R.; Joshi, Jayesh M.; and Songer, Neil, 5,671,421, Cl. 395-733.000.
 Lanese, Gustavo J.; Zalar, Frank E.; and Olwert, Ronald J. Tungsten-halogen incandescent lamp with reduced risk of containment failure. 5,670,840, Cl. 313-25.000.
 Lanfranchi, Tammy. Automatic animal feeding system. 5,669,328, Cl. 119-57.920.
 Lang, Christoph: See—
 Neubacher, Marc; Bock, Joachim; Lang, Christoph; Preisler, Eberhard; and Weis, Helga, 5,670,434, Cl. 501-123.000.
 Lang, Gerard: See—
 Deflandre, Andre; Forestier, Serge; Lang, Gerard; Richard, Hervé; and Leduc, Madeleine, 5,670,140, Cl. 424-59.000.
 Lang, Gerhard, to Braun Aktiengesellschaft. Electronic switched-mode power supply for supplying power to an accumulator. 5,671,129, Cl. 363-19.000.
 Lang, Hans-Jochen: See—
 Weichert, Andreas; Lang, Hans-Jochen; Kleemann, Heinz-Werner; Scholz, Wolfgang; and Albus, Udo, 5,670,544, Cl. 514-618.000.
 Lang, Marc: See—
 Bold, Guido; Bhagwat, Shripad S.; Fässler, Alexander; and Lang, Marc, 5,670,497, Cl. 514-183.000.
 Langhauser, Franz; Kerth, Jürgen; Schweizer, Günther; Brintzinger, Hans-Herbert; and Mansel, Stefan, to BASF Aktiengesellschaft. Racemic metallocene complexes and their preparation. 5,670,683, Cl. 556-406.000.
 Langmack, Dennis J., deceased (by Susan Langmack, administratrix): See—
 Moody, Paul E.; McCarthy, James M.; Langmack, Dennis J., deceased; and Chester, Mark V., 5,669,776, Cl. 439-138.000.
 Langmack, Susan, administratrix: See—
 Moody, Paul E.; McCarthy, James M.; Langmack, Dennis J., deceased; and Chester, Mark V., 5,669,776, Cl. 439-138.000.
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 Hagedorn, Ferdinand; Fiege, Helmut; and Lantzs, Reinhard, 5,670,694, Cl. 558-327.000.
 LaPalm, Terrie J.: See—
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 Lapidus, Stanley N.; Shuber, Anthony P.; and Ulmer, Kevin M., to Exact Laboratories, Inc. Method for the detection of clonal populations of transformed cells in a genomically heterogeneous cellular sample. 5,670,325, Cl. 435-6.000.
 Lara, Pedro F.: See—
 Katahara, Keith W.; Lara, Pedro F.; and Riggs, Kenneth R., 5,670,878, Cl. 324-221.000.
 Largeau, Denis; and Leon, Patrick, to Rhone-Poulenc Rorer S.A. Derivatives of 2-azabicyclo[2.2.1]heptane, their preparation and their application. 5,670,649, Cl. 548-431.000.
 Larrick, James W.; Houston, L. L.; and Groves, Eric S., to Chiron Corporation. Method for controlling hyperproliferative diseases. 5,670,151, Cl. 424-183.100.
 Larsen, James L.; and Siracki, Michael A., to Smith International, Inc. Nozzle retention system for rock bits. 5,669,459, Cl. 175-340.000.
 Larson, Mark L.: See—
 Schofield, Kenneth; Larson, Mark L.; and Vadas, Keith J., 5,670,935, Cl. 340-461.000.
 Lasch, Edward J.: See—
 Csongor, Desider G.; Lasch, Edward J.; Kapila, Vineet; and Schott, Nick R., 5,670,112, Cl. 264-572.000.
 LaserSurge, Inc.: See—
 Sauer, Jude S.; Rapp, Louis N.; and Tiberio, Thomas A., 5,669,917, Cl. 606-139.000.
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 Lattice Semiconductor Corporation: See—
 Gorecki, James; Lall, Ravindar; and Lefferts, Robert B., 5,670,907, Cl. 327-535.000.
 Lau, Philip T. S.; Rossi, Louis Joseph; and Cowan, Stanley Wray, to Eastman Kodak Company. Photographic elements containing new magenta dye-forming couplers. 5,670,302, Cl. 430-386.000.
 Laubsch, Kenneth L.: See—
 Opdyke, Joseph; Laubsch, Kenneth L.; and DeMeo, Joseph, 5,669,192, Cl. 52-211.000.
 Lauffer, John Matthew; Russell, David John; and Hansen, James Jens, to International Business Machines Corporation. Electric circuit card having a donut shaped land. 5,670,750, Cl. 174-262.000.
 Lauwerjssen, Petrus C.; De Hair, Johannes T. W.; Kastelein, Lukas; and Verhaar, Henricus C. G., to U.S. Phillips Corporation. Method and device for selecting low-pressure mercury discharge lamps. 5,669,510, Cl. 209-578.000.
 Lauzon, Jocelyn; and Ouellette, François, to Université Laval. Use of a temperature gradient to impose a chirp on a fibre bragg grating. 5,671,307, Cl. 385-37.000.
 Lavin, Mark A.; and Liebmann, Lars W., to International Business Machines Corporation. Efficient generation of negative fill shapes for chips and packages. 5,671,152, Cl. 364-490.000.

- Lavon, Gary Dean; and Desmarais, Thomas Allen, to Procter & Gamble Company, The. Absorbent articles providing sustained dynamic fit. 5,669,897, Cl. 604-385.200.
- Law, Henry Hon, to Lucent Technologies Inc. Electromagnetic interference suppressing connector array. 5,669,789, Cl. 439-620.000.
- Law, Patrick Y., to LSI Logic Corporation. Method and apparatus for improved video filter processing using efficient pixel register and data organization. 5,671,020, Cl. 348-608.000.
- Lawandy, Nabil M., to Brown University Research Foundation. Optically controlled imaging phase mask element. 5,670,280, Cl. 430-5.000.
- Lauer, C. B.; Dunfee, David E.; Hilberg, Harold P.; and Amato, Philip S., Jr., to D.G. O'Brien, Inc. Apparatus for terminating and interconnecting rigid electrical cable and method. 5,670,747, Cl. 174-74.00R.
- Lawhorn, David E.: See—
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- Lee, Yong-Gyun, to KIA Motors Corporation. Direct-injection gasoline engine. 5,669,345, Cl. 123-184.420.
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- Lefferts, Robert B.: See—
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- LeGrow, Gary Edward: See—
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- Leippe, Michael M.: See—
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- Leising, Maurice B.: See—
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- Leising, Randolph A.: See—
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- Leonard M. Brenner Associates, Inc.: See—
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- Leonard, Michael S.: See—
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- Leone, Richard E.; and Randolph, William J., to Tenneco Plastics Company. Thermoplastic bag closure. 5,669,504, Cl. 206-554.000.
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- Leonhardt, Jim: See—
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- Levinson, R. Saul: See—
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- Liberman, Irving; and Chantry, Peter J., to Northrop Grumman Corporation. Miniature atomic frequency standard. 5,670,914, Cl. 331-94.100.
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- Liebmann, Lars W.: See—
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- Martin, James W.: See—
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- Maseki, Motohiro: See—
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- Matsuda, Hiroshi: See—
- Matsuo, Masaaki; Hagiwara, Daijro; Manabe, Takashi; Konishi, Nobukiyo; Shigenaga, Shinji; Munano, Kenji; Matsuda, Hiroshi; and Miyake, Hiroshi, 5,670,505, Cl. 514-253.000.
- Takahashi, Kohji; Matsuda, Hiroshi; and Takahashi, Keishi, 5,671,104, Cl. 360-105.000.
- Matsuda, Kenji: See—
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- Matsui, Shuichi: See—
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- Matsukawa, Yuka: See—
- Sasano, Akira; Shirahashi, Kazuo; Matsukawa, Yuka; Taniguchi, Hideaki; Yamamoto, Hideaki; and Matsumaru, Haruo, 5,671,027, Cl. 349-46.000.
- Matsumaru, Haruo: See—
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- Matsumoto, Ichiro: See—
- Ueyama, Tomoyuki; Harada, Shoji; Nakamata, Toshiaki; Shibata, Masao; Doi, Toshimitsu; Ogawa, Shunichi; Matsumoto, Ichiro; and Nakai, Hiroshi, 5,670,071, Cl. 219-130.510.
- Matsumoto, Kanya: See—
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- Matsuoka, Hiroki: See—
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- Kimura, Noriyuki; Suzuki, Minoru; Sakamoto, Kouji; Noguchi, Kouichi; Deki, Tsuyoshi; Matsushiro, Hiroyuki; Sasaki, Eiichi; Fujishiro, Takatsugu; and Kobayashi, Chiyoaki, 5,671,465, Cl. 399-119.000.
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- Adachi, Seiji; Jin, Changqin; Wu, Xiao-Jing; Yamauchi, Hisao; and Tanaka, Shoji, 5,670,457, Cl. 505-125.000.
- Bessho, Yoshihiro; and Tomura, Yoshihiro, 5,670,826, Cl. 257-737.000.
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- Hatsuda, Tsuguyasu, 5,671,181, Cl. 345-189.050.
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- Inanaga, Masayuki; and Okuda, Shouichiro, 5,670,968, Cl. 343-901.000.
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- Katsumata, Yoshikazu; Mizoguchi, Yoshihiro; Iijima, Yoshiaki; Kamioka, Makoto; Ejima, Yoshinori; Kishiyama, Nobuo; Noda, Yutaka; and Nakao, Eiichiro, 5,671,467, Cl. 399-164.000.
- Kurahashi, Yasufumi; and Fukumoto, Minoru, 5,669,226, Cl. 62-227.000.
- Kuriyama, Katsuhiko; Okada, Toshiharu; Uesugi, Yuji; Mochida, Shoro; and Yamaguchi, Kazuyoshi, 5,670,068, Cl. 219-121.680.
- Kuwahara, Kenji; Takahashi, Kiyosi; Ueda, Hideyuki; Echigo, Noriyasu; Murai, Mikio; and Odagiri, Masaru, 5,670,107, Cl. 264-234.000.
- Matsuura, Sadahiro; Satou, Shigeru; Kondou, Yasuhiro; and Igarashi, Yoshiaki, 5,670,854, Cl. 318-432.000.
- Miyazaki, Benichi; Nishino, Yukio; and Murai, Junichi, 5,671,212, Cl. 369-291.000.
- Nakai, Izuru; Okada, Toshiharu; and Uesugi, Yuji, 5,670,069, Cl. 219-121.730.
- Tamaki, Tokuhiko; Sugiyama, Tatsuo; and Nakaoka, Hiroaki, 5,670,810, Cl. 257-331.000.
- Tomita, Yasuhiro, 5,671,173, Cl. 365-63.000.
- Yamaguchi, Osamu; Moriya, Mitsuru; Yamaguchi, Hiroyuki; Kanda, Yoshihiro; and Ishibashi, Hiromichi, 5,671,200, Cl. 369-44.280.
- Yamauchi, Eiji; Hashimoto, Kiyokazu; Oka, Hidemi; Kashi, Takao; Hidaka, Iwao; and Yamamoto, Yoshiaki, 5,671,260, Cl. 375-372.000.
- Matsushita Electric Works, Ltd.: See—
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- Matsushita Electrical Industrial Co., Ltd.: See—
- Fujita, Suguru; and Hasegawa, Makoto, 5,671,133, Cl. 363-126.000.
- Matsushita Electronics Corporation: See—
- Takano, Yoshimichi; Sakai, Tetsuo; Murakami, Hiroshi; Takahashi, Kazuo; Mimasu, Mutsumi; Miyagawa, Utao; Takei, Makoto; and Wani, Koichi, 5,670,975, Cl. 345-60.000.
- Matsushita Graphic Communication Systems, Inc.: See—
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- Matsushita, Shigeo: See—
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- Matsuura, Hiromi: See—
- Bolton, Brian Lewis; Yuyama, Yoshio; Akutagawa, Katsutoshi; and Matsuura, Hiromi, 5,669,843, Cl. 475-149.000.
- Matsuura, Kazuo: See—
- Tajima, Yoshio; Kataoka, Naoki; Numao, Yosuke; Seki, Takashi; and Matsuura, Kazuo, 5,670,588, Cl. 526-128.000.
- Matsuura, Kiyoshige, to Sony Corporation. Plasma addressed display device. 5,670,843, Cl. 313-582.000.
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- Matsuzaki, Kazuhiro: See—
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- Matthes, Reinhard: See—
- Peeters, Hermann; Bastin, Birgit; and Matthes, Reinhard, 5,670,570, Cl. 524-547.000.
- Matthews, Ian Richard: See—
- Cox, John Michael; Gillen, Kevin James; Ellis, Russell Martin; Vohra, Shaheen Khatoon; Smith, Stephen Christopher; and Matthews, Ian Richard, 5,670,656, Cl. 548-543.000.
- Matthies, Lawrence L. Inflatable motorcycle seat. 5,669,660, Cl. 297-195.130.
- Mattingly, Phillip Gregory; and Bennett, Larry Gene, to Abbott Laboratories. Chemiluminescent phenanthridinium. 5,669,819, Cl. 436-501.000.
- Mattingly, William B., III, to McNeil-PPC, Inc. Methods of making same absorbent articles with integral release systems. 5,670,004, Cl. 156-227.000.
- Maune, Dean: See—
- Dorow, Glen; Hill, Steve; and Maune, Dean, 5,669,532, Cl. 222-401.000.
- Mawet, Patrick H.: See—
- Andermo, Nils Ingvar; Mawet, Patrick H.; and Masreliez, Karl G., 5,670,887, Cl. 324-684.000.
- Mawhirt, James A.: See—
- Behringer, Bruce E.; and Mawhirt, James A., 5,669,764, Cl. 417-395.000.
- Maxdem Incorporated: See—
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- Maxim Pharmaceuticals, Inc.: See—
- Vahlne, Anders; Svennerholm, Bo; Rymo, Lars; Jeansson, Stig; and Horal, Peter, 5,670,311, Cl. 435-5.000.
- Maxtor Corporation: See—
- Mathews, Harlan; McNeil, Michael; and Blatchley, Michael A., 5,671,098, Cl. 360-67.000.

- Maxwell, Peter C., to Hewlett-Packard Company. System and method for modelling internal circuit bridging faults. 5,671,150, Cl. 364-488.000.
- May, Anton: See—
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- May, Daniel R.; Cole, Kevin A.; Guzman, Sharon A.; and Zeller, John J., to Eastman Kodak Company. Apparatus for single-sided, cold mechanical knurling. 5,670,188, Cl. 425-363.000.
- May, Karl; Tratz, Herbert; and Engelhardt, Reiner, to Siemens Aktiengesellschaft. Plant for thermal waste disposal and process for operating such a plant. 5,669,317, Cl. 110-229.000.
- May, Kenneth A.: See—
- Ryan, Thomas B.; Holzwarth, Robert K.; and May, Kenneth A., 5,671,144, Cl. 364-426.029.
- May, Paul; Walsh, Kathryn; and Davis, Gillian Margaret, to Sharp Kabushiki Kaisha. Polarisation dependent refractive device exhibiting independently varying first and second indices of refraction and methods of manufacture thereof. 5,671,034, Cl. 349-200.000.
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- Mayer, Isabella V.: See—
- Lazarov, Miladin P.; and Mayer, Isabella V., 5,670,248, Cl. 428-304.400.
- Mayer, John Philip: See—
- Carnahan, Josette Francoise; Hara, Shinichi; Lu, Hsiung Sen; Mayer, John Philip; and Yoshinaga, Steven Kiyoshi, 5,670,342, Cl. 435-69.700.
- Mayfield, Thomas R.: See—
- Dingus, Michael L.; Zoch, Walter P.; Mayfield, Thomas R.; Bray, Alan; and Rushing, Rock A., 5,670,469, Cl. 510-274.000.
- Maysenholder, Rolf: See—
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Milstein, Elliott A.; and Milstein, Nathan, 5,670,547, Cl. 514-725.000.
- Mimasu, Mutsumi: See—
Takano, Yoshimichi; Sakai, Tetsuo; Murakami, Hiroshi; Takahashi, Kazuo; Mimasu, Mutsumi; Miyagawa, Utaro; Takei, Makoto; and Wani, Koichi, 5,670,975, Cl. 345-60.000.
- Minami, Yukio: See—
Nishino, Koji; Ikeda, Nobukazu; Morimoto, Akihiro; Minami, Yukio; Kawada, Koji; Dohi, Ryosuke; and Fukuda, Hiroyuki, 5,669,408, Cl. 137-487.500.
- Mine, Yoshitaka, to Kabushiki Kaisha Toshiba. Ultrasonic diagnosis apparatus and image displaying system. 5,669,387, Cl. 128-661.090.
- Ming, Chen Tsai, to Gazelle Corporation. Soft pad bridge of spectacles. 5,671,040, Cl. 351-138.000.
- Minich, Arthur P.: See—
Baar, Kenneth W.; Sitachitt, Sidney; Spicer, Barry K.; Brewis, Graham H.; Minich, Arthur P.; Corsaro, Paul R.; and Berg, Paula M., 5,669,688, Cl. 353-119.000.
- Minnesota Mining and Manufacturing Company: See—
Anderson, Dale R., 5,669,123, Cl. 26-18.500.
- Chiu, Raymond C.; Smith, Robert G.; and Weaver, Billy Lee, 5,670,253, Cl. 428-336.000.
- Dietz, Timothy M.; Lu, Ying-Yuh; Uy, Rosa; and Young, Chung I., 5,670,557, Cl. 522-184.000.
- Duan, Daniel C.; Schaberg, Mark S.; Fogarty, Terence M.; Howard, William L., Jr.; and Wood, Kenneth B., 5,670,097, Cl. 264-1.240.
- Ezzell, Stephen A.; and Gerbi, Diana J., 5,670,590, Cl. 526-171.000.
- Hedblom, Thomas P.; and Bradshaw, T. Ian, 5,670,227, Cl. 428-48.000.
- Jubran, Nusrallah; Katritzky, Alan R.; and Ugro, Josef V., Jr., 5,670,446, Cl. 503-201.000.
- Leir, Charles M.; Brown, William R.; and Brandt, Patricia J. A., 5,670,598, Cl. 522-184.000.
- Look, Thomas F.; O'Keefe, Robert V.; Schmidt, Craig A.; Orensteen, Bruce D.; McGrath, Joseph M.; Poss, Steven E.; Bradshaw, Thomas J.; and Bradshaw, Franklin C., 5,670,005, Cl. 156-230.000.
- Lu, Shih-Lai, 5,670,096, Cl. 264-1.100.
- Mitra, Sumita B.; Culler, Scott R.; and Wang, Bing, 5,670,258, Cl. 428-405.000.
- Perman, Craig A.; Hendrickson, William A.; and Riechert, Manfred E., 5,670,102, Cl. 264-50.000.
- Peterson, Larry L., 5,669,941, Cl. 51-295.000.
- Sadlo, James L.; and Melancon, Eugene J., 5,670,223, Cl. 428-34.900.
- Sioutas, Constantinos, 5,669,376, Cl. 128-200.230.
- Stubbs, Roy, 5,669,940, Cl. 51-295.000.
- Wilfong, Debra L.; Drath, David J.; Palazzotto, Michael C.; Willett, Peggy S.; and Clark, Henry B., III, 5,670,006, Cl. 156-236.000.
- Wolf, Robert J.; Purrington, Scott M.; Brandner, John M.; Olson, David A.; and Reed, John F., 5,669,797, Cl. 442-329.000.
- Mino Ganryo Kagaku Corporation: See—
Kakamu, Yoshinori; Kakamu, Shinichi; and Kakamu, Shukichi, 5,670,228, Cl. 428-49.000.
- Minolta Camera Kabushiki Kaisha: See—
Ikenoue, Yoshikazu; Kumashiro, Hideo; and Nakatani, Munehiro, 5,671,277, Cl. 380-7.000.
- Tsuji, Kenji; Kido, Toshihito; and Hamada, Satoshi, 5,671,456, Cl. 396-392.000.
- Minolta Co., Ltd.: See—
Matsubara, Ken; and Yagi, Tsukasa, 5,671,076, Cl. 359-196.000.
- Mizuno, Naoki; Sakata, Toshio; and Toyama, Toshio, 5,671,471, Cl. 399-297.000.
- Morikawa, Takeshi; and Inui, Kazuo, 5,671,463, Cl. 399-86.000.
- Nagasaka, Yasushi; Nakamura, Hiromu; and Ono, Satoru, 5,671,079, Cl. 359-205.000.
- Okumishi, Kazuo, 5,670,855, Cl. 318-696.000.
- Yamada, Takashi; Isogai, Mitsuru; Yamada, Tetsuya; and Yoneda, Satoru, 5,671,473, Cl. 399-320.000.
- Minthorn, James W.; Berscheidt, Kevin T.; White, Brian R.; Savage, Ronald E.; Anderson, Merlin F.; Vann, Dudley; George, Flint Raymond; Henke, Joseph A.; and Prudhomme, Joseph M., to Halliburton Energy Services, Inc. Overbalance perforating and stimulation method for wells. 5,669,448, Cl. 166-308.000.
- Minus K Technology, Inc.: See—
Platus, David L.; and Durran, Donald A., 5,669,594, Cl. 248-619.000.
- Miranda, Ronald E.: See—
Brinkmeyer, Francis M.; Bridges, Steven D.; Miranda, Ronald E.; and Facker, Mike L., 5,671,153, Cl. 364-502.000.
- Mirani, Saleh Mohammed: See—
Chitty, Andrew I.; Martin, John T.; and Mirani, Saleh Mohammed, 5,669,637, Cl. 285-342.000.

Mirchandani, Vinod, to Xerox Corporation. Accurate laser power control for dual/multiple beams. 5,671,078, Cl. 359-204.000.

Mirsky, Barry: See—
Verby, Stanley M.; and Mirsky, Barry, 5,669,186, Cl. 52-72.000.

Miseki, Kimio: See—
Akamine, Masami; Oshikiri, Masahiro; and Miseki, Kimio, 5,671,327, Cl. 395-2.280.

Mista, Kresimir, and Fischer, Joachim, to Karl Mayer Textilmaschinenfabrik GmbH. Textile machines, in particular warp knitting machines, with thread lifting elements. 5,669,248, Cl. 66-209.000.

Mita Industrial Co., Ltd.: See—
Fukano, Masahiko, 5,671,474, Cl. 399-331.000.

Ishiguro, Yasuyuki; Kimura, Kazuhiro; Yamaguchi, Hiroaki; Tsuji, Hiroyuki; and Watanabe, Masaru, 5,671,476, Cl. 399-354.000.

Kawata, Hideaki; Iida, Tomohide; Hase, Yoshiteru; Tamura, Hidekazu; and Kawano, Nobuaki, 5,670,287, Cl. 430-106.600.

Mitani, Masao, to Hitachi Koki Co., Ltd. Thermal ink jet recording device and method of cleaning a recording head. 5,670,996, Cl. 347-29.000.

Mitani, Shinichi: See—
Honda, Takaaki; and Mitani, Shinichi, 5,671,323, Cl. 392-418.000.

Mitani, Tadahiro: See—
Yoshida, Masanao; Mitani, Tadahiro; Hirao, Keiji; and Ogata, Hitoshi, 5,671,196, Cl. 369-34.000.

Mitchell, Glenn E.: See—
Fournier, Thomas J.; Kohn, Bruce R.; Lee, Samuel Chu; and Mitchell, Glenn E., 5,671,158, Cl. 364-514.000.

Mitchell, Phillip Merle: See—
Fung, Henry Tat; and Mitchell, Phillip Merle, 5,671,433, Cl. 395-800.000.

Mitchell, Presley K.: See—
Jones, Ronald L.; Carlyle, Stephen L.; Shelor, Susan M.; Mitchell, Presley K.; and Lines, Ellwood LeRoy, Jr., 5,670,059, Cl. 210-753.000.

Mitchell, Scott W.: See—
Burns, Lawrence M.; and Mitchell, Scott W., 5,671,258, Cl. 375-359.000.

Mitchell, Timothy R.: See—
Horton, Woodson; Lane, Mark D.; Smith, Ronald R.; and Mitchell, Timothy R., 5,669,963, Cl. 96-77.000.

Mitchell, William E. Throttle control device, system, and method. 5,669,352, Cl. 123-342.000.

Mitoma, Yasuharu: See—
Satake, Satoru; Mitoma, Yasuharu; and Ito, Takafumi, 5,669,511, Cl. 209-580.000.

Mitra, Sumita B.; Culler, Scott R.; and Wang, Bing, to Minnesota Mining and Manufacturing Company. Treated fluorosiluminosilicate glass. 5,670,258, Cl. 428-405.000.

Mitsubishi Denki Kabushiki Kaisha: See—
Chujo, Takeshi, 5,671,017, Cl. 348-378.000.

Hayashi, Satoru, 5,670,241, Cl. 428-109.000.

Muragishi, Takeo, 5,670,390, Cl. 437-21.000.

Murakami, Tokumichi; Matsuzaki, Kazuhiro; Kato, Yoshiaki; and Ohira, Hideo, 5,671,226, Cl. 370-474.000.

Nagahara, Teruaki, 5,670,718, Cl. 73-514.110.

Nagata, Yoshishige; and Takahira, Kenichi, 5,671,254, Cl. 375-326.000.

Nakano, Hirofumi, 5,670,801, Cl. 257-198.000.

Nasu, Takashi; and Sakamoto, Tadashi, 5,671,402, Cl. 395-568.000.

Omori, Makoto; Ochi, Katsunori; Ohuchi, Jun; and Washida, Tetsuro, 5,671,123, Cl. 361-737.000.

Sawazaki, Nobuyuki; Murata, Shigemi; and Koiki, Mitsuru, 5,669,367, Cl. 123-635.000.

Takeda, Takefusa, 5,669,814, Cl. 454-187.000.

Takiguchi, Tohru; and Goto, Katsuhiko, 5,671,242, Cl. 372-45.000.

Tera, Yoshiko; Morishima, Kouji; and Sakai, Atsushi, 5,670,921, Cl. 333-195.000.

Tomimatsu, Yoshikatsu, 5,671,165, Cl. 364-571.010.

Tomita, Atsushi; Kimura, Koichi; and Moriaki, Shinichi, 5,670,961, Cl. 342-36.000.

Ueki, Hiroshi, 5,671,177, Cl. 365-185.110.

Urano, Maho; and Yokota, Miho, 5,671,148, Cl. 364-482.000.

Yuuki, Akimasa; Kawahara, Takaaki; Tsubahara, Kouiti; and Yamaguchi, Tetsu, 5,669,976, Cl. 118-725.000.

Mitsubishi Gas Chemical Company, Inc.: See—
Kihara, Shuta; Yonehama, Shinichi; and Seki, Kiichiro, 5,670,612, Cl. 528-419.000.

Ohya, Kazuyuki; and Sayama, Norio, 5,670,231, Cl. 428-66.200.

Mitsubishi Jidosha Kogyo Kabushiki Kaisha: See—
Koga, Hisamitsu; Kumagai, Naotaka; Ohwada, Tomiji; Furukawa, Nobuya; Kato, Masaaki; and Kawamura, Nobuyuki, 5,670,830, Cl. 307-10.100.

Mitsubishi Jukogyo Kabushiki Kaisha: See—
Ohbayashi, Kazumi; Yamashita, Susumu; Ito, Masami; Matsuda, Kenji; Watabe, Shin; and Nakamura, Minoru, 5,669,229, Cl. 62-259.100.

Takenaka, Hiroyuki; Tosaka, Yoritshige; Sahara, Yasunobu; Maruyama, Yoshiaki; Yamane, Hidenori; and Iwawa, Akio, 5,669,988, Cl. 148-210.000.

Mitsubishi Paper Mills Limited: See—
Takaoka, Kazuyuki; Hyodo, Kenji; Ebihara, Isao; Oku, Yasuyuki; and Ohgami, Katsushi, 5,670,247, Cl. 428-297.000.

Mitsubishi Pencil Kabushiki Kaisha: See—
Ando, Yoichi; and Hirano, Koichi, 5,669,299, Cl. 101-128.400.

Mitsuda, Tsuyoshi, to NEC Corporation. Current sensing circuit. 5,670,867, Cl. 323-312.000.

Mitsui, Kinichi: See—
Kuse, Kazushi; Mitsui, Kinichi; Ohira, Tsuyoshi; and Javey, Shahram, 5,671,379, Cl. 395-346.000.

Mitsui Norin Co., Ltd.: See—
Hara, Yukihiko; and Honda, Miwa, 5,670,154, Cl. 424-195.100.

Mitsui Petrochemical Industries, Ltd.: See—
Matsumoto, Muneyuki; Okada, Keiji; Matsuo, Yoshihisa; and Uchimi, Akemi, 5,670,551, Cl. 521-90.000.

Mitsumaki, Hiroshi: See—
Sakazume, Taku; Mitsumaki, Hiroshi; Takahashi, Katsuaki; and Tamura, Terumi, 5,670,114, Cl. 422-67.000.

Mitsumi Electric Co., Ltd.: See—
Yajima, Hideo; and Ogino, Toshikazu, 5,670,745, Cl. 174-65.000.

Mitsuoka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yukio; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, to Hitachi, Ltd. Large capacity magnetic disc apparatus with a particular relationship between pole thickness, saturated flux density, and recording wavelength. 5,671,107, Cl. 360-126.000.

Mitutoyo Corporation: See—
Andermo, Nils Ingvar; Mawet, Patrick H.; and Masreliez, Karl G., 5,670,887, Cl. 324-684.000.

Miura, Hideo; Moribe, Shunji; Kato, Hisayuki; Koike, Atsuyoshi; Ikeda, Shuji; and Nishimura, Asao, to Hitachi, Ltd. Semiconductor device having a polycrystalline silicon film with crystal grains having a uniform orientation. 5,670,793, Cl. 257-64.000.

Miura, Hiroya: See—
Niwa, Nobuyuki; Yokota, Yasuhiro; Shiraga, Shinji; Kikuchi, Tomoaki; Miura, Hiroya; and Morita, Kenji, 5,671,366, Cl. 395-281.000.

Miura, Junkichi: See—
Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; Ito, Mitsuo; Umesato, Fuminori, deceased, 5,670,379, Cl. 436-161.000.

Miura, Kazunori: See—
Nakamichi, Kousaku; Miura, Kazunori; and Inaba, Shoichi, 5,670,184, Cl. 425-130.000.

Tabuchi, Haruhiko; Kumai, Tsugio; Sasaki, Seimi; and Miura, Kazunori, 5,671,315, Cl. 385-137.000.

Miura, Yasunao; Nishimura, Mamoru; and Tokuda, Kojiro, to Nippondenso Co., Ltd. Method for cutting undried clay material. 5,670,104, Cl. 264-145.000.

Miyagawa, Ichiro: See—
Saito, Atsushi; and Miyagawa, Ichiro, 5,670,214, Cl. 427-356.000.

Miyagawa, Shoichi: See—
Moroto, Shuzo; Taniguchi, Takao; Miyagawa, Shoichi; Sakakibara, Shiro; Tsukamoto, Kazumasa; Inuzuka, Takeshi; and Hattori, Masashi, 5,669,846, Cl. 475-211.000.

Miyagawa, Utaro: See—
Takano, Yoshimichi; Sakai, Tetsuo; Murakami, Hiroshi; Takahashi, Kazuo; Mimasu, Mutsumi; Miyagawa, Utaro; Takai, Makoto; and Wani, Koichi, 5,670,975, Cl. 345-60.000.

Miyake, Hiroshi: See—
Matsuo, Masaki; Hagiwara, Daijiro; Manabe, Takashi; Konishi, Nobukiyo; Shigenaga, Shinji; Murano, Kenji; Matsuda, Hiroshi; and Miyake, Hiroshi, 5,670,505, Cl. 514-253.000.

Miyake, Keiji, to Brother Kogyo Kabushiki Kaisha. Apparatus for converting image outline data into dot data representative of dots to be formed. 5,671,295, Cl. 382-242.000.

Miyake, Toshihiro; Kondo, Koji; Kurahashi, Takashi; Okumura, Nozomu; and Takagi, Makoto, to Nippondenso Co., Ltd. Soldering method. 5,669,548, Cl. 228-224.000.

Miyakoshi, Atsushi: See—
Nire, Takashi; and Miyakoshi, Atsushi, 5,670,207, Cl. 427-126.200.

Miyano, Hidemasa: See—
Shirai, Kazunari; Miyano, Hidemasa; Kamio, Shigeru; and Nakaya, Yoshimasa, 5,669,351, Cl. 123-339.210.

Shirai, Kazunari; Miyano, Hidemasa; Kamio, Shigeru; and Nakaya, Yoshimasa, 5,669,353, Cl. 123-399.000.

Miyasaka, Haruyuki: See—
Kuriyama, Hiroshi; Kodaira, Youichi; Miyasaka, Haruyuki; and Horiuchi, Hideki, 5,669,304, Cl. 101-401.100.

Miyasaka, Yoichi: See—
Yamamichi, Shintaro; and Miyasaka, Yoichi, 5,670,408, Cl. 437-60.000.

Miyata, Maki; Iura, Akihiko; and Murata, Akio, to Fujitsu Limited. Portable terminal apparatus. 5,670,770, Cl. 235-462.000.

Miyazaki, Benichi; Nishino, Yukio; and Murai, Junichi, to Matsushita Electric Industrial Co., Ltd. Disc cartridge. 5,671,212, Cl. 369-291.000.

Miyazaki, Hiroaki: See—
Yokoyama, Kunio; Katagiri, Moriya; Sakurai, Hidenori; Kitahara, Yoshiyuki; Miyazaki, Hiroaki; and Suzuki, Tatsuya, 5,671,457, Cl. 396-411.000.

Miyazaki, Hiroaki; Sakamoto, Junshi; and Ohmi, Hayato, to NSK Ltd. Rolling bearing unit with rotating speed sensor having peripherally facing annular tone wheel and sensor. 5,670,874, Cl. 324-174.000.

Miyazaki, Takeshi; Sato, Hiroshi; Shirota, Katsuhiko; Yokoi, Hideto; Kashiwazaki, Akio; and Shiba, Shoji, to Canon Kabushiki Kaisha. Color filter manufacturing method and apparatus, color filter, liquid crystal display device, and apparatus having liquid crystal display apparatus. 5,670,205, Cl. 427-64.000.

Miyazaki, Takeshi: See—
Yamamoto, Nobuko; Okamoto, Tadashi; Tomida, Yoshinori; Yano, Tetsuya; Miyazaki, Takeshi; and Kawaguchi, Masahiro, 5,670,315, Cl. 435-6.000.

Miyazawa, Junichi, to Molex Incorporated. Shunt connector assembly. 5,669,787, Cl. 439-510.000.

Miyazawa, Kazutoshi; Matsui, Shuichi; Goto, Yasuyuki; Nakagawa, Etsuo; and Sawada, Shinichi, to Chisso Corporation. Liquid crystalline compound and liquid crystal. 5,670,085, Cl. 252-299.010.

Miyazawa, Kazuyuki: See—
Otori, Hiroshi; Kajigaya, Kazuhiko; Miyazawa, Kazuyuki; Kubo, Masaharu; Koike, Atsuyoshi; and Kanai, Fumiyuki, 5,670,409, Cl. 437-60.000.

Miyazawa, Kiyotaka, to Hori Glass Co., Ltd. Sunroof assembly for motor vehicle. 5,669,657, Cl. 296-216.000.

Mizoguchi, Yoshihiro: See—
Katsumata, Yoshiyuki; Mizoguchi, Yoshihiro; Ijima, Yoshiaki; Kamioka, Makoto; Ejima, Yoshinori; Kishiyama, Nobuo; Noda, Yutaka; and Nakao, Eiichi, 5,671,467, Cl. 399-164.000.

Mizuno, Masahiro; Futamura, Masao; and Muto, Yukiyo, to Brother Kogyo Kabushiki Kaisha. Data storing device having a capacity determining system. 5,671,410, Cl. 395-615.000.

Mizuno, Masayuki, to NEC Corporation. Clock signal distribution circuit having a small clock skew. 5,670,903, Cl. 327-158.000.

Mizuno, Naoki; Sakata, Toshio; and Toyama, Toshio, to Minolta Co., Ltd.; and Toyama Machineries Co., Ltd. Sheet separating device. 5,671,471, Cl. 399-297.000.

Mizuno, Shigeki: See—
Koshiishi, Osamu; Mizuno, Shigeki; Kubota, Keiichi; Nishizawa, Katsuhiko; Niimura, Motoyuki; Shirotori, Hiroshi; and Ko, Kyout, 5,669,725, Cl. 400-690.000.

Mizusawa, Minoru: See—
Hamada, Kouki; Mizusawa, Minoru; and Koga, Minoru, 5,670,269, Cl. 429-20.000.

Mobil Oil Corporation: See—
Valyosik, Ernest W., 5,670,131, Cl. 423-702.000.

Mobile Communications Holdings, Inc.: See—
Castiel, David; Draim, John E.; and Brosius, Jay, 5,669,585, Cl. 244-158.000.

Mochida, Shoro: See—
Kuriyama, Katsuhiko; Okada, Toshiharu; Uesugi, Yuji; Mochida, Shoro; and Yamaguchi, Kazuyoshi, 5,670,068, Cl. 219-121.680.

Mochida, Tetsuya: See—
Kondo, Nobukazu; Kaneko, Seiji; Okazawa, Koichi; Gemma, Hideaki; Mochida, Tetsuya; and Hayashi, Takehisa, 5,671,371, Cl. 395-306.000.

Mochizuki, Mikio; Hirooka, Eiji; and Yasukawa, Makoto, to Nohmi Bosai Ltd. Fire detector. 5,670,948, Cl. 340-630.000.

Model, Peter L. Corrugated pallet and pallet foot. 5,669,315, Cl. 108-56.300.

Modiano, Andrea; and Milchman, Moshe, to Inflight Financial Services Ltd. Vehicle mounted cash dispensing machine. 5,670,768, Cl. 239-379.000.

Moen, Marnix Karel Christiane, to Procter & Gamble Company. The Machine dishwashing method employing a metallo catalyst and enzymatic source of hydrogen peroxide. 5,670,468, Cl. 510-226.000.

MOGEN International, n.v.: See—
Cornelissen, Bernardus J. C.; Melchers, Leo Sjoerd; Meulenhoff, Elisabeth J. S.; van Roekel, Jeroen S. C.; Sela-Buurlage, Marianne Beatrix; Vloemans, Alexandra Aleida; Woloshuk, Charles Peter; Bol, John Ferdinand; and Linthorst, Hubertus J. M., 5,670,706, Cl. 800-205.000.

Mojend, Andrew E.; and Ross, Paul M., to Fleetwood Systems, Inc. Trailing end air hold-up assembly. 5,669,482, Cl. 198-380.000.

Molecumetics, Ltd.: See—
Kahn, Michael, 5,670,155, Cl. 424-208.100.

Molenkamp, Linda K.: See—
Pastrick, Todd W.; Molenkamp, Linda K.; and Koops, Roger L., 5,669,705, Cl. 362-83.100.

Molex Incorporated: See—
Miyazawa, Junichi, 5,669,787, Cl. 439-510.000.

Molin, Soren; Andersson, Poul Kirketerp; Gerdas, Kenn Axo; and Klemm, Per, to GX BioSystems A/S. Biological containment. 5,670,370, Cl. 435-320.100.

Moller, Heinrich; and Moller, Henning. Pair of conveyor worms for rotary positive-displacement pumps. 5,669,765, Cl. 418-1.000.

Moller, Henning: See—
Moller, Heinrich; and Moller, Henning, 5,669,765, Cl. 418-1.000.

Moloney, David; and Gadducci, Paolo, to SGS-Thomson Microelectronics S.r.l. Programmable digital delay unit. 5,670,904, Cl. 327-277.000.

Monfil, Jean Lucien: See—
Barendregt, Simon; and Monfil, Jean Lucien, 5,670,703, Cl. 585-324.000.

Monnier, John R.; and Moorehouse, Cris S., to Eastman Chemical Company. Process for the preparation of 2,3-dihydrofurans. 5,670,672, Cl. 549-507.000.

Monroe, Marshall M.; Haseltine, Eric C.; and Adamson, William G., to Walt Disney Company. The Virtual easel. 5,671,091, Cl. 359-635.000.

Monsanto Company: See—
Baile, Clifton Augustus; Day, Jeffrey Wilson; Hampton, Thomas Riley, II; Kasser, Thomas Richard; Pike, James Brian; Smith, Jonathan Paul; and Ziemann, Lyle Elmore, 5,670,162, Cl. 424-438.000.

Montague, Wade A.; Whiton, John H.; Hart, Marshall B.; Morgan, Roger J.; and Arnold, David, to General Electric Company. Circuit breaker magnetic trip unit. 5,670,922, Cl. 335-35.000.

Monteil, Thierry: See—
Plaquevent, Jean-Christophe; Danvy, Denis; Monteil, Thierry; Greciet, HÉNE; Duhamel, Lucette; Duhamel, Pierre; Gros, Claude; Schwartz, Jean-Charles; and Lecomte, Jeanne-Marie, 5,670,531, Cl. 514-397.000.

Montmayeul, Brigitte: See—
Ida, Michel; and Montmayeul, Brigitte, 5,669,800, Cl. 445-25.000.

Mooberry, Jared Ben: See—
Poslusny, Jerrold Neal; Anderson, Lawrence G.; Mooberry, Jared Ben; Slusarek, Wojciech Kazimierz; and Wu, Zheng Zi, 5,670,306, Cl. 430-544.000.

Moody, John R., to James River Corporation of Virginia. Apparatus for supporting coreless rolls in toilet tissue dispenser. 5,669,576, Cl. 242-560.300.

Moody, Paul E.; McCarthy, James M.; Langmack, Dennis J., deceased (by Susan Langmack, administratrix); and Chester, Mark V., to United States of America, Navy. Cable connector assembly. 5,669,776, Cl. 439-138.000.

Moon, Chang-youl, to Samsung Electronics Co., Ltd. Semiconductor wafer pre-aligning apparatus. 5,669,752, Cl. 414-783.000.

Moon, Nam-Soo: See—
Lee, Young; and Moon, Nam-Soo, 5,671,292, Cl. 382-218.000.

Moon, Seong Hak, to LG Electronics Inc. Image projector. 5,669,686, Cl. 353-98.000.

Moore, Charles C.: See—
Zombo, Paul J.; Guenther, Paul; Moore, Charles C.; and Metala, Michael J., 5,670,879, Cl. 324-227.000.

Moore, David G.: See—
Cichon, Ralph J.; Moore, David G.; and Walters, Peter J., 5,669,530, Cl. 222-153.090.

Moore, Malcolm A. S.: See—
Welte, Karl; Platzer, Erich; Gabrilove, Janice L.; Mertelism, Roland; and Moore, Malcolm A. S., 5,670,146, Cl. 424-85.100.

Moore, Stephen Raymond: See—
Cain, Frederick William; Quinlan, Paul Thomas; and Moore, Stephen Raymond, 5,670,348, Cl. 435-134.000.

Moorehouse, Cris S.: See—
Monnier, John R.; and Moorehouse, Cris S., 5,670,672, Cl. 549-507.000.

Morancais, Jean-Luc; Lety, Alain; and Vanlerbergue, Guy, to L'Oreal. Process for preparing submicron particles in the presence of lipid vesicles, and corresponding compositions. 5,670,099, Cl. 264-4.300.

Morduch, Georg E.; and Lynn, Joe J., to Microlog Corporation. Methods for communicating with a telecommunications device for the deaf. 5,670,957, Cl. 341-91.000.

More, Georgina: See—
Thomas, George; Fernandez, José Maria; and More, Georgina, 5,670,266, Cl. 429-3.000.

Moreau, Jacques; and Perrin, Jean, to Essilor International Compagnie Generale d'Optique. Preform for attaching a holding member to an optical lens, and method of using it. 5,669,807, Cl. 451-460.000.

Morena, John: See—
Powell, James R.; Danby, Gordon T.; and Morena, John, 5,669,310, Cl. 104-281.000.

Morera, Daniel: See—
Servilio, Mark L.; Maroun, Carla J.; Morera, Daniel; and Powell, Clinton C., II, 5,670,951, Cl. 340-825.440.

Moreton, David J.: See—
Barr, Douglas McP.; Moreton, David J.; and Psaila, Alexander F., 5,670,462, Cl. 508-291.000.

Morgan, David P., to Advanced SAW Products SA. Multi-track SAW filter with reflectors and reversed polarity IDT connections. 5,670,920, Cl. 333-195.000.

Morgan, Don E. Safety enhanced motorcycle helmet. 5,669,079, Cl. 241-4.000.

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Montague, Wade A.; Whiton, John H.; Hart, Marshall B.; Morgan, Roger J.; and Arnold, David, 5,670,922, Cl. 335-35.000.

Mori, Hidehito: See—
Ina, Hiroyuki; and Mori, Hidehito, 5,670,934, Cl. 340-426.000.

Mori, Mutsuhiro; Tanaka, Tomoyuki; Yasuda, Yasumichi; and Nakano, Yasunori, to Hitachi, Ltd. Vertical insulated gate semiconductor device having high current density and high reliability. 5,670,811, Cl. 257-341.000.

Mori, Takashi: See—
Mashima, Kiyoto; Mori, Takashi; and Tanitsu, Osamu, 5,669,708, Cl. 362-341.000.

Mori, Toshihiko: See—
Nakao, Hiroshi; and Mori, Toshihiko, 5,670,800, Cl. 257-190.000.

Moribe, Shunji: See—
Miura, Hideo; Moribe, Shunji; Kato, Hisayuki; Koike, Atsuyoshi; Ikeda, Shuji; and Nishimura, Asao, 5,670,793, Cl. 257-64.000.

Moriguchi, Akisada; Yumoto, Osamu; Hata, Masaharu; Saito, Hironori; and Azumaguchi, Teruhisa, to Hitachi, Ltd. Low-constant voltage supply circuit. 5,670,868, Cl. 323-313.000.

Morikawa, Sumio; Ohga, Toshiji; and Kondoh, Masahiro, to Ohyodo Diesel Co., Ltd. Scissors type steel shearing apparatus with vertically displaced and angularly tilted shearing zones and transversely displaced interlocking portions. 5,669,141, Cl. 30-134.000.

Morikawa, Takashi: See—

- Akashi, Ryojiro; Niomiya, Masamobu; Uematsu, Takashi; and Morikawa, Takashi, 5,670,083, Cl. 252-299.010.
- Akashi, Ryojiro; Morikawa, Takashi; Niomiya, Masamobu; and Uematsu, Takashi, 5,671,211, Cl. 369-275.100.
- Morikawa, Takeshi; and Inui, Kazuo, to Minolta Co., Ltd. Image forming apparatus capable of forming a plurality of images from different originals on a single copy sheet. 5,671,463, Cl. 399-86.000.
- Morimoto, Akihiro: See—
- Nishino, Koji; Ikeda, Nobukazu; Morimoto, Akihiro; Minami, Yukio; Kawada, Koji; Dohi, Ryosuke; and Fukuda, Hiroyuki, 5,669,408, Cl. 137-487.500.
- Morimoto, Jotaro: See—
- Kobori, Shigeji; Morimoto, Jotaro; and Hatakeyama, Yuji, 5,669,968, Cl. 106-696.000.
- Morinaga, Hidehiko: See—
- Tamura, Masaaki; Fujii, Ayako; Kobari, Yoshiko; Nagano, Mamoru; Watanabe, Kiyoshi; Morinaga, Hidehiko; Koyama, Shigeki; and Sawada, Yoshikazu, 5,671,346, Cl. 395-171.000.
- Morishima, Kouji: See—
- Tera, Yoshiko; Morishima, Kouji; and Sakai, Atsushi, 5,670,921, Cl. 333-195.000.
- Morishita, Tatsuo: See—
- Isoe, Youichi; and Morishita, Tatsuo, 5,671,019, Cl. 348-565.000.
- Morita, Kenji: See—
- Niwa, Nobuyuki; Yokota, Yasuhiro; Shiraga, Shinji; Kikuchi, Tomoaki; Miura, Hiroya; and Morita, Kenji, 5,671,366, Cl. 395-281.000.
- Morita, Toshikazu, to Nohmi Bosai Ltd. Fire detecting apparatus. 5,671,159, Cl. 364-550.000.
- Moriwaki, Shinichi: See—
- Tomita, Atsushi; Kimura, Koichi; and Moriwaki, Shinichi, 5,670,961, Cl. 342-36.000.
- Moriya, Mitsuru: See—
- Yamaguchi, Osamu; Moriya, Mitsuru; Yamaguchi, Hiroyuki; Kanda, Yoshihiro; and Ishibashi, Hiromichi, 5,671,200, Cl. 369-44.280.
- Moriyasu, Takashi: See—
- Muranaga, Tetsuro; and Moriyasu, Takashi, 5,671,428, Cl. 395-772.000.
- Morizumi, Yoshiaki, to Dainippon Screen Manufacturing Co., Ltd. Internal drum scanning type image recording apparatus. 5,671,004, Cl. 347-259.000.
- Morohoshi, Gouichi: See—
- Naruse, Yasuhiro; Kamitani, Kiyoshi; Uesugi, Akio; Kakei, Tsutomu; and Morohoshi, Gouichi, 5,670,293, Cl. 430-165.000.
- Moroto, Shuzo; Taniguchi, Takao; Miyagawa, Shoichi; Sakakibara, Shiro; Tsukamoto, Kazumasa; Inuzuka, Takeshi; and Hattori, Masashi, to Aisin AW Co., Ltd. Continuously variable transmission with control of switching between a high mode and a low mode. 5,669,846, Cl. 475-211.000.
- Morr, Michael: See—
- Müller, Egbert; Hemberger, Jürgen; and Morr, Michael, 5,670,049, Cl. 210-635.000.
- Morris, Angela D.: See—
- Cordi, Alex; Desos, Patrice; Morris, Angela D.; and Atassi, Ghanem, 5,670,493, Cl. 514-80.000.
- Morris, G. Gilbert, to Original Shinny Rink Incorporated. Portable skating rink. 5,669,227, Cl. 62-235.000.
- Morris, Keith S.: See—
- Matkovich, Vlado J.; Gsell, Thomas C.; Bormann, Thomas J.; Pascale, Frank R.; and Morris, Keith S., 5,670,060, Cl. 210-767.000.
- Morris, Michael D.; and Zumbach, Lyle L., to Norand Corporation. Versatile RF data capture system. 5,671,436, Cl. 395-800.000.
- Morris, Robert Leonard, to General Motors Corporation. Active driveline damping. 5,669,354, Cl. 123-419.000.
- Morton, Frank S. S.; Duque, Pilar P.; Chiprich, Timothy B.; and Stroud, Norman S., to R.P. Scherer Corporation. Fragrance-containing cosmetic gelatin capsule. 5,670,159, Cl. 424-401.000.
- Morton International, Inc.: See—
- Barnes, Michael W.; Taylor, Robert D.; Hock, Christopher; Jordan, Michael P.; Cox, Matthew A.; and Ward, Alan J., 5,670,740, Cl. 149-62.000.
- Clark, Marcus T.; Schroeder, David D.; Parkinson, David W.; Johnson, Kelly B.; and Marchant, Brent R., 5,670,720, Cl. 73-730.000.
- Johnson, Darrin L.; and Pierotti, L. John, 5,669,631, Cl. 280-741.000.
- Johnson, David B.; Sabin, John L.; and Okelberry, Scott B., 5,669,632, Cl. 280-743.200.
- Kaufmann, James R.; and Rasmusson, Kirk H., 5,669,628, Cl. 280-739.000.
- Maly, Timothy M., 5,669,662, Cl. 297-216.130.
- Marijanski, George C.; Saderholm, Dawn C.; Paxton, Donald J.; Spilker, David L.; and Beesley, Brent R., 5,669,627, Cl. 280-728.300.
- Rink, Karl K., 5,669,629, Cl. 280-741.000.
- Storey, J. Kirk; and Olson, Brent K., 5,670,738, Cl. 102-530.000.
- Morton, Ronald N., Sr. Self activated keyboard illuminator and accessory. 5,669,694, Cl. 362-33.000.
- Moseley, Dale Jay; and Landers, Samuel Patrick, to Goodyear Tire & Rubber Company, The. Tire tread elements with built-in twist. 5,669,993, Cl. 152-209.000.
- Möseneder, Johann; and Weigartner, Rudolf, to C.A. Greiner & Söhne Gesellschaft m.b.H. Vehicle seat, in particular for aircraft. 5,669,799, Cl. 442-374.000.
- Moser, Thomas M.; Dolezalek, Charles R.; Jost, Michael B.; and Olson, Mark H., to Rosemount Inc. Mounting assembly for a pressure transmitter. 5,670,722, Cl. 73-756.000.
- Moser, Winfried: See—
- Denz, Helmut; Moser, Winfried; Höpfer, Wolfgang; Gross, Helmut; Klinke, Christian; Gerlings, Karl-Heinz; Grieser, Klemens; and Bortcher, Klaus, 5,669,357, Cl. 123-481.000.
- Mosig, Ernst, to Webasto Thermosysteme GmbH. Motor vehicle heating device with exhaust connection piece and baffle plate. 5,669,555, Cl. 237-12.30C.
- Moss, John N.: See—
- Galloway, George G.; and Moss, John N., 5,669,779, Cl. 439-188.000.
- Moss, William F.; and Knezevich, Tricia, to Union Camp Corporation. Display shelf assembly. 5,669,683, Cl. 312-259.000.
- Motoe, Katsuro: See—
- Negishi, Hideo; and Motoe, Katsuro, 5,669,298, Cl. 101-119.000.
- Motohashi, Shunji: See—
- Ito, Masanobu; Motohashi, Shunji; and Higuchi, Yoshinari, 5,671,014, Cl. 348-239.000.
- Motorola: See—
- Maracas, George N.; Dworsky, Lawrence N.; and Tobin, Kathleen, 5,669,303, Cl. 101-327.000.
- Motorola, Inc.: See—
- Blackwell, Steven R.; Pearson, John Timothy; and Fridlin, C. C., 5,671,251, Cl. 375-222.000.
- Chen, Jerry, 5,671,111, Cl. 361-56.000.
- Chen, Lawrence F.; Flannagan, Stephen T.; Chang, Ray; and Raatz, Donovan L., 5,670,815, Cl. 257-386.000.
- Clark, Joseph Lynn; Brown, Kevin Gordon; Budlong, Allan Arthur; and Stripling, Jeff Ricks, 5,671,256, Cl. 375-342.000.
- Huang, Wen-Ling Margaret; Shin, Hyungcheol; and Racanelli, Marco, 5,670,389, Cl. 437-21.000.
- Humblet, Pierre A.; Hlucnyj, Michael G.; Lee, Whay Chiou; and Constantin, Robert, 5,671,357, Cl. 395-200.110.
- Lambson, Charles T.; and Sanders, Paul W., 5,670,417, Cl. 437-162.000.
- Painter, Paige M.; and Holmes, Martin E., 5,669,485, Cl. 200-308.000.
- Servilio, Mark L.; Maroun, Carla J.; Morera, Daniel; and Powell, Clinton C., II, 5,670,951, Cl. 340-825.440.
- Shachar, Boaz; Nahum, Rozen; Yoram, Yeivin; and Weitz, Eliezer, 5,671,223, Cl. 370-395.000.
- Shieh, Chan-Long; Ackley, Donald E.; Maracas, George N.; and Harvey, Thomas B., III, 5,671,303, Cl. 385-12.000.
- Souissi, Slim; and Gehman, John B., 5,671,247, Cl. 375-200.000.
- Stockstad, Troy L.; Bacchi, Matthew F.; and Brown, Martin J., 5,671,375, Cl. 395-309.000.
- Sun, Shih-Wei, 5,670,387, Cl. 437-21.000.
- Susak, David M., 5,670,829, Cl. 307-10.100.
- Thomas, George; Fernandez, José Maria; and More, Georgina, 5,670,266, Cl. 429-3.000.
- Ticey, Lester; Schneider, Peter; and Leonhardt, Jim, 5,669,598, Cl. 267-162.000.
- Viot, J. Greg, 5,671,332, Cl. 395-3.000.
- Wang, Michael Mao; Ling, Fuyun; and Stewart, Kenneth A., 5,671,255, Cl. 375-341.000.
- Zocher, Andrew Gerald, 5,670,912, Cl. 330-296.000.
- Motsch, Rudolf: See—
- Räuber, Ralf; and Motsch, Rudolf, 5,669,643, Cl. 294-1.100.
- Moulton, Russell D.: See—
- Cheu, S. Scot; and Moulton, Russell D., 5,670,272, Cl. 429-162.000.
- Mower, Morris F., to Axia Incorporated. Mastic applicator. 5,670,182, Cl. 425-87.000.
- MPM Corporation: See—
- Balog, Robert J.; and Prince, David P., 5,669,970, Cl. 118-213.000.
- MSX International Engineering Services, Inc.: See—
- Eilers, Gregory L.; Fulkerson, Gary E.; and Christopherson, Sven A., 5,669,654, Cl. 296-26.000.
- MTU Motoren-und Turbinen-Union Friedrichshafen GmbH: See—
- Schönfeld, Dieter; Bächle, Bernhard; Freitag, Martin; and Guth, Torsten, 5,669,334, Cl. 123-25.000.
- Muehl, Brian S.: See—
- Cho, Sung Y.; Crowell, Thomas A.; Gitter, Bruce D.; Hipskind, Philip A.; Howbert, J. Jeffrey; Krushinski, Joseph H., Jr.; Lobb, Karen L.; Muehl, Brian S.; and Nixon, James A., 5,670,499, Cl. 514-231.500.
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- Mueller, Berthold: See—
- Stahlecker, Werner; and Mueller, Berthold, 5,670,002, Cl. 156-216.000.
- Mueller, Klaus; Heugle, Bernhard; Herzog, Kurt; Oehler, Martin; Hohl, Günther; and Herderich, Hans-Jürgen, to Robert Bosch GmbH. Electromagnetically actuated valve for slip-controlled hydraulic brake systems in motor vehicles. 5,669,675, Cl. 303-119.200.
- Mueller, Marcel: See—
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- Mueller, Richard A.: See—
- Nugent, Sean T.; and Mueller, Richard A., 5,670,650, Cl. 548-491.000.
- Mueller-Fleckenstein, Ingrid: See—
- Biesinger-Zwosta, Brigitte; Mueller-Fleckenstein, Ingrid; and Fleckenstein, Bernhard W., 5,670,352, Cl. 435-172.300.
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- Müller, Robert; Mühlberger, Uwe; and Wüst, Bernhard, 5,670,835, Cl. 310-58.000.
- Muir, Robert C., III. Rolling chair frame. 5,669,324, Cl. 114-194.000.

- Mulgrew, Paul Patrick: See—
- Lin, Cheng-yih; and Mulgrew, Paul Patrick, 5,670,062, Cl. 216-108.000.
- Müller, Dieter: See—
- Kunze, Norbert; Müller, Dieter; and Gielkens, Marc, 5,669,570, Cl. 242-356.400.
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- Müller, Rolf, to Riverwood International Corporation. Carton activating mechanism. 5,669,203, Cl. 53-398.000.
- Mullins, Michael J.: See—
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- Munroe, Scott C.: See—
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- O'Donoghue, Geoff; and Munroe, Scott C., 5,670,883, Cl. 324-537.000.
- Muraco, John M.: See—
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- Murakami, Hiroshi: See—
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- Murakami, Kanako: See—
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- Murakami, Kazuo; Ueno, Naoto; and Kato, Yukio, to Takeda Chem. Ind. Ltd.; and Chichibu Onoda Cement Corp. DNA encoding bone morphogenetic proteins, host cells transformed there by, and uses thereof. 5,670,338, Cl. 435-69.100.
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- Murakami, Tokumichi; Matsuzaki, Kazuhiro; Kato, Yoshiaki; and Ohira, Hideo, to Mitsubishi Denki Kabushiki Kaisha. Multimedia information processing system. 5,671,226, Cl. 370-474.000.
- Muramatsu, Gyo: See—
- Yoshida, Kiyohide; Muramatsu, Gyo; Abe, Akira; and Irite, Naoko, 5,670,444, Cl. 502-331.000.
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- Murano, Shunji, to Kyocera Corporation. Print head with multiplexed resistances controlling supply of current to image blocks. 5,671,002, Cl. 347-237.000.
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- Murata Manufacturing Co., Ltd.: See—
- Gamo, Masao, 5,670,919, Cl. 333-189.000.
- Nagano, Koichi; Uno, Atsushi; Baba, Toshiyuki; Shimura, Takashi; and Oyama, Yuusei, 5,669,126, Cl. 29-25.350.
- Murata, Shigemitsu: See—
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- Murdoch, Joseph K.: See—
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- Murray Corporation: See—
- Fay, Robert F., 5,669,113, Cl. 24-20.0CW.
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- Murray, Robert R.; Fraczek, Stephen P.; and Jackson, Dale H., to Heidelberger Druckmaschinen AG. Method for cooling a web. 5,669,158, Cl. 34-393.000.
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- Muto, Yukiyo: See—
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- Mycogen Corporation: See—
- Feitelson, Jerald S., 5,670,365, Cl. 435-252.300.
- Mycogen Plant Science, Inc.: See—
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- Na, Hong C. Greeting card and ornament. 5,670,219, Cl. 428-8.000.
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Nagata, Yoshishige; and Takahira, Kenichi, to Mitsubishi Denki Kabushiki Kaisha. Modulation, demodulation and antenna coupling circuits used in IC card reading/writing apparatus, and method of supplying power to the IC card, 5,671,254, Cl. 375-326.000.

Nagayama, Kuniaki: See—
Yoshimura, Hideyuki; and Nagayama, Kuniaki, 5,670,624, Cl. 530-350.000.

Nagoshi, Koichi: See—
Negishi, Ryuichi; Sekiguchi, Kiyonori; Nagoshi, Koichi; Saza, Hiroshi; and Honda, Kiyohiko, 5,671,067, Cl. 358-403.000.

Nagoshi, Shigeyasu: See—
Hirabayashi, Hiromitsu; Nagoshi, Shigeyasu; Koitabashi, Noribumi; Sugimoto, Hitoshi; Fujita, Miyuki; Gotoh, Fumihiro; and Uetsuki, Masaya, 5,671,000, Cl. 347-86.000.

Sugimoto, Hitoshi; Hirabayashi, Hiromitsu; Nagoshi, Shigeyasu; Koitabashi, Noribumi; Matsubara, Miyuki; Gotoh, Fumihiro; and Uetsuki, Masaya, 5,670,997, Cl. 347-30.000.

Naguib, Fardos N. M.: See—
el Kouni, Mahmoud H.; and Naguib, Fardos N. M., 5,670,331, Cl. 435-15.000.

Nagura, Michinaga; and Kishigami, Tomohisa, to Nippondenso Co., Ltd. Antenna reflector, 5,670,959, Cl. 342-6.000.

Nagy, Daniel Andrew: See—
Hammoud, Michael Wajih; Nagy, Daniel Andrew; and Paterson, Chris-Ann, 5,669,679, Cl. 303-165.000.

Nahata, Ajay: See—
Wu, Chengjiu; Shan, Jianhui; and Nahata, Ajay, 5,670,603, Cl. 528-190.000.

NahoSystems L.L.C.: See—
Bacon, Edward R.; Daum, Sol J.; and Estep, Kimberly G., 5,670,136, Cl. 424-9.455.

Nahum, Rozen: See—
Shachar, Boaz; Nahum, Rozen; Yoran, Yeivin; and Weitz, Eliezer, 5,671,223, Cl. 370-395.000.

Naito, Ryuichi: See—
Yokota, Hiroshi; Naito, Ryuichi; Hirano, Hiroyuki; Ishii, Katsumi; Naohara, Shinichi; Tsukada, Yoshifumi; and Matsumoto, Kanya, 5,671,201, Cl. 369-50.000.

Najewicz, David Joseph: See—
Jaster, Heinz; and Najewicz, David Joseph, 5,669,222, Cl. 62-156.000.

Naka, Shigeru; Suzuki, Satoshi; and Ono, Akihito, to Whitaker Corporation. The Electrical connector, 5,669,792, Cl. 439-825.000.

Nakada, Kazuhiko; Yoshimatsu, Noriko; Ichinohe, Shoji; and Yamazaki, Toshio, to Menicon Co., Ltd. Low water-absorptive ocular lens material, low water-absorptive ocular lens shaped product made thereof, low water-absorptive ocular lens made thereof and process for its production, 5,670,594, Cl. 526-279.000.

Nakagawa, Etsuo: See—
Miyazawa, Kazutoshi; Matsui, Shuichi; Goto, Yasuyuki; Nakagawa, Etsuo; and Sawada, Shinichi, 5,670,885, Cl. 252-299.010.

Nakagawa, Shiro: See—
Namba, Kenryo; Kuroiwa, Akihiko; and Nakagawa, Shiro, 5,670,295, Cl. 430-270.210.

Nakagawa, Yutaka; Kajiwaru, Tadashi; Fukuzawa, Keiji; and Yuzawa, Keiji, to Sony Corporation. Satellite broadcast receiving system and change-over divider for use in same, 5,670,902, Cl. 327-99.000.

Nakagoshi, Kazuo: See—
Mitsuoka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yukuo; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126.000.

Nakai, Hiroshi: See—
Ueyama, Tomoyuki; Harada, Shoji; Nakamata, Toshiaki; Shibata, Masuo; Doi, Toshimitsu; Ogawa, Shunichi; Matsumoto, Ichiro; and Nakai, Hiroshi, 5,670,071, Cl. 219-130.510.

Nakai, Izuru; Okada, Toshiharu; and Uesugi, Yuji, to Matsushita Electric Industrial Co., Ltd. Laser processing method, 5,670,069, Cl. 219-121.730.

Nakajima, Ken: See—
Nishiwaki, Kazuhiko; and Nakajima, Ken, 5,671,023, Cl. 348-675.000.

Sasaki, Kenichi; Saito, Takayuki; Nakajima, Ken; and Imai, Mitsuru, 5,670,094, Cl. 261-27.000.

Nakajima, Masayoshi, to Ishida Co., Ltd. Weighing conveyor, 5,670,752, Cl. 177-145.000.

Nakajima, Noriaki; Hasegawa, Hiroshi; and Goto, Tetsuro, to Nikon Corporation. Tilt sensor, 5,669,147, Cl. 33-334.000.

Nakajima, Shuichi: See—
Ito, Nobutaka; Murakami, Kanako; and Nakajima, Shuichi, 5,671,167, Cl. 364-578.000.

Nakajima, Tomohiro: See—
Imakawa, Susumu; Yamaguchi, Katsumi; Hino, Makoto; Michie, Norio; and Nakajima, Tomohiro, 5,671,077, Cl. 359-204.000.

Nakamata, Toshiaki: See—
Ueyama, Tomoyuki; Harada, Shoji; Nakamata, Toshiaki; Shibata, Masuo; Doi, Toshimitsu; Ogawa, Shunichi; Matsumoto, Ichiro; and Nakai, Hiroshi, 5,670,071, Cl. 219-130.510.

Nakamichi, Kousaku; Miura, Kazunori; and Inaba, Shoichi, to Kabushiki Kaisha Bandai. Molding apparatus having a molding cavity divided by an elastic member, 5,670,184, Cl. 425-130.000.

Nakamura, Akira, to Sony Corporation. Zoom lens having a light weight and temperature independent fourth lens group, 5,671,062, Cl. 359-687.000.

Nakamura, Haruhiko: See—
Christman, Michael F.; Gray, Joe W.; Levin, Nikki A.; Brzoska, Pius; and Nakamura, Haruhiko, 5,670,314, Cl. 435-6.000.

Nakamura, Hiromu: See—
Nagasaka, Yasushi; Nakamura, Hiromu; and Ono, Satoru, 5,671,079, Cl. 359-205.000.

Nakamura, Joji: See—
Suzuki, Fumio; Shimada, Junichi; Koike, Nobuaki; Kase, Hiroshi; Nakamura, Joji; Shiozaki, Shizuo; and Nonaka, Hiromi, 5,670,498, Cl. 514-212.000.

Nakamura, Kiyotada: See—
Yasuda, Yukio; and Nakamura, Kiyotada, 5,670,844, Cl. 313-636.000.

Nakamura, Kozo; Ban, Mariko; Kimura, Naofumi; and Haneda, Akio, to Sharp Kabushiki Kaisha; and Toppan Printing Co., Ltd. Reflection type liquid crystal display device and personal digital equipment using the same, 5,671,031, Cl. 349-106.000.

Nakamura, Mitsuru: See—
Ohbayashi, Kazumi; Yamashita, Susumu; Ito, Masami; Matsuda, Kenji; Watabe, Shin; and Nakamura, Mitsuru, 5,669,229, Cl. 62-259.100.

Nakamura, Nobutaka; and Kinoshita, Ryoichi, to Seiko Instruments, Inc. Humidity control thermal analyzer, 5,669,554, Cl. 236-44.000.

Nakamura, Toshiaki; Nagase, Haruo; and Shinbori, Hiroichi, to Matsushita Electric Works, Ltd. Power supply apparatus, 5,671,128, Cl. 363-16.000.

Nakano, Hirofumi, to Mitsubishi Denki Kabushiki Kaisha. Heterojunction bipolar transistor, 5,670,801, Cl. 257-198.000.

Nakano, Hiroyuki: See—
Ogawa, Tohru; and Nakano, Hiroyuki, 5,670,297, Cl. 430-318.000.

Tomooka, Keiji; Sakakida, Naohiro; Nishimura, Shin; Ashi, Yoshihiro; Matsuda, Hironari; Aoki, Satoshi; Nakano, Yukio; Takatori, Masahiro; Kazawa, Toru; Sasaki, Shinya; Takeyari, Kyoji; and Nakano, Hiroyuki, 5,671,074, Cl. 359-163.000.

Nakano, Motoo: See—
Iwai, Takashi; and Nakano, Motoo, 5,670,885, Cl. 324-550.000.

Nakano, Yasunori: See—
Mori, Mutsuhiro; Tanaka, Tomoyuki; Yasuda, Yasumichi; and Nakano, Yasunori, 5,670,811, Cl. 257-341.000.

Nakano, Yukio: See—
Tomooka, Keiji; Sakakida, Naohiro; Nishimura, Shin; Ashi, Yoshihiro; Matsuda, Hironari; Aoki, Satoshi; Nakano, Yukio; Takatori, Masahiro; Kazawa, Toru; Sasaki, Shinya; Takeyari, Kyoji; and Nakano, Hiroyuki, 5,671,074, Cl. 359-163.000.

Nakao, Eiichi: See—
Katsumata, Yoshikazu; Mizoguchi, Yoshihiro; Ijima, Yoshiaki; Kamioka, Makoto; Ejima, Yoshinori; Kishiyama, Nobuo; Noda, Yutaka; and Nakao, Eiichi, 5,671,467, Cl. 399-164.000.

Nakao, Hiroshi; and Mori, Toshihiko, to Fujitsu Limited. Semiconductor device and method for fabricating the same, 5,670,800, Cl. 257-190.000.

Nakao, Toshio, to Sony Corporation. Luminance correction apparatus for image signals, 5,671,013, Cl. 348-234.000.

Nakao, Yasuhiro; and Sugaya, Kunitoshi, to Honda Giken Kogyo Kabushiki Kaisha. Method and apparatus for forming an aluminum alloy composite material, 5,669,434, Cl. 164-97.000.

Nakaoka, Hiroaki: See—
Tamaki, Tokuhiko; Sugiyama, Tatsuo; and Nakaoka, Hiroaki, 5,670,810, Cl. 257-331.000.

Nakata, Naotaro: See—
Tanaka, Haruo; and Nakata, Naotaro, 5,671,305, Cl. 385-33.000.

Nakata, Yoshinori, to Fanuc Ltd. Laser beam machine using optical component to modify laser beam as desired, 5,670,064, Cl. 219-121.600.

Nakatani, Munehiro: See—
Ikenoue, Yoshikazu; Kumashiro, Hideo; and Nakatani, Munehiro, 5,671,277, Cl. 380-7.000.

Nakatsu, Kouichi: See—
Ito, Tsutomu; Hirosawa, Toshio; Ueoka, Atsushi; Kokunishi, Motohide; Yamagishi, Tadashi; and Nakatsu, Kouichi, 5,671,354, Cl. 395-187.010.

Nakatsukasa, Walter M.: See—
Mynderse, Jon S.; Mabe, James A.; Turner, Jan R.; Huber, Mary L. B.; Broughton, Mary C.; Nakatsukasa, Walter M.; Creemer, Lawrence; Kirst, Herbert A.; and Martin, James W., 5,670,364, Cl. 435-252.100.

Mynderse, Jon S.; Mabe, James A.; Turner, Jan R.; Huber, Mary L. B.; Broughton, Mary C.; Nakatsukasa, Walter M.; Creemer, Lawrence; Kirst, Herbert A.; and Martin, James W., 5,670,486, Cl. 514-28.000.

Nakaya, Yoshimasa: See—
Shirai, Kazunari; Miyano, Hidemasa; Kamio, Shigeru; and Nakaya, Yoshimasa, 5,669,351, Cl. 123-339.210.

Shirai, Kazunari; Miyano, Hidemasa; Kamio, Shigeru; and Nakaya, Yoshimasa, 5,669,353, Cl. 123-339.000.

Nakazawa, Shin: See—
Iizuka, Yukinori; Horigome, Hidekazu; Murayama, Akira; and Nakazawa, Shin, 5,671,154, Cl. 364-507.000.

Nalco Chemical Company: See—
Yu, F. Philip; and McCoy, William F., 5,670,055, Cl. 210-698.000.

Namba, Kenryo; Kuroiwa, Akihiko; and Nakagawa, Shiro. Optical recording medium, 5,670,295, Cl. 430-270.210.

Naohara, Shinichi: See—
Yokota, Hiroshi; Naito, Ryuichi; Hirano, Hiroyuki; Ishii, Katsumi; Naohara, Shinichi; Tsukada, Yoshifumi; and Matsumoto, Kanya, 5,671,201, Cl. 369-50.000.

Narimatsu, Katsumi: See—
Araki, Dai; and Narimatsu, Katsumi, 5,671,338, Cl. 395-51.000.

Narishige, Shinji: See—
Mitsuoka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yukuo; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126.000.

Naruse, Yasuhiro; Kamitani, Kiyoshi; Uesugi, Akio; Kakei, Tsutomu; and Morohoshi, Gouichi, to Fuji Photo Film Co., Ltd. Lead-frame forming material, 5,670,293, Cl. 430-165.000.

Naseem, Homaira K.: See—
Gingue, Robert N.; Glew, Charles A.; Sansone, Anthony E.; and Naseem, Homaira K., 5,670,748, Cl. 174-120.00R.

Nash, Kevin D.: See—
Wright, James P.; Bates, Timothy L.; Nash, Kevin D.; Roberts, Barry Lynn; and Davenport, John, 5,669,672, Cl. 301-37.370.

Nastasi, Thomas, Jr.: See—
Colasanto, Thomas; and Nastasi, Thomas, Jr., 5,669,194, Cl. 52-236.800.

Nasu, Takashi; and Sakamoto, Tadashi, to Mitsubishi Denki Kabushiki Kaisha. Method of evaluating a data processing rate using simulation, 5,671,402, Cl. 395-568.000.

Nathoo, Nazim Safarali; Brownson, Thomas Fairchild; and Bass, Ronald Marshall, to Shell Oil Company. Process to prepare foams from high internal phase emulsions, 5,670,101, Cl. 264-45.800.

National Science Council: See—
Chen, Mao-Chieh; Yeh, Wen-Kuan; Wang, Pei-Jan; and Liu, Lu-Min, 5,670,016, Cl. 156-637.100.

Fang, Y. K.; and Hwang, J. D., 5,670,414, Cl. 437-100.000.

Wang, Hui-Po; and Bai, Tung-Shing, 5,670,508, Cl. 514-272.000.

National Science Council of R.O.C.: See—
Chen, Kim-Joan; and Chang, Ching-Long, 5,671,238, Cl. 371-37.600.

National Starch and Chemical Investment Holding Corporation: See—
Liedermoo, Ingrid; Stauffer, Daniel C.; and Puetti, Paul P., 5,670,566, Cl. 524-271.000.

Natsumi, Hideko: See—
Natsumi, Yoshio; and Natsumi, Hideko, 5,669,290, Cl. 99-421.00H.

Natsumi, Yoshio; and Natsumi, Hideko. Revolving spit-grilling apparatus, 5,669,290, Cl. 99-421.00H.

Nauenburg, Klaus: See—
Bickmann, Hermann; Nauenburg, Klaus; and Weichert, Juergen, 5,670,065, Cl. 219-121.430.

Nawrocki, Werner C. Process for obtaining ultrapure egg oil and its use, 5,670,175, Cl. 424-581.000.

Nazareus, Robert: See—
Watts, Michael; Nazareus, Robert; Lane, Kathleen; Leung, Fai-To; and Steinhauer, Alan, 5,671,411, Cl. 395-615.000.

NCR Corporation: See—
Goeppel, Anton, 5,671,384, Cl. 395-402.000.

Knotts, Brian W., 5,671,391, Cl. 395-470.000.

Ma, Ming, 5,669,578, Cl. 242-613.500.

NEC Corporation: See—
Akiyama, Yutaka, 5,671,395, Cl. 395-500.000.

Ezuriko, Hiroshi, 5,671,275, Cl. 380-4.000.

Hatazaki, Kaichiro, 5,671,329, Cl. 395-2.620.

Hori, Tsuguo; and Inahashi, Atsushi, 5,670,911, Cl. 330-277.000.

Ishida, Hideo, 5,671,022, Cl. 348-659.000.

Iwata, Hiroshi, 5,670,789, Cl. 257-13.000.

Kato, Fumihiko, 5,670,910, Cl. 330-253.000.

Katsuta, Hiroshi, 5,671,394, Cl. 395-491.000.

Kitamura, Yoshihiro, 5,670,785, Cl. 250-423.00R.

Koike, Hiroki; and Kimura, Tohru, 5,671,174, Cl. 365-145.000.

Koike, Tsuneo, 5,670,802, Cl. 257-207.000.

Kurano, Takatoshi, 5,671,213, Cl. 370-218.000.

Mitsuda, Tsuyoshi, 5,670,867, Cl. 323-312.000.

Mizuno, Masayuki, 5,670,903, Cl. 327-158.000.

Nagashima, Noriaki, 5,671,228, Cl. 371-5.100.

Ohba, Masataka; and Sano, Yoshio, 5,670,974, Cl. 345-60.000.

Okamura, Hitoshi, 5,670,893, Cl. 326-18.000.

Otsuka, Kiyokazu, 5,670,950, Cl. 340-825.330.

Saitoh, Kenji, 5,670,809, Cl. 257-316.000.

Shida, Yoshio, 5,669,125, Cl. 29-25.350.

Suematsu, Hiroshi, 5,671,425, Cl. 395-759.000.

Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, 5,670,458, Cl. 505-125.000.

Tanaka, Hironao, 5,671,214, Cl. 370-218.000.

Tonomura, Fumio, 5,671,220, Cl. 370-281.000.

Ueda, Hiroaki, 5,671,319, Cl. 386-96.000.

Umez, Keiichi, 5,670,918, Cl. 333-33.000.

Utsugi, Koji; and Ikeda, Naoyasu, 5,670,792, Cl. 257-59.000.

Yamamichi, Shintaro; and Miyasaka, Yoichi, 5,670,408, Cl. 437-60.000.

NEC System Integration & Construction, Ltd.: See—
Oyashiki, Masahiko; Nishiguchi, Ryosuke; and Kawamura, Hidenori, 5,671,012, Cl. 348-211.000.

Nedwick, Paul: See—
Taylor, Thomas J.; and Nedwick, Paul, 5,670,585, Cl. 525-508.000.

Needham, Bradford: See—
Millier, Marshall A.; Harrison, Edward R.; and Needham, Bradford, 5,671,342, Cl. 395-118.000.

Needham, Christopher R., to Polaroid Corporation. Process for forming solid state imager with microlenses, 5,670,384, Cl. 437-3.000.

Neely, Jerry S.; and Neely, Richard D. Method and composition for enhancing hydrocarbon production from wells, 5,670,460, Cl. 507-203.000.

Neely, Richard D.: See—
Neely, Jerry S.; and Neely, Richard D., 5,670,460, Cl. 507-203.000.

Nees, Siegfried: See—
Frieze, Karl-Hermann; Weyl, Helmut; Nees, Siegfried; and Wiedenmann, Hans-Martin, 5,670,032, Cl. 204-424.000.

NEPCO, Inc.: See—
Schaller, Earle, 5,670,045, Cl. 210-540.000.

Negishi, Hideo; and Motoe, Katsuro, to Riso Kagaku Corporation. Stencil printer having ink leakage preventing construction, 5,669,298, Cl. 101-119.000.

Negishi, Kiyoshi; Kawamura, Katsumi; Suzuki, Katsuyoshi; Orita, Hiroshi; and Suzuki, Minoru, to Asahi Kogaku Kogyo Kabushiki Kaisha. Thermal printer with minimized power difference between sequentially driven blocks of printing elements, 5,669,720, Cl. 400-120.050.

Negishi, Ryuichi; Sekiguchi, Kiyonori; Nagoshi, Koichi; Saza, Hiroshi; and Honda, Kiyohiko, to Matsushita Graphic Communication Systems, Inc. Facsimile apparatus for optically recognizing characters and transmitting the recognized characters and communication system for transmitting the recognized characters between a terminal and a center, 5,671,067, Cl. 358-403.000.

Negishi, Takaaki: See—
Urano, Fumiyoshi; Fujie, Hiroto; Oono, Keiji; and Negishi, Takaaki, 5,670,299, Cl. 430-326.000.

Nehra, Samuel A., to Agri-Film, Inc. Aqueous nitrocellulose compositions, 5,670,141, Cl. 424-61.000.

Nelson Brothers, Inc.: See—
Patterson, William P.; and Self, David N., 5,670,739, Cl. 149-2.000.

Nemoto, Shigeru: See—
Yokouchi, Kentaro; Nemoto, Shigeru; and Iwata, Kazumi, 5,671,204, Cl. 369-60.000.

NeoPath, Inc.: See—
Wilhelm, Paul S.; and Lee, Shih-Jong J., 5,671,288, Cl. 382-128.000.

Neri, Armando; and Turra, Mario, to G.D. Societa' per Azioni. Method of bulk conveying cigarettes, 5,669,481, Cl. 198-347.300.

Neshan, Hamid: See—
Beard, Hoyt S.; Conrad, Lucas J.; Crook, J. Edward; Lovette, James E.; Johnson, Robert Calvin; Newton, Donald A.; and Neshan, Hamid, 5,669,397, Cl. 131-291.000.

Nestec Ltd.: See—
Trimbo, Susan; Madsen, David; and Rowe, W. Bruce, 5,670,157, Cl. 424-278.100.

Nestec S.A.: See—
Heck, Ernst; Mueller, Marcel; and Weber, Adrian, 5,670,185, Cl. 425-133.100.

Nesvadba, Peter; Evans, Samuel; Gande, Matthew E.; von Ahn, Volker H.; and Winter, Roland A. E., to Ciba-Geigy Corporation. 7-substituted quinone methides as inhibitors for unsaturated monomers, 5,670,692, Cl. 558-71.000.

Netscape Communications Corporation: See—
Elgamal, Taher, 5,671,279, Cl. 380-23.000.

Neubacher, Marc; Bock, Joachim; Lang, Christoph; Preisler, Eberhard; and Weis, Helga, to Hoechst Aktiengesellschaft. (Bi,Pb)SrCaCuO precursor material for the oxide powder in tube method (OPTT), 5,670,434, Cl. 501-123.000.

Neubauer, Alfred, to Magic Mold Corporation; and Leonard M. Brenner Associates, Inc. Pan gripper or the like, 5,669,647, Cl. 294-31.100.

Neubauer, Blake L.: See—
Audia, James E.; and Neubauer, Blake L., 5,670,514, Cl. 514-298.000.

Neubauer, Ronald Jay, to Unisys Corporation. Method for collapsing a version tree which depicts a history of system data and processes for an enterprise, 5,671,398, Cl. 395-500.000.

Neudecker, Donald: See—
Rubin, Stan Michael, 5,670,142, Cl. 414-78.050.

Neukom, Christian: See—
Switchenko, Arthur C.; Kurn, Nurith; Neukom, Christian; Pirio, Marcel; Berger, Donald E., Jr.; and Ullman, Edwin F., 5,670,690, Cl. 558-31.000.

New England Medical Center Hospitals, Inc.: See—
Garry, Brendan P.; and Woo, Peak, 5,669,380, Cl. 128-207.140.

New Oji Paper Co., Ltd.: See—
Yoshizawa, Katsuki; and Kunihiro, Akira, 5,670,226, Cl. 428-40.100.

New York State Office of Mental Health: See—
Richardson, Mary Ann, 5,670,539, Cl. 514-561.000.

Newell Operating Company: See—

- Bried, David K.; and Daniels, James, 5,670,221, Cl. 428-28.000.
Ruggles, Kay L., 5,670,008, Cl. 156-264.000.
Newman, Albert: See—
Gyure, Sander; Sweeney, Niall; and Newman, Albert, 5,669,889, Cl. 604-263.000.
Newman, Bruce D. Secure communication system, 5,671,285, Cl. 380-30.000.
Newman, Harry L., Jr. Removable neck sunshade for a cap, 5,669,074, Cl. 2-172.000.
Newman, Neil Frederick: See—
Chung, David Yen-Lung; and Newman, Neil Frederick, 5,670,582, Cl. 525-356.000.
Newman, Peter J.; and Aster, Richard H., to Blood Center Research Foundation. Polymorphism of human platelet membrane glycoprotein IIIa and diagnostic and therapeutic applications thereof, 5,670,337, Cl. 435-69.100.
Newman, Thomas H.; Klosin, Jerzy; and Nickias, Peter N., to Dow Chemical Company, The. Method for producing octahydrofluorenyl metal complexes, 5,670,680, Cl. 556-53.000.
Newton, Alan R. High ratio screw actuated press, 5,669,296, Cl. 100-99.000.
Newton, Donald A.: See—
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NeXstar Pharmaceuticals: See—
Adler-Moore, Jill P.; and Ernst, William A., 5,670,166, Cl. 424-450.000.
NeXstar Pharmaceuticals, Inc.: See—
Gold, Larry; and Tuerk, Craig, 5,670,437, Cl. 536-22.100.
Nezu, Hiroki: See—
Nishitani, Eisuke; Tsuzuku, Susumu; Kobayashi, Shigeru; Kasahara, Osamu; Nezu, Hiroki; Ishino, Masakazu; and Tamaru, Tsuyoshi, 5,670,421, Cl. 437-192.000.
NGK Insulators, Ltd.: See—
Hashimoto, Shigeharu; and Ito, Tadato, 5,670,746, Cl. 174-65.00R.
Takeuchi, Yukihisa; Takahashi, Nobuo; and Okada, Shigeki, 5,670,999, Cl. 347-70.000.
Nguyen, Binh Thanh: See—
Dinh, Paul Charles; and Nguyen, Binh Thanh, 5,670,688, Cl. 556-453.000.
Nguyen, Nhan H.: See—
Chin, Hsiao-Ling M.; Wei, Yi-Qiu; Nguyen, Nhan H.; and Kanne, David B., 5,670,453, Cl. 504-235.000.
Nicholls, David J.: See—
Allread, Richard M.; Nicholls, David J.; Scawen, Michael D.; and Adams, Tony, 5,670,333, Cl. 435-49.100.
Nicholson, Terence Peter, to Specialist Sealing Limited. Metallic seal rings, 5,669,612, Cl. 277-167.500.
Nickias, Peter N.: See—
Newman, Thomas H.; Klosin, Jerzy; and Nickias, Peter N., 5,670,680, Cl. 556-53.000.
Nicolet, Jim. Method and apparatus for providing simple secure management of remote servers, 5,671,414, Cl. 395-684.000.
Niedzielski, Donald Anthony: See—
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Nielsen, John Staal: See—
Thomas, Robert McLaren; and Nielsen, John Staal, 5,671,259, Cl. 375-371.000.
Nielsen, Per Munk: See—
Budolfson, Gite; and Nielsen, Per Munk, 5,670,192, Cl. 426-34.000.
Nienhaus, Egbert; Mayer, Bernd; and Meisenburg, Uwe, to BASF Lacke + Farben, AG. Aqueous two-component polyurethane coating composition, process for its preparation, and its use in processes for the production of a multicoat finish, 5,670,600, Cl. 528-75.000.
Nihon Cement Co., Ltd.: See—
Takahashi, Shigeru; Okura, Sadakatsu; and Nomura, Toshikatsu, 5,669,127, Cl. 29-25.350.
Nihon Denshizairyo Kabushiki Kaisha: See—
Okubo, Masao; Murakami, Nobuyuki; Katahira, Kouji; Iwata, Hiroshi; and Okubo, Kazumasa, 5,670,889, Cl. 324-760.000.
Niimura, Motoyuki: See—
Koshiishi, Osamu; Mizuno, Shigeki; Kubota, Keiichi; Nishizawa, Katsuhiko; Niimura, Motoyuki; Shirotori, Hiroshi; and Ko, Kyoui, 5,669,725, Cl. 400-690.000.
Niijima, Tsunefumi; Yoshikawa, Haruhiko; and Yamamoto, Kazuhisa, to Honda Giken Kogyo Kabushiki Kaisha. Hydraulic control apparatus, 5,669,280, Cl. 91-31.000.
Niki, Toru, to Canon Kabushiki Kaisha. Pattern recognizing method and apparatus, 5,671,293, Cl. 382-224.000.
Nikon Corporation: See—
Inoue, Hideya; Aoki, Hitoshi; Imura, Yoshio; and Tsukahara, Daiki, 5,671,453, Cl. 396-320.000.
Ishizuya, Tohru; Shoda, Masahiro; and Akagawa, Keiichi, 5,670,382, Cl. 437-2.000.
Iwasaki, Masaya, 5,671,054, Cl. 356-375.000.
Kawai, Hidemi, 5,671,057, Cl. 356-399.000.
Mashima, Kiyoto; Mori, Takashi; and Tanitsu, Osamu, 5,669,708, Cl. 362-341.000.
Nakajima, Noriaki; Hasegawa, Hiroshi; and Goto, Tetsuro, 5,669,147, Cl. 33-334.000.
Usui, Kazutoshi, 5,671,448, Cl. 396-55.000.
Niles Parts Co., Ltd.: See—
Yokoyama, Toshiaki; and Shibata, Takeshi, 5,670,765, Cl. 200-61.540.
Niimiya, Kazuya: See—
Ohtaka, Akihiko; Yoshitoshi, Nobuyuki; Kimura, Shigeo; Houjou, Take-toshi; and Niimiya, Kazuya, 5,670,756, Cl. 181-256.000.
Ninomiya, Masanobu: See—
Akashi, Ryojiro; Ninomiya, Masanobu; Uematsu, Takashi; and Morikawa, Takashi, 5,670,083, Cl. 252-299.010.
Akashi, Ryojiro; Morikawa, Takashi; Ninomiya, Masanobu; and Uematsu, Takashi, 5,671,211, Cl. 369-275.100.
Nippon Hoso Kyokai: See—
Takano, Yoshimichi; Sakai, Tetsuo; Murakami, Hiroshi; Takahashi, Kazuo; Mimasu, Mutsumi; Miyagawa, Utao; Takei, Makoto; and Wani, Koichi, 5,670,975, Cl. 345-60.000.
Nippon Oil Co., Ltd.: See—
Tajima, Yoshio; Kataoka, Naoki; Numao, Yosuke; Seki, Takashi; and Matsura, Kazuo, 5,670,588, Cl. 526-128.000.
Nippon Sheet Glass Co., Ltd.: See—
Tanaka, Keisuke; and Sugitara, Kiminari, 5,670,222, Cl. 428-34.000.
Nippon Shokubai Co., Ltd.: See—
Sakai, Yasuhiro; Yoneda, Tadahiyo; and Kuramoto, Shigefumi, 5,670,257, Cl. 428-402.000.
Nippon Steel Semiconductor Corporation: See—
Parris, Michael; and Stalner, H. Kent, 5,671,392, Cl. 395-475.000.
Nippon Telegraph and Telephone Corporation: See—
Inoue, Akira; Hattori, Yasuji; Yamashita, Katsuya; Ohtsuki, Fumio; and Katsuyama, Yutaka, 5,671,308, Cl. 385-37.000.
Nippondenso Co., Ltd.: See—
Adachi, Michio, 5,669,343, Cl. 123-90.170.
Hasegawa, Etsuo; Sudo, Masatoshi; Nagasawa, Toshiya; and Yoshii, Keiichi, 5,669,439, Cl. 165-153.000.
Ina, Hiroyuki; and Mori, Hidehito, 5,670,934, Cl. 340-426.000.
Itoh, Satoshi; and Iritani, Kunio, 5,669,231, Cl. 62-210.000.
Miura, Yasunao; Nishimura, Mamoru; and Tokuda, Kojiro, 5,670,104, Cl. 264-145.000.
Miyake, Toshihiro; Kondo, Koji; Kurahashi, Takashi; Okumura, Nozomu; and Takagi, Makoto, 5,669,548, Cl. 228-224.000.
Nagura, Michinaga; and Kishigami, Tomohisa, 5,670,959, Cl. 342-6.000.
Shirai, Kazumari; Miyano, Hidemasa; Kamio, Shigeru; and Nakaya, Yoshimasa, 5,669,351, Cl. 123-339.210.
Shirai, Kazumari; Miyano, Hidemasa; Kamio, Shigeru; and Nakaya, Yoshimasa, 5,669,353, Cl. 123-399.000.
Nire, Takashi; and Miyakoshi, Atsushi, to Komatsu Ltd. Forming a thin-film EL element, 5,670,207, Cl. 427-126.200.
Nisenson, Jules; and Bischoff, Ronald E. Automatic-locking mechanical drive construction, 5,669,432, Cl. 160-307.000.
Nishi, Takao: See—
Dodd, Dharmal S.; and Nishi, Takao, 5,670,526, Cl. 514-340.000.
Nishibayashi, Yoshiaki; Shikata, Shin-ichi; Fujimori, Naoki; and Kobayashi, Takeshi, to Sumitomo Electric Industries, Ltd. Semiconductor device consisting of a semiconductor material having a deep impurity level, 5,670,796, Cl. 257-77.000.
Nishida, Kenzo: See—
Kondo, Noboru; and Nishida, Kenzo, 5,669,848, Cl. 477-64.000.
Nishida, Yukihiro: See—
Inaba, Yukio; Ueno, Yoshio; Watanabe, Masahiko; and Nishida, Yukihiro, 5,670,028, Cl. 203-86.000.
Nishigaki, Masato; and Hara, Takashi, to Yamaha Hatsudoki Kabushiki Kaisha. Cylinder head and induction system for engine, 5,669,348, Cl. 123-308.000.
Nishiguchi, Ryosuke: See—
Oyashiki, Masahiko; Nishiguchi, Ryosuke; and Kawamura, Hidenori, 5,671,012, Cl. 348-211.000.
Nishihori, Kazuya; Kitaura, Yoshiaki; Tanabe, Yoshikazu; Aoyama, Tomonori; Suguro, Kyoichi; Okuwada, Kumi; Komatsu, Shuichi; and Abe, Kazuhide, to Kabushiki Kaisha Toshiba. Metal oxide capacitor with a WNx electrode, 5,670,808, Cl. 257-310.000.
Nishikawa, Koichiro, to Canon Kabushiki Kaisha. Detecting apparatus for detecting a tracking error signal in an optical information recording and/or reproducing apparatus and an optical information recording and/or reproducing apparatus, 5,671,199, Cl. 369-44.260.
Nishikawa, Yukinobu: See—
Iwamoto, Keiichi; and Nishikawa, Yukinobu, 5,669,232, Cl. 62-296.000.
Nishimura, Asao: See—
Miura, Hideo; Moribe, Shunji; Kato, Hisayuki; Koike, Atsuyoshi; Ikeda, Shuji; and Nishimura, Asao, 5,670,793, Cl. 257-64.000.
Nishimura, Kazuhiko, to Kabushiki Kaisha Toshiba. Document editing apparatus using a table to link document portions, 5,671,427, Cl. 395-770.000.
Nishimura, Keizo: See—
Arai, Hideo; Owashi, Hitoaki; Hosokawa, Kyoichi; Nishimura, Keizo; Watatani, Yoshizumi; and Shibata, Akira, 5,671,095, Cl. 360-8.000.
Nishimura, Koichi; Koyama, Hideki; Yoshida, Hiroko; and Ito, Susumu, to Fanuc Ltd. Injection molding machine provided molding with a display unit, 5,670,186, Cl. 425-151.000.
Nishimura, Mamoru: See—
Miura, Yasunao; Nishimura, Mamoru; and Tokuda, Kojiro, 5,670,104, Cl. 264-145.000.
Nishimura, Masafumi: See—
Sakamoto, Masaharu; Kobayashi, Mei; Saito, Takashi; and Nishimura, Masafumi, 5,671,330, Cl. 395-2.770.
Nishimura, Shin: See—

- Tomooka, Keiji; Sakakida, Naohiro; Nishimura, Shin; Ashi, Yoshihiro; Matsuda, Hironari; Aoki, Satoshi; Nakano, Yukio; Takatori, Masahiro; Kazawa, Toru; Sasaki, Shinya; Takeyari, Kyoji; and Nakano, Hiroyuki, 5,671,074, Cl. 359-163.000.
Nishimura, Takeshi: See—
Ito, Toshiyasu; and Nishimura, Takeshi, 5,669,784, Cl. 439-331.000.
Nishimura, Yoichi: See—
Maki, Hidetaka; Akazaki, Shusuke; and Nishimura, Yoichi, 5,669,368, Cl. 123-681.000.
Nishino, Koji; Ikeda, Nobukazu; Morimoto, Akihiro; Minami, Yukio; Kawada, Koji; Dohi, Ryosuke; and Fukuda, Hiroyuki, to Fujikin Incorporated. Pressure type flow rate control apparatus, 5,669,408, Cl. 137-487.500.
Nishino, Yukio: See—
Miyazaki, Benichi; Nishino, Yukio; and Murai, Junichi, 5,671,212, Cl. 369-291.000.
Nishio, Koji: See—
Fujimoto, Masahisa; Nishio, Koji; and Saitoh, Toshihiko, 5,670,275, Cl. 429-218.000.
Nishitani, Eisuke; Tsuzuku, Susumu; Kobayashi, Shigeru; Kasahara, Osamu; Nezu, Hiroki; Ishino, Masakazu; and Tamaru, Tsuyoshi, to Hitachi, Ltd. Process for forming multilayer wiring, 5,670,421, Cl. 437-192.000.
Nishiaki, Kazuhiko; and Nakajima, Ken, to Sony Corporation. Gamma correction circuit, 5,671,023, Cl. 348-675.000.
Nishizawa, Katsuhiko: See—
Koshiishi, Osamu; Mizuno, Shigeki; Kubota, Keiichi; Nishizawa, Katsuhiko; Niimura, Motoyuki; Shirotori, Hiroshi; and Ko, Kyoui, 5,669,725, Cl. 400-690.000.
Nissan Motor Co., Ltd.: See—
Muramoto, Tsuro; and Kidokoro, Hitoshi, 5,669,845, Cl. 475-186.000.
Onishi, Junichi; Shibuya, Hideyuki; and Kuze, Tadayuki, 5,670,873, Cl. 326-174.000.
Satoh, Hiroshi; and Taniguchi, Ikuhiro, 5,670,953, Cl. 340-903.000.
Tamasho, Tadashi; Torii, Shuji; and Makita, Mitsuhiko, 5,670,716, Cl. 73-146.200.
Tatarazako, Takahisa, 5,671,142, Cl. 364-424.046.
Yoshida, Kazumi; and Kishi, Norimasa, 5,671,336, Cl. 395-24.000.
Nishinbo Industries Inc.: See—
Onishi, Junichi; Shibuya, Hideyuki; and Kuze, Tadayuki, 5,670,873, Cl. 326-174.000.
Nitinol Medical Technologies, Inc.: See—
Simon, Morris; Kleshinski, Stephen J.; and Kinst, Thomas F., 5,669,933, Cl. 600-200.000.
Nitz, Kevin C.: See—
Julian, Alfred Joseph; and Nitz, Kevin C., 5,669,866, Cl. 483-1.000.
Niwa, Nobuyuki; Yokota, Yasuhiro; Shiraga, Shinji; Kikuchi, Tomoaki; Miura, Hiroya; and Morita, Kenji, to Canon Kabushiki Kaisha. Operating system optimization to permit use of a first unit with a second unit to extend the functionality of the first, 5,671,366, Cl. 395-281.000.
Nixon, James A.: See—
Cho, Sung Y.; Crowell, Thomas A.; Gitter, Bruce D.; Hipskind, Philip A.; Howbert, J. Jeffrey; Krushinski, Joseph H., Jr.; Lobb, Karen L.; Muehl, Brian S.; and Nixon, James A., 5,670,499, Cl. 514-231.500.
NKK Corporation: See—
Iizuka, Yukinori; Horigome, Hidekazu; Murayama, Akira; and Nakazawa, Shin, 5,671,154, Cl. 364-507.000.
Inoue, Tadashi; Tsuru, Kiyoshi; Okimoto, Shinichi; Yamamura, Naokazu; Yamamoto, Tetsuo; and Haiji, Hirohisa, 5,669,989, Cl. 148-312.000.
No Clim Products Limited: See—
Ellwood, Stephen; and Appleby, David, 5,670,946, Cl. 340-628.000.
Noda, Yutaka: See—
Katsumata, Yoshikazu; Mizoguchi, Yoshihiro; Ijima, Yoshiaki; Kamioka, Makoto; Ejima, Yoshinori; Kishiyama, Nobuo; Noda, Yutaka; and Nakao, Eiichi, 5,671,467, Cl. 399-164.000.
Nogi, Kenichiro; and Umevama, Nobuhiro, to Taiyo Yuden Kabushiki Kaisha. Method of manufacturing chip inductor, 5,669,134, Cl. 29-605.000.
Noguchi, Kouichi: See—
Kimura, Noriyuki; Suzuki, Minoru; Sakamoto, Kouji; Noguchi, Kouichi; Deki, Tsuyoshi; Matsushiro, Hiroyuki; Sasaki, Eiichi; Fujishiro, Takatsugu; and Kobayashi, Chiyoaki, 5,671,465, Cl. 399-119.000.
Nohmi Bosai Ltd.: See—
Mochizuki, Mikio; Hirooka, Eiji; and Yasukawa, Makoto, 5,670,948, Cl. 340-630.000.
Morita, Toshikazu, 5,671,159, Cl. 364-550.000.
Nojima, Kazuhiro: See—
Asano, Shinichi; Ohashi, Hiroyuki; Kondo, Hiromasa; Nojima, Kazuhiro; Imabeppu, Katsuyoshi; Sasaki, Mamoru; and Suzuki, Eiichi, 5,670,242, Cl. 428-212.000.
Nojima, Yoshiyuki: See—
Takahashi, Yoshiharu; Yamada, Minoru; Nojima, Yoshiyuki; and Fujii, Yasutoshi, 5,671,451, Cl. 396-310.000.
Nokia Mobile Phones Ltd.: See—
Menadue, Andrew; and Withycombe, Ian, 5,671,434, Cl. 395-800.000.
Nokia Telecommunications Oy: See—
Pyhalampi, Seppo; Lintula, Olli-Pekka; and Kokkinen, Antti, 5,671,224, Cl. 370-401.000.
Nokihara, Kiyoshi; and Kiffe, Michael, to Shimadzu Corporation. Method for recovering optically pure amino acid derivatives, 5,670,647, Cl. 548-316.100.
Nolan, John. Conveyor for transporting a workpiece along a curved path, 5,669,483, Cl. 198-812.000.
Nolan, Joseph G., III: See—
Phillips, Christopher E.; Ahrens, Michael G.; Nolan, Joseph G., III; and Cooke, Laurence H., 5,671,234, Cl. 371-22.300.
Noma, Mikihiro; and Mikami, Akiyoshi, to Sharp Kabushiki Kaisha. Thin-film luminescence device utilizing Zn_{1-x}Mg_xS host material compound activated by gadolinium or a gadolinium compound, 5,670,839, Cl. 313-503.000.
Nomura, Toshihiro; Karube, Kunihiro; Hisamoto, Masaaki; and Awatani, Koji, to Fuji Electric Co., Ltd. Inverter unit and inverter apparatus, 5,671,134, Cl. 363-132.000.
Nomura, Toshikatsu: See—
Takahashi, Shigeru; Okura, Sadakatsu; and Nomura, Toshikatsu, 5,669,127, Cl. 29-25.350.
Nonaka, Hiromi: See—
Suzuki, Fumio; Shimada, Junichi; Koike, Nobuaki; Kase, Hiroshi; Nakamura, Joji; Shiozaki, Shizuo; and Nonaka, Hiromi, 5,670,498, Cl. 514-212.000.
Noonan, James Thomas; Lowe, Terry Lee; and Winter, David Carl, to Deere & Company. Adjustable guide rig structure for an agricultural implement, 5,669,451, Cl. 172-624.500.
Nor, Jiri K., to Norvik Tractions Inc. Battery energy monitoring circuits, 5,670,861, Cl. 320-15.000.
Norand Corporation: See—
Morris, Michael D.; and Zumbach, Lyle L., 5,671,436, Cl. 395-800.000.
Norbeck, Daniel W.: See—
Kempf, Dale J.; and Norbeck, Daniel W., 5,670,675, Cl. 549-552.000.
Noreika, Richard Joseph: See—
Ellerson, James Vernon; Noreika, Richard Joseph; and Varcoe, Jack Arthur, 5,669,137, Cl. 29-840.000.
Noridica S.p.A.: See—
Pozzebon, Adolfo, 5,669,160, Cl. 36-10.000.
Noritsu Koki Co., Ltd.: See—
Umemoto, Choji, 5,671,072, Cl. 358-501.000.
Norman, Robert D.: See—
Harari, Eliyahu; Norman, Robert D.; and Mehrotra, Sanjay, 5,671,229, Cl. 371-10.200.
Noro, Masaki: See—
Matsumoto, Kazuhiko; Noro, Masaki; Okamura, Hisashi; and Ishikawa, Shun-ichi, 5,670,292, Cl. 430-138.000.
Norby, Erling C. J.; Parks, D. Elliot; and Lerner, Richard A., to Johnson & Johnson. Methods and diagnostic kits for the detection of HIV-2-specific antibodies employing polypeptides obtained from the simian immunodeficiency virus, 5,670,309, Cl. 435-5.000.
Norris, Terry Bruce. Hands-free sling for carrying a long gun or other elongated article, 5,669,170, Cl. 42-85.000.
Norsk Hydro a.s.: See—
Kowalik, Wolfgang; Maaz, Hans Jürgen; and Soyzer, Werner, 5,670,061, Cl. 210-771.000.
North Carolina State University: See—
Schetzina, Jan Frederick, 5,670,798, Cl. 257-96.000.
Swartzel, Kenneth R.; and Palaniappan, Sevugan, 5,670,199, Cl. 426-614.000.
North, Michael John; Hall, Christopher; Cyster, Thomas Mark; and Chen, Ching-Chuan, to General Resource Corporation. Feedback control of an inverter output bridge and motor system, 5,670,859, Cl. 318-801.000.
Northern Telecom Limited: See—
Thomas, Robert McLaren; and Nielsen, John Staal, 5,671,259, Cl. 375-371.000.
Northrop Grumman Corporation: See—
Gerhardt, Heinz A., 5,669,308, Cl. 104-155.000.
Liberman, Irving; and Chantry, Peter J., 5,670,914, Cl. 331-94.100.
Pernick, Benjamin J.; and Fonnelland, Nils J., 5,671,090, Cl. 359-561.000.
Norton Company: See—
Horton, M. Duane; Skeem, Marcus R.; and Huber, Paul K., 5,669,943, Cl. 51-307.000.
Norton, Donald J. Bar rail comfort tray, 5,669,312, Cl. 108-42.000.
Norvik Tractions Inc.: See—
Nor, Jiri K., 5,670,861, Cl. 320-15.000.
Notz, Robert R.; Cappel, Jerome P.; and Zimmer, Gregory A., to Procter & Gamble Company. The Jug having a secondary bottle in the handle opening, 5,669,519, Cl. 215-10.000.
Nova, Michael Philip; Gonzalez, Ana-Maria; and Baird, Andrew, to Whittier Institute for Diabetes and Endocrinology. The. Process for the detection of malignant melanoma, 5,670,323, Cl. 435-6.000.
Novamedix Limited: See—
Fox, Roger Harrington, 5,669,872, Cl. 601-152.000.
Novartis Corporation: See—
Baxter, Anthony David; Baylis, Eric Keith; Collingwood, Stephen Paul; Taylor, Roger John; Mesmaeker, Alain De; and Schmit, Chantal, 5,670,489, Cl. 514-44.000.
Novartis Finance Corporation: See—
Gaffney, Thomas D.; Lam, Stephen T.; Hill, Dwight Steven; Stein, Jeffrey I.; and Ligon, James M., 5,670,350, Cl. 435-172.300.
NovaVision, Inc.: See—
Boswell, David R., 5,670,003, Cl. 156-220.000.
Novera Products Inc.: See—
Szykowski, Jerzy, 5,669,190, Cl. 52-196.000.
Novo Nordisk A/S: See—

- Budolfsen, Gite; and Nielsen, Per Munk, 5,670,192, Cl. 426-34.000.
 Thorens, Bernard, 5,670,360, Cl. 435-240.200.
 Novosel, Damir: See—
 Hu, Yi; Hart, David; Novosel, Damir; and Smith, Robert, 5,671,112, Cl. 361-86.000.
 Novotny, Vojtech: See—
 Spindler, Zdenek; and Novotny, Vojtech, 5,669,215, Cl. 57-301.000.
 Novus International, Inc.: See—
 Grendel, Robert W.; Klopfenstein, Jeffrey B.; Prokop, Robin K.; Reid, Stanley L.; and Willock, J. Michael, 5,670,128, Cl. 423-531.000.
 Nowak, Edward Joseph: See—
 Machesney, Brian John; Mandelman, Jack Allan; and Nowak, Edward Joseph, 5,670,388, Cl. 437-21.000.
 Nowak, Ralph M., to First Years Inc., The, Car seat cushion, 5,669,665, Cl. 297-406.000.
 Nowak, Ronald Peter: See—
 Campbell, Jeffrey Scott; Herard, James D.; Nowak, Ronald Peter; Slack, John Robert; and Stone, David Brian, 5,669,775, Cl. 439-77.000.
 Noyan, Ismail Cevdet: See—
 Hernandez, Bernardo; Horton, Raymond Robert; Noyan, Ismail Cevdet; and Palmer, Michael Jon, 5,669,437, Cl. 165-47.000.
 Nozawa, Fumie: See—
 Harada, Takamasa; Itoh, Haruhiko; Ushukata, Masami; and Nozawa, Fumie, 5,670,084, Cl. 252-299.010.
 NSK Ltd.: See—
 Kinno, Dai; and Yokouchi, Atsushi, 5,669,719, Cl. 384-463.000.
 Miyazaki, Hiroya; Sakamoto, Junshi; and Ohmi, Hayato, 5,670,874, Cl. 324-174.000.
 Yokoi, Kouichi; Yoshikaki, Takashi; Tanaka, Masami; and Hashitani, Hideki, 5,669,274, Cl. 82-1.110.
 NSM Aktiengesellschaft: See—
 Reichert, Stefan, 5,669,609, Cl. 273-376.000.
 NTN Corporation: See—
 Okada, Manabu, 5,669,600, Cl. 269-73.000.
 Nugent, Sean T.; and Mueller, Richard A., to G. D. Searle & Co. Fatty acid analogs and produgs, 5,670,650, Cl. 548-491.000.
 Numaga, Shigeki: See—
 Chiu, Edison H.; Numaga, Shigeki; and Hontzawa, Takeshi, 5,670,976, Cl. 345-84.000.
 Numao, Yosuke: See—
 Tajima, Yoshio; Kataoka, Naoki; Numao, Yosuke; Seki, Takashi; and Matsuura, Kazuo, 5,670,588, Cl. 526-128.000.
 Numazaki, Mitsuhiro, to Kabushiki Kaisha Toshiba. Power conversion control system for plural electric motors and auxiliary circuit, 5,670,851, Cl. 318-106.000.
 Nusche, Georg, to Siemens Aktiengesellschaft. Servo-valve, 5,669,416, Cl. 137-625.440.
 Nycomed Imaging AS: See—
 Schröder, Ulf, 5,670,135, Cl. 424-9.500.
 O₂ Micro, Inc.: See—
 Chan, Regina K.; and Huang, Yishao Max, 5,671,368, Cl. 395-282.000.
 Oak, Albert Charley; Brumbaugh, Leonard C.; and Cramer, Daryl E., to Regal Ware, Inc. Cooking utensil, intermediate layer for non-stick coating of a cooking utensil, and method, 5,670,216, Cl. 427-455.000.
 Oakes, Thomas W. Composition and method for protective coating, 5,670,215, Cl. 427-385.500.
 Oba, Takayuki; and Inaba, Akira, to Du Pont de Nemours, E. I., and Company. Conductive paste for MLC termination, 5,670,089, Cl. 252-514.000.
 Obeng, Yaw Samuel, to Lucent Technologies Inc. Methodology for monitoring solvent quality, 5,670,376, Cl. 436-51.000.
 Oberdorf, Klaus: See—
 Wingert, Horst; Sauter, Hubert; Bayer, Herbert; Oberdorf, Klaus; Lorenz, Gisela; and Ammermann, Eberhard, 5,670,528, Cl. 514-357.000.
 Oberhardt, Bruce J., to Cardiovascular Diagnostics, Inc. Method and analytical system for performing fibrinogen assays accurately, rapidly and simply using a rotating magnetic field, 5,670,321, Cl. 435-13.000.
 Obereder, Stefan: See—
 Stepp, Michael; and Obereder, Stefan, 5,670,597, Cl. 528-21.000.
 O'Brien, Rita M.: See—
 Wisor, Michael T.; and O'Brien, Rita M., 5,671,424, Cl. 395-742.000.
 Ochi, Katsunori: See—
 Omori, Makoto; Ochi, Katsunori; Ohbuchi, Jun; and Washida, Tetsuro, 5,671,123, Cl. 361-737.000.
 O'Connor, Joseph Patrick: See—
 Bok, Hendrick F.; Johnson, William Richard; O'Connor, Joseph Patrick; Shade, Matthew Martin; and Young, Lamar Duane, 5,669,971, Cl. 118-300.000.
 Odagiri, Masaru: See—
 Kuwahara, Kenji; Takahasi, Kiyosi; Ueda, Hideyuki; Echigo, Noriyasu; Murai, Mikio; and Odagiri, Masaru, 5,670,107, Cl. 264-234.000.
 O'Doherty, George O. P., to Eli Lilly and Company. Anticoccidial methods and feedstuffs, 5,670,485, Cl. 514-25.000.
 O'Donnell, Eugene P. Ostiomeatal complex sinus cryosurgical procedure, 5,669,903, Cl. 606-20.000.
 O'Donoghue, Geoff; and Munroe, Scott C., to Analog Devices, Inc. Integrated circuit interlevel conductor defect characterization test structure and system, 5,670,883, Cl. 324-537.000.
 Oehler, Martin: See—
 Mueller, Klaus; Heugle, Bernhard; Herzog, Kurt; Oehler, Martin; Hohl, Günther; and Herderich, Hans-Jürgen, 5,669,675, Cl. 303-119.200.
 Oerlikon-Contraves AG: See—
 Borchers, Ingo U.; Laemmlein, Stephan T.; Bartels, Peter; Rausch, Achim; Faust, Markus; Coebergh, Jan A. F.; and Koebler, Klaus, 5,670,758, Cl. 181-286.000.
 Oesch, Guido: See—
 Andereg, Kurt; Oesch, Guido; and Stettler, Andreas, 5,669,999, Cl. 156-173.000.
 Oevering, Henk: See—
 Burke, Patrick Michael; Gelling, Onko Jan; Oevering, Henk; and Toth, Imre, 5,670,700, Cl. 560-175.000.
 Offer, Henry Peter; and Grycko, Lawrence Michael, to General Electric Company. Method and apparatus for joining metal components with mitigation of residual stresses, 5,670,072, Cl. 219-137.000.
 Ogai, Yoichiro; and Shimizu, Masahiro, to Yamaha Corporation. Musical tone creating apparatus for electronic musical instrument, 5,670,728, Cl. 84-607.000.
 Ogasawara, Yuji; Kobayashi, Hiroyoshi; Maeda, Yoshihiro; and Atsumi, Motohiro, to Olympus Optical Co., Ltd. Head mounted image display having at least four supporting points, 5,671,037, Cl. 351-158.000.
 Ogata, Daisuke: See—
 Kamioka, Yuichi; Koishi, Kenji; Ogata, Daisuke; and Furumiya, Shigeru, 5,671,209, Cl. 369-116.000.
 Ogata, Hitoshi: See—
 Yoshida, Masanao; Mitani, Tadahiro; Hirao, Keiji; and Ogata, Hitoshi, 5,671,196, Cl. 369-34.000.
 Ogata, Satoshi; and Tsujiyama, Yoshimi, to Chisso Corporation. Cylindrical filter and process for producing the same, 5,670,044, Cl. 210-497.010.
 Ogawa, Shunichi: See—
 Ueyama, Tomoyuki; Harada, Shoji; Nakamata, Toshiaki; Shibata, Masuo; Doi, Toshimitsu; Ogawa, Shunichi; Matsumoto, Ichiro; and Nakai, Hiroshi, 5,670,071, Cl. 219-130.510.
 Ogawa, Tohru; and Nakano, Hiroyuki, to Sony Corporation. Process for the formation of a metal pattern, 5,670,297, Cl. 430-318.000.
 Ogawa, Yasunori: See—
 Suzuki, Chiharu; Masuda, Katsumi; Tamaru, Masatoshi; Inamori, Masahito; Takefuji, Nobuo; Yanagisawa, Katsutada; and Ogawa, Yasunori, 5,670,452, Cl. 504-213.000.
 Ogino, Takashi: See—
 Matsuo, Masaaki; Tsuji, Kiyoshi; Ogino, Takashi; and Konishi, Nobukiyo, 5,670,533, Cl. 514-106.000.
 Ogino, Toshikazu: See—
 Yajima, Hideo; and Ogino, Toshikazu, 5,670,745, Cl. 174-65.000.
 Ogita, Tatsuya: See—
 Hagiwara, Minoru; Kiwa, Kenji; Ogita, Tatsuya; and D'Haenens, Luc Germain Pierre Joseph, 5,670,010, Cl. 156-330.900.
 Ogle, Steven E.; and Wells, Thomas J., to L & P Property Management Company. Pocketed coil spring assembly, 5,669,093, Cl. 5-720.000.
 Ogo, Manabu: See—
 Tanino, Masahiro; and Ogo, Manabu, 5,669,282, Cl. 91-520.000.
 Oh, Jae-young; Jeong, Suk-yong; Kim, Han-sung; and Park, Jin-ho, to Samsung Electronics Co., Ltd. Wafer carriage, 5,669,513, Cl. 211-41.000.
 Ohara, Kazuhiro; Markandey, Vishal; and Gove, Robert J., to Texas Instruments Incorporated. Motion adaptive vertical scaling for interlaced digital image data, 5,671,018, Cl. 348-452.000.
 Ohara, Kazuhiro: See—
 Markandey, Vishal; Gove, Robert John; Ohara, Kazuhiro; and Tobin, Dennis J., 5,671,298, Cl. 382-298.000.
 O'Hara, Kevin: See—
 Chipperfield, Keith E.; O'Hara, Kevin; Kangiser, Greg; and Soar, Steve, 5,670,852, Cl. 318-280.000.
 O'Hare, Christopher F. Aquatic organism habitat device, 5,669,330, Cl. 119-215.000.
 Ohashi, Hiroyuki: See—
 Asano, Shinichi; Ohashi, Hiroyuki; Kondo, Hiromasa; Nojima, Kazuhiro; Imabeppu, Katsuyoshi; Sakaki, Mamoru; and Suzuki, Eiichi, 5,670,242, Cl. 428-212.000.
 Ohba, Masataka; and Sano, Yoshio, to NEC Corporation. Energy recovery driver for a dot matrix AC plasma display panel with a parallel resonant circuit allowing power reduction, 5,670,974, Cl. 345-60.000.
 Ohbayashi, Kazumi; Yamashita, Susumu; Ito, Masami; Matsuda, Kenji; Watabe, Shin; and Nakamura, Mitsuru, to Mitsubishi Jukogyo Kabushiki Kaisha. Ceiling-mounted type air conditioner, 5,669,229, Cl. 62-259.100.
 Ohbuchi, Jun: See—
 Omori, Makoto; Ochi, Katsunori; Ohbuchi, Jun; and Washida, Tetsuro, 5,671,123, Cl. 361-737.000.
 Ohga, Toshiiji: See—
 Morikawa, Sumio; Ohga, Toshiiji; and Kondoh, Masahiro, 5,669,141, Cl. 30-134.000.
 Ohgami, Katsushige: See—
 Takao, Kazuchiyu; Hyodo, Kenji; Ebihara, Isao; Oku, Yasuyuki; and Ohgami, Katsushige, 5,670,247, Cl. 428-297.000.
 Ohio Electronic Engravers, Inc.: See—
 Auberry, Eric R.; Flannery, David L.; Jackson, Kenneth William; Seitz, David R.; and Serenius, Eric J., 5,671,063, Cl. 358-299.000.
 Buechler, Lester W., 5,671,064, Cl. 358-299.000.
 Ohira, Hideo: See—
 Murakami, Tokumichi; Matsuzaki, Kazuhiro; Kato, Yoshiaki; and Ohira, Hideo, 5,671,226, Cl. 370-474.000.
 Ohira, Tsuyoshi: See—
 Kuse, Kazushi; Mitsui, Kinichi; Ohira, Tsuyoshi; and Javey, Shahram, 5,671,379, Cl. 395-346.000.

- Ohmeda Inc.: See—
 Somerson, Steven K.; Tissot, Kevin G.; and Homuth, James R., 5,669,379, Cl. 128-204.210.
 Ohmi, Hayato: See—
 Miyazaki, Hiroya; Sakamoto, Junshi; and Ohmi, Hayato, 5,670,874, Cl. 324-174.000.
 Ohnuma, Kenji; Suzuki, Masaaki; and Danjoh, Keishi, to Canon Kabushiki Kaisha. Liquid crystal panel having a color filter with passivation and insulating layers extending to the seal, 5,671,030, Cl. 349-106.000.
 Ohori, Hiroshi D. Two-cycle engine employing a flywheel, 5,669,340, Cl. 123-48.000.
 Ohshita, Yoichi: See—
 Kobayashi, Masatomo; Hokuto, Hiromichi; Ohshita, Yoichi; and Sakaguchi, Minoru, 5,670,767, Cl. 218-43.000.
 Ohsuye, Kazuhiro: See—
 Yabuta, Masayuki; Suzuki, Yuji; Ohsuye, Kazuhiro; Oshima, Takehiro; Onai, Seiko; Magota, Toshi; and Tanaka, Shoji, 5,670,340, Cl. 435-69.400.
 Ohtaka, Akihiko; Yoshitoshi, Nobuyuki; Kimura, Shigeo; Houjou, Taketoshi; and Nimiya, Kazuya, to Honda Giken Kogyo Kabushiki Kaisha. Silencer, 5,670,756, Cl. 181-256.000.
 Ohtani, Shigeru; Ishii, Hiromitsu; and Ono, Takashi, to Hochiki Kabushiki Kaisha. Fire alarm device, 5,670,938, Cl. 340-506.000.
 Ohtani, Takashi: See—
 Kita, Kazuo; Ohtani, Takashi; and Hashimoto, Jiro, 5,670,464, Cl. 508-562.000.
 Ohtsuki, Fumio: See—
 Inoue, Akira; Hattori, Yasuji; Yamashita, Katsuya; Ohtsuki, Fumio; and Katsuyama, Yutaka, 5,671,308, Cl. 385-37.000.
 Ohuchi, Kuninori: See—
 Utsumi, Naoto; Ohuchi, Kuninori; Yamauchi, Kikuro; and Matsui, Haruhiko, 5,670,732, Cl. 84-645.000.
 Ohwada, Tomiji: See—
 Koga, Hisamitsu; Kumagai, Naotake; Ohwada, Tomiji; Furukawa, Nobuya; Kato, Masaaki; and Kawamura, Nobuyuki, 5,670,830, Cl. 307-10.100.
 Ohya, Kazuyuki; and Sayama, Norio, to Mitsubishi Gas Chemical Company, Inc. Clutch facing, 5,670,231, Cl. 428-66.200.
 Ohyodo Diesel Co., Ltd.: See—
 Morikawa, Sumio; Ohga, Toshiiji; and Kondoh, Masahiro, 5,669,141, Cl. 30-134.000.
 Oiles Corporation: See—
 Sakaki, Yoshikazu; and Ueno, Atsushi, 5,669,718, Cl. 384-220.000.
 Oilfield Equipment Marketing, Inc.: See—
 Edens, Brian Wade; and Pape, Chester Wayne, 5,671,155, Cl. 364-507.000.
 OJI Paper Co., Ltd.: See—
 Asano, Shinichi; Ohashi, Hiroyuki; Kondo, Hiromasa; Nojima, Kazuhiro; Imabeppu, Katsuyoshi; Sakaki, Mamoru; and Suzuki, Eiichi, 5,670,242, Cl. 428-212.000.
 Oji-Yuka Synthetic Paper Co., Ltd.: See—
 Yamanaka, Masaaki; and Shiina, Masaki, 5,670,225, Cl. 428-40.100.
 Ojwang, Joshua O.: See—
 Wong-Staal, Flossie; Yu, Mang; Yamada, Osamu; Ojwang, Joshua O.; Leavitt, Markley C.; and Ho, Anthony, 5,670,361, Cl. 435-240.200.
 Oka, Hideaki; Kishimura, Tsugunori; Yokota, Shinichi; and Hayashihara, Hiroshi, to Kuraray Co., Ltd. Polyamide and polyamide composition, 5,670,608, Cl. 528-322.000.
 Oka, Hidemi: See—
 Yamauchi, Eiji; Hashimoto, Kiyokazu; Oka, Hidemi; Kashi, Takao; Hidaka, Iwao; and Yamamoto, Yoshiki, 5,671,260, Cl. 375-372.000.
 Okada, Keiji: See—
 Matsumoto, Muneyuki; Okada, Keiji; Matsuo, Yoshihisa; and Uchimi, Akemi, 5,670,551, Cl. 521-90.000.
 Okada, Manabu, to NTN Corporation. X-Y table, 5,669,600, Cl. 269-73.000.
 Okada, Shigeki: See—
 Takeuchi, Yukihisa; Takahashi, Nobuo; and Okada, Shigeki, 5,670,999, Cl. 347-70.000.
 Okada, Shinjiro: See—
 Katagiri, Kazuharu; Yoshinaga, Kazuo; Okada, Shinjiro; and Kanbe, Junichiro, 5,671,033, Cl. 349-128.000.
 Okada, Tadanori; and Kuwabara, Yuji, to Kabushiki Kaisha Toshiba. Exposing apparatus, 5,671,460, Cl. 396-547.000.
 Okada, Toshiharu: See—
 Kuriyama, Katsuhiko; Okada, Toshiharu; Uesugi, Yuji; Mochida, Shoro; and Yamaguchi, Kazuyoshi, 5,670,068, Cl. 219-121.680.
 Nakai, Izuru; Okada, Toshiharu; and Uesugi, Yuji, 5,670,069, Cl. 219-121.730.
 Okada, Toshimichi: See—
 Shimbo, Naoyuki; Okada, Toshimichi; and Watanabe, Haruki, 5,671,010, Cl. 348-157.000.
 Okado, Kenji; Ugai, Toshiyuki; Fujita, Ryoichi; Kanbayashi, Makoto; Takiguchi, Tsuyoshi; Ichikawa, Yasuhiro; and Iida, Wakashi, to Canon Kabushiki Kaisha. Carrier for electrophotography, two-component type developer, and image forming method, 5,670,288, Cl. 430-122.000.
 Okamoto, Akihiko: See—
 Amishiro, Nobuyoshi; Nagamura, Satoru; Saito, Hiromitsu; Kobayashi, Eiji; Okamoto, Akihiko; and Gomi, Katsushige, 5,670,492, Cl. 514-63.000.
 Okamoto, Kazutoshi: See—
 Yukawa, Masaji; Aketa, Masahiro; Okamoto, Kazutoshi; Kamada, Yasukazu; Hayatani, Akira; Sugimoto, Masahiko; and Yamamoto, Nobuhiro, 5,669,339, Cl. 123-41.790.
 Okamoto, Tadashi: See—
 Yamamoto, Nobuko; Okamoto, Tadashi; Tomida, Yoshinori; Yano, Tetsuya; Miyazaki, Takeshi; and Kawaguchi, Masahiro, 5,670,315, Cl. 435-6.000.
 Okamura, Hisashi: See—
 Matsumoto, Kazuhiko; Noro, Masaki; Okamura, Hisashi; and Ishikawa, Shun-ichi, 5,670,292, Cl. 430-138.000.
 Okamura, Hitoshi, to NEC Corporation. BiCMOS logic circuit with bipolar base clamping, 5,670,893, Cl. 326-18.000.
 Okano, Masanobu, to Sharp Kabushiki Kaisha. Liquid crystal display including a control member for providing a transparent visual range within a predetermined viewing angle and an opaque visual range outside the predetermined viewing angle, 5,671,028, Cl. 349-66.000.
 Okazaki, Jun, to Sharp Kabushiki Kaisha. Compact light-emitting device with sealing member and light-transmitting resin seal, 5,670,797, Cl. 257-91.000.
 Okazaki, Yoji, to Fuji Photo Film Co., Ltd. Solid state laser, 5,671,240, Cl. 372-19.000.
 Okazawa, Koichi: See—
 Kondo, Nobukazu; Kaneko, Seiji; Okazawa, Koichi; Gemma, Hideaki; Mochida, Tetsuya; and Hayashi, Takehisa, 5,671,371, Cl. 395-306.000.
 O'Keefe, Robert V.: See—
 Look, Thomas F.; O'Keefe, Robert V.; Schmidt, Craig A.; Orenstein, Bruce D.; McGrath, Joseph M.; Poss, Steven E.; Bradshaw, Thomas I.; and Bradshaw, Franklin C., 5,670,005, Cl. 156-230.000.
 Okeberry, Scott B.: See—
 Johnson, David B.; Sabin, John L.; and Okeberry, Scott B., 5,669,632, Cl. 280-743.200.
 OKI America, Inc.: See—
 Gluyas, Stephen David; Horanzy, Joseph A.; and Scarrow, John L., 5,671,445, Cl. 395-873.000.
 Okimoto, Shinichi: See—
 Inoue, Tadashi; Tsuru, Kiyoshi; Okimoto, Shinichi; Yamamura, Naokazu; Yamamoto, Tetsuo; and Haiji, Hirohisa, 5,669,989, Cl. 148-312.000.
 Oku, Teruo: See—
 Kawai, Yoshio; Yamazaki, Hitoshi; Tanaka, Hirokazu; and Oku, Teruo, 5,670,503, Cl. 514-243.000.
 Oku, Yasuyuki: See—
 Takao, Kazuchiyu; Hyodo, Kenji; Ebihara, Isao; Oku, Yasuyuki; and Ohgami, Katsushige, 5,670,247, Cl. 428-297.000.
 Oku, Yutaka: See—
 Aizawa, Yuichi; and Oku, Yutaka, 5,669,824, Cl. 473-291.000.
 Okubo, Kazumasa: See—
 Okubo, Masao; Murakami, Nobuyuki; Katahira, Kouji; Iwata, Hiroshi; and Okubo, Kazumasa, 5,670,889, Cl. 324-760.000.
 Okubo, Masao; Murakami, Nobuyuki; Katahira, Kouji; Iwata, Hiroshi; and Okubo, Kazumasa, to Nihon Denshizaiyogyo Kabushiki Kaisha. Probe card for maintaining the position of a probe in high temperature application, 5,670,889, Cl. 324-760.000.
 Okuda, Hirofumi: See—
 Homan, Akinori; Ishikawa, Kiyonari; and Okuda, Hirofumi, 5,669,844, Cl. 475-160.000.
 Okuda, Shouchirou: See—
 Inanaga, Masayuki; and Okuda, Shouchirou, 5,670,968, Cl. 343-901.000.
 Okumura, Mariko: See—
 Kanno, Masayoshi; and Okumura, Mariko, 5,671,164, Cl. 364-569.000.
 Okumura, Nozomu: See—
 Miyake, Toshihiro; Kondo, Koji; Kurahashi, Takashi; Okumura, Nozomu; and Takagi, Makoto, 5,669,548, Cl. 228-224.000.
 Okunishi, Kazuo, to Minolta Co., Ltd. Motor control device, 5,670,855, Cl. 318-696.000.
 Okuno, Masao, to Shima Seiki Manufacturing Ltd. Binding off method with use of a flat knitting machine and a knit fabric thus bound off, 5,669,244, Cl. 66-64.000.
 Okura, Sadakatsu: See—
 Takahashi, Shigeru; Okura, Sadakatsu; and Nomura, Toshikatsu, 5,669,127, Cl. 29-25.350.
 Okutsu, Toshihisa: See—
 Kumada, Shuichi; and Okutsu, Toshihisa, 5,671,021, Cl. 348-644.000.
 Okuwada, Kumi: See—
 Nishihori, Kazuya; Kitaura, Yoshiaki; Tanabe, Yoshikazu; Aoyama, Tomonori; Suguro, Kyoichi; Okuwada, Kumi; Komatsu, Shuichi; and Abe, Kazuhide, 5,670,808, Cl. 257-310.000.
 Okuyama, Takahiro: See—
 Ushirono, Akihito; Sugai, Takashi; and Okuyama, Takahiro, 5,669,341, Cl. 123-90.110.
 Oldroyd, Brian; and Wain, Kevin James, to Gillette Company. The Razor with blade protection means, 5,669,139, Cl. 30-47.000.
 Olivera, Baldomero M.: See—
 Shon, Ki-Joon; Yoshikami, Doju; Marsh, Maren; Cruz, Lourdes J.; Hillyard, David R.; and Olivera, Baldomero M., 5,670,622, Cl. 530-324.000.
 Olsen, Richard G., to Parhelion Corporation. Feline infectious peritonitis vaccine and method of preparation, 5,670,156, Cl. 424-221.100.
 Olson, Brent K.: See—

- Storey, J. Kirk; and Olson, Brent K., 5,670,738, Cl. 102-530.000.
- Olson, David A.: See—
- Wolf, Robert J.; Purrington, Scott M.; Brandner, John M.; Olson, David A.; and Reed, John F., 5,669,797, Cl. 442-329.000.
- Olson, Mark H.: See—
- Moser, Thomas M.; Dolezalek, Charles R.; Jost, Michael B.; and Olson, Mark H., 5,670,722, Cl. 73-756.000.
- Oltmanns, Peter: See—
- Eggensperger, Heinz; Diehl, Karl-Heinz; and Oltmanns, Peter, 5,670,160, Cl. 424-405.000.
- Oltwert, Ronald J.: See—
- Lanese, Gustavo J.; Zalar, Frank E.; and Oltwert, Ronald J., 5,670,840, Cl. 313-25.000.
- Olympus Optical Co., Ltd.: See—
- Kawakubo, Isao; and Yamamoto, Eiji, 5,671,052, Cl. 356-373.000.
- Mihara, Shinichi, 5,671,080, Cl. 359-210.000.
- Ogasawara, Yuji; Kobayashi, Hiroyoshi; Maeda, Yoshihiro; and Atsumi, Motohiro, 5,671,037, Cl. 351-158.000.
- Sakiyama, Katsunori, 5,669,871, Cl. 400-117.000.
- Yokoyama, Kunio; Katagiri, Moriyasu; Sakurai, Hidenori; Kitahara, Yoshiyuki; Miyazaki, Hiroaki; and Suzuki, Tatsuya, 5,671,457, Cl. 396-411.000.
- Yoshihara, Takafumi, 5,671,337, Cl. 395-27.000.
- Omnipoint Corporation: See—
- Jensen, Ryan N.; Williams, Claude M.; and Scott, Logan, 5,671,219, Cl. 370-280.000.
- Omori, Makoto; Ochi, Katsunori; Ohbuchi, Jun; and Washida, Tetsuro, to Mitsubishi Denki Kabushiki Kaisha, IC card with a discharge pattern and a ground pattern separated from each other, 5,671,123, Cl. 361-737.000.
- Omote, Kazuyuki, to Kabushiki Kaisha Toshiba, Barrel shifter for combining pieces of data into a piece of combined data and shifting the combined data, 5,671,166, Cl. 364-715.080.
- Onai, Seiko: See—
- Yabuta, Masayuki; Suzuki, Yuji; Ohsuye, Kazuhiro; Oshima, Takehiro; Onai, Seiko; Magota, Koji; and Tanaka, Shoji, 5,670,340, Cl. 435-69.400.
- Oneac Corporation: See—
- McCartney, Thomas; and Fish, Laurence H., 5,671,110, Cl. 361-42.000.
- Ong, Holly; Schmid, Paul; Wood, Cliff; and Bragin, David G., to Bertex Laboratories, Inc. Vial holder, 5,669,502, Cl. 206-528.000.
- Onishi, Ichiro, to Aprica Kassai Kabushiki Kaisha, Baby carriage and method of manufacturing seat plate for its seat, 5,669,623, Cl. 280-642.000.
- Onishi, Junichi; Shibuya, Hideyuki; and Kuze, Tadayuki, to Nissan Motor Co., Ltd; Unisia Jecs Corporation; and Nishinbo Industries Inc. Rotational speed sensor with membrane, 5,670,873, Cl. 326-174.000.
- Onishi, Makoto; Shimura, Kenichi; and Ishii, Naoki, to Terumo Kabushiki Kaisha, Medical instruments that exhibit surface lubricity when wetted, 5,670,558, Cl. 523-112.000.
- Ono, Akihito: See—
- Naka, Shigeru; Suzuki, Satoshi; and Ono, Akihito, 5,669,792, Cl. 439-825.000.
- Ono, Mitsuhiro: See—
- Takahashi, Kazuo; Ono, Mitsuhiro; and Honma, Takumi, 5,669,804, Cl. 451-59.000.
- Ono, Satoru: See—
- Nagasaka, Yasushi; Nakamura, Hiromu; and Ono, Satoru, 5,671,079, Cl. 359-205.000.
- Ono, Shuji: See—
- Iida, Kenji; Ono, Shuji; and Kobayashi, Ken, 5,669,283, Cl. 92-117.00A.
- Ono, Takashi: See—
- Ohtani, Shigeru; Ishii, Hiromitsu; and Ono, Takashi, 5,670,938, Cl. 340-506.000.
- Ono, Yasushi; and Kawai, Etsuzou, to Sanki Kogyo, Ltd. Device for separating powder material from an air flow, 5,669,741, Cl. 406-79.000.
- Onoda, Atsushi: See—
- Sakamoto, Kazunori; Ishikawa, Masamobu; Onoda, Atsushi; and Ito, Koji, 5,670,764, Cl. 200-61.45R.
- Ontario Hydro: See—
- Lenarduzzi, Frank J., 5,669,224, Cl. 62-160.000.
- Ooms, Pieter: See—
- Busch, Hans-Josef; Jansen, Ursula; Ooms, Pieter; Hoffmann, Erhard-Günther; and Schenke, Bernd-Ulrich, 5,670,029, Cl. 203-91.000.
- Oono, Keiji: See—
- Urano, Fumiyoshi; Fujie, Hirotoshi; Oono, Keiji; and Negishi, Takaaki, 5,670,299, Cl. 430-326.000.
- Opalko, Robert J.: See—
- Scheibelhoffer, Anthony S.; Abrams, Richard L.; Dusek, Dianna B.; Hammond, Dennis L.; Opalko, Robert J.; and Thompson, Ronald E., 5,670,561, Cl. 523-351.000.
- Opdyke, Joseph; Laubsch, Kenneth L.; and DeMeo, Joseph, to Benjamin Obdyke Incorporated, Cladding for door and window frames, 5,669,192, Cl. 52-211.000.
- Opel, Ernst: See—
- Schneider, Reiner; Opel, Ernst; and Heinz, Edgar, 5,671,313, Cl. 385-110.000.
- Oppenheim, Amos: See—
- Aviv, Haim; Gorecki, Marian; Levanon, Avigdor; Oppenheim, Amos; and Hartman, Jacob, 5,670,371, Cl. 435-320.100.
- Oppermann, Hermann; Kuberasampath, Thangavel; Rueger, David C.; and Ozkaynak, Engin, to Stryker Corporation, Method for recombinant production of osteogenic protein, 5,670,336, Cl. 435-69.100.
- Optex Corporation: See—
- McLaughlin, Steven W., 5,670,956, Cl. 341-59.000.
- Optical Coating Laboratory, Inc.: See—
- Solberg, Scott Eugene; Seddon, Richard Ian; Pond, Bradley James; and Beauchamp, William Thomas, 5,670,030, Cl. 204-192.260.
- Optimize technologies, Inc.: See—
- Chitry, Andrew I.; Martin, John T.; and Mirani, Saleh Mohammed, 5,669,637, Cl. 285-342.000.
- Oral Logic, Inc.: See—
- Klinkhammer, Ronald W., 5,669,097, Cl. 15-167.100.
- Orenstein, Bruce D.: See—
- Look, Thomas F.; O'Keefe, Robert V.; Schmidt, Craig A.; Orenstein, Bruce D.; McGrath, Joseph M.; Poss, Steven E.; Bradshaw, Thomas L.; and Bradshaw, Franklin C., 5,670,005, Cl. 156-230.000.
- Original Shiny Rink Incorporated: See—
- Morris, G. Gilbert, 5,669,227, Cl. 62-235.000.
- Orita, Hiroshi: See—
- Negishi, Kiyoshi; Kawamura, Katsumi; Suzuki, Katsuyoshi; Orita, Hiroshi; and Suzuki, Minoru, 5,669,720, Cl. 400-120.050.
- Orloff, David L.; Patterson, Timothy; and Rudman, Isaac, to Institute of Paper Science and Technology, The. Method and apparatus for drying a fiber web at elevated ambient pressures, 5,669,159, Cl. 34-398.000.
- Ornstein, Paul L.: See—
- Arnold, M. Brian; Augenstein, Nancy K.; Lunn, William H. W.; Ornstein, Paul L.; and Schoep, Darryle D., 5,670,516, Cl. 514-307.000.
- Melikian-Badalian, Anita; and Ornstein, Paul L., 5,670,684, Cl. 556-419.000.
- Orofino, Paul Allen: See—
- Fisher, Sheldon; Orofino, Paul Allen; and Orofino, Richard Allen, 5,669,770, Cl. 433-137.000.
- Orofino, Richard Allen: See—
- Fisher, Sheldon; Orofino, Paul Allen; and Orofino, Richard Allen, 5,669,770, Cl. 433-137.000.
- Ortiz, John E.: See—
- Kupiecki, David; Thach, Cong; Ortiz, John E.; and Sheehan, Neil J., 5,669,931, Cl. 606-191.000.
- Ortmann, Helmut; Frye, Günter; Böhm, Rainer; and Lübber, Manfred, to Rheinmetall Industrie GmbH, Propellant igniting system and method of making the same, 5,670,735, Cl. 102-202.000.
- Osada, Hiroyuki: See—
- Yamamoto, Takeo; Kuribayashi, Tetsuya; Honda, Takao; Arahira, Fumihiko; and Osada, Hiroyuki, 5,671,468, Cl. 399-169.000.
- Osakabe, Takayuki, to Sanshin Kogyo Kabushiki Kaisha, Engine fuel supply system, 5,669,358, Cl. 123-509.000.
- Osawa, Sadao: See—
- Kato, Eiichi; and Osawa, Sadao, 5,670,283, Cl. 430-46.000.
- Osborn, Thomas W., III, to Procter & Gamble Company, The. Sanitary napkin with improved release liner, 5,669,899, Cl. 604-390.000.
- Oshida, Eizi, to Fuji Photo Film Co., Ltd. Bus system for accessing a memory in an image processing system, 5,671,299, Cl. 382-307.000.
- Oshikiri, Masahiro: See—
- Akamine, Masami; Oshikiri, Masahiro; and Maseki, Kimio, 5,671,327, Cl. 395-2.280.
- Oshima, Takehiro: See—
- Yabuta, Masayuki; Suzuki, Yuji; Ohsuye, Kazuhiro; Oshima, Takehiro; Onai, Seiko; Magota, Koji; and Tanaka, Shoji, 5,670,340, Cl. 435-69.400.
- Osowski, Denis Michael: See—
- Clark, Keith Leon; Osowski, Denis Michael; and Schraff, Scott Joseph, 5,670,070, Cl. 219-130.330.
- Osram Sylvania Inc.: See—
- Gibbs, Michael J., 5,670,925, Cl. 336-208.000.
- Ostrover, Lewis S.: See—
- Cookson, Christopher J.; Ostrover, Lewis S.; and Lieberfarb, Warren N., 5,671,320, Cl. 386-97.000.
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- Rambo, William W.: See—
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- Ramos, Sergio: See—
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- Reddy, N. Laxma: See—
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- Rhomed Incorporated: See—
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- Rice, Joseph; and Gabbias, Victor, to Eastman Kodak Company. Packing of photographic film. 5,669,205, Cl. 53-430,000.
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- Ishii, Tetsuichi, 5,671,461, Cl. 399-27,000.
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- Rockwell International Corporation: See—
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Hambrick, Geoffrey Martin; and Rogers, Judd Thomas, 5,671,360, Cl. 395-209,000.
- Rogers-Evans, Mark; and Spurr, Paul, to Hoffmann-La Roche Inc. Process for the manufacture of imidazodiazepine derivatives. 5,670,640, Cl. 540-498,000.
- Rogge, Günter; and Jost-Enneking, Werner, to Windmüller & Höltscher. Mounting device for bearings placed on shaft extensions. 5,669,302, Cl. 101-216,000.
- Rogier, Donald J.: See—
Talley, John J.; Bertenshaw, Stephen R.; Graneto, Matthew J.; and Rogier, Donald J., 5,670,532, Cl. 514-403,000.
- Rohaly, Joseph S., to Panduit Corp. Cable tie having a strengthened neck area. 5,669,111, Cl. 24-16,0PB.

- Rohm and Haas Company: See—
Clarke, Philippa, 5,670,529, Cl. 514-360.000.
Spangler, Lori Ann; and Weaver, Damian Gerard, 5,670,691, Cl. 558-56.000.
- Rohm Co., Ltd.: See—
Kuga, Kaeko, 5,670,980, Cl. 345-102.000.
Murayama, Tomohiro, 5,670,429, Cl. 437-210.000.
Tanaka, Haruo; and Nakata, Naotaro, 5,671,305, Cl. 385-33.000.
- Rölleke, Hartmut: See—
Rittstieg, Henning; and Rölleke, Hartmut, 5,669,597, Cl. 267-64.170.
- Rolls-Royce Motor Cars Limited: See—
Grant, Philip; Becker, Michael Christopher; Brassington, David; Butler, Philip Samuel; Hutson, Steven Graham; Fullalove, Nicholas Jonathan; and Preston, Leslie Douglas, 5,670,845, Cl. 315-77.000.
- Rolls-Royce Power Engineering plc: See—
Hufon, Peter F., 5,669,766, Cl. 431-187.000.
- Romero, Johnnie; Weber, Andrew R.; Leach, Douglas B.; Paulson, Helene; and Sempliner, Arthur T., to Community Coffee Company, Inc. Vacuum storage and dispensing container, 5,669,528, Cl. 222-53.000.
- Ronconi, Marco, to Fasco S.p.A. Release mechanism with safety device for compressed-air nail firing tools, 5,669,541, Cl. 227-8.000.
- Rong, Bor-Dou: See—
Ting, Tah-Kang Joseph; Rong, Bor-Dou; and Luo, Jun-Wei, 5,671,189, Cl. 365-229.000.
- Roopparvar, Fariborz F., to Micron Quantum Devices, Inc. Integrated circuit operable in a mode having extremely low power consumption, 5,670,906, Cl. 327-534.000.
- Rosas, Juvenino: See—
Conrady, Clint; Woody, George R.; Rosas, Juvenino; Asbury, Victor O.; Ramos, Sergio; and Yeow, Eddie, 5,670,860, Cl. 320-2.000.
- Rosas, Manuel D.: See—
Weissinger, Peter G.; Baron, Tibor; and Rosas, Manuel D., 5,669,361, Cl. 123-520.000.
- Rosemount Inc.: See—
Moser, Thomas M.; Dolezalek, Charles R.; Jost, Michael B.; and Olson, Mark H., 5,670,722, Cl. 73-756.000.
Schwartz, Bradley N.; and Kirkpatrick, William R., 5,669,713, Cl. 374-1.000.
- Rosen, Shalom S., to Citibank, N.A. System and method for commercial payments using trusted agents, 5,671,280, Cl. 380-24.000.
- Rosenman, Daniel C.; and Hill, Donald G., to Ethicon, Inc. One-way suture retaining device for braided sutures, 5,669,935, Cl. 606-232.000.
- Rosner, S. Jeffrey: See—
Kruger, James B.; Rosner, S. Jeffrey; and Wang, Iton, 5,670,823, Cl. 257-751.000.
- Ross, Howard R., to H. R. Ross Industries, Inc. Roadway-powered electric vehicle system, 5,669,470, Cl. 191-10.000.
- Ross, Paul M.: See—
Mojden, Andrew E.; and Ross, Paul M., 5,669,482, Cl. 198-380.000.
- Ross, William J.; Stiteler, Andrew K.; and Wagner, Jerald G., to IMO Industries, Inc. Remote control apparatus and related method, 5,669,267, Cl. 74-480.008.
- Rossi, Cristina: See—
Animati, Fabio; Arcamone, Federico; Lombardi, Paolo; and Rossi, Cristina, 5,670,534, Cl. 514-422.000.
- Rossi, Louis Joseph: See—
Lau, Philip T. S.; Rossi, Louis Joseph; and Cowan, Stanley Wray, 5,670,302, Cl. 430-386.000.
- Rossi, Mosé: See—
Geraci, Giuseppe; De Rosa, Mario; Rossi, Mosé; Cancedda, Ranieri; De Luca, Michele; and Pellegrini, Graziella, 5,670,308, Cl. 435-1.000.
- Roth, David J., to Altek International, Inc. Dross compression apparatus and method utilizing ribs on collector and head, 5,669,957, Cl. 75-585.000.
- Roth, John Reece, to University of Tennessee Research Corporation. Method and apparatus for covering bodies with a uniform glow discharge plasma and applications thereof, 5,669,583, Cl. 244-130.000.
- Rothbart, Michael A., to Hunt-Wesson, Inc. Method for recovering edible oil from adsorbent materials, 5,670,678, Cl. 554-191.000.
- Rothbaum, Wayne P. Electroluminescent wall plate and switch, 5,670,776, Cl. 250-214.0AL.
- Rothe, Mike: See—
Goeddel, David V.; and Rothe, Mike, 5,670,319, Cl. 435-6.000.
- Rothfuss, Ulrich: See—
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- Rothman, Martin Terry: See—
Dickinson, Robert Julian; and Rothman, Martin Terry, 5,669,878, Cl. 604-95.000.
- Rottveel, Bart Joseph; and Brommersma, Pieter Derk, to B.V. Optische Industrie "De Oude Delft". Endoscopic probe, 5,669,389, Cl. 128-662.060.
- Rougeot, Henri Max: See—
Piccone, Dante Edmond; Ishaque, Ahmad Nadeem; Castleberry, Donald Earl; Rougeot, Henri Max; and Mendiito, Peter, 5,670,383, Cl. 437-3.000.
- Roush, Robert A.; and DeAngelis, Robert J., to United States of America, Navy. Acoustic window and method for making the same, 5,670,233, Cl. 428-99.000.
- Rouyer, Paul: See—
Denis, Philippe; Grosselin, Jean-Michel; Jenck, Jean; Metz, Francois; and Rouyer, Paul, 5,670,701, Cl. 360-204.000.
- Rowden, David L., to Eastman Kodak Company. Head to film interface for photofinishing equipment, 5,671,454, Cl. 396-320.000.
- Rowe, W. Bruce: See—
Trimbo, Susan; Madsen, David; and Rowe, W. Bruce, 5,670,157, Cl. 424-278.100.
- Rowley, Michael: See—
Lesson, Paul David; and Rowley, Michael, 5,670,522, Cl. 514-322.000.
- Rownd, Jason J.: See—
Madsen, Ernest L.; Zagzebski, James A.; Frank, Gary R.; and Rownd, Jason J., 5,670,719, Cl. 73-619.000.
- Roy, Sophie: See—
Sonenberg, Nahum; Katze, Michael G.; Roy, Sophie; Koromilas, Antonis E.; and Barber, Glen H., 5,670,330, Cl. 435-15.000.
- Rozenzweig, Marcel: See—
Canetta, Renzo Mauro; Eisenhauer, Elizabeth; and Rozenzweig, Marcel, 5,670,537, Cl. 514-449.000.
- RTC Industries, Inc.: See—
Hardy, Stephen N., 5,669,527, Cl. 221-191.000.
- Ruault, Jean-Philippe; and Besson, Richard, to Dassault Automatismes et Telecommunications. Process and device for character recognition, in particular for standardized character type E-13B, 5,671,291, Cl. 382-139.000.
- Rubin, Stan Michael, to Neudecker, Donald. Treatment for itch of chicken pox, 5,670,142, Cl. 414-78.050.
- Ruch, David M.: See—
Beach, Donald W.; Herman, Peter K.; Bounnakhom, Alan; Ruch, David M.; Partridge, John M.; and Parlow, J. E., 5,669,366, Cl. 123-572.000.
- Ruddy, David: See—
Kimmel, Bruce E.; Ellis, Michael; and Ruddy, David, 5,670,321, Cl. 435-6.000.
- Rudman, Isaac: See—
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- Rudner, Myron A.: See—
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- Rueb, Kurt: See—
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- Ruediger Haaga GmbH: See—
Mueller, Berthold; and Stahlecker, Werner, 5,669,523, Cl. 220-4.270.
- Rueger, David C.: See—
Oppermann, Hermann; Kuberasampath, Thangavel; Rueger, David C.; and Ozkaynak, Engin, 5,670,336, Cl. 435-69.100.
- Ruff, Robert O., to Ingersoll-Rand Company. Anchor for metal door frame, 5,669,198, Cl. 52-656.400.
- Ruger, Peter: See—
Terhardt, Josef; Ruger, Peter; and Baumann, Dieter, 5,670,203, Cl. 427-58.000.
- Ruggles, Kay L., to Newell Operating Company. Method for fabricating honeycomb insulating material, 5,670,008, Cl. 156-264.000.
- Rump, Siegfried; Fuchs, Alexander; and Knoff, Bernd, to Mercedes-Benz AG. Method for determining the start of an automatic braking process, 5,669,676, Cl. 303-125.000.
- Runne, Edward. Temperature sensor adaptor for measuring the temperature of a spark plug, 5,669,714, Cl. 374-208.000.
- Rupprecht, Hans; and von Keudell, Leopold, to Hilti Aktiengesellschaft. Masonry slitting apparatus, 5,669,371, Cl. 125-13.010.
- Rupprecht, Kathleen: See—
Bochis, Richard J.; Kotliar, Andrew; Parsons, William H.; and Rupprecht, Kathleen, 5,670,504, Cl. 514-247.000.
- Rushing, Rock A.: See—
Dingus, Michael L.; Zoch, Walter P.; Mayfield, Thomas R.; Bray, Alan; and Rushing, Rock A., 5,670,469, Cl. 510-274.000.
- Russell, Carl D.: See—
Estes, Wayne S.; and Russell, Carl D., 5,670,936, Cl. 340-501.000.
- Russell, David John: See—
Lauffer, John Matthew; Russell, David John; and Hansen, James Jens, 5,670,750, Cl. 174-262.000.
- Russell, Ernest; Baudouin, Daniel; and Wallace, James S., to Texas Instruments Incorporated. Vertical package mounted on both sides of a printed circuit board, 5,671,125, Cl. 361-760.000.
- Rust, Harald: See—
Schmidt-Radde, Martin; Heider, Marc; Dams, Albrecht; and Rust, Harald, 5,670,639, Cl. 540-485.000.
- Rust, Ray Dean, to Depositech, Inc. Method and apparatus for vacuum deposition of highly ionized media in an electromagnetic controlled environment, 5,670,415, Cl. 437-106.000.
- Rust, Steven James: See—
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- Rustad, Mark D.: See—
Rakity, Philip M.; and Rustad, Mark D., 5,671,446, Cl. 395-874.000.
- Rutan, Charles R. In-service cleaning of columns, 5,670,026, Cl. 203-4.000.
- Rutgers, The State University: See—
Kohn, Joachim B.; Brocchini, Stephen J.; and Schwartz, Arthur L., 5,670,602, Cl. 528-176.000.
- Rutz, Almer J. Detachable and adjustable auxiliary handle for a long-handled material-moving tool, 5,669,650, Cl. 294-58.000.
- Ryan, Charles R. Door latch, 5,669,640, Cl. 292-259.00R.
- Ryan, Eric Thomas; and Hambidge, Roger Louis, to Delta Schoeller Ltd. Electrical switch, 5,670,761, Cl. 200-16.00B.

- Ryan, Thomas B.; Holzwarth, Robert K.; and May, Kenneth A., to Zexel Torsen Inc. Combined power limiting and power distributing traction control system for improving vehicle performance in turns, 5,671,144, Cl. 364-426.029.
- Rymo, Lars: See—
Vahlne, Anders; Svennerholm, Bo; Rymo, Lars; Jeansson, Stig; and Horal, Peter, 5,670,311, Cl. 435-5.000.
- Ryobi Limited: See—
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- Ryu, Kye Yeon: See—
Kang, Myung Goo; Kang, Seong Sik; Choi, Sung Hoon; Joong, Mun Chea; Jang, Byoung Gyu; Ryu, Kye Yeon; Yu, Hyo Chong; and Lee, Sang Jig, 5,669,568, Cl. 242-355.100.
- Ryu, Kyeong-keol, to Samsung Electronics Co., Ltd. Digital convergence correcting method and apparatus adopting the same, 5,671,025, Cl. 348-745.000.
- Rzemien, Kevin Joseph: See—
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- S-B Power Tool Company: See—
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- Sabatini, Massimo: See—
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- Sabin, John L.: See—
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- Sabnani, Krishan Kumar: See—
I, Chih-Lin; and Sabnani, Krishan Kumar, 5,671,218, Cl. 370-252.000.
- Sacarisen, Stephen Paul: See—
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- Sacco, George P., Jr.: See—
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- Saderholm, Davin G.: See—
Marjanski, George C.; Saderholm, Davin G.; Paxton, Donald J.; Spilker, David L.; and Beesley, Brent R., 5,669,627, Cl. 280-728.300.
- Sadjo, James L.; and Melancon, Eugene J., to Minnesota Mining and Manufacturing Company. Support core ribbon for cold-shrink tube, 5,670,223, Cl. 428-34.900.
- Saeda, Koichi: See—
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- Sahara, Yasunobu: See—
Takenaka, Hiroyuki; Tosaka, Yorishige; Sahara, Yasunobu; Maruyama, Yoshiaki; Yamane, Hidenori; and Izuwa, Akio, 5,669,988, Cl. 148-210.000.
- Saidi, M. Yazid: See—
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- Saito, Atsushi; and Miyagawa, Ichiro, to Konica Corporation. Method for coating a thin layer on a substrate having a rough surface, 5,670,214, Cl. 427-356.000.
- Saito, Hiromitsu: See—
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- Saito, Hironori: See—
Moriguchi, Akisada; Yumoto, Osamu; Hata, Masaharu; Saito, Hironori; and Azumaguchi, Teruhisa, 5,670,868, Cl. 323-313.000.
- Saito, Kazuyo, to Kabushiki Kaisha Toshiba. Method and system for displaying three dimensional images, 5,671,157, Cl. 364-514.00R.
- Saito, Takashi: See—
Sakamoto, Masaharu; Kobayashi, Mei; Saito, Takashi; and Nishimura, Masafumi, 5,671,330, Cl. 395-2.770.
- Saito, Takayuki: See—
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- Saito, Tsunenari: See—
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- Saitoh, Akira: See—
Isobe, Ryosuke; Wakamatsu, Hideaki; Saitoh, Akira; and Seki, Akihiko, 5,670,245, Cl. 428-216.000.
- Saitoh, Kenji, to NEC Corporation. Non-volatile semiconductor memory device, 5,670,809, Cl. 257-316.000.
- Saitoh, Toshihiko: See—
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- Saitoh, Yukuo: See—
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- Sakaguchi, Minoru: See—
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- Sakai, Atsushi: See—
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- Sakai, Jun: See—
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- Sakai, Tetsuo: See—
Takano, Yoshimichi; Sakai, Tetsuo; Murakami, Hiroshi; Takahashi, Kazuo; Mimasu, Mutsumi; Miyagawa, Utaro; Takei, Makoto; and Wani, Koichi, 5,670,975, Cl. 345-60.000.
- Sakai, Yasuhiro; Yoneda, Tadahiro; and Kuramoto, Shigefumi, to Nippon Shokubai Co., Ltd. Organic-inorganic composite particles and production process therefor, 5,670,257, Cl. 428-402.000.
- Sakairi, Yoshikazu; and Ueno, Atsushi, to Oiles Corporation. Steering column bearing, 5,669,718, Cl. 384-220.000.
- Sakaki, Mamoru: See—
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- Sakakibara, Shiro: See—
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- Sakakida, Naohiro: See—
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- Sakamoto, Junshi: See—
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- Sakamoto, Kazunori; Ishikawa, Masanobu; Onoda, Atsushi; and Ito, Koji, to Aisin Seiki Kabushiki Kaisha. Impact sensor, 5,670,764, Cl. 200-61.45R.
- Sakamoto, Kouji: See—
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- Sakamoto, Masaharu; Kobayashi, Mei; Saito, Takashi; and Nishimura, Masafumi, to International Business Machines Corporation. Speech synthesis using glottal closure instants determined from adaptively-thresholded wavelet transforms, 5,671,330, Cl. 395-2.770.
- Sakamoto, Seiji: See—
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- Sakamoto, Tadashi: See—
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- Sakashita, Takeshi; Shimoda, Tomoaki; Nagai, Takashi; and Kodaira, Tetsuji, to General Electric Company. Copolycarbonate, a copolycarbonate composition, and a method for their manufacture, 5,670,605, Cl. 528-196.000.
- Sakata, Masashi, to Alps Electric Co., Ltd. Key top mounting structure for a vehicular switch, 5,669,487, Cl. 200-339.000.
- Sakata, Toshio: See—
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- Sakazume, Taku; Mitsumaki, Hiroshi; Takahashi, Katsuaki; and Tamura, Terumi, to Hitachi, Ltd. Apparatus of handling reagent for suppressing decrease in effect of reagent, 5,670,114, Cl. 422-67.000.
- Sakimura, Yoshikuni. Simple toilet, 5,669,084, Cl. 4-480.000.
- Sakiyama, Katsunori, to Olympus Optical Co., Ltd. Endoscope measurement apparatus for calculating approximate expression of line projected onto object to measure depth of recess or the like, 5,669,871, Cl. 600-117.000.
- Sakuma, Shuji; Atsumi, Kiminori; and Ishizaki, Tsutomu, to Kabushiki Kaisha Sangi. Protein-based semiconductor integrated circuit, 5,670,827, Cl. 257-741.000.
- Sakura, Shunji; Saeda, Koichi; Sunaba, Hiroto; and Shibata, Naoto, to Tsubakimoto Chain, Co. Apparatus for preventing urging rotation of a ball screw shaft for a linear working machine, 5,669,264, Cl. 74-89.150.
- Sakurai, Hidenori: See—
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- Saleem, Abbas A.; Bauer, William C.; McGuckin, John M.; Demars, Mathew A.; and Grandinett, David H., to Ford Global Technologies, Inc. Portable multi-position vehicle storage unit, 5,669,537, Cl. 224-539.000.
- Salliba, George A., to Quantum Corporation. Adaptive compression caching for tape recording, 5,671,389, Cl. 395-438.000.
- Sally, Thomas A. Speedloader for magazines of automatic rifles, 5,669,171, Cl. 42-87.000.
- Salo, Paul: See—
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- Salomon S.A.: See—
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- Salvage, John W.: See—
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- Salyers, Edward Francis. Human assailant simulator target, 5,669,610, Cl. 273-407.000.
- Samples, Robert H., Jr. Impact shielding device for shot blasting chambers, 5,669,806, Cl. 451-89.000.
- Samsung Display Devices Co., Ltd.: See—
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- Lee, Sang-rok, 5,671,032, Cl. 349-122.000.
- Samsung Electronics Co., Ltd.: See—
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- Chun, Doo-hwan, 5,671,009, Cl. 348-153.000.
 Jang, Dong-soo; and Choi, Jung-dal, 5,671,176, Cl. 365-185.020.
 Kim, Jeong-tae, 5,671,100, Cl. 360-77.140.
 Kim, Soon-doo, 5,671,011, Cl. 348-189.000.
 Kim, Young-Hee, 5,670,972, Cl. 345-13.000.
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 Lee, Hang-woo; Lee, Sang-hak; Chee, Joseph Kilwhoon; Hwang, Young-mo; Tsvetkov, Yuriy V.; Semenenko, Alexander V.; and Kuratov, Ivan I., 5,671,232, Cl. 372-22.000.
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 Lee, Jae-soo, 5,671,102, Cl. 360-94.500.
 Lee, Joo-Hyung; Lee, Ju-Bum; and Lee, Jae-Hyung, 5,670,400, Cl. 437-40.TFT.
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 Moon, Chang-youl, 5,669,752, Cl. 314-783.000.
 Oh, Jae-young; Jeong, Suk-yong; Kim, Han-sung; and Park, Jin-ho, 5,669,513, Cl. 211-41.000.
 Park, Byeong-ho, 5,671,208, Cl. 369-112.000.
 Park, Jong-wook; and Lim, Young-ho, 5,671,178, Cl. 365-185.220.
 Ra, Jun-ho, 5,671,203, Cl. 369-58.000.
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 Sanders, Paul W.: See—
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 Waldvogel, Erwin; and Eichenberger, Eugen, 5,670,648, Cl. 548-370.400.
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 Iwata, Yoshifumi; Hoshiba, Akihiko; Yoshida, Sadato; and Suzuki, Masaru, 5,669,349, Cl. 123-335.000.
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 Peterson, Charles M.; and Peterson, Lois G., 5,670,377, Cl. 436-87.000.
 Santa Barbara Research Center: See—
 Robinson, David A., 5,670,817, Cl. 257-443.000.
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 Santi, Daniel V. Method of obtaining diagnostic reagents, assays and therapeutics based on clinical manifestations of a disease, 5,670,312, Cl. 435-5.000.
 Santon, John C.; and Bauman, Joseph Henry, to Hewlett-Packard Company. Method and apparatus for achieving increased printer throughput, 5,669,721, Cl. 400-279.000.
 Santorsola, Alan J. Picture card, 5,669,165, Cl. 40-124.191.
 Santos, Giancarlo; Bottoni, Giuseppe; and Bilato, Ettore, to Recordati S.A. Chemical and Pharmaceutical Company. Liquid-suspension controlled-release pharmaceutical composition, 5,670,171, Cl. 424-490.000.
 Sanville, Robert J., Jr.; and Kernander, Carl P., to Polyclad Laminates, Inc. Circuit board prepreg with reduced dielectric constant, 5,670,250, Cl. 428-323.000.
 Sanyo Electric Co., Ltd.: See—
 Fujimoto, Masahisa; Nishio, Koji; and Saitoh, Toshihiko, 5,670,275, Cl. 429-218.000.
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 Yoshida, Masanao; Mitani, Tadahiho; Hirao, Keiji; and Ogata, Hitoshi, 5,671,196, Cl. 369-34.000.
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 Tanino, Masahiro; and Ogo, Manabu, 5,669,282, Cl. 91-520.000.
 Sapyta, Rachel Theora. Collapsible bucket, 5,669,525, Cl. 220-9.100.
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 Ware, Kenneth Marvin; France, Jack Wayne, Sr.; and Williams, Jeffrey A., 5,669,810, Cl. 452-193.000.
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 Venema, Franciscus Ties; Timmer, Christiena Jannie; Douma, Jolanda; and Jochems, Stephanus Aloysius Gerardus, 5,670,138, Cl. 424-52.000.
 Sara Rose International Inc.: See—
 Wu, Paul, 5,669,143, Cl. 30-324.000.
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 Knight, Steven J.; Sarder, Mark J.; and Baumann, William R., 5,669,794, Cl. 440-63.000.
 Sarjala, Markku. Method and arrangement for mechanical stabilization, 5,670,967, Cl. 343-757.000.
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 Colwell, Michael; Rajsuman, Rochit; Abrishami, Ray; and Sarkari, Zarir B., 5,670,890, Cl. 324-765.000.
 Sarrazin, Patrick: See—
 Durand, Daniel; Hillion, Gérard; and Sarrazin, Patrick, 5,670,437, Cl. 502-104.000.
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 Ho, Win-Sow Winston; Sartori, Guido; Thaler, Warren A.; and Dalrymple, David C., 5,670,052, Cl. 210-651.000.
 Sasaki, Eiichi: See—
 Kimura, Noriyuki; Suzuki, Minoru; Sakamoto, Kouji; Noguchi, Kouichi; Deki, Tsuyoshi; Matsushiro, Hiroyuki; Sasaki, Eiichi; Fujishiro, Takatsugu; and Kobayashi, Chiyako, 5,671,465, Cl. 399-119.000.
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 Sasaki, Kenichi; Saito, Takayuki; Nakajima, Ken; and Imai, Mitsuru, to Ebara Corporation. Method of and apparatus for producing ozonized water, 5,670,094, Cl. 261-27.000.
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 Tomooka, Keiji; Sakakida, Naohiro; Nishimura, Shin; Ashi, Yoshihiro; Matsuda, Hironari; Aoki, Satoshi; Nakano, Yukio; Takatori, Masahiro; Kazawa, Toru; Sasaki, Shinya; Takeyari, Kyoji; and Nakano, Hiroyuki, 5,671,074, Cl. 359-163.000.
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 Satake Corporation: See—
 Satake, Satoru; Mitoma, Yasuharu; and Ito, Takafumi, 5,669,511, Cl. 209-580.000.
 Satake, Hiroshi: See—
 Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; Ito, Mitsuo; Umetsuo, Fuminori, deceased, 5,670,379, Cl. 436-161.000.
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 Miyazaki, Takeshi; Sato, Hiroshi; Shiota, Katsuhiro; Yokoi, Hideto; Kashiwazaki, Akio; and Shiba, Shoji, 5,670,205, Cl. 427-64.000.
 Sato, Kenichi; and Hikata, Takeshi, to Sumitomo Electric Industries, Ltd. Bismuth oxide superconductor of preparing the same, 5,670,459, Cl. 505-230.000.
 Sato, Mitsugu; to Hitachi, Ltd. Scanning electron microscope and specimen observation method thereby, 5,670,782, Cl. 250-310.000.
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 Sato, Shinichi: See—
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 Sato, Yuichi: See—
 Kondo, Satoshi; Shimizu, Kazuma; and Sato, Yuichi, 5,671,343, Cl. 395-119.000.
 Satoh, Hiroshi; and Taniguchi, Ikuhiro, to Nissan Motor Co., Ltd. Distance control apparatus for vehicle, 5,670,953, Cl. 340-903.000.
 Satou, Shigeru: See—
 Matsuura, Sadahiro; Satou, Shigeru; Kondou, Yasuhiro; and Igarashi, Yoshiaki, 5,670,854, Cl. 318-432.000.
 Sattler, Stephan: See—
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 Saturn Machine & Welding Co., Inc.: See—
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 Satzinger GmbH & Co.: See—
 Graf, Walter; Immisch, Ulrich; and May, Anton, 5,669,839, Cl. 474-91.000.
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 Mandal, Robert P.; Grambow, James C.; Bettes, Ted C.; Sauer, Donald R.; Gurur, Emir; and Ward, Edmond R., 5,670,210, Cl. 427-240.000.
 Sauer, Jude S.; Rapp, Louis N.; and Tiberio, Thomas A., to LaserSurge, Inc. Surgical crimping device and method of use, 5,669,917, Cl. 606-139.000.
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- Belcher, Michael M.; and Saumier, Patrick M., 5,669,403, Cl. 135-90.000.
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 Sauter, Hubert: See—
 Wingert, Horst; Sauter, Hubert; Bayer, Herbert; Oberdorf, Klaus; Lorenz, Gisela; and Ammermann, Eberhard, 5,670,528, Cl. 514-357.000.
 Savage, Ronald E.: See—
 Minthorn, James W.; Berscheidt, Kevin T.; White, Brian R.; Savage, Ronald E.; Anderson, Merlin F.; Vann, Dudley; George, Flint Raymond; Henke, Joseph A.; and Prudhomme, Joseph M., 5,669,448, Cl. 166-308.000.
 Sawa, Tsutomu; Takenoshita, Hiroyuki; Hada, Toshiki; and Komatsu, Hirohide, to K R D Corporation; and International Business Machines Corporation. Paper feed roller, 5,669,605, Cl. 271-314.000.
 Sawada, Akemi: See—
 Usagawa, Toshiyuki; Sawada, Akemi; and Tominaga, Kenichi, 5,670,804, Cl. 257-279.000.
 Sawada, Hidemasa; and Sakai, Jun, to Brother Kogyo Kabushiki Kaisha. Hot melt ink, 5,669,965, Cl. 106-31.00R.
 Sawada, Shinichi: See—
 Miyazawa, Kazutoshi; Matsui, Shuichi; Goto, Yasuyuki; Nakagawa, Etsuo; and Sawada, Shinichi, 5,670,085, Cl. 252-299.010.
 Sawada, Yoshikazu: See—
 Tamura, Masaki; Fujii, Ayako; Kobari, Yoshiko; Nagano, Mamoru; Watanabe, Kiyoshi; Morinaga, Hidehiko; Koyama, Shigeki; and Sawada, Yoshikazu, 5,671,346, Cl. 395-171.000.
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 Sawyer, Philip N., to Fusion Medical Technologies, Inc. Methods for joining tissue by applying radiofrequency energy to performed collagen films and sheets, 5,669,934, Cl. 606-213.000.
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 Scarfone, Frank A.; and Arias, Juan J., to Symbiosis Corporation. Veress needle and cannula assembly, 5,669,883, Cl. 604-167.000.
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 Scawen, Michael D.: See—
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 Schaffel, Fritz. Radio-controlled clockwork, 5,671,192, Cl. 368-47.000.
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 Foedde, Hartmut; Schafheutle, Markus A.; Voelker, Achim; Wehner, Susanne; and Klein, Klausjoerg, 5,670,441, Cl. 502-200.000.
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 Ward, Anthony T.; Schank, Richard L.; and Chambers, John S., 5,670,291, Cl. 430-132.000.
 Schaper, Ulf-Armin: See—
 Knebel, Georg; Bomhard, Andreas; Schaper, Ulf-Armin; Stalberg, Theo; and Markert, Thomas, 5,670,670, Cl. 549-458.000.
 Scharer, Roger M., to General Binding Corporation. Coded coil element cartridge, 5,669,747, Cl. 412-38.000.
 Schebesta, Klaus; Schuchardt, Heinrich; and Ullrich, Martin, to Bayer Aktiengesellschaft. Completely self-cleaning mixer/reactor, 5,669,710, Cl. 366-97.000.
 Scheble, Philip C.: See—
 Papich, Kevin S.; Bachowski, Ronald; Baumann, Stephen F.; Cargnel, Robert A.; Carlin, Gerald E.; Clements, Donald J.; Gunkel, Ronald W.; Hoffman, William H.; McKinney, Larry G.; Pajerski, A. Victor; Palko, John J.; Patrick, Edward P., Jr.; Rennekamp, Stephen J.; Scheble, Philip C.; Sharbins, William R.; Swigon, Frank P.; and Truckner, William G., 5,669,436, Cl. 164-461.000.
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 Scheibel, Jeffrey John; Connor, Daniel Stedman; Fu, Yi-Chang; Bodet, Jean-Francois; Brown, Lesley Alexandra; Vinson, Phillip Kyle; and Reilman, Randall Thomas, to Procter & Gamble Company. The Method for hand washing dishes containing polyhydroxy amines, 5,669,984, Cl. 134-25.200.
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 Schetzina, Jan Frederick, to North Carolina State University. Integrated heterostructures of Group III-V nitride semiconductor materials including epitaxial ohmic contact non-nitride buffer layer and methods of fabricating same, 5,670,798, Cl. 257-96.000.
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- Look, Thomas F.; O'Keefe, Robert W.; Schmidt, Craig A.; Orenstein, Bruce D.; McGrath, Joseph M.; Ross, Steven E.; Bradshaw, Thomas I.; and Bradshaw, Franklin C., 5,670,005, Cl. 156-230.000.
- Schmidt, Glenn H., to Callaway Golf Company. Golf club metallic head formation. 5,669,828, Cl. 473-345.000.
- Schmidt, Hartmut; and Ritter, Günter, to Tatra Werke Dr. Rer. Nat. U. Baensch GmbH. Medicinal feed for the systemic treatment of ectoparasitic and ectobacterial diseases of fish. 5,670,511, Cl. 514-297.000.
- Schmidt, Michael Roland, to General Motors Corporation. Hybrid power transmission with power take-off apparatus. 5,669,842, Cl. 475-5.000.
- Schmidt, Reinhard, to R. Schmidt GmbH. Motor-vehicle seat headrest. 5,669,667, Cl. 297-408.000.
- Schmidt, Stanley J.: See—
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- Schmidt-Radde, Martin; Heider, Marc; Dams, Albrecht; and Rust, Harald, to BASF Aktiengesellschaft. Preparation of n-vinylactams. 5,670,639, Cl. 540-485.000.
- Schmit, Chantal: See—
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- Schmitt, Joseph Michael: See—
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- Schmitter, Edward P.; Miller, Harold L.; Erickson, Milton W.; and Thoe, Gerald A., to FN Manufacturing, Inc. Handgun having metallic rails within a polymeric frame. 5,669,169, Cl. 42-71.010.
- Schnabel, James P., Jr.; Ducat, Paul D.; and Boyles, Robert L., Jr., to Glasstech, Inc. Glass sheet forming system. 5,669,953, Cl. 65-182.200.
- Schnabel, Eberhard; Junginger, Erich; and Schneider, Erich, to Robert Bosch GmbH. Method and device for monitoring a heating device of a sensor mounted in the exhaust system of an internal combustion engine. 5,669,219, Cl. 60-274.000.
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- Schneider, Erich: See—
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- Schneider, Peter: See—
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- Schneider, Reiner; Opel, Ernst; and Heinz, Edgar, to Siemens Aktiengesellschaft. Optical cable and method for the manufacture thereof. 5,671,313, Cl. 385-110.000.
- Schneider, William E.: See—
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- Schnüppe, Hubert: See—
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- Schockemoehl, Gene F.; Farabee, L. Matt; and Daniels, David W., to Braden Manufacturing. Exhaust gas diffuser interface. 5,669,812, Cl. 454-45.000.
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- Schoettl, Johannes; and Lindner, Reinhard, to Siemens Aktiengesellschaft. Electronic control unit. 5,671,122, Cl. 341-715.000.
- Schofield, Kenneth; Larson, Mark L.; and Vadas, Keith J., to Donnelly Corporation. Rearview vision system for vehicle including panoramic view. 5,670,935, Cl. 340-461.000.
- Schohe-Loop, Rudolf: See—
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- Scholz, Wolfgang: See—
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- Schön, Manfred: See—
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- Schönfeld, Dieter; Bächle, Bernhard; Freitag, Martin; and Guth, Torsten, to MTU Motoren-und Turbinen-Union Friedrichshafen GmbH. Injection valves for liquid-fuel mixtures and associated processes. 5,669,334, Cl. 123-25.000.
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- Schröder, Ulf, to Nycomed Imaging AS. Ultrasonic contrast agent comprising carbohydrate particles. 5,670,135, Cl. 424-9.500.
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- Schroter, Holger: See—
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- Schuller International, Inc.: See—
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- Schultz, Mark L.: See—
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- Schulze, Dale R.; Parashac, Joseph; Fox, William D.; Setzer, Michael E.; Wales, Kenneth S.; and Zeiner, Mark S., to Ethicon Endo-Surgery, Inc. Surgical instrument. 5,669,544, Cl. 227-176.100.
- Schulze, Martin E.: See—
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- Schwab, Scott Daniel, to Ethyl Corporation. Emulsion diesel fuel composition with reduced emissions. 5,669,938, Cl. 44-301.000.
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- Schwartz, Abby M.: See—
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- Schwendemann, Bernhard: See—
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- Scott, Daniel G., to Westinghouse Air Brake Company. Two-piece check valve assembly. 5,669,412, Cl. 137-533.310.
- Scott, Eric. Paint ball gun and assemblies therefor. 5,669,369, Cl. 124-73.000.
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- Sealright Co., Inc.: See—
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- Seddon, Richard Ian: See—
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- Sehmer, Robert: See—
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- Seki, Akihiko: See—
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- Seki, Kiichiro: See—
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- Semenenko, Alexander V.: See—
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- Yamazaki, Shunpei, 5,670,386, Cl. 437-13.000.
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- Sewing, Barry Donald: See—
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- Moloney, David; and Gadducci, Paolo, 5,670,904, Cl. 327-277.000.
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- Shanquan, Hanqun: See—
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- Sharkins, William R.: See—
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- May, Paul; Walsh, Kathryn; and Davis, Gillian Margaret, 5,671,034, Cl. 349-200.000.
- Nakamura, Kozo; Ban, Mariko; Kimura, Naofumi; and Haneda, Akio, 5,671,031, Cl. 349-106.000.
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- Okazaki, Jun, 5,670,797, Cl. 257-91.000.
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- Suzuki, Tomohiro; and Hachimura, Kenji, 5,670,866, Cl. 323-289.000.
- Yamaki, Norihiro; Takao, Noriyuki; and Takano, Hidetoshi, 5,671,393, Cl. 395-477.000.
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- Sharp Microelectronics Technology, Inc.: See—
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- Shaw, Edward T., to ARCO Chemical Technology, L.P. Cement additives, 5,670,578, Cl. 525-187.000.
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- Lunger, Brooks Shawn; and Shealy, Glenn Scott, 5,670,079, Cl. 252-67.000.
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- Sbelby, Kevin Alan: See—
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- Ash, Carl Edwin; and Mysore, Nanyana, 5,670,586, Cl. 525-539.000.
- Baardman, Frank; Bradford, Arlean Marie; Jubb, Jayne; Scheerman, Pieter; Wijnagarden, Rudolf Jacobus; Bleeker, Erwin Paulus Petrus; and Van Broekhoven, Johannes Adrianus Maria, 5,670,611, Cl. 528-392.000.
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- Shibata, Akira: See—
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- Shimizu, Kazuma: See—
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- Shimizu, Masahiro: See—
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- Shimizu, Tetsuo: See—
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- Shimizu, Toshiro: See—
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- Shimura, Kenichi: See—
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- Huang, Wen-Ling Margaret; Shin, Hyungcheol; and Racanelli, Marco, 5,670,389, Cl. 437-21.000.
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- Haginaka, Jun; Wada, Hiroo; and Fujima, Hiroya, 5,670,629, Cl. 530-395.000.
- Shiozaki, Shizuo: See—
- Suzuki, Fumio; Shimada, Junichi; Koike, Nobuaki; Kase, Hiroshi; Nakamura, Joji; Shiozaki, Shizuo; and Nonaka, Hiromi, 5,670,498, Cl. 514-212.000.
- Shiozawa, Junichi: See—
- Hammerl, Erwin; Mandelman, Jack A.; Ho, Herbert L.; Shiozawa, Junichi; and Stengl, Reinhard Johannes, 5,670,805, Cl. 257-301.000.
- Shipman, Mark S.; and Christeson, Orville, to Intel Corporation. Method and apparatus for providing basic input/output services in a computer, 5,671,413, Cl. 395-652.000.
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- Shira, Chester S., to Carbi, Inc. Method of making a golf club head and the article produced thereby, 5,669,825, Cl. 473-324.000.
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- Shirahashi, Kazuo: See—
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- Shiroishi, Yoshihiro: See—
- Mitsuoka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yokuo; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126.000.
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- Shirot, Masaaki: See—
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- Shirotori, Hiroshi: See—
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- Schick, Scott, 5,669,841, Cl. 474-135.000.
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- Ranjan, Radhakrishnan; and Shoestock, Richard Francis, Sr., 5,670,926, Cl. 337-158.000.
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- Showalter, Dan Joseph, to Borg-Warner Automotive, Inc. Automotive torque transfer case with reduced angle forward output shaft, 5,669,460, Cl. 180-233.000.
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- Shroedl, Richard Michael: See—
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- Shuchart, Chris E.: See—
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- Walker, Michael L.; Shuchart, Chris E.; and Terracina, John M., 5,669,447, Cl. 166-300.000.
- Shufflebotham, Paul Kevin; and Griffin, Christopher, to LAM Research Corporation. Shape memory alloy lift pins for semiconductor processing equipment, 5,669,977, Cl. 118-728.000.
- Shultz, Jay Sheldon: See—
- Bullwinkel, Edward Paul; Chambers, Leon Eugene, Jr.; Geer, Robert Gillette; and Shultz, Jay Sheldon, 5,669,900, Cl. 604-391.000.
- Shultz, Jeffrey R.; and Crispin, Barry C., to Mannington Mills, Inc. Method for making a surface covering product and products resulting from said method, 5,670,237, Cl. 428-173.000.
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- Shumate, Allen: See—
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- Shunhua, Liu: See—
- Zaiting, Li; Chaogang, Xie; Wenyuan, Shi; Fukang, Jiang; Shunhua, Liu; Rennan, Pan; and Shichun, Li, 5,670,037, Cl. 208-114.000.
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- Sicom, Inc.: See—
- Cochran, Bruce A.; and McCallister, Ronald D., 5,671,257, Cl. 375-355.000.
- Sidaway, H. John: See—
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- Sideman, Samuel: See—
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- Sieber, Kurt D.: See—
- Papadopoulos, Kimon; and Sieber, Kurt D., 5,670,086, Cl. 252-301.40P.
- Siecor Corporation: See—
- Lanquist, Todd C., 5,671,273, Cl. 379-399.000.
- Siegel, Joachim W.: See—
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- Schoettl, Johannes; and Lindner, Reinhard, 5,671,122, Cl. 361-715.000.
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- Däumer, Wolfgang; and Boy, Jürgen, 5,671,114, Cl. 361-120.000.
- Eckstein, Elke; Hoffman, Birgit; deceased; Kiewra, Edward William; Kocon, Waldemar Walter; and Weiss, Marc Jay, 5,670,018, Cl. 156-643.100.
- Foglar, Andreas, 5,671,215, Cl. 370-227.000.
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- Knopp, Jürgen, 5,671,431, Cl. 395-800.000.
- Krebs, Stefan; and Reupke, Wolfgang, 5,671,145, Cl. 364-431.040.
- Kroemer, Nils; and Vossiek, Martin, 5,671,190, Cl. 367-99.000.
- May, Karl; Tratz, Herbert; and Engelhardt, Reiner, 5,669,317, Cl. 110-229.000.
- Meier, Wolfgang, 5,671,399, Cl. 395-500.000.
- Meyer, Willibald, 5,671,184, Cl. 365-200.000.
- Nusche, Georg, 5,669,416, Cl. 137-625.440.
- Schneider, Reiner; Opel, Ernst; and Heinz, Edgar, 5,671,313, Cl. 385-110.000.
- Streich, Bernhard, 5,671,115, Cl. 361-187.000.
- Verding, Markus; and Ehm, Thomas, 5,671,126, Cl. 361-796.000.
- Siemens Corporate Research, Inc.: See—
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- Siemens Electric Limited: See—
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- Alas, Michel; Sigismondi, Alain; and Tirel, Philippe-Jean, 5,670,659, Cl. 549-261.000.
- Sigloch, Helmut, to Sigloch Verlag Service GmbH. Packaging for books and/or other products and method and apparatus of the production thereof. 5,669,551, Cl. 229-103.200.
- Sigloch Verlag Service GmbH: See—
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- Silver, Thomas L.; and Wise, David, to Bob's Space Racer's Inc. Cash register game of skill. 5,669,607, Cl. 273-354.000.
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- Simmonds Precision Products, Inc.: See—
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- Simon, Morris; Kleshinski, Stephen J.; and Kinst, Thomas F., to Nitinol Medical Technologies, Inc. Removable embolus blood clot filter. 5,669,933, Cl. 600-200.000.
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- Simple Locksmith Co., Ltd.: See—
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- Simpson, Bernice. Flexible neck baby bottle. 5,669,520, Cl. 215-11.100.
- Simpson Strong-Tie Company, Inc.: See—
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- Simpson, William Henry; and Hastreiter, Jacob John, Jr., to Eastman Kodak Company. Dye-donor element containing elastomeric beads for thermal dye transfer. 5,670,449, Cl. 503-227.000.
- SIMS Deltec, Inc.: See—
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- Sinclair, Frank: See—
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- Sinco Engineering S.p.A.: See—
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- Singer, Daniel K.: See—
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- Singer, Howard M.: See—
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- Singer, Jack W.: See—
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- Singleton, Donald, Jr.: See—
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- Sintokogio, Ltd.: See—
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- Sivilich, Daniel M., to Humanicare International, Inc. Incontinence garment in the form of boxer shorts. 5,669,902, Cl. 604-396.000.
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- Skibinski, Gary L.: See—
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- Skilken, Stephen A.: See—
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- Skripsky, Harold O. Chainsaw attachment. 5,669,145, Cl. 30-371.000.
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- SMC Kabushiki Kaisha: See—
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- Smith, Bernard S.: See—
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- Smith, Mark A., to Columbus McKinnon Corporation. Telescoping infeed conveyor. 5,669,562, Cl. 241-101.740.
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- Snelling, Christopher, to Xerox Corporation. Xerographic systems using piezoelectric intermediate belt transfer. 5,671,472, Cl. 399-308.000.
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- Societe Industrielle de Liaisons Electriques: See—
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- Solar, Ronald J., to Cordis Corporation. Stent delivery system. 5,669,880, Cl. 604-96.000.
- Solberg, Scott Eugene; Seddon, Richard Ian; Pond, Bradley James; and Beauchamp, William Thomas, to Optical Coating Laboratory, Inc. Methods for preparing low scatter optical coatings. 5,670,030, Cl. 204-192.260.
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- Solvay Interco Limited: See—
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- Stein, Jeffrey I.: See—
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- Steiner, Beat: See—
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- Steinke, Joachim Hans Georg: See—
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- Stengl, Reinhard Johannes: See—
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- Stephenson, Ian Richard: See—
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- Stettler, Andreas: See—
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- Stokes, Christine P. Apparatus and method for slip casting for ceramic objects. 5,670,181, Cl. 425-84.000.
- Stone, Dale K.: See—
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- Stone, David B. Soccer training system. 5,669,833, Cl. 473-422.000.
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- Streich, Bernhard, to Siemens Aktiengesellschaft. Circuit arrangement for driving a contactor. 5,671,115, Cl. 361-187.000.
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- Stripling, Jeff Ricks: See—
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- Stroupe, Stephen D.: See—
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- Suboh, Abdel Hamid; Harkin, Patrick A.; and Hecht, Stuart, to Compaq Computer Corporation. Video controller with shared configuration pins. 5,670,983, Cl. 345-132.000.
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- Suehr, Susan Lynn; Kelly, William F.; Shimalla, Charles; Fiesch, Frank J.; and Knox, James E., to McNeil-PPC, Inc. Tricot nonwoven fabric. 5,670,234, Cl. 428-131.000.
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- Sugimoto, Shinichi: See—
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Tamaki, Tokuhiko; Sugiyama, Tatsuo; and Nakaoka, Hiroaki, 5,670,810, Cl. 257-331.000.
- Suguro, Kyoichi: See—
Nishihori, Kazuya; Kitaura, Yoshiaki; Tanabe, Yoshikazu; Aoyama, Tomonori; Suguro, Kyoichi; Okuwada, Kumi; Komatsu, Shuichi; and Abe, Kazuhide, 5,670,808, Cl. 257-310.000.
- Sulzer Ruti AG: See—
Lehnert, Frank; and De-Jager, Godert, 5,669,421, Cl. 139-1.00R.
- Sulzle, Walther, to Wilhelm Sulzle. Mechanical conveyor belt fastener. 5,669,115, Cl. 24-33.00B.
- Sumitomo Electric Industries, Ltd.: See—
Inoue, Akira; Hattori, Yasuji; Yamashita, Katsuya; Ohtsuki, Fumio; and Katsuyama, Yutaka, 5,671,308, Cl. 385-37.000.
- Nishibayashi, Yoshiki; Shikata, Shin-ichi; Fujimori, Naoki; and Kobayashi, Takeshi, 5,670,796, Cl. 257-77.000.
- Sato, Kenichi; and Hikata, Takeshi, 5,670,459, Cl. 505-230.000.
- Sumner, Wayne A.; Bracken, Allen T.; Griffith, David W.; Jones, David E.; and Rich, Edward L., to Iomega Corporation. Disk drive cartridge door. 5,671,109, Cl. 360-133.000.
- Sun, Feng-Chi. Flush control device for toilet. 5,669,082, Cl. 4-325.000.
- Sun, Gang: See—
Worley, Shelby D.; Sun, Gang; Sun, Wanying; and Chen, Tay-Yuan, 5,670,646, Cl. 548-301.100.
- Sun Medical Co., Ltd.: See—
Zeng, Weiping; Arata, Masami; and Banba, Tsuyoshi, 5,670,559, Cl. 523-118.000.
- Sun Microsystems, Inc.: See—
Subrahmaniam, Ramesh; and George, Elizabeth, 5,671,352, Cl. 395-183.170.
- Weisenbach, Robert J., 5,670,869, Cl. 323-313.000.
- Yu, Robert K.; and Zyner, Grzegorz B., 5,671,171, Cl. 364-748.000.
- Sun-Shiung. Water collection device derived from an umbrella. 5,669,402, Cl. 135-33.200.
- Sun, Shih-Wei, to Motorola, Inc. Process for forming semiconductor-on-insulator device. 5,670,387, Cl. 437-21.000.
- Sun, Wanying: See—
Worley, Shelby D.; Sun, Gang; Sun, Wanying; and Chen, Tay-Yuan, 5,670,646, Cl. 548-301.100.
- Sunaba, Hiroto: See—
Sakura, Shunji; Saeda, Koichi; Sunaba, Hiroto; and Shibata, Naoto, 5,669,264, Cl. 74-89.150.
- Sonburst Chemicals, Inc.: See—
Scepanski, William H., 5,670,473, Cl. 510-445.000.
- Suncast Corporation: See—
Tisbo, Thomas A.; and Whitehead, Stephen P., 5,669,515, Cl. 211-70.600.

- Sung, Chung-Jong: See—
Chang, Poh-Heng; and Sung, Chung-Jong, 5,669,826, Cl. 473-332.000.
Sung Ling Golf & Casting Co., Ltd.: See—
Chang, Poh-Heng; and Sung, Chung-Jong, 5,669,826, Cl. 473-332.000.
Sunkara, Sai P.: See—
Freedman, Jules; and Sunkara, Sai P., 5,670,521, Cl. 514-317.000.
Sunshine Medical Instruments, Inc.: See—
Kupersmidt, Vladimir, 5,671,301, Cl. 385-1.000.
Suntory Limited: See—
Yabuta, Masayuki; Suzuki, Yuji; Ohsuye, Kazuhiro; Oshima, Takehiro; Onai, Seiko; Magota, Koji; and Tanaka, Shoji, 5,670,340, Cl. 435-69.400.
Surma, Jeffrey E.: See—
Woskov, Paul P.; Cohn, Daniel R.; Tins, Charles H.; and Surma, Jeffrey E., 5,671,045, Cl. 356-316.000.
Susak, David M., to Motorola, Inc. Precision current limit circuit, 5,670,829, Cl. 307-10.100.
Sutherland, Robert L., to Riverwood International Corporation. Carrier for stacked bottles, 5,669,500, Cl. 206-427.000.
Sutton, Darrus W.: See—
Keller, Edwin C.; Benoist, Nellie G.; Durrell, David N.; Eaton, Ronald D.; Huffman, Linda F.; Kinney, Vickie L.; Muraco, John M.; Perry, Peggy S.; Phillips, Arville K.; Ramsey, Michael S.; Rogers, Guy; Shaw, Steven M.; Shipton, Steve R.; Sutton, Darrus W.; Walser, Stephen M.; and Warford, Foy A., Jr., 5,669,564, Cl. 242-43.00R.
Suyama, Hideo: See—
Sugawara, Nobuhiro; Suyama, Hideo; and Takada, Akio, 5,671,105, Cl. 360-113.000.
Suzuki, Chiharu; Masuda, Katsumi; Tamaru, Masatoshi; Inamori, Masahito; Takefuji, Nobuo; Yanagisawa, Katsutada; and Ogawa, Yasunori, to Kumiai Chemical Industry Co., Ltd. and Inami Chemical Industry Co., Ltd. Indazole-sulfonyleurea derivative, its use and intermediate for its production, 5,670,452, Cl. 504-213.000.
Suzuki, Eiichi: See—
Asano, Shinichi; Ohashi, Hiroyuki; Kondo, Hiromasa; Nojima, Kazuhiro; Imabepu, Katsuyoshi; Sakaki, Mamoru; and Suzuki, Eiichi, 5,670,242, Cl. 428-212.000.
Suzuki, Etsuro, to Canon Kabushiki Kaisha. Stereo image forming adapter, 5,671,450, Cl. 396-227.000.
Suzuki, Fumio; Shimada, Junichi; Koike, Nobuaki; Kase, Hiroshi; Nakamura, Joji; Shiozaki, Shizuo; and Nonaka, Hiromi, to Kyowa Hakko Kogyo Co., Ltd. 8-substituted styryl xanthine derivatives, 5,670,498, Cl. 514-212.000.
Suzuki, Hirotugu, to Funai Electric Co., Ltd. High voltage discharge circuit for CRT, 5,671,016, Cl. 348-377.000.
Suzuki, Katsuyoshi: See—
Negishi, Kiyoshi; Kawamura, Katsumi; Suzuki, Katsuyoshi; Orita, Hiroshi; and Suzuki, Minoru, 5,669,720, Cl. 400-120.050.
Suzuki, Masaaki: See—
Ohnuma, Kenji; Suzuki, Masaaki; and Danjoh, Keishi, 5,671,030, Cl. 349-106.000.
Suzuki, Masaru: See—
Iwata, Yoshifumi; Hoshiba, Akihito; Yoshida, Sadato; and Suzuki, Masaru, 5,669,349, Cl. 123-335.000.
Suzuki, Minoru: See—
Kimura, Noriyuki; Suzuki, Minoru; Sakamoto, Kouji; Noguchi, Kouichi; Deki, Tsuyoshi; Matsushiro, Hiroyuki; Sasaki, Eiichi; Fujishiro, Takatsugu; and Kobayashi, Chiyako, 5,671,465, Cl. 399-119.000.
Negishi, Kiyoshi; Kawamura, Katsumi; Suzuki, Katsuyoshi; Orita, Hiroshi; and Suzuki, Minoru, 5,669,720, Cl. 400-120.050.
Suzuki, Satoshi: See—
Naka, Shigeru; Suzuki, Satoshi; and Ono, Akihito, 5,669,792, Cl. 439-825.000.
Suzuki, Tatsuya: See—
Yokoyama, Kunio; Katagiri, Moriya; Sakurai, Hidenori; Kitahara, Yoshiyuki; Miyazaki, Hiroaki; and Suzuki, Tatsuya, 5,671,457, Cl. 396-411.000.
Suzuki, Tomohiro; and Hachimura, Kenji, to Sharp Kabushiki Kaisha. Chopper-type regulator circuit and chopper-type regulator IC, 5,670,866, Cl. 323-289.000.
Suzuki, Yuji: See—
Yabuta, Masayuki; Suzuki, Yuji; Ohsuye, Kazuhiro; Oshima, Takehiro; Onai, Seiko; Magota, Koji; and Tanaka, Shoji, 5,670,340, Cl. 435-69.400.
Svennerholm, Bo: See—
Vahlne, Anders; Svennerholm, Bo; Rymo, Lars; Jeansson, Stig; and Horal, Peter, 5,670,311, Cl. 435-5.000.
Swank, Rodney, to Merizo Enterprises L.L.C. Method for making organically based polymer/thermoplastic products and apparatus, 5,670,106, Cl. 264-211.210.
Swanson, Larry Sven. Mattress with visco-elastic, temperature sensitive top layer, 5,669,094, Cl. 5-740.000.
Swartzel, Kenneth R.; and Palaniappan, Sevugan, to North Carolina State University. Method for pasteurizing liquid whole egg products, 5,670,199, Cl. 426-614.000.
Sweed, James. Kick glider toy, 5,669,803, Cl. 446-61.000.
Sweeney, Niall: See—
Gyure, Sandor; Sweeney, Niall; and Newman, Albert, 5,669,889, Cl. 604-263.000.
Swigon, Frank P.: See—
Papich, Kevin S.; Bachowski, Ronald; Baumann, Stephen F.; Cargnel, Robert A.; Carlin, Gerald E.; Clements, Donald J.; Gunkel, Ronald W.; Hoffman, William H.; McKinney, Larry G.; Pajerski, A. Victor; Palko, John J.; Patrick, Edward P., Jr.; Rennekamp, Stephen J.; Scheble, Philip C.; Shalkins, William R.; Swigon, Frank P.; and Truckner, William G., 5,669,436, Cl. 164-461.000.
Switchenko, Arthur C.; Kunn, Nurith; Neukom, Christian; Pirio, Marcel; Berger, Donald E., Jr.; and Ullman, Edwin F., to Behringwerke AG. Compositions and methods for removal of detergents, 5,670,690, Cl. 558-31.000.
Sybase, Inc.: See—
Wood, Timothy E., 5,671,350, Cl. 395-182.130.
Symbios Logic, Inc.: See—
Binford, Charles D.; Gallagher, Michael J.; and McCombs, Craig C., 5,671,365, Cl. 395-280.000.
Crafts, Harold S., 5,671,397, Cl. 395-500.000.
Symbiosis Corporation: See—
Scarfone, Frank A.; and Arias, Juan J., 5,669,883, Cl. 604-167.000.
Synchronous Communications, Inc.: See—
Ramachandran, Mani; and Gysel, Hermann, 5,671,075, Cl. 359-180.000.
Szerlag, Donald: See—
Kollar, Craig Anthony; Szerlag, Donald; and Lajack, William Charles, 5,669,181, Cl. 49-360.000.
Szykowski, Jerzy, to Novera Products Inc. Fastening mechanism for access panels and grills using screw driven arm, 5,669,190, Cl. 52-196.000.
Tabara, Suguru, to Yamaha Corporation. Method of forming an interconnection with metal plug and reduced step, 5,670,422, Cl. 437-192.000.
Tabaroni, Roberto; and Bartoli, Andrea, to Unifill S.p.A. Packaging, 5,669,208, Cl. 53-453.000.
Tabata, Atsushi; Takahashi, Nobuaki; and Hamajima, Tetsuo, to Toyota Jidosha Kabushiki Kaisha. Apparatus for controlling concurrent releasing and engaging actions of frictional coupling devices for shifting vehicle automatic transmission, 5,669,849, Cl. 477-102.000.
Tabuchi, Haruhiko; Kumai, Tsugio; Sasaki, Seimi; and Miura, Kazunori, to Fujitsu Limited. Optical parts fixing apparatus and method of manufacturing the same, 5,671,315, Cl. 385-137.000.
Tachi-S Co., Ltd.: See—
Haraguchi, Youichiro; and Kumazawa, Kenichi, 5,669,670, Cl. 297-452.610.
Katsuta, Kazuo, 5,669,130, Cl. 29-91.500.
Tada, Kozo, to Citizen Watch Co., Ltd. Sealed, dust-proof magnetic disk drive, 5,671,103, Cl. 360-97.010.
Tadros, Alfred H., to Space Systems/Loral, Inc. Satellite gravity gradient compensation using on-orbit solar array reorientation, 5,669,586, Cl. 244-167.000.
Taft, Barry A.: See—
Van Alstine, Daniel W.; Ludwick, George E.; Bonner, George A.; Hager, Mark; Eggebrecht, Charles M.; Baughman, Allen; and Taft, Barry A., 5,669,587, Cl. 246-220.000.
Taggart, John J.: See—
Berges, David A.; and Taggart, John J., 5,670,500, Cl. 514-233.200.
Tagusa, Yasunobu: See—
Kawaguchi, Hisao; Sugimoto, Shinichi; and Tagusa, Yasunobu, 5,670,994, Cl. 345-206.000.
Tai Jin Mold Mfg. Co., Ltd.: See—
Lin, I-En; and Fong, Bill, 5,671,310, Cl. 385-78.000.
Taira, Kenichi, to Sony Corporation. Quantum dot-tunnel device and information processing apparatus and method using same, 5,671,437, Cl. 395-800.000.
Taiwan Semiconductor Manufacturing Company, Ltd.: See—
Chen, Chen-Chin; and Chou, Kuei-Lung, 5,669,508, Cl. 206-710.000.
Huang, Yuan-Chang, 5,670,019, Cl. 156-643.100.
Huang, Yuan-Chang; and Yen, Shih-Kuei, 5,671,119, Cl. 361-234.000.
Kuo, So Wen; and Liang, Mong-Song, 5,670,431, Cl. 437-241.000.
Tsai, Chau-Jie, 5,670,432, Cl. 437-245.000.
Yoo, Chue-San, 5,670,423, Cl. 437-192.000.
Taiyo Steel Co., Ltd.: See—
Kameya, Toru; and Takano, Katsuaki, 5,670,261, Cl. 428-457.000.
Taiyo Yuden Kabushiki Kaisha: See—
Nogi, Kenichiro; and Uneyama, Nobuhiro, 5,669,134, Cl. 29-605.000.
Tajima, Yoshio; Kataoka, Naoki; Numao, Yosuke; Seki, Takashi; and Matsura, Kazuo, to Nippon Oil Co., Ltd. Process for the polymerization of olefinic hydrocarbons, 5,670,588, Cl. 526-128.000.
Takada, Akio: See—
Sugawara, Nobuhiro; Suyama, Hideo; and Takada, Akio, 5,671,105, Cl. 360-113.000.
Takada, by Jun, administrator: See—
Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, 5,670,458, Cl. 505-125.000.
Takada, by Kei, administrator: See—
Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, 5,670,458, Cl. 505-125.000.
Takada, by Komichi, administrator: See—
Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, 5,670,458, Cl. 505-125.000.
Takada, by Kei, administrator: See—
Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, 5,670,458, Cl. 505-125.000.
Takada, Kazuhiko: See—
Inoue, Toshihiro; and Takada, Kazuhiko, 5,669,257, Cl. 72-20.100.

- Takada, Toshio, deceased: See—
Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, 5,670,458, Cl. 505-125.000.
Takagi, Makoto: See—
Miyake, Toshihiro; Kondo, Koji; Kurahashi, Takashi; Okumura, Nozomu; and Takagi, Makoto, 5,669,548, Cl. 228-224.000.
Takahashi, Katsuaki: See—
Sakazume, Taku; Mitsumaki, Hiroshi; Takahashi, Katsuaki; and Tamura, Terumi, 5,670,114, Cl. 422-67.000.
Takahashi, Kazuo; Ono, Mitsuhiro; and Honma, Takumi, to Sony Corporation. Magnetic tape surface treatment method and apparatus, 5,669,804, Cl. 451-59.000.
Takahashi, Kazuo: See—
Takano, Yoshimichi; Sakai, Tetsuo; Murakami, Hiroshi; Takahashi, Kazuo; Mimasu, Mutsumi; Miyagawa, Utaro; Takei, Makoto; and Wani, Koichi, 5,670,975, Cl. 345-60.000.
Takahashi, Keishi: See—
Takahashi, Kohji; Matsuda, Hiroshi; and Takahashi, Keishi, 5,671,104, Cl. 360-105.000.
Takahashi, Kohji; Matsuda, Hiroshi; and Takahashi, Keishi, to International Business Machines Corporation. System and method for locking a disk actuator in vertical and horizontal directions, 5,671,104, Cl. 360-105.000.
Takahashi, Koji; and Terashita, Takaaki, to Fuji Photo Film Co., Ltd. Method of estimating spectral distribution of film and method of determining exposure amount, 5,671,060, Cl. 356-405.000.
Takahashi, Nobuaki; Asakawa, Sadao; Dousako, Shun-ichi; and Idota, Tadashi, to Snow Brand Milk Co., Ltd. Low allergenic nutrient composition and method of using same, 5,670,201, Cl. 426-648.000.
Takahashi, Nobuaki: See—
Tabata, Atsushi; Takahashi, Nobuaki; and Hamajima, Tetsuo, 5,669,849, Cl. 477-102.000.
Takahashi, Nobuo: See—
Takeuchi, Yukihisa; Takahashi, Nobuo; and Okada, Shigeki, 5,670,999, Cl. 347-70.000.
Takahashi, Shigeki: See—
Katoh, Riichi; Tanamoto, Tetsufumi; and Takahashi, Shigeki, 5,670,790, Cl. 257-14.000.
Takahashi, Shigeru; Okura, Sadakatsu; and Nomura, Toshikatsu, to Canon Kabushiki Kaisha; and Nihon Cement Co., Ltd. Method of manufacturing an electro-mechanical energy conversion device for vibration driven actuator, 5,669,127, Cl. 29-25.350.
Takahashi, Yoshinori; Yamada, Minoru; Nojima, Yoshiyuki; and Fujii, Yasutoshi, to Konica Corporation. Data-recording unit in use with a camera, 5,671,451, Cl. 396-310.000.
Takahashi, Yoshimi: See—
Chau, Kising; and Takahashi, Yoshimi, 5,671,248, Cl. 375-208.000.
Takahashi, Kiyosi: See—
Kuwahara, Kenji; Takahashi, Kiyosi; Ueda, Hideyuki; Echigo, Noriyasu; Murai, Mikio; and Odagiri, Masaru, 5,670,107, Cl. 264-234.000.
Takahira, Kenichi: See—
Nagata, Yoshishige; and Takahira, Kenichi, 5,671,254, Cl. 375-326.000.
Takaishi, Toru; and Tanizawa, Tetsu, to Fujitsu Limited. Semiconductor device having output signal control circuit, 5,670,894, Cl. 326-27.000.
Takano, Hidetoshi: See—
Yamaki, Norihiro; Takao, Noriyuki; and Takano, Hidetoshi, 5,671,393, Cl. 395-477.000.
Takano, Katsuki: See—
Kameya, Toru; and Takano, Katsuaki, 5,670,261, Cl. 428-457.000.
Takano, Masatoshi: See—
Hokamura, Satoshi; Ichinokawa, Kazuhiro; Yano, Takaaki; Takano, Masatoshi; Hirano, Masakazu; Maseki, Motohiro; Yoshida, Tatsuya; Horie, Mikio; Shirai, Masami; Ito, Eiichi; and Otsuka, Kenichiro, 5,671,466, Cl. 399-124.000.
Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, to Seisan Kaihatsu Kagaku Kenkyusho; and NEC Corporation. Oxide superconductor and method for producing the same, 5,670,458, Cl. 505-125.000.
Takano, Yoshimichi; Sakai, Tetsuo; Murakami, Hiroshi; Takahashi, Kazuo; Mimasu, Mutsumi; Miyagawa, Utaro; Takei, Makoto; and Wani, Koichi, to Nippon Hoso Kyokai; and Matsushita Electronics Corporation. Method for driving gas discharge display panel, 5,670,975, Cl. 345-60.000.
Takao, Noriyuki: See—
Yamaki, Norihiro; Takao, Noriyuki; and Takano, Hidetoshi, 5,671,393, Cl. 395-477.000.
Takaoka, Kazuichiyo; Hyodo, Kenji; Ebihara, Isao; Oku, Yasuyuki; and Ohgami, Katsushi, to Mitsubishi Paper Mills Limited. Photoreactive noxious substance purging agent and photoreactive noxious substance purging material using the agent, 5,670,247, Cl. 428-297.000.
Takashima, Hiroshi: See—
Maruta, Takayuki; Takashima, Hiroshi; Ishikawa, Tomoji; Sugihara, Kazuyuki; Kato, Shinji; and Kosuge, Katsuhiko, 5,671,470, Cl. 399-235.000.
Takatani, Takayuki; and Ishida, Hiromi, to General Electric Co. Polyamide resin composition, 5,670,576, Cl. 525-132.000.
Takatani, Masahiro: See—
Tomooka, Keiji; Sakakida, Naohiro; Nishimura, Shin; Ashi, Yoshihiro; Matsuda, Hironari; Aoki, Satoshi; Nakano, Yukio; Takatori, Masahiro; Kazawa, Toru; Sasaki, Shinya; Takeyari, Kyoji; and Nakano, Hiroyuki, 5,671,074, Cl. 359-163.000.
Takatsuka, Satoru: See—
Hatano, Hiroshi; Yoshii, Ichiro; and Takatsuka, Satoru, 5,670,816, Cl. 257-394.000.
Takeda Chem. Ind. Ltd.: See—
Murakami, Kazuo; Ueno, Naoto; and Kato, Yukio, 5,670,338, Cl. 435-69.100.
Takeda Chemical Industries, Ltd.: See—
Itoga, Kiyoshi; Tsutsumi, Yoshio; Tsuji, Masanori; and Tatebayashi, Ayako, 5,670,124, Cl. 423-239.100.
Takeda, Hiroaki, to Canon Kabushiki Kaisha. Power-supply control apparatus for image processing apparatus, 5,670,832, Cl. 307-39.000.
Takeda, Takefusa, to Mitsubishi Denki Kabushiki Kaisha. Facility installation structure in clean room, 5,669,814, Cl. 454-187.000.
Takeda, Yasuo: See—
Takano, Mikio; Hiroi, Zenji; Takeda, Yasuo; Takada, Toshio, deceased; Takada, by Komichi, administrator; Takada, by Jun, administrator; and Takada, by Kei, administrator, 5,670,458, Cl. 505-125.000.
Takefuji, Nobuo: See—
Suzuki, Chiharu; Masuda, Katsumi; Tamaru, Masatoshi; Inamori, Masahito; Takefuji, Nobuo; Yanagisawa, Katsutada; and Ogawa, Yasunori, 5,670,452, Cl. 504-213.000.
Takehara, Nobuyoshi; and Fukae, Kimitoshi, to Canon Kabushiki Kaisha. Abnormality detection method, abnormality detection apparatus, and solar cell power generating system using the same, 5,669,987, Cl. 136-244.000.
Takei, Makoto: See—
Takano, Yoshimichi; Sakai, Tetsuo; Murakami, Hiroshi; Takahashi, Kazuo; Mimasu, Mutsumi; Miyagawa, Utaro; Takei, Makoto; and Wani, Koichi, 5,670,975, Cl. 345-60.000.
Takei, Tetsuya; and Hashizume, Junichiro, to Canon Kabushiki Kaisha. Electrophotographic light receiving member having an outermost surface with a specific metal element-bearing region and a region substantially free of said metal element which are two-dimensionally distributed, 5,670,286, Cl. 430-66.000.
Takenaka, Hiroyuki; Tosaka, Yorishige; Sahara, Yasunobu; Maruyama, Yoshiaki; Yamane, Hidenori; and Izawa, Akio, to Mitsubishi Jukogyo Kabushiki Kaisha. Corrugating roll and manufacturing method thereof, 5,669,988, Cl. 148-210.000.
Takenoshita, Hiroyuki: See—
Sawa, Tsutomu; Takenoshita, Hiroyuki; Hada, Toshiki; and Komatsu, Hirohide, 5,669,605, Cl. 271-314.000.
Takeuchi, Esther S.; and Leising, Randolph A., to Wilson Greatbatch Ltd. Alternate synthetic method for mixed metal oxide cathode materials, 5,670,276, Cl. 429-219.000.
Takeuchi, Mizutomo; Shouzaki, Hajime; Tomotsu, Norio; and Kuramoto, Masahiko, to Idemitsu Kosan Co., Ltd. Catalyst for producing aromatic vinyl compound-based polymer composition and process for producing aromatic vinyl compound-based polymer composition using same, 5,670,587, Cl. 526-119.000.
Takeuchi, Yukihisa; Takahashi, Nobuo; and Okada, Shigeki, to NGK, Insulators, Ltd.; and Seiko Epson Corporation. Ink jet print head having members with different coefficients of thermal expansion, 5,670,999, Cl. 347-70.000.
Takeyari, Kyoji: See—
Tomooka, Keiji; Sakakida, Naohiro; Nishimura, Shin; Ashi, Yoshihiro; Matsuda, Hironari; Aoki, Satoshi; Nakano, Yukio; Takatori, Masahiro; Kazawa, Toru; Sasaki, Shinya; Takeyari, Kyoji; and Nakano, Hiroyuki, 5,671,074, Cl. 359-163.000.
Takeyasu, Masanari: See—
Childers, Jimmie Don; Yamamoto, Seiichi; and Takeyasu, Masanari, 5,671,187, Cl. 365-205.000.
Takiguchi, Tohru; and Goto, Katsuhiko, to Mitsubishi Denki Kabushiki Kaisha. Strained quantum well structure, 5,671,242, Cl. 372-45.000.
Takiguchi, Tsuyoshi: See—
Okado, Kenji; Ugai, Toshiyuki; Fujita, Ryoichi; Kanbayashi, Makoto; Takiguchi, Tsuyoshi; Ichikawa, Yasuhiro; and Iida, Wakashi, 5,670,288, Cl. 430-122.000.
Talkington-Verser, Carol: See—
Spencer, Emerald Martin; and Talkington-Verser, Carol, 5,670,341, Cl. 435-69.400.
Talley, John J.; Bertenshaw, Stephen R.; Graneto, Matthew J.; and Rogier, Donald J., to G. D. Searle & Co. Pyrazolyl derivatives for the treatment of inflammation, 5,670,532, Cl. 514-403.000.
Tam, Simon W.: See—
Sherstinsky, Semyon; Shamouilian, Shamouil; Birang, Manoocher; Mak, Alfred; and Tam, Simon W., 5,671,117, Cl. 361-234.000.
Tamaki, Tokuhiko; Sugiyama, Tatsuo; and Nakaoka, Hiroaki, to Matsushita Electric Industrial Co., Ltd. Semiconductor device with a vertical field effect transistor, 5,670,810, Cl. 257-331.000.
Tamaru, Masatoshi: See—
Suzuki, Chiharu; Masuda, Katsumi; Tamaru, Masatoshi; Inamori, Masahito; Takefuji, Nobuo; Yanagisawa, Katsutada; and Ogawa, Yasunori, 5,670,452, Cl. 504-213.000.
Tamaru, Tsuyoshi: See—
Nishitani, Eisuke; Tsuzuku, Susumu; Kobayashi, Shigeru; Kasahara, Osamu; Nezu, Hiroki; Ishino, Masakazu; and Tamaru, Tsuyoshi, 5,670,421, Cl. 437-192.000.
Tamesho, Tadashi; Torii, Shuji; and Makita, Mitsuhiro, to Nissan Motor Co., Ltd. Tire air pressure drop detecting system, 5,670,716, Cl. 73-146.200.
Tamura, Hidekazu: See—
Kawata, Hideaki; Iida, Tomohide; Hatase, Yoshiteru; Tamura, Hidekazu; and Kawano, Nobuaki, 5,670,287, Cl. 430-106.600.

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- Tanabe, Yoshikazu: See—
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- Tanaka, Hirokazu: See—
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- Tanghøj, Allan, to Coloplast A/S. External urinary catheter. 5,669,893, Cl. 604-349.000.
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- Tanizawa, Tetsu: See—
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- Tanox Biosystems, Inc.: See—
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- Tanuma, Toshihiro, to Asahi Glass Company Ltd. Recording sheet and record. 5,670,249, Cl. 428-304.400.
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- Tapio, Einar: See—
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- Tapmatic Corporation: See—
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- Tarantino, Elia R. Casino card table with video display. 5,669,817, Cl. 463-13.000.
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- Scheldrup, Ronald W.; and Schaller, Laurent B., 5,669,905, Cl. 606-32.000.
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- Taylor, Alistair Stewart: See—
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- Taylor, Roger John: See—
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- Taylor, Spencer Edwin: See—
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- TCP Reliable Inc.: See—
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- TDK Corporation: See—
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- Kizima, Kaoru, 5,670,932, Cl. 340-384.680.
- Teca-Print AG: See—
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- Technion Research & Development Foundation Ltd.: See—
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- Tsai, Shih Fan, 5,669,268, Cl. 74-489.000.
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- Tenderland Limited: See—
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- Teng, Clarence W.: See—
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- Tenneco Packaging: See—
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- Tenneco Plastics Company: See—
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- Terada, Naohiro: See—
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- Teramoto, Satoshi: See—
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- Terracina, John M.: See—
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- Texas Brine Corporation: See—
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- Texas Instruments Incorporated: See—
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- Hodson, Lester L.; and Primm, Charles E., 5,669,690, Cl. 353-122.000.
- Lee, Edward C., 5,669,801, Cl. 445-24.000.
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- Tsong, Danny; Chou, Tony; and Chiang, Johnson, 5,670,850, Cl. 315-370.000.
- Wild, Ulrich H. H.; and Jabri, Mohamed Iyad, 5,671,351, Cl. 395-183.140.
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- Thatte, Hemant Sadashiv: See—
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- Thermo King Corporation: See—
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- Thermo-Vu Sunlite Industries, Inc.: See—
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- Thompson, Michael Kevin: See—
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- Thomson Consumer Electronics, Inc.: See—
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 Takeuchi, Mizutomo; Shouzaki, Hajime; Tomotsu, Norio; and Kuramoto, Masahiko, 5,670,587, Cl. 526-119.000.
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 Toncelli, Marcello. Process for the production of reinforced slabs of stone material. 5,670,007, Cl. 156-257.000.
 Tonelli, Francesco: See—
 Brandi, Maria Luisa; and Tonelli, Francesco, 5,670,523, Cl. 514-324.000.
 Toney, Jeffrey H.: See—
 Donahue, Brian A.; Toney, Jeffrey H.; Essigmann, John M.; Lippard, Stephen J.; Pil, Pieter M.; Bruhn, Suzanne L.; Brown, Steven J.; and Kelleff, Patti J., 5,670,621, Cl. 530-350.000.
 Tongel, Dave M.: See—
 Hooper, Donald F.; Tongel, Dave M.; and Evans, Michael B., 5,671,225, Cl. 370-468.000.
 Tono, Gianni. Floor cleaning machine with an additional fluid nozzle with connector and suction by-pass. 5,669,098, Cl. 15-321.000.
 Tonomura, Fumio, to NEC Corporation. Satellite channel interface in indoor unit used for satellite data communication. 5,671,220, Cl. 370-281.000.
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 Nakamura, Kozo; Ban, Mariko; Kimura, Naofumi; and Haneda, Akio, 5,671,031, Cl. 349-106.000.
 Torii, Shuji: See—
 Tamasho, Tadashi; Torii, Shuji; and Makita, Mitsuhiro, 5,670,716, Cl. 73-146.200.
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 Toshiba America, Inc.: See—
 Arakawa, Mitsuaki; van Heteren, John G.; Carlson, Joseph W.; Kaufman, Leon; and Tapio, Einar, 5,670,881, Cl. 324-322.000.
 Toshiba Machine Co., Ltd.: See—
 Honda, Takaaki; and Mitani, Shinichi, 5,671,323, Cl. 392-418.000.
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 Ueno, Hideyuki, 5,669,543, Cl. 227-67.000.
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 Burke, Patrick Michael; Gelling, Onko Jan; Oevering, Henk; and Toth, Imre, 5,670,700, Cl. 560-175.000.
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 Townsend, Carl W.; and Purer, Edna M., to Hughes Aircraft Company. Liquid carbon dioxide dry cleaning system having a hydraulically powered basket. 5,669,251, Cl. 68-58.000.
 Townsend, Michael T.: See—
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 Townsend, Ray T. Safety means for powered machinery. 5,669,809, Cl. 452-125.000.
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 Henderson, Daniel A.; and Townsley, Darren, 5,671,271, Cl. 379-355.000.
 Towsley, Harold E. Flexible knee and leg brace. 5,669,873, Cl. 602-26.000.
 Toy, Lora G.: See—
 Pinnau, Ingo; Toy, Lora G.; and Casillas, Carlos, 5,670,051, Cl. 210-651.000.
 Toyama Machineries Co., Ltd.: See—
 Mizuno, Naoki; Sakata, Toshio; and Toyama, Toshio, 5,671,471, Cl. 399-297.000.
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 Kobori, Shigeji; Morimoto, Jotaro; and Hatakeyama, Yuji, 5,669,968, Cl. 106-696.000.
 Toyohara, Yuichiro; and Kunishi, Tsuyoshi, to Canon Kabushiki Kaisha. Fixing device having a power supply control element for controlling a temperature of a heat member. 5,671,462, Cl. 399-33.000.
 Toyota Jidosha Kabushiki Kaisha: See—
 Koba, Hiroyuki, 5,669,728, Cl. 403-270.000.
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 Hayashi, Kazuhiko, 5,670,933, Cl. 340-426.000.
 Homan, Akinori; Ishikawa, Kiyonari; and Okuda, Hirofumi, 5,669,844, Cl. 475-160.000.
 Hyodo, Yoshihiko; Matsuka, Hiroki; and Ishikawa, Takashi, 5,669,360, Cl. 123-520.000.
 Kubota, Yuichi; and Tokoro, Setsuo, 5,670,963, Cl. 342-70.000.
 Shinohara, Susumu; and Kiyomiya, Shinsuke, 5,669,362, Cl. 123-520.000.
 Tabata, Atsushi; Takahashi, Nobuaki; and Hamajima, Tetsuo, 5,669,849, Cl. 477-102.000.
 Yamaki, Norihiro; Takao, Noriyuki; and Takano, Hidetoshi, 5,671,393, Cl. 395-477.000.
 TPS Electronics: See—
 Postman, Joel R.; Miller, George B.; and Fish, Ronald C., 5,671,374, Cl. 395-309.000.

- Tracy, Lawrence R.: See—
 DiPoala, William S.; and Tracy, Lawrence R., 5,670,943, Cl. 340-567.000.
 Tram-7 Precision, Inc.: See—
 Barrett, Mark C.; and Barrett, Coy, 5,669,557, Cl. 239-135.000.
 Tran, Ha Cong Viet: See—
 Hutt, Kenneth West; Stephenson, Ian Richard; and Tran, Ha Cong Viet, 5,670,447, Cl. 503-227.000.
 Trapp, Claude, to Matef. Injection needle protection device. 5,669,888, Cl. 604-263.000.
 Tratz, Herbert: See—
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 Trauth, Hubert: See—
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 Trefz, Harlin James: See—
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 Bening, Curtis Reinhard; and Trefz, Harlin James, 5,669,212, Cl. 56-13.300.
 Trifield Productions Limited: See—
 Gerzon, Michael Anthony, 5,671,287, Cl. 381-17.000.
 Trimbo, Susan; Madsen, David; and Rowe, W. Bruce, to Nестec Ltd. Method for reducing and controlling immunoglobulin concentrations. 5,670,157, Cl. 424-278.100.
 Trimmer, Mark Steven: See—
 Gagné, Robert R.; Marrocco, Matthew Louis, III; Trimmer, Mark Steven; and Hendricks, Neil H., 5,670,564, Cl. 524-99.000.
 Trinh, Toan; Cappel, Jerome Paul; Geis, Philip Anthony; Hollingshead, Judith Ann; McCarty, Mark Lee; and Zwerdling, Susan Schmaedecke, to Procter & Gamble Company. The Composition for reducing malodor impression of inanimate surfaces. 5,670,475, Cl. 510-470.000.
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 Holcomb, Glen; and Reed, William, 5,670,940, Cl. 340-543.000.
 Tristar Electric Inc.: See—
 Barrow, Fred Robert, 5,669,691, Cl. 362-153.100.
 Tristrata Technology, Inc.: See—
 Yu, Ruy J.; and Van Scott, Eugene J., 5,670,541, Cl. 514-557.000.
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 Trobaugh, Robert A., III: See—
 Stewart, Parks C.; and Trobaugh, Robert A., III, 5,669,320, Cl. 112-470.070.
 Trombach, Horst: See—
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 Troy Biosciences, Inc.: See—
 Wright, James E., 5,670,145, Cl. 424-84.000.
 Trublowki, John: See—
 Jaizabzoy, Vivek Amir; Reddy, Prathap Amerwai; Trublowki, John; Baker, Jay DeAvis; and Kneisel, Lawrence Leroy, 5,669,813, Cl. 454-69.000.
 Truckner, William G.: See—
 Papich, Kevin S.; Bachowski, Ronald; Baumann, Stephen F.; Cargnel, Robert A.; Carlin, Gerald E.; Clements, Donald J.; Gunkel, Ronald W.; Hoffman, William H.; McKinney, Larry G.; Pajerski, A. Victor; Palko, John J.; Patrick, Edward P., Jr.; Rennekamp, Stephen J.; Scheble, Philip C.; Sharkins, William R.; Swigon, Frank P.; and Truckner, William G., 5,669,436, Cl. 164-461.000.
 Truitt, Willie W. Self-closing interlocking sandbags and process for erecting dams therefrom. 5,669,732, Cl. 405-20.000.
 Trumpetto, John Amadio: See—
 Cox, Harry David; Littell, Connie Fassett; Shroedl, Richard Michael; Trumpetto, John Amadio; and Vanca, Michael Stephen, 5,669,972, Cl. 118-504.000.
 Trunk, Werner, to Brdr. Christensens Haner A/S. Shut-off device of the double block-and-bleed type. 5,669,415, Cl. 137-613.000.
 TRW Occupant Restraint Systems GmbH: See—
 Hirzel, Uwe, 5,669,573, Cl. 242-383.100.
 TRW Vehicle Safety Systems Inc.: See—
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 Tsai, Chia-Shiung: See—
 Kuo, So Wen; and Tsai, Chia-Shiung, 5,670,426, Cl. 437-195.000.
 Tsai, Chun-hui, to Industrial Technology Research Institute. Method of manufacturing a high efficiency field emission display. 5,670,296, Cl. 430-312.000.
 Tsai, Shih Fan, to Tektro Technology Corporation. Brake lever mechanism. 5,669,268, Cl. 74-489.000.
 Tsay, Shi-chour; and Ho, Jen-hsin, to Airtex Industry Corp. Portable lock stitch sewing machine. 5,669,318, Cl. 112-169.000.
 Tseng, Horng-Huei, to Vanguard International Semiconductor Corporation. Method for fabricating a deep submicron mosfet device using an in-situ polymer spacer to decrease device channel length. 5,670,401, Cl. 437-44.000.
 Tseng, Horng-Huei, to Vanguard International Semiconductor Corporation. Method of making a tooth shaped capacitor using ion implantation. 5,670,405, Cl. 437-52.000.
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 Tsong, Danny; Chou, Tony; and Chiang, Johnson, to Texas Instruments Incorporated. Video circuit and video signal processing and control techniques for controlling the "tilt" of a video display that may be implemented with LinBiCMOS technology. 5,670,850, Cl. 315-370.000.
 Tsubakimoto Chain, Co.: See—
 Sakura, Shunji; Saeeda, Koichi; Sunaba, Hiroto; and Shibata, Naoto, 5,669,264, Cl. 74-89.150.
 Tsuchiya, Tatsuhiko; and Yatsu, Kenji, to Alpine Electronics, Inc. Disk system capable of arbitrary insertion and ejection of disks during reproduction and recording operations. 5,671,198, Cl. 369-34.000.
 Tsuji, Hiroyuki: See—
 Ishiguro, Yasuyuki; Kimura, Kazuhiro; Yamaguchi, Hiroaki; Tsuji, Hiroyuki; and Watanabe, Masaru, 5,671,476, Cl. 399-354.000.
 Tsuji, Kenji; Kido, Toshihiro; and Hamada, Satoshi, to Minolta Camera Kabushiki Kaisha. System for providing an accurate indication whether film is exposed or unexposed, independent of battery voltage. 5,671,456, Cl. 396-392.000.
 Tsuji, Kiyoshi: See—
 Matsuo, Masaki; Tsuji, Kiyoshi; Ogino, Takashi; and Konishi, Nobukiyo, 5,670,533, Cl. 514-106.000.
 Tsuji, Masanori: See—
 Itoga, Kiyoshi; Tsutsumi, Yoshio; Tsuji, Masanori; and Tatebayashi, Ayako, 5,670,124, Cl. 423-239.100.
 Tsuji, Yoshikazu: See—
 Mitsuoka, Katsuya; Fukui, Hiroshi; Aihara, Makoto; Tanabe, Masanori; Fuyama, Moriaki; Narishige, Shinji; Sugita, Yutaka; Shiroishi, Yoshihiro; Aoi, Hajime; Saitoh, Yokuo; Kawakami, Kanji; Tsuji, Yoshikazu; Hayashi, Masaaki; and Nakagoshi, Kazuo, 5,671,107, Cl. 360-126.000.
 Tsujiyama, Yoshimi: See—
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 Tsukada, Yoshifumi: See—
 Yokota, Hiroshi; Naito, Ryuichi; Hirano, Hiroyuki; Ishii, Katsumi; Naohara, Shinichi; Tsukada, Yoshifumi; and Matsumoto, Kanya, 5,671,201, Cl. 369-50.000.
 Tsukahara, Daiki: See—
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 Tsukamoto, Kazumasa: See—
 Moroto, Shuzo; Taniguchi, Takao; Miyagawa, Shoichi; Sakakibara, Shiro; Tsukamoto, Kazumasa; Inuzuka, Takeshi; and Hattori, Masashi, 5,669,846, Cl. 475-211.000.
 Tsumura, Seiji, to Suehiro Seiko Kabushiki Kaisha. Chain saw guide bar having a lubricant feeding structure. 5,669,140, Cl. 30-123.400.
 Tsunehiro, Takashi: See—
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 Tsuno, Takaharu; and Kobayashi, Hideki, to Arakawa Chemical Industries Ltd. Alicyclic bifunctional compounds and processes for their preparation. 5,670,696, Cl. 560-116.000.
 Tsuru, Kiyoshi: See—
 Inoue, Tadashi; Tsuru, Kiyoshi; Okimoto, Shinichi; Yamamura, Naokazu; Yamamoto, Tetsuo; and Hajji, Hirohisa, 5,669,989, Cl. 148-312.000.
 Tsuruta, Makoto, to Bridgestone Corporation. Pneumatic radial tires with one-piece molded stiffener having at least two rubber compositions of different hardness. 5,669,994, Cl. 152-541.000.
 Tsutahara, Kouitiro: See—
 Yuuki, Akimasa; Kawahara, Takaaki; Tsutahara, Kouitiro; and Yamaguchi, Touru, 5,669,976, Cl. 118-725.000.
 Tsutsumi, Yoshio: See—
 Itoga, Kiyoshi; Tsutsumi, Yoshio; Tsuji, Masanori; and Tatebayashi, Ayako, 5,670,124, Cl. 423-239.100.
 Tsuzuku, Susumu: See—
 Nishitani, Eisuke; Tsuzuku, Susumu; Kobayashi, Shigeru; Kasahara, Osamu; Nezu, Hiroki; Ishino, Masakazu; and Tamaru, Tsuyoshi, 5,670,421, Cl. 437-192.000.
 Tsvetkov, Yuri V.: See—
 Lee, Hang-woo; Lee, Sang-hak; Chee, Joseph Kilwoan; Hwang, Young-mo; Tsvetkov, Yuri V.; Semenenko, Alexander V.; and Kuratov, Ivan I., 5,671,232, Cl. 372-22.000.
 Tubular Textile LLC: See—
 Hughes, Robert J.; Leonard, Michael S.; and Hardin, William C., Jr., 5,669,155, Cl. 34-115.000.
 Tucker, Robert V.: See—
 Wilson, Ronald A.; and Tucker, Robert V., 5,669,635, Cl. 281-30.000.
 Tuerk, Craig: See—
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 Tuggle, Dale G.: See—
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 Tullis, Thomas S.: See—
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 Tun Abdul Razak Research Centre: See—
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 Tuovinen, Jussi; Vasara, Antti; and Räisänen, Antti. Compact antenna test range. 5,670,965, Cl. 343-703.000.

- Türk, Günter: See—
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- Türk, James J. Method and system for commodity-based currency for payment of accounts and elimination of payment risk. 5,671,364, Cl. 395-239.000.
- Turnbull, Michael Drysdale: See—
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- Turner, Brian P.: See—
Dolan, James T.; Turner, Brian P.; Ury, Michael G.; and Wood, Charles H., 5,670,842, Cl. 313-570.000.
- Turner, David W.: See—
Dillehay, David R.; Turner, David W.; and Blackwell, Jim, 5,670,098, Cl. 261-3.300.
- Turner, James Robert: See—
Middione, Mark Albert; Musante, Ron Eugene; and Turner, James Robert, 5,670,734, Cl. 89-36.080.
- Turner, Jan R.: See—
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- Mynderse, Jon S.; Mabe, James A.; Turner, Jan R.; Huber, Mary L. B.; Broughton, Mary C.; Nakatsukasa, Walter M.; Cremer, Lawrence; Kirst, Herbert A.; and Martin, James W., 5,670,486, Cl. 514-28.000.
- Turra, Mario: See—
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- Tzou, Shin-Yuan: See—
Brady, James Thomas; Johnson, Alden B.; Lui, John Chi-Shing; Menon, Jaishankar Moothedath; and Tzou, Shin-Yuan, 5,671,390, Cl. 395-440.000.
- U-Shin Ltd.: See—
Bolton, Brian Lewis; Yuyama, Yoshio; Akutagawa, Katsutoshi; and Matsura, Hiromi, 5,669,843, Cl. 475-149.000.
- Ube Industries, Ltd.: See—
Adachi, Mitsuru; Sato, Satoru; and Sasaki, Hiroto, 5,669,990, Cl. 148-420.000.
- Inaba, Yukio; Ueno, Yohsuke; Watanabe, Masahiko; and Nishida, Yukihiro, 5,670,028, Cl. 203-86.000.
- Ubukata, Masami: See—
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- Uchimi, Akemi: See—
Matsumoto, Muneyuki; Okada, Keiji; Matsuo, Yoshihisa; and Uchimi, Akemi, 5,670,551, Cl. 521-90.000.
- Udagawa, Tsunekazu, to Ishikawa Gasket Co., Ltd. Metal gasket having bead with inclined end portion. 5,669,614, Cl. 277-235.00B.
- Ueda, Hideyuki: See—
Kuwahara, Kenji; Takahashi, Kiyosi; Ueda, Hideyuki; Echigo, Noriyasu; Murai, Mikio; and Odagiri, Masaru, 5,670,107, Cl. 264-234.000.
- Ueda, Hiroaki, to NEC Corporation. Compression of video and audio signals and expansion of a compressed signal in accordance with an image hf component compression factor. 5,671,319, Cl. 386-96.000.
- Ueda, Masayoshi: See—
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- Ueki, Hiroshi, to Mitsubishi Denki Kabushiki Kaisha. Non-volatile semiconductor storage apparatus. 5,671,177, Cl. 365-185.110.
- Uematsu, Takashi: See—
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- Akashi, Ryojiro; Morikawa, Takashi; Ninomiya, Masanobu; and Uematsu, Takashi, 5,671,211, Cl. 369-275.100.
- Ueno, Atsushi: See—
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- Ueno, Hideyuki, to Kotec's Co., Ltd.; and Toska Co., Ltd. Hollow needle for tag attacher. 5,669,543, Cl. 227-67.000.
- Ueno, Naoto: See—
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- Ueno, Yohsuke: See—
Inaba, Yukio; Ueno, Yohsuke; Watanabe, Masahiko; and Nishida, Yukihiro, 5,670,028, Cl. 203-86.000.
- Ueoka, Atsushi: See—
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- Uesugi, Akio: See—
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- Uesugi, Yuji: See—
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- Nakai, Izuru; Okada, Toshiharu; and Uesugi, Yuji, 5,670,069, Cl. 219-121.730.
- Uetsuki, Masaya: See—
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- Sugimoto, Hitoshi; Hirabayashi, Hiromitsu; Nagoshi, Shigeyasu; Koitabashi, Noribumi; Matsubara, Miyuki; Gotoh, Fumihiko; and Uetsuki, Masaya, 5,670,997, Cl. 347-30.000.
- Ueyama, Tomoyuki; Harada, Shoji; Nakamata, Toshiaki; Shibata, Masuo; Doi, Toshimitsu; Ogawa, Shunichi; Matsumoto, Ichiro; and Nakai, Hiroshi, to Daihen Corporation. MAG arc welding apparatus. 5,670,071, Cl. 219-130.510.
- Ugai, Toshiyuki: See—
Okado, Kenji; Ugai, Toshiyuki; Fujita, Ryoichi; Kanbayashi, Makoto; Takiguchi, Tsuyoshi; Ichikawa, Yasuhiro; and Iida, Wakashi, 5,670,288, Cl. 430-122.000.
- Ugro, Josef V., Jr.: See—
Jubran, Nusrallah; Katritzky, Alan R.; and Ugro, Josef V., Jr., 5,670,446, Cl. 503-201.000.
- Uhland, Gregg W.: See—
Pribble, Robert L.; Uhland, Gregg W.; and Weller, Brian R., 5,669,338, Cl. 123-41.290.
- Ullman, Edwin F.: See—
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- Ullrich, Martin: See—
Schebesta, Klaus; Schuchardt, Heinrich; and Ullrich, Martin, 5,669,710, Cl. 366-97.000.
- Ulmer, Kevin M.: See—
Lapidus, Stanley N.; Shuber, Anthony P.; and Ulmer, Kevin M., 5,670,325, Cl. 435-6.000.
- Umeki, Naoko: See—
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- Umamoto, Choji, to Noritsu Koki Co., Ltd. Image film developer for printing changed film image data and image data change condition. 5,671,072, Cl. 358-501.000.
- Umesato, Fuminori, deceased (by Setsuko Umesato, heiress): See—
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- Umesato, Setsuko, heiress: See—
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- Umeyama, Nobuhiro: See—
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- Umizu, Keiichi, to NEC Corporation. Waveguide matching circuit having both capacitive susceptance regulating means and inductive materials. 5,670,918, Cl. 333-33.000.
- Underiner, Gail: See—
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- Underwood, Lance H.: See—
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- Uniden Corporation: See—
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- Unifill S.p.A.: See—
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- Unimist, Inc.: See—
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- Union Camp Corporation: See—
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- Unique Mobility, Inc.: See—
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- Unishi, Masaki: See—
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- Unistia Jeas Corporation: See—
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- Machida, Kenichi; and Ries-Muller, Klaus, 5,670,713, Cl. 73-116.000.
- Onishi, Junichi; Shibuya, Hideyuki; and Kuze, Tadayuki, 5,670,873, Cl. 326-174.000.
- Tomisawa, Naoki, 5,670,715, Cl. 73-118.100.
- Unisys Corporation: See—
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- Kiggins, Jill Marie; and Affeldt, Teresa Mary, 5,671,400, Cl. 395-500.000.
- LaBerge, Paul A.; Wiedenman, Gregory B.; and Harding, Donald E., 5,671,369, Cl. 395-287.000.
- Neubauer, Ronald Jay, 5,671,398, Cl. 395-500.000.
- United Defense, L.P.: See—
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- United Industries Corporation: See—
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- United Memories, Inc.: See—
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- United Microelectronics Corporation: See—
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- Huang, Po-Chuan, 5,671,169, Cl. 364-725.000.
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- National Aeronautics and Space Administration: See—
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- St. Clair, Terry L.; Fay, Catharine C.; and Working, Dennis C., 5,670,256, Cl. 428-395.000.
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- Florent, Raoul; and Mequio, Claude, 5,671,264, Cl. 378-98.000.
- Halls, Jonathan J. M.; and Friend, Richard H., 5,670,791, Cl. 257-40.000.
- Koppe, Reiner H.; and Klotz, Erhard P. A., 5,671,297, Cl. 382-293.000.
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- Kunze, Norbert; Müller, Dieter; and Gielkens, Marc, 5,669,570, Cl. 242-356.400.
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- University of California, The: See—
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- Gustafsson, Mats G.L.; Sedat, John W.; and Agard, David A., 5,671,085, Cl. 359-385.000.
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- Jan, Lily Y.; Jan, Yuh Nung; Kubo, Yoshihiro; Reuveny, Eithan; and Slesinger, Paul A., 5,670,335, Cl. 435-29.000.
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- Urano, Fumiyoshi; Fujie, Hiroto; Oono, Keiji; and Negishi, Takaaki, to Wako Pure Chemical Industries, Ltd. Pattern formation process. 5,670,299, Cl. 430-326.000.
- Urano, Maho; and Yokota, Miho, to Mitsubishi Denki Kabushiki Kaisha. Apparatus and method for checking logic circuit. 5,671,148, Cl. 364-482.000.
- Urbahns, Klaus; Goldmann, Siegfried; Heine, Hans-Georg; Junge, Bodo; Schohe-Loop, Rudolf; Sommermeier, Henning; Glaser, Thomas; Wittka, Reilinde; and De Vry, Jean-Marie Viktor, to Bayer Aktiengesellschaft. Substituted 4-phenyl-6-amino-nicotinic acid compounds useful in the treatment of CNS disorders. 5,670,525, Cl. 514-334.000.
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- Utsumi, Naoto; Ohuchi, Kuninori; Yamauchi, Kikuro; and Matsui, Haruhiko, to Kabushiki Kaisha Kawai Gakki Seisakusho. Midi data transmitter, receiver, transmitter/receiver, and midi data processor, including control blocks for various operating conditions. 5,670,732, Cl. 84-645.000.
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- Walsh, Kathryn: See—
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- Walter, Helmut: See—
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- Walters, John Leonard: See—
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- Ward, James K.; Kelly, Daniel S.; and Searles, Timothy J., to Martin Automatic Inc. Heat-seal splicing assembly and method. 5,669,998, Cl. 156-159.000.
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- Warford, Foy A., Jr.: See—
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- Warner, Susan E.: See—
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- Watanabe, Michael E., to Boise Cascade Corporation. Container for temporary storage of food items. 5,669,552, Cl. 229-114.000.
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- Waterman, Paul S.: See—
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- Wathen, Boyd J.: See—
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- Weatherford/Lamb, Inc.: See—
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- Webb, Thomas R.: See—
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- Weber, Andrew R.: See—
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- Weber, Jerry Alan: See—
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- Weder, Donald E., to Southpac Trust International, Inc. Method for using a decorative material having a colored sticky element disposed thereon forming at least a portion of a decoration. 5,669,202, Cl. 53-397.000.
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- Weichert, Juergen: See—
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- Weigel, Leland O.: See—
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- Weishaupt, Kenneth R.; Potter, William R.; and Wood, Leroy, to Health Research, Inc. Fiber optic positioner. 5,671,317, Cl. 385-137.000.
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- Xerox Corporation: See—
- Demers, Alan J.; Petersen, Karin; Spreitzer, Michael J.; Terry, Douglas B.; Theimer, Marvin M.; and Welch, Brent B., 5,671,407, Cl. 395-608.000.
- Hanzlik, Cheryl A.; Hodgson, Richard J.; and Fioravanti, Alexander J., 5,670,289, Cl. 430-124.000.
- Manzoli, Richard J., 5,670,290, Cl. 430-125.000.
- Mirchandani, Vinod, 5,671,078, Cl. 359-204.000.
- Robertson, George G.; and Mackinlay, Jock D., 5,670,984, Cl. 345-139.000.
- Schlueter Jr., Edward L.; and Parker, Thomas C., 5,670,230, Cl. 428-57.000.
- Snelling, Christopher, 5,670,285, Cl. 430-58.000.
- Snelling, Christopher, 5,671,472, Cl. 399-308.000.
- Ward, Anthony T.; Schank, Richard L.; and Chambers, John S., 5,670,291, Cl. 430-132.000.

Ziolo, Ronald F., 5,670,078, Cl. 252-42.540.
 Xiao, Xiaoda. Stringed instrument practice bow guide. 5,670,727, Cl. 84-283.000.
 Xilin, Inc.: See—
 Diba, Sholeh; and Ka, Wei-Yi, 5,670,496, Cl. 326-40.000.
 Kean, Thomas A., 5,670,897, Cl. 326-41.000.
 Xomed Surgical Products, Inc.: See—
 Hissong, James B.; and Studer, John E., 5,669,501, Cl. 206-438.000.
 Xu, Hua: See—
 Littman, Dan; and Xu, Hua, 5,670,324, Cl. 435-6.000.
 Yabuta, Masayuki; Suzuki, Yuji; Ohsuye, Kazuhisa; Oshima, Takehiro; Onai, Seiko; Magota, Koji; and Tanaka, Shoji, to Suntory Limited. Process for producing peptides in *E. coli*. 5,670,340, Cl. 435-69.400.
 Yagi, Osamu; and Tanaka, Kenji, to Sony Corporation. Signal processing apparatus. 5,671,015, Cl. 348-241.000.
 Yagi, Tsukasa: See—
 Matsubara, Ken; and Yagi, Tsukasa, 5,671,076, Cl. 359-196.000.
 Yajima, Hideo; and Ogino, Toshikazu, to Mitsumi Electric Co., Ltd. Hermetically sealed case sealed by packing. 5,670,745, Cl. 174-65.00R.
 Yajima, Hiroshi: See—
 Tokimoto, Toyotaro; and Yajima, Hiroshi, 5,670,971, Cl. 345-31.000.
 Yam, Benny S., to Church & Dwight Co., Inc. Abrasive blast media containing corrosion inhibitor. 5,669,943, Cl. 51-309.000.
 Yamada, Atsushi: See—
 Yoshida, Yoshihide; and Yamada, Atsushi, 5,671,096, Cl. 359-844.000.
 Yamada, Minoru: See—
 Takahashi, Yoshiharu; Yamada, Minoru; Nojima, Yoshiyuki; and Fujii, Yasutoshi, 5,671,451, Cl. 396-310.000.
 Yamada, Osamu: See—
 Wong-Staal, Flossie; Yu, Mang; Yamada, Osamu; Ojwang, Joshua O.; Leavitt, Markley C.; and Ho, Anthony, 5,670,361, Cl. 435-240.200.
 Yamada, Takashi; Isogai, Mitsuru; Yamada, Tetsuya; and Yoneda, Satoru, to Minolta Co., Ltd. Fusing device, a heating device, and a method for fusing a toner image onto a sheet. 5,671,473, Cl. 399-320.000.
 Yamada, Tetsuya: See—
 Yamada, Takashi; Isogai, Mitsuru; Yamada, Tetsuya; and Yoneda, Satoru, 5,671,473, Cl. 399-320.000.
 Yamagami, Hajime; and Tsunehiro, Takashi, to Hitachi, Ltd. Information processing apparatus. 5,670,969, Cl. 345-1.000.
 Yamagata, Kenji: See—
 Yonehara, Takao; and Yamagata, Kenji, 5,670,411, Cl. 437-62.000.
 Yamagishi, Tadashi: See—
 Ito, Tsutomu; Hirose, Toshiro; Ueoka, Atsushi; Kokunishi, Motohide; Yamagishi, Tadashi; and Nakatsu, Kouichi, 5,671,354, Cl. 395-187.010.
 Yamaguchi, Hiroaki: See—
 Ishiguro, Yasuyuki; Kimura, Kazuhiro; Yamaguchi, Hiroaki; Tsuji, Hiroyuki; and Watanabe, Masaru, 5,671,476, Cl. 399-354.000.
 Yamaguchi, Hiroyuki: See—
 Yamaguchi, Osamu; Moriya, Mitsuru; Yamaguchi, Hiroyuki; Kanda, Yoshihiro; and Ishibashi, Hiromichi, 5,671,200, Cl. 369-44.280.
 Yamaguchi, Hisao, to Kabushiki Kaisha Toshiba. Semiconductor device with pad electrode. 5,670,819, Cl. 257-536.000.
 Yamaguchi, Katsumi: See—
 Imakawa, Susumu; Yamaguchi, Katsumi; Hino, Makoto; Michie, Norio; and Nakajima, Tomohiro, 5,671,077, Cl. 359-204.000.
 Yamaguchi, Kazuyoshi: See—
 Kuriyama, Katsuhiko; Okada, Toshiharu; Uesugi, Yuji; Mochida, Shoro; and Yamaguchi, Kazuyoshi, 5,670,068, Cl. 219-121.680.
 Yamaguchi, Osamu; Moriya, Mitsuru; Yamaguchi, Hiroyuki; Kanda, Yoshihiro; and Ishibashi, Hiromichi, to Matsushita Electric Industrial Co., Ltd. Method for detecting the movement of a light beam and optical information reproduction apparatus using the same. 5,671,200, Cl. 369-44.280.
 Yamaguchi, Shuji: See—
 Yamamoto, Shinji; Tayama, Hideyuki; and Yamaguchi, Shuji, 5,670,952, Cl. 340-825.520.
 Yamaguchi, Tsuru: See—
 Yuuki, Akimasa; Kawahara, Takaaki; Tautahara, Kouitrou; and Yamaguchi, Tsuru, 5,669,976, Cl. 118-725.000.
 Yamaha Corporation: See—
 Imaizumi, Tsutomu, 5,670,731, Cl. 84-613.000.
 Kohdaka, Takayuki, 5,670,899, Cl. 326-97.000.
 Nagamoto, Itsushi, 5,669,827, Cl. 473-345.000.
 Ogai, Yoichi; and Shimizu, Masahiro, 5,670,728, Cl. 84-607.000.
 Tabara, Suguru, 5,670,422, Cl. 437-192.000.
 Yamaha Hatsudoki Kabushiki Kaisha: See—
 Ikeda, Keijiro, 5,669,326, Cl. 114-363.000.
 Nishigaki, Masato; and Hara, Takashi, 5,669,348, Cl. 123-308.000.
 Yamaichi Electronics Co., Ltd.: See—
 Ito, Toshiyasu; and Nishimura, Takeshi, 5,669,784, Cl. 439-331.000.
 Yamakawa, Hiromitsu, to Fuji Photo Optical Co., Ltd. Zoom lens system in finite conjugate distance. 5,671,094, Cl. 359-679.000.
 Yamaki, Norihiro; Takao, Noriyuki; and Takano, Hidetoshi, to Toyota Jidosha Kabushiki Kaisha; and Sharp Kabushiki Kaisha. Shared memory system and arbitration method and system. 5,671,393, Cl. 395-477.000.
 Yamamichi, Shintaro; and Miyasaka, Yoichi, to NEC Corporation. Thin film capacitor with small leakage current and method for fabricating the same. 5,670,408, Cl. 437-60.000.
 Yamamoto, Albert K.: See—
 Myers, Alan R.; and Yamamoto, Albert K., 5,669,746, Cl. 411-361.000.
 Yamamoto, Eiji: See—

Kawakubo, Isao; and Yamamoto, Eiji, 5,671,052, Cl. 356-373.000.
 Yamamoto, Hideaki: See—
 Sasano, Akira; Shirahashi, Kazuo; Matsukawa, Yuka; Taniguchi, Hideaki; Yamamoto, Hideaki; and Matsumaru, Haruo, 5,671,027, Cl. 349-46.000.
 Yamamoto, Kazuhisa: See—
 Niiyama, Tsunefumi; Yoshikawa, Haruhiko; and Yamamoto, Kazuhisa, 5,669,280, Cl. 91-31.000.
 Yamamoto, Nobuhiro: See—
 Yukawa, Masaji; Aketa, Masahiro; Okamoto, Kazutoshi; Kamada, Yasukazu; Hayatani, Akira; Sugimoto, Masahiko; and Yamamoto, Nobuhiro, 5,669,339, Cl. 123-41.790.
 Yamamoto, Nobuko; Okamoto, Tadashi; Tomida, Yoshinori; Yano, Tetsuya; Miyazaki, Takeshi; and Kawaguchi, Masahiro, to Canon Kabushiki Kaisha. Nucleic acid determination employing pyrylium dye. 5,670,315, Cl. 435-6.000.
 Yamamoto, Seiichi: See—
 Childers, Jimmie Don; Yamamoto, Seiichi; and Takeyasu, Masanari, 5,671,187, Cl. 365-205.000.
 Yamamoto, Shinji; Tayama, Hideyuki; and Yamaguchi, Shuji, to Fujitsu Limited. Data communication unit. 5,670,952, Cl. 340-825.520.
 Yamamoto, Takeo; Kuriyayashi, Tetsuya; Honda, Takao; Arahira, Fumihiro; and Osada, Hiroyuki, to Canon Kabushiki Kaisha. Charging member and image forming apparatus having contact charging member. 5,671,468, Cl. 399-169.000.
 Yamamoto, Tetsuo: See—
 Inoue, Tadashi; Tsuru, Kiyoshi; Okimoto, Shinichi; Yamamura, Naokazu; Yamamoto, Tetsuo; and Hajji, Hirohisa, 5,669,989, Cl. 148-312.000.
 Yamamoto, Yoshihisa: See—
 Araki, Takayuki; Shimizu, Tetsuo; Yamato, Takafumi; Kumegawa, Masahiro; and Yamamoto, Yoshihisa, 5,670,593, Cl. 526-245.000.
 Yamamoto, Yoshiaki: See—
 Yamauchi, Eiji; Hashimoto, Kiyokazu; Oka, Hidemi; Kashi, Takao; Hidaka, Iwao; and Yamamoto, Yoshiaki, 5,671,260, Cl. 375-372.000.
 Yamamura, Naokazu: See—
 Inoue, Tadashi; Tsuru, Kiyoshi; Okimoto, Shinichi; Yamamura, Naokazu; Yamamoto, Tetsuo; and Hajji, Hirohisa, 5,669,989, Cl. 148-312.000.
 Yamanaka, Masaki; and Shiina, Masaki, to Oji-Yuka Synthetic Paper Co., Ltd. Uniaxially stretched multilayered film and air baggage tag containing the same. 5,670,225, Cl. 428-40.100.
 Yamane, Hidenori: See—
 Takenaka, Hiroyuki; Tosaka, Yorishige; Sahara, Yasunobu; Maruyama, Yoshiaki; Yamane, Hidenori; and Izuwa, Akio, 5,669,988, Cl. 148-210.000.
 Yamasa Corporation: See—
 Inoue, Takeshi; Matsura, Eiji; Kuroki, Yoshio; Akino, Toyoaki; and Abe, Shosaku, 5,670,328, Cl. 435-7.230.
 Yamashita, Katsuya: See—
 Inoue, Akira; Hattori, Yasuji; Yamashita, Katsuya; Ohtsuki, Fumio; and Katsuyama, Yutaka, 5,671,308, Cl. 385-37.000.
 Yamashita, Susumu: See—
 Ohbayashi, Kazumi; Yamashita, Susumu; Ito, Masami; Matsuda, Kenji; Watabe, Shin; and Nakamura, Mitsuru, 5,669,229, Cl. 62-259.100.
 Yamato, Takafumi: See—
 Araki, Takayuki; Shimizu, Tetsuo; Yamato, Takafumi; Kumegawa, Masahiro; and Yamamoto, Yoshihisa, 5,670,593, Cl. 526-245.000.
 Yamauchi, Eiji; Hashimoto, Kiyokazu; Oka, Hidemi; Kashi, Takao; Hidaka, Iwao; and Yamamoto, Yoshiaki, to Matsushita Electric Industrial Co., Ltd. Digital processing apparatus using two synchronization signals. 5,671,260, Cl. 375-372.000.
 Yamauchi, Hisao: See—
 Adachi, Seiji; Jin, Changqin; Wu, Xiao-Jing; Yamauchi, Hisao; and Tanaka, Shoji, 5,670,457, Cl. 505-125.000.
 Yamauchi, Kikuro: See—
 Utsumi, Naoto; Ohuchi, Kuninori; Yamauchi, Kikuro; and Matsui, Haruhiko, 5,670,732, Cl. 84-645.000.
 Yamazaki, Hitoshi: See—
 Kawai, Yoshio; Yamazaki, Hitoshi; Tanaka, Hirokazu; and Oku, Teruo, 5,670,503, Cl. 514-243.000.
 Yamazaki, Shunpei, to Semiconductor Energy Laboratory Co., Ltd. Method for manufacturing semiconductor devices. 5,670,386, Cl. 437-13.000.
 Yamazaki, Toshio: See—
 Nakada, Kazuhiko; Yoshimatsu, Noriko; Ichinohe, Shoji; and Yamazaki, Toshio, 5,670,594, Cl. 526-279.000.
 Yamazaki, Yasuyuki, to Canon Kabushiki Kaisha. Head-mount display with opposite polarity reversal for left and right sides. 5,670,970, Cl. 345-8.000.
 Yanagisawa, Katsutada: See—
 Suzuki, Chiharu; Masuda, Katsumi; Tamaru, Masatoshi; Inamori, Masahito; Takefujii, Nobuo; Yanagisawa, Katsutada; and Ogawa, Yasunori, 5,670,452, Cl. 504-213.000.
 Yang, Jin, to Sharp Microelectronics Technology, Inc.; and Sharp Kabushiki Kaisha. Receiving method and apparatus for use in a spread-spectrum communication system. 5,671,221, Cl. 370-320.000.
 Yang, Jin-Se, to Daewoo Electronics Co., Ltd. Optical projection system. 5,669,687, Cl. 353-98.000.
 Yano, Takaaki: See—

Hokamura, Satoshi; Ichinokawa, Kazuhiro; Yano, Takaaki; Takano, Masatoshi; Hirano, Masakazu; Maseki, Motohiro; Yoshida, Tatsuya; Horie, Mikio; Shirai, Masami; Ito, Eiichi; and Otsuka, Kenichiro, 5,671,466, Cl. 399-124.000.
 Yano, Tetsuya: See—
 Yamamoto, Nobuko; Okamoto, Tadashi; Tomida, Yoshinori; Yano, Tetsuya; Miyazaki, Takeshi; and Kawaguchi, Masahiro, 5,670,315, Cl. 435-6.000.
 Yans, Francis M.: See—
 Elliott, David J.; Hollman, Richard F.; Yans, Francis M.; and Singer, Daniel K., 5,669,979, Cl. 134-1.000.
 Yao, Jame: See—
 Houser, Clarence G.; Yao, Jame; Andress, Donald L.; and Low, William R., 5,669,234, Cl. 62-612.000.
 Yap, Daniel, to Hughes Aircraft Company. Surface emitting laser with large area deflecting mirror. 5,671,243, Cl. 372-50.000.
 Yasuda, Keisuke, to Fuji Photo Film Co., Ltd. Image recording apparatus. 5,671,469, Cl. 399-197.000.
 Yasuda, Yasumichi: See—
 Mori, Mutsuhiro; Tanaka, Tomoyuki; Yasuda, Yasumichi; and Nakano, Yasunori, 5,670,811, Cl. 257-341.000.
 Yasuda, Yukio; and Nakamura, Kiyotada, to Ushiodenki Kabushiki Kaisha. Discharge lamp. 5,670,844, Cl. 313-636.000.
 Yasuhara, Na; Kashi, Masaharu; Marusawa, Miyuki; Iizuka, Yoshio; and Murayama, Satoru, to Sony Corporation. Portable graphic computer apparatus. 5,670,992, Cl. 345-173.000.
 Yasukawa, Makoto: See—
 Mochizuki, Mikio; Hirooka, Eiji; and Yasukawa, Makoto, 5,670,948, Cl. 340-630.000.
 Yatsu, Kenji: See—
 Tsuchiya, Tatsuhiko; and Yatsu, Kenji, 5,671,198, Cl. 369-34.000.
 Yazaki Corporation: See—
 Endo, Takayoshi; and Abe, Kimihiro, 5,669,791, Cl. 439-752.000.
 Inoue, Toshihiro; and Takada, Kazuhiko, 5,669,257, Cl. 72-20.100.
 Kodama, Shinji, 5,670,884, Cl. 324-538.000.
 Przewodek, Kevin Donald, 5,669,590, Cl. 248-68.100.
 Totsuka, Mitsuhiro, 5,670,929, Cl. 337-201.000.
 Yee, Jiing-Kuan: See—
 Burns, Jane C.; Yee, Jiing-Kuan; and Friedmann, Theodore, 5,670,354, Cl. 435-172.300.
 Yeh, Wen-Kuan: See—
 Chen, Mao-Chieh; Yeh, Wen-Kuan; Wang, Pei-Jan; and Liu, Lu-Min, 5,670,016, Cl. 156-637.100.
 Yen, Shih-Kuei: See—
 Huang, Yuan-Chang; and Yen, Shih-Kuei, 5,671,119, Cl. 361-234.000.
 Yeow, Eddie: See—
 Conrady, Clint; Woody, George R.; Rosas, Juventino; Asbury, Victor O.; Ramos, Sergio; and Yeow, Eddie, 5,670,860, Cl. 320-2.000.
 Yin, Caifang; and Hung, Christopher P., to International Paper Company. Foam separation method for reducing AOX, COD, and color bodies of kraft pulp bleach plant effluents. 5,670,020, Cl. 162-29.000.
 Yin, Ronald Loh-Hwa. SRAM memory circuit and method of operation therefor. 5,671,182, Cl. 365-189.050.
 Yin, Sung Wook; and Kim, Yun Ki, to Hyundai Electronics Industries Co., Ltd. Method of manufacturing thin film transistor having a double channel. 5,670,398, Cl. 437-40.1TF.
 YKK Corporation: See—
 Wessels, Roger Thor; and Cho, Piljae, 5,669,120, Cl. 24-446.000.
 Yodogawa, Akihiko, to Berg Technology, Inc. Electrical connector. 5,669,782, Cl. 439-327.000.
 Yokoi, Hideto: See—
 Miyazaki, Takeshi; Sato, Hiroshi; Shirota, Katsuhiko; Yokoi, Hideto; Kashiwazaki, Akio; and Shiba, Shoji, 5,670,205, Cl. 427-64.000.
 Yokoi, Kouichi; Yoshikai, Takashi; Tanaka, Masami; and Hashitani, Hideki, to NSK Ltd. Method for forming cam face on structure member of loading cam device for toroidal-type continuously variable transmission. 5,669,274, Cl. 82-1.110.
 Yokota, Hiroshi; Naito, Ryuichi; Hirano, Hiroyuki; Ishii, Katsumi; Naohara, Shinichi; Tsukada, Yoshifumi; and Matsumoto, Kanya, to Pioneer Electronic Corporation. Pulling-in circuit for PLL circuit, pulling-in method for PLL circuit, PLL circuit device and apparatus for reproducing optical disc. 5,671,201, Cl. 369-50.000.
 Yokota, Miho: See—
 Urano, Maho; and Yokota, Miho, 5,671,148, Cl. 364-482.000.
 Yokota, Shinichi: See—
 Oka, Hideaki; Kashimura, Tsugunori; Yokota, Shinichi; and Hayashi-hara, Hiroshi, 5,670,608, Cl. 528-322.000.
 Yokota, Yasuhiro: See—
 Niwa, Nobuyuki; Yokota, Yasuhiro; Shiraga, Shinji; Kikuchi, Tomoaki; Miura, Hiroya; and Morita, Kenji, 5,671,366, Cl. 395-281.000.
 Yokouchi, Atsushi: See—
 Kinno, Dai; and Yokouchi, Atsushi, 5,669,719, Cl. 384-463.000.
 Yokouchi, Kentaro; Nemoto, Shigeru; and Iwata, Kazumi, to Victor Company of Japan, Ltd. Variable transfer rate data reproduction apparatus. 5,671,204, Cl. 369-60.000.
 Yokoyama, Kunio; Katagiri, Moriya; Sakurai, Hidenori; Kitahara, Yoshiyuki; Miyazaki, Hiroaki; and Suzuki, Tatsuya, to Olympus Optical Co., Ltd. Camera. 5,671,457, Cl. 396-411.000.
 Yokoyama, Toshiaki; and Shibata, Takeshi, to Niles Parts Co., Ltd. Automotive lever switch. 5,670,765, Cl. 200-61.540.
 Yoneda, Hiroshi: See—

Shiraki, Ichiro; Kubota, Yasushi; and Yoneda, Hiroshi, 5,671,026, Cl. 349-40.000.
 Yoneda, Satoru: See—
 Yamada, Takashi; Isogai, Mitsuru; Yamada, Tetsuya; and Yoneda, Satoru, 5,671,473, Cl. 399-320.000.
 Yoneda, Tadashi: See—
 Sakai, Yasuhiro; Yoneda, Tadashi; and Kuramoto, Shigefumi, 5,670,257, Cl. 428-402.000.
 Yonehama, Shinichi: See—
 Kihara, Shuta; Yonehama, Shinichi; and Seki, Kiichiro, 5,670,612, Cl. 528-419.000.
 Yonehara, Takao; and Yamagata, Kenji, to Canon Kabushiki Kaisha. Process of making semiconductor-on-insulator substrate. 5,670,411, Cl. 437-62.000.
 Yoo, Chue-San, to Taiwan Semiconductor Manufacturing Company, Ltd. Method for using disposable hard mask for gate critical dimension control. 5,670,423, Cl. 437-192.000.
 Yoon, Heungsik: See—
 Choy, Nakyeon; Choi, Hoil; Park, Chi-Hyo; Son, Young-Chan; Lee, Chang-Sun; Yoon, Heungsik; Kim, Sung-Chun; Koh, Jong-Sung; and Kim, Chung-Ryeol, 5,670,517, Cl. 514-307.000.
 Yoon, Hyun-Nam: See—
 Man, Hong-Tai; McCulloch, Iain A.; and Yoon, Hyun-Nam, 5,670,871, Cl. 324-96.000.
 Yoon, Roe-Hwan; and Basilio, Cesar Indiongco, to Virginia Tech Intellectual Properties, Inc. Chemical-mechanical dewatering process. 5,670,056, Cl. 210-728.000.
 Yoram, Yeivin: See—
 Shachar, Boaz; Nahum, Rozen; Yoram, Yeivin; and Weitz, Eliezer, 5,671,223, Cl. 370-395.000.
 York, Allan Brent; Harlow, Grant William Roland; and Matheson, George Everett, to TIR Systems Ltd. Lighting structure for intensely illuminating narrow linear region. 5,671,306, Cl. 385-36.000.
 York International Corporation: See—
 Beaverson, Gregory K.; Wueschinski, Russell P.; Shores, Craig N.; and Hansen, John C., 5,669,225, Cl. 62-201.000.
 Yoshida, Hiroko: See—
 Nishimura, Koichi; Koyama, Hideki; Yoshida, Hiroko; and Ito, Susumu, 5,670,186, Cl. 425-151.000.
 Yoshida, Kazumi; and Kishi, Norimasa, to Nissan Motor Co., Ltd. Apparatus based on n-variable unlimited recurrent adjustable network. 5,671,336, Cl. 395-24.000.
 Yoshida, Kiyohide; Muramatsu, Gyo; Abe, Akira; and Irite, Naoko, to Kabushiki Kaisha Riken. Exhaust gas cleaner and method for cleaning same. 5,670,444, Cl. 502-331.000.
 Yoshida, Kiyohide: See—
 Irite, Naoko; Abe, Akira; and Yoshida, Kiyohide, 5,670,443, Cl. 502-330.000.
 Yoshida, Masanao; Mitani, Tadashi; Hirao, Keiji; and Ogata, Hitoshi, to Sanyo Electric Co., Ltd. Method for controlling a rotatable optical disk storing magazine. 5,671,196, Cl. 369-34.000.
 Yoshida, Sadato: See—
 Iwata, Yoshifumi; Hoshiba, Akihiko; Yoshida, Sadato; and Suzuki, Masaru, 5,669,349, Cl. 123-335.000.
 Yoshida, Takashi: See—
 Matsuda, Yasuhiro; Yoshida, Takashi; Shimizu, Isao; and Kohno, Takashi, 5,671,197, Cl. 369-32.000.
 Yoshida, Takehiro, to Canon Kabushiki Kaisha. Communication apparatus having optional procedure signal functionality. 5,671,270, Cl. 379-100.000.
 Yoshida, Tatsuya: See—
 Hokamura, Satoshi; Ichinokawa, Kazuhiro; Yano, Takaaki; Takano, Masatoshi; Hirano, Masakazu; Maseki, Motohiro; Yoshida, Tatsuya; Horie, Mikio; Shirai, Masami; Ito, Eiichi; and Otsuka, Kenichiro, 5,671,466, Cl. 399-124.000.
 Yoshida, Yoshihide; and Yamada, Atsushi, to Koito Manufacturing Co., Ltd. Vanity mirror. 5,671,096, Cl. 359-844.000.
 Yoshida, Youichi, to Ekeddy Corporation. Nozzle for a welding torch having sputter build-up reducing configuration. 5,669,556, Cl. 239-83.000.
 Yoshida, Yutaka, to Fuji Electric Co., Ltd. Effective signal detection circuit device of serial transmission apparatus using bi-phase code. 5,670,901, Cl. 327-148.000.
 Yoshihara, Takafumi, to Olympus Optical Co., Ltd. Neuron unit. 5,671,337, Cl. 395-27.000.
 Yoshii, Ichiro: See—
 Hatano, Hiroshi; Yoshii, Ichiro; and Takatsuka, Satoru, 5,670,816, Cl. 257-394.000.
 Yoshii, Keiichi: See—
 Hasegawa, Etsuo; Sudo, Masatoshi; Nagasawa, Toshiya; and Yoshii, Keiichi, 5,669,439, Cl. 165-153.000.
 Yoshikai, Takashi: See—
 Yokoi, Kouichi; Yoshikai, Takashi; Tanaka, Masami; and Hashitani, Hideki, 5,669,274, Cl. 82-1.110.
 Yoshikami, Doju: See—
 Shon, Ki-Joon; Yoshikami, Doju; Marsh, Maren; Cruz, Lourdes J.; Hillyard, David R.; and Olivera, Baldomero M., 5,670,622, Cl. 530-324.000.
 Yoshikawa, Haruhiko: See—
 Niiyama, Tsunefumi; Yoshikawa, Haruhiko; and Yamamoto, Kazuhisa, 5,669,280, Cl. 91-31.000.

- Yoshikawa, Kazuhiro; and Kojima, Tetsuya, to Fujikin Incorporated. Diaphragm valve. 5,669,596, Cl. 251-335.000.
- Yoshimatsu, Noriko: See—
Nakada, Kazuhiko; Yoshimatsu, Noriko; Ichinohe, Shoji; and Yamazaki, Toshio, 5,670,594, Cl. 526-279.000.
- Yoshimura, Hideyuki; and Nagayama, Kuniaki, to Research Development Corporation of Japan. Two-dimensional aggregation and fixation of protein by injection into a substrate solution having higher surface tension and specific gravity. 5,670,624, Cl. 530-350.000.
- Yoshinaga, Kazuo: See—
Katagiri, Kazuharu; Yoshinaga, Kazuo; Okada, Shinjiro; and Kanbe, Junichiro, 5,671,033, Cl. 349-128.000.
- Yoshinaga, Steven Kiyoshi: See—
Carnahan, Josette Francoise; Hara, Shinichi; Lu, Hsiang Sen; Mayer, John Philip; and Yoshinaga, Steven Kiyoshi, 5,670,342, Cl. 435-69.700.
- Yoshioka, Takeshi: See—
Maezawa, Akihiko; and Yoshioka, Takeshi, 5,671,127, Cl. 363-5.000.
- Yoshitoshi, Nobuyuki: See—
Obtaka, Akihiko; Yoshitoshi, Nobuyuki; Kimura, Shigeo; Houjou, Takeshi; and Nimiya, Kazuya, 5,670,156, Cl. 181-256.000.
- Yoshizawa, Katsuaki; and Kunihiro, Akira, to New Oji Paper Co., Ltd. Removable adhesive sheet. 5,670,226, Cl. 428-40.100.
- Yoss, James K.: See—
Adrianson, Tim M.; Brown, Alpheus L., Jr.; Busk, G. Curtis, Jr.; Gunther, Stephen A.; Huether, Karen D.; Mann, Joseph W.; and Yoss, James K., 5,670,197, Cl. 426-582.000.
- Younes, Usama E.: See—
Allen, Gary L.; Barksby, Nigel; Seeker, Stephen D.; and Younes, Usama E., 5,670,601, Cl. 528-76.000.
- Young, Chung I.: See—
Dietz, Timothy M.; Lu, Ying-Yuh; Wy, Rosa; and Young, Chung I., 5,670,557, Cl. 522-184.000.
- Young, Gerald Alfred: See—
Goldman, Stephen Allen; Haynes, Nancy Ann; Mansfield, Todd Leon; Plischke, Manfred; Retzsch, Herbert Louis; Walker, Trevor; and Young, Gerald Alfred, 5,669,894, Cl. 604-368.000.
- Young, Honesty Cheng: See—
Shekita, Eugene Jon; and Young, Honesty Cheng, 5,671,403, Cl. 395-603.000.
- Young, Lamar Duane: See—
Bok, Hendrick F.; Johnson, William Richard; O'Connor, Joseph Patrick; Shade, Matthew Martin; and Young, Lamar Duane, 5,669,971, Cl. 118-300.000.
- Young, Wayne: See—
Kelley, Matthew F.; and Young, Wayne, 5,669,533, Cl. 222-525.000.
- Yu, Ching-Chiang: See—
Kuo, Rong-Fu; and Yu, Ching-Chiang, 5,670,991, Cl. 345-168.000.
- Yu, F. Philip; and McCoy, William F., to Nalco Chemical Company. Use of the linear alkylbenzene sulfonate as a biofouling control agent. 5,670,055, Cl. 210-698.000.
- Yu, Hyo Chong: See—
Kang, Myung Goo; Kang, Seong Sik; Choi, Sung Hoon; Joung, Mun Chea; Jang, Byoung Gyu; Ryu, Kye Yeon; Yu, Hyo Chong; and Lee, Sang Jig, 5,669,568, Cl. 242-355.100.
- Yu, Mang: See—
Wong-Staal, Flossie; Yu, Mang; Yamada, Osamu; Ojwang, Joshua O.; Levitt, Markley C.; and Ho, Anthony, 5,670,361, Cl. 435-240.200.
- Yu, Philip Shi-Lung: See—
Wu, Kun-Lung; and Yu, Philip Shi-Lung, 5,671,405, Cl. 395-607.000.
- Yu, Robert K.; and Zyner, Grzegorz B., to Sun Microsystems, Inc. Shared rounding hardware for multiplier and divider/square root unit using conditional sum adder. 5,671,171, Cl. 364-798.000.
- Yu, Ruey J.; and Van Scott, Eugene J., to Tristrata Technology, Inc. Method of treating wrinkles using gulonic acid or gulonolactone. 5,670,541, Cl. 514-557.000.
- Yu, Ruey J.; and Van Scott, Eugene J., to Tristrata Technology, Inc. Method of using glucuronic acid or glucuronolactone for treating wrinkles. 5,670,542, Cl. 514-557.000.
- Yu, Ruey J.; and Van Scott, Eugene J., to Tristrata Technology, Inc. Method of using pantoic acid or pantolactone for treating wrinkles. 5,670,543, Cl. 514-557.000.
- Yu, Wei-Ping: See—
Chang, Thomas Ming Swi; and Yu, Wei-Ping, 5,670,173, Cl. 424-533.000.
- Yuhara, Toshiya; Iitsuka, Hisao; Fukuda, Kazuyuki; Shimaoka, Makoto; and Kumazawa, Tetsuo, to Hitachi Cable, Ltd. Connecting structure of optical fiber to optical waveguide. 5,671,316, Cl. 385-137.000.
- Yukawa, Masaji; Aketa, Masahiro; Okamoto, Kazutoshi; Kamada, Yasukazu; Hayatani, Akira; Sugimoto, Masahiko; and Yamamoto, Nobuhiro, to Kubota Corporation. Cylinder cooling apparatus of multi-cylinder engine. 5,669,339, Cl. 123-41.790.
- Yumoto, Osamu: See—
Moriguchi, Akisada; Yumoto, Osamu; Hata, Masaharu; Saito, Hironori; and Azumaguchi, Teruhisa, 5,670,808, Cl. 323-313.000.
- Yung, Henry Tin-Hang: See—
Soenen, Eric G.; Yung, Henry Tin-Hang; and de Wit, Michiel, 5,671,183, Cl. 365-189.120.
- Yuuki, Akimasa; Kawahara, Takaaki; Tsukahara, Kouitirou; and Yamaguchi, Touro, to Mitsubishi Denki Kabushiki Kaisha. CVD method and apparatus therefor. 5,669,976, Cl. 118-725.000.
- Yuyama, Yoshio: See—
Bolton, Brian Lewis; Yuyama, Yoshio; Akutagawa, Katsutoshi; and Matsuura, Hiromi, 5,669,843, Cl. 475-149.000.
- Yuzawa, Keiji: See—
Nakagawa, Yutaka; Kajiura, Tadashi; Fukuzawa, Keiji; and Yuzawa, Keiji, 5,670,902, Cl. 327-99.000.
- Zabala, Robert John: See—
Murray, Melissa Lea; Knudsen, Bruce Alan; King, Christopher Gus; Benz, Mark Gilbert; Zabala, Robert John; and Mantone, Anthony, 5,670,204, Cl. 427-62.000.
- Zacharias, Athanasios, to Mafo Systemtechnik Dr.-Ing. A. Zacharias, GmbH & Co. KG. Method for determining the line-of-sight rates of turn with a rigid seeker head. 5,669,579, Cl. 244-3.150.
- Zagzebski, James A.: See—
Madsen, Ernest L.; Zagzebski, James A.; Frank, Gary R.; and Rownd, Jason J., 5,670,719, Cl. 73-619.000.
- Zahn, Erich Michael, to Heidelberger Druckmaschinen AG. Device for producing individual stacks of sheets. 5,669,755, Cl. 414-790.100.
- Zaiting, Li; Chaogang, Xie; Wenyuan, Shi; Fukang, Jiang; Shunhua, Liu; Renan, Pan; and Shichun, Li, to China Petro-Chemical Corporation; and Research Institute of Petroleum Processing, SINOPEC. Process for producing light olefins by catalytic conversion of hydrocarbons. 5,670,037, Cl. 208-114.000.
- Zajackowski, Michael J.; Krupa, David A.; and Stutzman, Barbara A., to Adhesives Research, Inc. Radiation-cured adhesive film having differential surface adhesion. 5,670,260, Cl. 428-345.000.
- Zalar, Frank E.: See—
Lanese, Gustavo J.; Zalar, Frank E.; and Olwert, Ronald J., 5,670,840, Cl. 313-25.000.
- Zamansky, Vladimir M.; Ho, Loc; and Seeker, William Randall, to Energy and Environmental Research Corporation. Methods for removing air pollutants from combustion flue gas. 5,670,122, Cl. 423-210.000.
- Zamora, Paul O., to Rhomed Incorporated. Peptides method for radiolabeling them, and method for detecting inflammation. 5,670,133, Cl. 424-9.100.
- Zaniewski, Michel. Modular devices for the extraction of fumes. 5,669,811, Cl. 454-16.000.
- Zarling, David A.: See—
Sena, Elissa P.; Calhoun, Cornelia J.; and Zarling, David A., 5,670,316, Cl. 435-6.000.
- Zdeblick, Thomas; Ray, Eddie, III; and Boyd, Lawrence M., to Danek Medical, Inc. Interbody fusion device and method for restoration of normal spinal anatomy. 5,669,909, Cl. 606-61.000.
- Zebco Corporation: See—
Zurcher, John Anthony; Puryear, John Walter; Kim, Hyunkyuu; and Carpenter, Robert L., 5,669,565, Cl. 242-233.000.
- Zeftek, Inc.: See—
Anderson, John D., 5,669,745, Cl. 410-87.000.
- Zeifang, William Joseph, to Labelon Corporation. Holder for transparencies. 5,669,689, Cl. 353-120.000.
- Zeiner, Mark S.: See—
Schulze, Dale R.; Parascac, Joseph; Fox, William D.; Setser, Michael E.; Wales, Kenneth S.; and Zeiner, Mark S., 5,669,544, Cl. 227-176.100.
- Zeissner, Alexander: See—
Ayd, Matthias; Pfertner, Kurt; Zeissner, Alexander; Thomas, Peter; and Blech, Christof, 5,669,656, Cl. 296-116.000.
- Zeller, John J.: See—
May, Daniel R.; Cole, Kevin A.; Guzman, Sharon A.; and Zeller, John J., 5,670,188, Cl. 425-363.000.
- Zellweger Luwa AG: See—
Hoeller, Robert, 5,671,061, Cl. 356-429.000.
- Zemen, Rick E., Jr.: See—
Welch, Richard; and Zemen, Rick E., Jr., 5,670,743, Cl. 174-49.000.
- Zeneca Limited: See—
Bowden, Martin Charles; and Turnbull, Michael Drysdale, 5,670,697, Cl. 560-124.000.
- Chin, Hsiao-Ling M.; Wei, Yi-Qiu; Nguyen, Nhan H.; and Kanne, David B., 5,670,453, Cl. 504-235.000.
- Cox, John Michael; Gillen, Kevin James; Ellis, Russell Martin; Vohra, Shaheen Khatoon; Smith, Stephen Christopher; and Matthews, Ian Richard, 5,670,656, Cl. 548-543.000.
- Crosby, John; Blacker, Andrew; and Herbert, John Albert Leslie, 5,670,662, Cl. 549-291.000.
- Zeng, Weiping; Arata, Masami; and Banba, Tsuyoshi, to Sun Medical Co., Ltd. Primer solution composition for dental bonding. 5,670,559, Cl. 523-118.000.
- Zenon Environmental, Inc.: See—
Colletto, William V.; and Colletto, Andrew W., 5,670,053, Cl. 210-652.000.
- Zerfass, Cynthia: See—
Lee, Catherine T.; Zerfass, Cynthia; Dinh, Tan Thanh; and Ma, Minh T., 5,670,358, Cl. 435-212.000.
- Zexel Corporation: See—
Homan, Akinori; Ishikawa, Kiyonari; and Okuda, Hirofumi, 5,669,844, Cl. 475-160.000.
- Zexel Torsen Inc.: See—
Ryan, Thomas B.; Holzwarth, Robert K.; and May, Kenneth A., 5,671,144, Cl. 364-426.029.

- Zhang, Shuguang; Lockshin, Curtis; Rich, Alexander; and Holmes, Todd, to Massachusetts Institute of Technology. Stable macroscopic membranes formed by self-assembly of amphiphilic peptides and uses therefor. 5,670,483, Cl. 514-14.000.
- Zhao, Albert Z., to International Business Machines Corporation. System for fast 90-degree rotation of bi-level images. 5,670,982, Cl. 345-126.000.
- Zhou, Yong: See—
Weerackody, Vijitha; and Zhou, Yong, 5,671,156, Cl. 364-514.00R.
- Ziemann, Lyle Elmore: See—
Baile, Clifton Augustus; Day, Jeffrey Wilson; Hampton, Thomas Riley, II; Kasser, Thomas Richard; Pike, James Brian; Smith, Jonathan Paul; and Ziemann, Lyle Elmore, 5,670,162, Cl. 424-438.000.
- Zimmer, Gregory A.: See—
Notz, Robert R.; Cappel, Jerome P.; and Zimmer, Gregory A., 5,669,519, Cl. 215-10.000.
- Zinke, Horst; and Kaufhold, Johannes, to Ciba-Specialty Chemicals Corporation. Stabilised chlorine-containing polymer compositions. 5,670,563, Cl. 524-182.000.
- Ziolo, Ronald F., to Xerox Corporation. Magnetic and nonmagnetic particles and fluid, methods of making and methods of using the same. 5,670,078, Cl. 252-62.540.
- Zittel, David R.; and Malchow, Steven B., to Lyco Manufacturing, Inc. Rotating drum food processor with cleaning spray accessible panels. 5,669,288, Cl. 99-348.000.
- Zitritsch, Terrance John: See—
Bertolet, Allan Robert; Ferguson, Kenneth; Gould, Scott Whimey; Millham, Eric Ernest; Palmer, Ronald Raymond; Worth, Brian; and Zitritsch, Terrance John, 5,671,432, Cl. 395-800.000.
- Zobel, Robert A. Method and apparatus for smoothing an anatomical joint bearing surface during hemi-joint replacement. 5,669,913, Cl. 606-85.000.
- Zoch, Walter P.: See—
Dingus, Michael L.; Zoch, Walter P.; Mayfield, Thomas R.; Bray, Alan; and Rushing, Rock A., 5,670,469, Cl. 510-274.000.
- Zocher, Andrew Gerald, to Motorola, Inc. Variable supply biasing method and apparatus for an amplifier. 5,670,912, Cl. 330-296.000.
- Zombo, Paul J.; Guenther, Paul; Moore, Charles C.; and Metala, Michael J., to Westinghouse Electric Corporation. Nondestructive inspection device and method for monitoring defects inside a turbine engine. 5,670,879, Cl. 324-227.000.
- Zook, Christopher P., to Cirrus Logic, Inc. Cyclical redundancy check method and apparatus. 5,671,237, Cl. 371-37.400.
- Zumbach, Lyle L.: See—
Morris, Michael D.; and Zumbach, Lyle L., 5,671,436, Cl. 395-800.000.
- Zuranski, Edward Sigmund: See—
Bremer, Gordon; Ko, Kenneth David; Smithwick, Luke J.; and Zuranski, Edward Sigmund, 5,671,250, Cl. 375-222.000.
- Zurcher, John Anthony; Puryear, John Walter; Kim, Hyunkyuu; and Carpenter, Robert L., to Zebco Corporation. Anti-jamming mechanism for bail assembly on fishing reel. 5,669,565, Cl. 242-233.000.
- Zwerdling, Susan Schmaedecke: See—
Trinh, Toan; Cappel, Jerome Paul; Geis, Philip Anthony; Hollingshead, Judith Ann; McCarty, Mark Lee; and Zwerdling, Susan Schmaedecke, 5,670,475, Cl. 510-470.000.
- Zygo Corporation: See—
de Groot, Peter, 5,671,050, Cl. 356-359.000.
- ZymeQuest, Inc.: See—
Jorgensen, Glen; and Barry, Don, 5,671,135, Cl. 364-181.000.
- Zyner, Grzegorz B.: See—
Yu, Robert K.; and Zyner, Grzegorz B., 5,671,171, Cl. 364-748.000.
- 3COM Corporation: See—
Burns, Lawrence M.; and Mitchell, Scott W., 5,671,258, Cl. 375-359.000.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 23rd DAY OF SEPTEMBER, 1997

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Air Products and Chemicals, Inc.: See—
Norman, John A. T.; Hochberg, Arthur K.; and Roberts, David A., RE. 35,614, Cl. 427-250.000.
Appleby, John W., Jr.: See—
McComas, Charles C.; Appleby, John W., Jr.; Sileo, Gerard A.; Barringer, Herbert R.; and Patry, Michael J., RE. 35,611, Cl. 134-32.000.
Barringer, Herbert R.: See—
McComas, Charles C.; Appleby, John W., Jr.; Sileo, Gerard A.; Barringer, Herbert R.; and Patry, Michael J., RE. 35,611, Cl. 134-32.000.
BP Chemicals Limited: See—
Jones, Michael David; Watson, Derrick John; and Williams, Bruce Leo, RE. 35,615, Cl. 562-608.000.
British Petroleum Company, P.L.C.: See—
Jones, Michael David; Watson, Derrick John; and Williams, Bruce Leo, RE. 35,615, Cl. 562-608.000.
Hochberg, Arthur K.: See—
Norman, John A. T.; Hochberg, Arthur K.; and Roberts, David A., RE. 35,614, Cl. 427-250.000.
Jones, Michael David; Watson, Derrick John; and Williams, Bruce Leo, to BP Chemicals Limited: See—
British Petroleum Company, P.L.C., The. Process for removing iodide compounds from carboxylic acids and carboxylic acid anhydrides. RE. 35,615, Cl. 562-608.000.
McComas, Charles C.; Appleby, John W., Jr.; Sileo, Gerard A.; Barringer, Herbert R.; and Patry, Michael J., to Waterjet Systems, Inc. Liquid jet removal of plasma sprayed and sintered coatings. RE. 35,611, Cl. 134-32.000.
Mitsubishi Denki Kabushiki Kaisha: See—
Yasuda, Kenichi; Suwa, Makoto; and Mori, Shigeru, RE. 35,613, Cl. 257-371.000.
Mori, Shigeru: See—
Yasuda, Kenichi; Suwa, Makoto; and Mori, Shigeru, RE. 35,613, Cl. 257-371.000.
Yasuda, Kenichi; Suwa, Makoto; and Mori, Shigeru, RE. 35,613, Cl. 257-371.000.
Norman, John A. T.; Hochberg, Arthur K.; and Roberts, David A., to Air Products and Chemicals, Inc. Process for improved quality of CVD copper films. RE. 35,614, Cl. 427-250.000.
Patry, Michael J.: See—
McComas, Charles C.; Appleby, John W., Jr.; Sileo, Gerard A.; Barringer, Herbert R.; and Patry, Michael J., RE. 35,611, Cl. 134-32.000.
Roberts, David A.: See—
Norman, John A. T.; Hochberg, Arthur K.; and Roberts, David A., RE. 35,614, Cl. 427-250.000.
Sileo, Gerard A.: See—
McComas, Charles C.; Appleby, John W., Jr.; Sileo, Gerard A.; Barringer, Herbert R.; and Patry, Michael J., RE. 35,611, Cl. 134-32.000.
Suwa, Makoto: See—
Yasuda, Kenichi; Suwa, Makoto; and Mori, Shigeru, RE. 35,613, Cl. 257-371.000.
Waterjet Systems, Inc.: See—
McComas, Charles C.; Appleby, John W., Jr.; Sileo, Gerard A.; Barringer, Herbert R.; and Patry, Michael J., RE. 35,611, Cl. 134-32.000.
Watson, Derrick John: See—
Jones, Michael David; Watson, Derrick John; and Williams, Bruce Leo, RE. 35,615, Cl. 562-608.000.
Williams, Bruce Leo: See—
Jones, Michael David; Watson, Derrick John; and Williams, Bruce Leo, RE. 35,615, Cl. 562-608.000.
Yasuda, Kenichi; Suwa, Makoto; and Mori, Shigeru, to Mitsubishi Denki Kabushiki Kaisha. Dynamic random access memory with isolated well structure. RE. 35,613, Cl. 257-371.000.

LIST OF REEXAMINATION PATENTEEES

TO WHOM

CERTIFICATES WERE ISSUED

- Aarthur, Nils I.: See—
Löfgren, Peter; and Aarthur, Nils I., B1 819,691, Cl. 137-556.000.
Akimoto, Ken: See—
Nakamura, Yoshikatsu; Egami, Yasukichi; Takeguchi, Shunsuke; and Akimoto, Ken, B1 272,930, Cl. 74-434.000.
Childers, Jimmie D.; and McAdams, Hugh P., to Texas Instruments Incorporated. Matrix interconnection system with different width conductors. B1 975,874, Cl. 365-63.000.
Christian, Gil S.: See—
Newman, Edward G.; Christian, Gil S.; and Jenkins, Michael D., B1 305,244, Cl. 364-708.100.
Computer Products & Services Inc. (CPSI): See—
Newman, Edward G.; Christian, Gil S.; and Jenkins, Michael D., B1 305,244, Cl. 364-708.100.
Egami, Yasukichi: See—
Nakamura, Yoshikatsu; Egami, Yasukichi; Takeguchi, Shunsuke; and Akimoto, Ken, B1 272,930, Cl. 74-434.000.
Fortnet Inc.: See—
Itkis, Boris, B1 856,787, Cl. 273-239.000.
Itkis, Boris, to Fortnet Inc. Concurrent game network. B1 856,787, Cl. 273-239.000.
Jackowski, Ronald A.; and Peisker, Glenn W., to SKF USA Inc. Unitized oil seals. B1 448,426, Cl. 277-37.000.
Jenkins, Michael D.: See—
Newman, Edward G.; Christian, Gil S.; and Jenkins, Michael D., B1 305,244, Cl. 364-708.100.
Kioritz Corporation: See—
Taomo, Toshio, B1 368,107, Cl. 173-162.200.
Löfgren, Peter; and Aarthur, Nils I., to Steridose Systems AB. Valve device. B1 819,691, Cl. 137-556.000.
McAdams, Hugh P.: See—
Childers, Jimmie D.; and McAdams, Hugh P., B1 975,874, Cl. 365-63.000.
Childers, Jimmie D.; and McAdams, Hugh P., B1 975,874, Cl. 365-63.000.
Nakamura, Yoshikatsu; Egami, Yasukichi; Takeguchi, Shunsuke; and Akimoto, Ken, to Nippon Piston Ring Co., Ltd. Mechanical element having a shaft pressure-fitted into an engaging member and its manufacturing method. B1 272,930, Cl. 74-434.000.
Newman, Edward G.; Christian, Gil S.; and Jenkins, Michael D., to Computer Products & Services Inc. (CPSI). Hands-free, user-supported portable computer. B1 305,244, Cl. 364-708.100.
Nippon Piston Ring Co., Ltd.: See—
Nakamura, Yoshikatsu; Egami, Yasukichi; Takeguchi, Shunsuke; and Akimoto, Ken, B1 272,930, Cl. 74-434.000.
Peisker, Glenn W.: See—
Jackowski, Ronald A.; and Peisker, Glenn W., B1 448,426, Cl. 277-37.000.
SKF USA Inc.: See—
Jackowski, Ronald A.; and Peisker, Glenn W., B1 448,426, Cl. 277-37.000.
Steridose Systems AB: See—
Löfgren, Peter; and Aarthur, Nils I., B1 819,691, Cl. 137-556.000.
Takeguchi, Shunsuke: See—
Nakamura, Yoshikatsu; Egami, Yasukichi; Takeguchi, Shunsuke; and Akimoto, Ken, B1 272,930, Cl. 74-434.000.
Taomo, Toshio, to Kioritz Corporation. Vibration preventive coil spring mounting structure. B1 368,107, Cl. 173-162.200.
Texas Instruments Incorporated: See—
Childers, Jimmie D.; and McAdams, Hugh P., B1 975,874, Cl. 365-63.000.

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- AB Astra: See—
Karlsson, Jan; and Widerström, Carin, 384,147, Cl. D24-110.400.
Abbott Laboratories: See—
Macaulay, Richard Peter; and Sita, Lewis Henry, 383,981, Cl. D9-520.000.
Abfier, Mel; and Okin, Matthew Scott, to Chesebrough-Pond's USA Co., Division of Conopco, Inc. Container. 383,980, Cl. D9-502.000.
Adams Mfg. Corp.: See—
Adams, William E., 383,969, Cl. D8-388.000.
Adams, William E., to Adams Mfg. Corp. Hose anchor. 383,969, Cl. D8-388.000.
Adjusta-Post Manufacturing Co.: See—
Ruggles, Patrick H.; and Hampshire, James, 384,179, Cl. D26-85.000.
Ahlberg, Erik Ola. Side section for a display arrangement. 383,925, Cl. D6-491.000.
Ahlström, Stig. Chair frame. 383,913, Cl. D6-348.000.
Akins, Richard L.: See—
Kuprewicz, Ralph J.; Gritters, Randall D.; and Akins, Richard L., 384,034, Cl. D13-133.000.
Kuprewicz, Ralph J.; Gritters, Randall D.; and Akins, Richard L., 384,035, Cl. D13-133.000.
Alexandrovich, Benjamin: See—
Godyak, Valery A.; Alexandrovich, Benjamin; and Lester, James N., 384,173, Cl. D26-3.000.
Alfa Technology Ltd.: See—
Kokkinis, Serge, 384,067, Cl. D14-162.000.
Kokkinis, Serge, 384,069, Cl. D14-171.000.
Kokkinis, Serge, 384,073, Cl. D14-194.000.
Kokkinis, Serge, 384,074, Cl. D14-196.000.
Allinsmith, Wendy; Swigert, Ross A.; and Kerth, Michael S., to Procter & Gamble Company, The. Container. 383,976, Cl. D9-430.000.
Allinsmith, Wendy; Swigert, Ross A.; and Kerth, Michael S., to Procter & Gamble Company, The. Container blank. 383,977, Cl. D9-433.000.
Althans, Richard K.; Gronowski, Gregory E.; and Sorensen, Tom L., to Zenith Electronics Corporation. Projection television. 384,056, Cl. D14-128.000.
Ambar, Betzalel, to Ambar Diamonds, Inc. Finger ring. 383,997, Cl. D11-34.000.
Ambar Diamonds, Inc.: See—
Ambar, Betzalel, 383,997, Cl. D11-34.000.
An, Suk Ku; and Bennett, Kyle M., to Fiskars Inc. Edging scissors. 383,958, Cl. D8-57.000.
Anderson, Eric; and Chan, Eric, to Goody Products, Inc. Handle for an oval brush. 383,901, Cl. D4-138.000.
Antonczak, Mike; Dann, Michael; Yurkonis, Philip G.; Lajara, Robert J.; Pfeifer, Herbert; and Montgomery, Paul, to Sun Microsystems, Inc. Computer housing. 384,042, Cl. D14-100.000.
Antonioti, Gina M.: See—
David, Thomas K.; and Antonioti, Gina M., 384,002, Cl. D11-164.000.
Apple Computer, Inc.: See—
Riley, Raymond W.; Laituri, David W.; and Wong, Gil, 384,112, Cl. D21-48.000.
Applied Power Inc.: See—
Luebke, Thomas M., 383,988, Cl. D10-78.000.
Arnone, Paula, to Motorola, Inc. Icon of a group of two-way radios for a computer display screen. 384,049, Cl. D14-114.300.
Arnoux, Axel: See—
Arnoux, Daniel; and Arnoux, Axel, 383,989, Cl. D10-79.000.
Arnoux, Daniel; and Arnoux, Axel, to Societe Chauvin Arnoux. Clamp-on current probe. 383,989, Cl. D10-79.000.
Ashcraft, Danny C.: See—
De La Cruz, Richard; Ashcraft, Danny C.; and Parente, Richard E., 384,120, Cl. D21-214.000.
Assenburg, B.V.: See—
Muller-Deisig, Wolfgang; and Dankers, Alexander Henricus Antonius Maria, 383,923, Cl. D6-474.000.
Astle, Henry: See—
Sandford, William E.; and Astle, Henry, 383,960, Cl. D8-61.000.
Audiovox Corp.: See—
Christie, Scott, 383,895, Cl. D3-208.000.
Avinger, Andrew George: See—
Fillipp, Stephen L.; and Avinger, Andrew George, 383,945, Cl. D7-601.000.
Fillipp, Stephen L.; and Avinger, Andrew George, 383,946, Cl. D7-601.000.
Ballon-Express S.A.: See—
Lippens, Gerd, 383,973, Cl. D9-329.000.
Banham, David: See—
Stokes, Adrian Douglas; Banham, David; and Flicker, Wendy, 383,905, Cl. D3-279.000.
Bart, Robert M. Outdoor umbrella. 383,900, Cl. D3-6.000.
Baumgartner, Thomas J. Pet food treat. 383,886, Cl. D1-199.000.
Beaumont, Thomas Glenn: See—
Davis, James Talmage, II; Le, Son Quang; and Beaumont, Thomas Glenn, 384,070, Cl. D14-191.000.
Bennett, Kyle M.: See—
An, Suk Ku; and Bennett, Kyle M., 383,958, Cl. D8-57.000.
Berman, Frank A. Curtain clip. 383,970, Cl. D8-395.000.
Beutler, Scott D.; Domoleczny, James D.; Verma, Anil; and Nagele, Albert L., to Motorola, Inc. Cradle for a portable device. 384,080, Cl. D14-253.000.
Bice, Kevin Lynn; Davidson, Hugo James; and Gardner, Bruce W., to Lucent Technologies Inc. Cover for a wireless base station. 384,065, Cl. D14-149.000.
Bidwell, Dean J.; and Hooper, Stephen B., to Siemens Medical Systems, Inc. Ultrasound transducer probe holder. 383,968, Cl. D8-356.000.
Biunno, Richard J. Combined bottle and can opener. 383,954, Cl. D8-40.000.
Black & Decker Inc.: See—
DuBois, Craig A., 384,144, Cl. D23-370.000.
Kaiser, David W.; and Carbone, Richard J., 384,176, Cl. D26-43.000.
Bodeau, Edward. Window awning. 384,167, Cl. D25-57.000.
Bohland, William. Planter stand. 383,917, Cl. D6-405.000.
Boise Cascade Corporation: See—
Rench, Frederick A.; and Watanabe, Michael E., 383,942, Cl. D7-529.000.
Boley, John D. Food preparation container. 383,943, Cl. D7-555.000.
Bonnell, Thomas A.; and Giese, Robert C., to Kohler Co. Wall mountable shower fixture. 384,137, Cl. D23-304.000.
Borden, Robert W. Light fixture. 384,181, Cl. D26-110.000.
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NOTE—First number, class; second number, subclass; third number, patent number

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CLASS 2 8 5,669,070 10 5,669,071 93 5,669,072 161.2 5,669,073 172 5,669,074 195.2 5,669,075 227 5,669,076 247 5,669,077 414 5,669,078 455 5,669,080			123.4 5,669,140 134 5,669,141 314 5,669,142 324 5,669,143 346.54 5,669,144 371 5,669,145			CLASS 33 265 5,669,146 334 5,669,147 355 R 5,669,148 471 5,669,149 503 5,669,150 558 5,669,151 559 5,669,152 667 5,669,153			CLASS 34 71 5,669,154 115 5,669,155 248 5,669,156 321 5,669,157 393 5,669,158 398 5,669,159			CLASS 35 10 5,669,160 43 5,669,161 44 5,669,162			CLASS 36 284 5,669,163			CLASS 37 284 5,669,163			CLASS 38 137 5,669,164			CLASS 39 137 5,669,164			CLASS 40 124 191 5,669,165 603 5,669,166 642 5,669,167			CLASS 41 74 5,669,168 75.01 5,669,169 85 5,669,170 87 5,669,171 96 5,669,172 101 5,669,173 103 5,669,174			CLASS 42 17 5,669,175 139 5,669,176			CLASS 43 17 5,669,175 139 5,669,176			CLASS 44 301 5,669,177 425 5,669,178			CLASS 45 21 5,669,179 40.5 5,669,180 64 5,669,181 181 5,669,182 360 5,669,183			CLASS 46 295 5,669,184 307 5,669,185 309 5,669,186 5,669,187			CLASS 47 218 5,669,188 26 5,669,189 27 5,669,190 72 5,669,191 101 5,669,192 127.3 5,669,193 167.4 5,669,194 196 5,669,195 202 5,669,196 211 5,669,197 236.8 5,669,198 255 5,669,199 583.1 5,669,200			CLASS 48 656.4 5,669,201 704 5,669,202			CLASS 49 20.1 5,669,203 31.04 5,669,204 68 5,669,205			CLASS 50 14 5,669,206 18 5,669,207 38 A 5,669,208 56 5,669,209 93 5,669,210			CLASS 51 182.2 5,669,211 273 5,669,212			CLASS 52 64 5,669,213 132 T 5,669,214 146 5,669,215 195 5,669,216 205 5,669,217 219 5,669,218			CLASS 53 201 5,669,219 373.7 5,669,220 397 5,669,221 398 5,669,222 429 5,669,223 430 5,669,224 440 5,669,225 453 5,669,226 490 5,669,227 559 5,669,228			CLASS 54 8 5,669,229			CLASS 55 234 5,669,230 342 5,669,231 459.1 5,669,232 486 5,669,233			CLASS 56 13.3 5,669,234 17.5 5,669,235			CLASS 57 218 5,669,236 301 5,669,237			CLASS 58 39.02 5,669,238 39.05 5,669,239 39.49 5,669,240 274 5,669,241 654 5,669,242			CLASS 59 92 5,669,243 156 5,669,244 160 5,669,245			CLASS 60 201 5,669,246 210 5,669,247 225 5,669,248 235 5,669,249 238.7 5,669,250 259.1 5,669,251 285 5,669,252 296 5,669,253 371 5,669,254 612 5,669,255 614 5,669,256 643 5,669,257 646 5,669,258 657 5,669,259			CLASS 61 12 5,669,260 15 5,669,261 15.2 5,669,262 21 5,669,263 33 5,669,264			CLASS 62 12 5,669,265 15.2 5,669,266 21 5,669,267 33 5,669,268			CLASS 63 12 5,669,269 15 5,669,270 15.2 5,669,271 21 5,669,272 33 5,669,273			CLASS 64 29.12 5,669,274 60.1 5,669,275 106 5,669,276 182.2 5,669,277 273 5,669,278			CLASS 65 29.12 5,669,279 60.1 5,669,280 106 5,669,281 182.2 5,669,282 273 5,669,283			CLASS 66 64 5,669,284 132 T 5,669,285 146 5,669,286 195 5,669,287 205 5,669,288 219 5,669,289			CLASS 67 64 5,669,290 132 T 5,669,291 146 5,669,292 195 5,669,293 205 5,669,294 219 5,669,295			CLASS 68 12.02 5,669,296 58 5,669,297			CLASS 69 14 5,669,298 18 5,669,299 38 A 5,669,300 56 5,669,301 93 5,669,302			CLASS 70 50 5,669,303 51 5,669,304 95 5,669,305 116 5,66		
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CLASS 135	33.2 5,669,402 90 5,669,403	CLASS 144	46 5,669,433 97 5,669,434 131 5,669,435 461 5,669,436	CLASS 198	347.3 5,669,481 380 5,669,482 812 5,669,483	CLASS 212	196 5,669,517 315 5,669,518	CLASS 242	43 R 5,669,564 233 5,669,565 234 5,669,566 355 5,669,567 355.1 5,669,568 356.4 5,669,569 378.1 5,669,570 382.1 5,669,571 383.1 5,669,572 395 5,669,573 395.3 5,669,574 470 5,669,575 573.9 5,669,576 613.5 5,669,577 5,669,578	CLASS 256	331 5,670,810 341 5,670,811 347 5,670,812 355 5,670,813 360 5,670,814 371 5,670,815 386 5,670,816 394 5,670,817 530 5,670,818 536 5,670,819 538 5,670,820 547 5,670,821 565 5,670,822 723 5,670,823 730 5,670,824 741 5,670,825 773 5,670,826 5,670,827 5,670,828	CLASS 261	33 5,670,098 20 5,670,093 27 5,670,094 97 5,670,095	CLASS 264	1.1 5,670,096 1.24 5,670,097 4.3 5,670,099 40.5 5,670,100 45.8 5,670,101 50 5,670,102 58.1 5,670,103 201 5,669,591 217.4 5,669,592 476 5,669,593 619 5,669,594	CLASS 267	64.17 5,669,597 162 5,669,598	CLASS 269	8 5,669,599 73 5,669,600	CLASS 271	3.08 5,669,601 18.3 5,669,602 183 5,669,603 265.01 5,669,604 314 5,669,605	CLASS 273	239 5,670,829 274 5,670,830 354 5,669,607 373 5,669,608 407 5,669,609 431 5,669,610 5,669,611	CLASS 277	37 5,670,842 167.5 5,669,612 204 5,669,613 235 B 5,669,614 5,669,615	CLASS 279	62 5,669,616	CLASS 280	87.01 5,669,617 204 5,669,618 250.1 5,669,619 477 5,669,620 613 5,669,621 615 5,669,622 642 5,669,623 647 5,669,624 728.2 5,669,625 728.3 5,669,626 739 5,669,627 741 5,669,628 743.2 5,669,629 777 5,669,630 5,669,631 5,669,632 5,669,633 5,669,634	CLASS 281	30 5,669,635	CLASS 215	10 5,669,519 11.1 5,669,520 232 5,669,521	CLASS 216	108 5,670,062	CLASS 218	43 5,670,767	CLASS 219	85.22 5,670,063 121.43 5,670,065 121.58 5,670,066 121.6 5,670,064 121.68 5,670,067 121.73 5,670,068 130.33 5,670,070 130.51 5,670,071 137 R 5,670,072 137.62 5,670,073 481 5,670,074	CLASS 220	4.02 5,669,522 4.27 5,669,523 9.1 5,669,524 201 5,669,591 217.4 5,669,592 476 5,669,593 619 5,669,594	CLASS 221	191 5,669,527	CLASS 222	53 5,669,528 78 5,669,529 153.09 5,669,530 153.14 5,669,531 401 5,669,532 525 5,669,533 603 5,670,075	CLASS 224	42.23 5,669,534 443 5,669,536 539 5,669,537 5,669,538	CLASS 226	24 5,669,539 177 5,669,540	CLASS 228	1.1 5,669,545 123.1 5,669,546 219 5,669,547 224 5,669,548	CLASS 229	4.5 5,669,549 103.2 5,669,550 114 5,669,551 403 5,669,552 582 5,669,553	CLASS 235	441 5,670,769 462 5,670,770 493 5,670,771 44 C 5,669,554 64 5,670,793 66 5,670,794 613 5,669,620 615 5,669,622 642 5,669,623 647 5,669,624 728.2 5,669,625 728.3 5,669,626 739 5,669,627 741 5,669,628 743.2 5,669,629 777 5,669,630 5,669,631 5,669,632 5,669,633 5,669,634	CLASS 236	40 5,669,554	CLASS 237	64 5,670,793 66 5,670,794 613 5,669,620 615 5,669,622 642 5,669,623 647 5,669,624 728.2 5,669,625 728.3 5,669,626 739 5,669,627 741 5,669,628 743.2 5,669,629 777 5,669,630 5,669,631 5,669,632 5,669,633 5,669,634	CLASS 239	72 5,669,555 71 5,669,556 135 5,669,557 311 5,669,558 379 5,670,768	CLASS 241	23 5,669,559 69 5,669,560 74 5,669,561 101.74 5,669,562 101.78 5,669,563	CLASS 243	331 5,670,810 341 5,670,811 347 5,670,812 355 5,670,813 360 5,670,814 371 5,670,815 386 5,670,816 394 5,670,817 530 5,670,818 536 5,670,819 538 5,670,820 547 5,670,821 565 5,670,822 723 5,670,823 730 5,670,824 741 5,670,825 773 5,670,826 5,670,827 5,670,828	CLASS 244	3.15 5,669,579 3.16 5,669,580 76 C 5,669,582 130 5,669,583 158 A 5,669,584 158 R 5,669,585 167 5,669,586	CLASS 246	220 5,669,587 307 5,669,588	CLASS 248	65 5,669,589 68.1 5,669,590 201 5,669,591 217.4 5,669,592 476 5,669,593 619 5,669,594	CLASS 249	53 M 5,670,076	CLASS 250	201.2 5,670,773 203.4 5,670,774 214 A 5,670,775 214 AL 5,670,776 214.1 5,670,777 221 5,670,778 231.13 5,670,779 231.14 5,670,780 231.16 5,670,781 310 5,670,782 363.05 5,670,783 372 5,670,784 423 R 5,670,785 494.1 5,670,786 559.31 5,670,787	CLASS 251	149.8 5,669,595 335.2 5,669,596	CLASS 252	62.52 5,670,077 62.54 5,670,078 67 5,670,079 77 5,670,080 186.42 5,670,081 299.01 5,670,082 5,670,083 5,670,084 5,670,085 5,670,086 5,670,087 5,670,088 5,670,089 5,670,090 5,670,091 5,670,092	CLASS 257	10 5,670,788 13 5,670,789 14 5,670,790 14 5,670,791 40 5,670,792 59 5,669,621 613 5,669,620 615 5,669,622 642 5,669,623 647 5,669,624 728.2 5,669,625 728.3 5,669,626 739 5,669,627 741 5,669,628 743.2 5,669,629 777 5,669,630 5,669,631 5,669,632 5,669,633 5,669,634	CLASS 258	30 5,670,809	CLASS 259	30 5,670,810	CLASS 260	30 5,670,811	CLASS 261	33 5,670,098	CLASS 262	33 5,670,099	CLASS 263	33 5,670,100	CLASS 264	33 5,670,101	CLASS 265	33 5,670,102	CLASS 266	33 5,670,103	CLASS 267	33 5,670,104	CLASS 268	33 5,670,105	CLASS 269	33 5,670,106	CLASS 270	33 5,670,107	CLASS 271	33 5,670,108	CLASS 272	33 5,670,109	CLASS 273	33 5,670,110	CLASS 274	33 5,670,111	CLASS 275	33 5,670,112	CLASS 276	33 5,670,113	CLASS 277	33 5,670,114	CLASS 278	33 5,670,115	CLASS 279	33 5,670,116	CLASS 280	33 5,670,117	CLASS 281	33 5,670,118	CLASS 282	33 5,670,119	CLASS 283	33 5,670,120	CLASS 284	33 5,670,121	CLASS 285	33 5,670,122	CLASS 286	33 5,670,123	CLASS 287	33 5,670,124	CLASS 288	33 5,670,125	CLASS 289	33 5,670,126	CLASS 290	33 5,670,127	CLASS 291	33 5,670,128	CLASS 292	33 5,670,129	CLASS 293	33 5,670,130	CLASS 294	33 5,670,131	CLASS 295	33 5,670,132	CLASS 296	33 5,670,133	CLASS 297	33 5,670,134	CLASS 298	33 5,670,135	CLASS 299	33 5,670,136	CLASS 300	33 5,670,137	CLASS 301	33 5,670,138	CLASS 302	33 5,670,139	CLASS 303	33 5,670,140	CLASS 304	33 5,670,141	CLASS 305	33 5,670,142	CLASS 306	33 5,670,143	CLASS 307	33 5,670,144	CLASS 308	33 5,670,145	CLASS 309	33 5,670,146	CLASS 310	33 5,670,147	CLASS 311	33 5,670,148	CLASS 312	33 5,670,149	CLASS 313	33 5,670,150	CLASS 314	33 5,670,151	CLASS 315	33 5,670,152	CLASS 316	33 5,670,153	CLASS 317	33 5,670,154	CLASS 318	33 5,670,155	CLASS 319	33 5,670,156	CLASS 320	33 5,670,157	CLASS 321	33 5,670,158	CLASS 322	33 5,670,159	CLASS 323	33 5,670,160	CLASS 324	33 5,670,161	CLASS 325	33 5,670,162	CLASS 326	33 5,670,163	CLASS 327	33 5,670,164	CLASS 328	33 5,670,165	CLASS 329	33 5,670,166	CLASS 330	33 5,670,167	CLASS 331	33 5,670,168	CLASS 332	33 5,670,169	CLASS 333	33 5,670,170	CLASS 334	33 5,670,171	CLASS 335	33 5,670,172	CLASS 336	33 5,670,173	CLASS 337	33 5,670,174	CLASS 338	33 5,670,175	CLASS 339	33 5,670,176	CLASS 340	33 5,670,177	CLASS 341	33 5,670,178	CLASS 342	33 5,670,179	CLASS 343	33 5,670,180	CLASS 344	33 5,670,181	CLASS 345	33 5,670,182	CLASS 346	33 5,670,183	CLASS 347	33 5,670,184	CLASS 348	33 5,670,185	CLASS 349	33 5,670,186	CLASS 350	33 5,670,187	CLASS 351	33 5,670,188	CLASS 352	33 5,670,189	CLASS 353	33 5,670,190	CLASS 354	33 5,670,191	CLASS 355	33 5,670,192	CLASS 356	33 5,670,193	CLASS 357	33 5,670,194	CLASS 358	33 5,670,195	CLASS 359	33 5,670,196	CLASS 360	33 5,670,197	CLASS 361	33 5,670,198	CLASS 362	33 5,670,199	CLASS 363	33 5,670,200	CLASS 364	33 5,670,201	CLASS 365	33 5,670,202	CLASS 366	33 5,670,203	CLASS 367	33 5,670,204	CLASS 368	33 5,670,205	CLASS 369	33 5,670,206	CLASS 370	33 5,670,207	CLASS 371	33 5,670,208	CLASS 372	33 5,670,209	CLASS 373	33 5,670,210	CLASS 374	33 5,670,211	CLASS 375	33 5,670,212	CLASS 376	33 5,670,213	CLASS 377	33 5,670,214	CLASS 378	33 5,670,215	CLASS 379	33 5,670,216	CLASS 380	33 5,670,217	CLASS 381	33 5,670,218	CLASS 382	33 5,670,219	CLASS 383	33 5,670,220	CLASS 384	33 5,670,221	CLASS 385	33 5,670,222	CLASS 386	33 5,670,223	CLASS 387	33 5,670,224	CLASS 388	33 5,670,225	CLASS 389	33 5,670,226	CLASS 390	33 5,670,227	CLASS 391	33 5,670,228	CLASS 392	33 5,670,229	CLASS 393	33 5,670,230	CLASS 394	33 5,670,231	CLASS 395	33 5,670,232	CLASS 396	33 5,670,233	CLASS 397	33 5,670,234	CLASS 398	33 5,670,235	CLASS 399	33 5,670,236	CLASS 400	33 5,670,237	CLASS 401	33 5,670,238	CLASS 402	33 5,670,239	CLASS 403	33 5,670,240	CLASS 404	33 5,670,241	CLASS 405	33 5,670,242	CLASS 406	33 5,670,243	CLASS 407	33 5,670,244	CLASS 408	33 5,670,245	CLASS 409	33 5,670,246	CLASS 410	33 5,670,247	CLASS 411	33 5,670,248	CLASS 412	33 5,670,249	CLASS 413	33 5,670,250	CLASS 414	33 5,670,251	CLASS 415	33 5,670,252	CLASS 416	33 5,670,253	CLASS 417	33 5,670,254	CLASS 418	33 5,670,255	CLASS 419	33 5,670,256	CLASS 420	33 5,670,257	CLASS 421	33 5,670,258	CLASS 422	33 5,670,259	CLASS 423	33 5,670,260	CLASS 424	33 5,670,261	CLASS 425	33 5,670,262	CLASS 426	33 5,670,263	CLASS 427	33 5,670,264	CLASS 428	33 5,670,265	CLASS 429	33 5,670,266	CLASS 430	33 5,670,267	CLASS 431	33 5,670,268	CLASS 432	33 5,670,269	CLASS 433	33 5,670,270	CLASS 434	33 5,670,271	CLASS 435	33 5,670,272	CLASS 436	33 5,670,273	CLASS 437	33 5,670,274	CLASS 438	33 5,670,275	CLASS 439	33 5,670,276	CLASS 440	33 5,670,277	CLASS 441	33 5,670,278	CLASS 442	33 5,670,279	CLASS 443	33 5,670,280	CLASS 444	33 5,670,281	CLASS 445	33 5,670,282	CLASS 446	33 5,670,283	CLASS 447	33 5,670,284	CLASS 448	33 5,670,285	CLASS 449	33 5,670,286	CLASS 450	33 5,670,287	CLASS 451	33 5,670,288	CLASS 452	33 5,670,289	CLASS 453	33 5,670,290	CLASS 454	33 5,670,291	CLASS 455	33 5,670,292	CLASS 456	33 5,670,293	CLASS 457	33 5,670,294	CLASS 458	33 5,670,295	CLASS 459	33 5,670,296	CLASS 460	33 5,670,297	CLASS 461	33 5,670,298	CLASS 462	33 5,670,299	CLASS 463	33 5,670,300	CLASS 464	33 5,670,301	CLASS 465	33 5,670,302	CLASS 466	33 5,670,303	CLASS 467	33 5,670,304	CLASS 468	33 5,670,305	CLASS 469	33 5,670,306	CLASS 470	33 5,670,307	CLASS 471	33 5,670,308	CLASS 472	33 5,670,309	CLASS 473	33 5,670,310	CLASS 474	33 5,670,311	CLASS 475	33 5,670,312	CLASS 476	33 5,670,313	CLASS 477	33 5,670,314	CLASS 478	33 5,670,315	CLASS 479	33 5,670,316	CLASS 480
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372	5,671,260	279	5,671,331	5,671,434	783	5,669,752	371	5,670,189	5,670,280
1	5,671,332	3	5,671,333	5,671,435	786	5,669,753	564	5,670,190	5,670,281
446	5,671,261	20	5,671,334	5,671,436	790.1	5,669,754			5,670,282
		21	5,671,335	5,671,437		5,669,755			5,670,283
11	5,671,262	24	5,671,336	5,671,438					5,670,284
		27	5,671,337	5,671,439	CLASS 415		2	5,670,191	5,670,285
8	5,671,263	51	5,671,338	5,671,440	58.2	5,669,756	34	5,670,192	5,670,286
98.11	5,671,264	101	5,671,339	5,671,441	209.2	5,669,757	74	5,670,193	5,670,287
175	5,671,265	112	5,671,340	5,671,442			106	5,670,194	5,670,288
		118	5,671,341	5,671,443	CLASS 416		112	5,670,195	5,670,289
		119	5,671,342	5,671,444	58.2	5,669,758	129	5,670,196	5,670,290
			5,671,343	5,671,445	97 R	5,669,759	582	5,670,197	5,670,291
			5,671,344	5,671,446	210 R	5,669,760	614	5,670,198	5,670,292
			5,671,345	5,671,447			646	5,670,199	5,670,293
61	5,671,267	133	5,671,346	5,671,448	CLASS 417		648	5,670,200	5,670,294
68	5,671,268	171	5,671,347	5,671,449	302	5,669,761	270.21	5,670,201	5,670,295
88	5,671,269	173	5,671,348	5,671,450	312	5,669,762	312	5,670,202	5,670,296
100	5,671,270	180	5,671,349	5,671,451	313	5,669,763	318	5,670,203	5,670,297
355	5,671,271	182.04	5,671,350	5,671,452	395	5,669,764	326	5,670,204	5,670,298
382	5,671,272	183.14	5,671,351	5,671,453	CLASS 418		326	5,670,205	5,670,299
399	5,671,273	183.17	5,671,352	5,671,454	1	5,669,765	332	5,670,206	5,670,300
433	5,671,274	185.01	5,671,353	5,671,455	CLASS 419		332	5,670,207	5,670,301
		200.03	5,671,354	5,671,456	63		338	5,670,208	5,670,302
4	5,671,275	200.11	5,671,355	5,671,457	CLASS 422		338	5,670,209	5,670,303
		200.2	5,671,356	5,671,458	102		338	5,670,210	5,670,304
7	5,671,276	200.2	5,671,357	5,671,459	104		338	5,670,211	5,670,305
23	5,671,277	203	5,671,358	5,671,460	191		338	5,670,212	5,670,306
24	5,671,278	209	5,671,359	5,671,461	CLASS 423		338	5,670,213	5,670,307
25	5,671,279	228	5,671,360	5,671,462	74		338	5,670,214	5,670,308
29	5,671,280	228	5,671,361	5,671,463	210		338	5,670,215	5,670,309
30	5,671,281	237	5,671,362	5,671,464	220		338	5,670,216	5,670,310
		239	5,671,363	5,671,465	239.1		338	5,670,217	5,670,311
		281	5,671,364	5,671,466	239.2		338	5,670,218	5,670,312
		282	5,671,365	5,671,467	239.3		338	5,670,219	5,670,313
13	5,671,285	287	5,671,366	5,671,468	239.4		338	5,670,220	5,670,314
17	5,671,286	305	5,671,367	5,671,469	239.5		338	5,670,221	5,670,315
		306	5,671,368	5,671,470	239.6		338	5,670,222	5,670,316
		307	5,671,369	5,671,471	239.7		338	5,670,223	5,670,317
128	5,671,288	307	5,671,370	5,671,472	239.8		338	5,670,224	5,670,318
129	5,671,289	309	5,671,371	5,671,473	239.9		338	5,670,225	5,670,319
133	5,671,290	309	5,671,372	5,671,474	239.10		338	5,670,226	5,670,320
139	5,671,291	328	5,671,373	5,671,475	239.11		338	5,670,227	5,670,321
218	5,671,292	328	5,671,374	5,671,476	239.12		338	5,670,228	5,670,322
224	5,671,293	334	5,671,375	5,671,477	239.13		338	5,670,229	5,670,323
228	5,671,294	346	5,671,376	5,671,478	239.14		338	5,670,230	5,670,324
242	5,671,295	348	5,671,377	5,671,479	239.15		338	5,670,231	5,670,325
251	5,671,296	355	5,671,378	5,671,480	239.16		338	5,670,232	5,670,326
293	5,671,297	391	5,671,379	5,671,481	239.17		338	5,670,233	5,670,327
298	5,671,298	392	5,671,380	5,671,482	239.18		338	5,670,234	5,670,328
307	5,671,299	402	5,671,381	5,671,483	239.19		338	5,670,235	5,670,329
312	5,671,300	404	5,671,382	5,671,484	239.20		338	5,670,236	5,670,330
		405	5,671,383	5,671,485	239.21		338	5,670,237	5,670,331
		405	5,671,384	5,671,486	239.22		338	5,670,238	5,670,332
		405	5,671,385	5,671,487	239.23		338	5,670,239	5,670,333
		405	5,671,386	5,671,488	239.24		338	5,670,240	5,670,334
		405	5,671,387	5,671,489	239.25		338	5,670,241	5,670,335
		405	5,671,388	5,671,490	239.26		338	5,670,242	5,670,336
		405	5,671,389	5,671,491	239.27		338	5,670,243	5,670,337
		405	5,671,390	5,671,492	239.28		338	5,670,244	5,670,338
		405	5,671,391	5,671,493	239.29		338	5,670,245	5,670,339
		405	5,671,392	5,671,494	239.30		338	5,670,246	5,670,340
		405	5,671,393	5,671,495	239.31		338	5,670,247	5,670,341
		405	5,671,394	5,671,496	239.32		338	5,670,248	5,670,342
		405	5,671,395	5,671,497	239.33		338	5,670,249	5,670,343
		405	5,671,396	5,671,498	239.34		338	5,670,250	5,670,344
		405	5,671,397	5,671,499	239.35		338	5,670,251	5,670,345
		405	5,671,398	5,671,500	239.36		338	5,670,252	5,670,346
		405	5,671,399	5,671,501	239.37		338	5,670,253	5,670,347
		405	5,671,400	5,671,502	239.38		338	5,670,254	5,670,348
		405	5,671,401	5,671,503	239.39		338	5,670,255	5,670,349
		405	5,671,402	5,671,504	239.40		338	5,670,256	5,670,350
		405	5,671,403	5,671,505	239.41		338	5,670,257	5,670,351
		405	5,671,404	5,671,506	239.42		338	5,670,258	5,670,352
		405	5,671,405	5,671,507	239.43		338	5,670,259	5,670,353
		405	5,671,406	5,671,508	239.44		338	5,670,260	5,670,354
		405	5,671,407	5,671,509	239.45		338	5,670,261	5,670,355
		405	5,671,408	5,671,510	239.46		338	5,670,262	5,670,356
		405	5,671,409	5,671,511	239.47		338	5,670,263	5,670,357
		405	5,671,410	5,671,512	239.48		338	5,670,264	5,670,358
		405	5,671,411	5,671,513	239.49		338	5,670,265	5,670,359
		405	5,671,412	5,671,514	239.50		338	5,670,266	5,670,360
		405	5,671,413	5,671,515	239.51		338	5,670,267	5,670,361
		405	5,671,414	5,671,516	239.52		338	5,670,268	5,670,362
		405	5,671,415	5,671,517	239.53		338	5,670,269	5,670,363
		405	5,671,416	5,671,518	239.54		338	5,670,270	5,670,364
		405	5,671,417	5,671,519	239.55		338	5,670,271	5,670,365
		405	5,671,418	5,671,520	239.56		338	5,670,272	5,670,366
		405	5,671,419	5,671,521	239.57		338	5,670,273	5,670,367
		405	5,671,420	5,671,522	239.58		338	5,670,274	5,670,368
		405	5,671,421	5,671,523	239.59		338	5,670,275	5,670,369
		405	5,671,422	5,671,524	239.60		338	5,670,276	5,670,370
		405	5,671,423	5,671,525	239.61		338	5,670,277	5,670,371
		405	5,671,424	5,671,526	239.62		338	5,670,278	5,670,372
		405	5,671,425	5,671,527	239.63		338	5,670,279	5,670,373
		405	5,671,426	5,671,528	239.64		338	5,670,280	5,670,374
		405	5,671,427	5,671,529	239.65		338	5,670,281	5,670,375
		405	5,671,428	5,671,530	239.66		338	5,670,282	5,670,376
		405	5,671,429	5,671,531	239.67		338	5,670,283	5,670,377
		405	5,671,430	5,671,532	239.68		338	5,670,284	5,670,378
		405	5,671,431	5,671,533	239.69		338	5,670,285	5,670,379
		405	5,671,432	5,671,534	239.70		338	5,670,286	5,670,380
		405	5,671,433	5,671,535	239.71		338	5,670,287	5,670,381
		405	5,671,434	5,671,536	239.72		338	5,670,288	5,670,382
		405	5,671,435	5,671,537	239.73		338	5,670,289	5,670,383
		405	5,671,436	5,671,538	239.74		338	5,670,290	5,670,384
		405	5,671,437	5,671,539	239.75		338	5,670,291	5,670,385
		405	5,671,438	5,671,540	239.76		338	5,670,292	5,670,386
		405	5,671,439	5,671,541	239.77		338	5,670,293	5,670,387
		405	5,671,440	5,671,542	239.78		338	5,670,294	5,670,388
		405	5,671,441	5,671,543	239.79		338	5,670,295	5,670,389
		405	5,671,442	5,671,544	239.80		338	5,670,296	5,670,390
		405	5,671,443	5,671,545	239.81		338	5,670,297	5,670,391
		405	5,671,444	5,671,546	239.82		338	5,670,298	5,670,392
		405	5,671,445	5,671,547	239.83		338	5,670,299	5,670,393
		405	5,671,446	5,671,548	239.84		338	5,670,300	5,670,394
		405	5,671,447	5,671,549	239.85		338	5,670,301	5,670,395
		405	5,671,448	5,671,550	239.86				

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CLASSIFICATION OF DESIGNS

D1—	115	383,885	511	383,993	D10—	22	383,983	114	384,033		384,086	304	384,137		
	199	383,886	518	383,984		30	383,984	133	384,034		384,087	311	384,138		
D2—	609	383,887	524	383,985		31	383,985	144	384,035		384,088		384,139		
	624	383,888	559	383,987		32	383,986	155	384,036		384,089	356	384,140		
	738	383,889	627	383,986		39	383,987	162	384,037		384,090	364	384,141		
	841	383,890	376	383,988		78	383,988		384,038		384,092	366	384,142		
	864	383,891	391	383,989		79	383,989		384,039	D17—	14	384,093		384,143	
	866	383,892	412	383,990		103	383,990	164	384,040		20	384,094	370	384,144	
	999	383,893	511	383,981		104	383,991	104	384,041	D18—	4	384,095	377	384,145	
	961	383,894	529	383,982		107	383,992	100	384,042		15	384,096	370	384,146	
	972	383,915	555	383,983	D11—	3	383,993	106	384,043		55	384,097	1104	384,147	
		384,053	558	383,984		4	383,994	107	384,044	D19—	3	384,098	112	384,148	
D3—	6	383,900	601	383,985		6	383,995	109	384,045		26	384,099	115	384,149	
	201	383,902		383,986		26	383,996	113	384,046			384,100	126	384,150	
	208	383,895	607	383,987		34	383,997	114	384,047		32	384,101		384,151	
	233	383,903	653	383,988		40	383,998		384,048			384,102		384,152	
	254	383,896	700	383,989		132	383,999		384,049		52	384,103	147	384,153	
	260	383,897	708	383,990		143	384,000		384,050		384,104		178	384,154	
	279	383,905	11	383,991	D6—		384,001		384,051		57	384,105		384,155	
	293	383,904	31	383,992		164	384,002		384,052		65	384,106	200	384,156	
	314	383,906	38	383,993			384,003		384,053	D20—	1	384,107	211	384,157	
	315	383,898	40	383,994			384,004		384,056		42	384,108	215	384,158	
	320	383,899	52	383,995			384,005		384,057	D21—	1	384,109		384,159	
D4—	118	383,907		383,996			384,006		384,059		13	384,110		384,160	
	136	384,058	57	383,997			384,007		384,060		29	384,111		384,161	
	138	383,901		383,998			384,008		384,061		48	384,112		384,162	
D6—	300	383,908		383,999			384,009		384,062		53	384,113		384,163	
	310	383,909	61	383,990	D12—	102	384,010		384,063		157	384,114		384,164	
	328	383,910	95	383,991		146	384,011		384,064		191	384,115	224	384,165	
	333	383,911	98	383,992		147	384,012		384,065		194	384,116		384,166	
		383,912	99	383,993			384,013		384,066		195	384,117	52	384,167	
	348	383,913	107	383,994		151	384,014		384,067		196	384,118	57	384,167	
	389	383,914	353	383,995		177	384,016		384,068		200	384,119	115	384,168	
	403	383,916	354	383,996		179	384,017		384,069		214	384,120	119	384,169	
	405	383,917		383,997			384,018		384,071		217	384,121	124	384,170	
	406	383,918	356	383,998		191	384,019		384,072		218	384,122		384,171	
	445	383,919	388	383,999		192	384,015		384,073		219	384,123		384,172	
	458	383,920	395	383,990		203	384,020		384,074		253	384,125	127	384,172	
	465	383,921		383,991		204	384,021		384,074		253	384,125	3	384,173	
	470	383,922	D9—	300	383,972	209	384,022		204	384,075	D22—	115	384,126	25	384,174
	474	383,923		329	383,973		384,023		216	384,076		133	384,127	38	384,175
	480	383,924		341	383,974		384,024		229	384,077	D23—	209	384,128	43	384,176
	491	383,925		383,975			384,025		245	384,078		213	384,129	51	384,177
	495	383,926		383,976			384,026		248	384,079		241	384,130	76	384,178
	498	383,927		433	383,977		384,027		253	384,080			384,131	85	384,179
	500	383,928		438	383,978		300	384,028	D15—			384,132		384,180	
	383,929		451	383,979		400	384,029		10	384,082		257	384,133		384,181
	501	383,930	502	383,980		422	384,030		14	384,083		384,134	130	384,182	
	383,931		520	383,981	D13—	103	384,031		139	384,084		284	384,135	134	384,183
	383,932		571	383,982			384,032		D16—	202	384,085	301	384,136		384,184
														7	384,184

CLASSIFICATION OF PLANTS

P.—	33.1	0.035	78	0.017	82.2	0.039	0.041	88.1	0.043
	68.1	0.036	79	0.018	82.3	0.040	82.4	0.042	

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PATENTS

01 :	5,669,213	5,669,470	5,670,072	5,670,481	5,670,988	5,671,388
	5,669,815	5,669,494	5,670,076	5,670,484	5,670,993	5,671,390
	5,669,864	5,669,502	5,670,090	5,670,488	5,670,995	5,671,398
	5,669,926	5,669,524	5,670,091	5,670,496	5,671,008	5,671,400
	5,670,331	5,669,562	5,670,106	5,670,502	5,671,020	5,671,401
	5,670,646	5,669,581	5,670,113	5,670,518	5,671,048	5,671,403
	5,670,739	5,669,586	5,670,122	5,670,564	5,671,059	5,671,407
	5,671,251	5,669,594	5,670,134	5,670,617	5,671,073	5,671,409
04 :	5,669,204	5,669,611	5,670,148	5,670,621	5,671,075	5,671,411
	5,669,243	5,669,630	5,670,151	5,670,623	5,671,078	*5,671,412
	5,669,303	5,669,635	5,670,152	5,670,630	5,671,085	5,671,416
	5,669,390	5,669,688	5,670,153	5,670,633	5,671,086	5,671,420
	5,669,598	5,669,693	5,670,166	5,670,663	5,671,091	5,671,421
	5,669,599	5,669,694	5,670,198	5,670,678	5,671,097	5,671,433
	5,669,631	5,669,722	5,670,210	5,670,690	5,671,116	5,671,435
	5,669,749	5,669,736	5,670,215	5,670,707	5,671,117	5,671,438
	5,669,912	5,669,746	5,670,240	5,670,712	5,671,118	5,671,446
	5,669,913	5,669,769	5,670,248	5,670,721	5,671,120	4,856,787
	5,670,035	5,669,770	5,670,251	5,670,734	5,671,150	5,669,183
	5,670,145	5,669,771	5,670,252	5,670,780	5,671,151	5,669,512
	5,670,389	5,669,790	5,670,272	5,670,781	5,671,170	5,669,904
	5,670,417	5,669,821	5,670,273	5,670,786	5,671,171	5,669,907
	5,670,829	5,669,825	5,670,309	5,670,817	5,671,179	5,669,914
	5,670,915	5,669,828	5,670,312	5,670,818	5,671,182	5,670,000
	5,671,121	5,669,858	5,670,314	5,670,821	5,671,188	5,670,043
	5,671,158	5,669,870	5,670,316	5,670,823	5,671,229	5,670,394
	5,671,257	5,669,876	5,670,319	5,670,824	5,671,234	5,670,520
	5,671,284	5,669,880	5,670,321	5,670,828	5,671,235	5,670,545
	5,671,303	5,669,881	5,670,323	5,670,856	5,671,243	5,670,585
	5,671,375	5,669,903	5,670,324	5,670,860	5,671,249	5,670,637
	5,671,418	5,669,905	5,670,335	5,670,862	5,671,258	5,670,981
06 :	Re.35,614	5,669,919	5,670,339	5,670,865	5,671,269	5,671,046
	5,669,089	5,669,920	5,670,341	5,670,869	5,671,271	5,671,098
	5,669,102	5,669,922	5,670,342	5,670,881	5,671,276	5,671,217
	5,669,124	5,669,923	5,670,354	5,670,888	5,671,279	5,671,219
	5,669,196	5,669,925	5,670,358	5,670,890	5,671,282	5,671,237
	5,669,209	5,669,929	5,670,361	5,670,891	5,671,301	5,671,373
	5,669,251	5,669,931	5,670,365	5,670,892	5,671,302	5,671,392
	5,669,252	5,669,935	5,670,377	5,670,895	5,671,318	5,671,397
	5,669,308	5,669,939	5,670,378	5,670,896	5,671,320	5,671,406
	5,669,331	5,669,958	5,670,380	5,670,898	5,671,345	5,669,465
	5,669,377	5,669,977	5,670,393	5,670,900	5,671,348	5,669,469
	5,669,381	5,669,995	5,670,403	5,670,906	5,671,349	5,669,465
	5,669,391	5,670,013	5,670,419	5,670,916	5,671,350	5,669,469
	5,669,398	5,670,030	5,670,425	5,670,949	5,671,352	5,669,490
	5,669,405	5,670,034	5,670,453	5,670,973	5,671,356	5,669,533
	5,669,414	5,670,042	5,670,456	5,670,984	5,671,368	5,669,592
	5,669,454	5,670,051	5,670,463	5,670,985	5,671,374	5,669,733
	5,669,468	5,670,066	5,670,479	5,670,986	5,671,381	5,669,748

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

5.669,759	5.670,399	5.670,374	5.669,344	5.671,334	5.671,222
5.669,786	5.670,412	5.670,876	5.669,347	5.671,369	5.671,265
5.669,868	5.670,394	5.671,436	5.669,354	5.671,376	5.671,267
5.669,885	5.670,395	5.669,163	5.669,406	5.671,378	5.671,278
5.669,901	5.671,240	5.669,452	5.669,433	5.671,439	5.671,283
5.670,189	5.669,072	5.669,390	5.669,448	5.669,230	5.671,321
5.670,233	5.669,081	5.670,366	5.669,460	5.669,236	5.671,333
5.670,337	5.669,099	5.671,365	5.669,483	5.669,266	5.671,339
5.670,614	5.669,111	5.669,597	5.669,507	5.669,087	5.671,363
5.670,616	5.669,118	5.670,025	5.669,537	5.669,093	5.671,445
5.670,692	5.669,119	5.669,411	5.669,545	5.669,162	5.670,133
5.670,698	5.669,126	5.669,528	5.669,557	5.669,170	5.670,460
5.670,922	5.669,178	5.669,585	5.669,590	5.669,532	5.670,550
5.670,928	5.669,202	5.669,633	5.669,626	5.669,549	5.670,095
5.670,923	5.669,211	5.669,658	5.669,634	5.669,550	5.669,117
5.670,925	5.669,310	5.669,823	5.669,648	5.669,553	5.669,131
5.670,937	5.669,315	5.669,978	5.669,654	5.669,565	5.669,136
5.671,050	5.669,318	5.669,985	5.669,662	5.669,843	5.669,137
5.671,364	5.669,430	5.670,039	5.669,679	5.670,128	5.669,186
5.671,419	5.669,442	5.670,450	5.669,696	5.670,169	5.669,194
5.670,079	5.669,482	5.670,682	5.669,698	5.670,264	5.669,218
5.670,237	5.669,495	5.671,006	5.669,699	5.670,335	5.669,222
5.670,455	5.669,491	5.671,136	5.669,704	5.670,375	5.669,236
5.670,533	5.669,508	5.670,636	5.669,705	5.670,495	5.669,242
5.670,575	5.669,510	5.670,774	5.669,813	5.670,510	5.669,250
5.670,606	5.669,530	5.669,088	5.669,850	5.670,532	5.669,255
5.670,609	5.669,531	5.669,148	5.669,852	5.670,836	5.669,277
5.670,679	5.669,583	5.669,275	5.669,910	5.671,385	5.669,310
5.670,700	5.669,617	5.669,307	5.670,001	5.669,575	5.669,327
5.671,290	5.669,636	5.669,404	5.670,054	5.669,712	5.669,352
5.669,426	5.669,685	5.669,495	5.670,073	5.669,750	5.669,382
5.669,585	5.669,711	5.669,560	5.670,108	5.670,498	5.669,399
Re.35,611	5.669,743	5.669,608	5.670,109	5.669,497	5.669,403
5.669,074	5.669,747	5.669,932	5.670,119	5.669,606	5.669,432
5.669,078	5.669,810	5.670,347	5.670,115	5.669,649	5.669,438
5.669,182	5.669,832	5.670,359	5.670,141	5.669,817	5.669,441
5.669,240	5.669,837	5.670,526	5.670,147	5.669,860	5.669,472
5.669,257	5.669,849	5.670,664	5.670,190	5.670,277	5.669,503
5.669,276	5.669,856	5.670,842	5.670,202	5.670,632	5.669,504
5.669,325	5.669,902	5.671,049	5.670,224	5.669,158	5.669,514
5.669,330	5.669,906	5.669,296	5.670,211	5.669,173	5.669,558
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5.669,427	5.670,115	5.669,396	5.670,279	5.670,729	5.669,592
5.669,431	5.670,157	5.669,384	5.670,351	5.670,747	5.669,601

5,670,956	5,669,659	5,669,080	5,669,937	5,671,131	5,670,349
5,671,003	5,669,673	5,669,083	5,669,946	5,671,140	5,670,415
5,671,070	5,669,738	5,669,113	5,670,562	5,671,155	5,670,501
5,671,084	5,669,751	5,669,171	5,671,391	5,671,175	5,670,957
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5,671,144	5,669,897	5,669,225	5,669,366	5,671,247	5,669,097
5,671,152	5,669,898	5,669,311	5,669,496	5,671,256	5,669,165
5,671,202	5,669,899	5,669,324	5,669,583	5,671,273	5,669,179
5,671,262	5,669,944	5,669,395	5,669,672	5,671,298	5,669,385
5,671,280	5,669,950	5,669,412	5,669,963	5,671,325	5,669,463
5,671,281	5,669,953	5,669,419	5,669,981	5,671,328	5,669,484
5,671,285	5,669,954	5,669,449	5,670,121	5,671,332	5,669,517
5,671,317	5,669,967	5,669,436	5,670,372	5,671,347	5,669,582
5,671,340	5,669,984	5,669,610	5,670,668	5,671,351	5,669,697
5,671,358	5,669,986	5,669,638	5,670,672	5,671,353	5,669,721
5,671,359	5,669,993	5,669,646	5,670,936	5,671,355	5,670,047
5,671,405	5,670,033	5,669,647	5,669,178	5,671,360	5,670,229
5,671,440	5,670,070	5,669,681	5,669,221	5,671,370	5,670,238
5,671,441	5,670,081	5,669,683	5,669,224	5,671,424	5,670,330
5,671,442	5,670,100	5,669,709	5,669,236	4,975,874	5,670,506
5,671,454	5,670,110	5,669,774	5,669,238	5,669,175	5,670,507
5,671,459	5,670,143	5,669,816	5,669,316	5,669,184	5,670,571
5,671,472	5,670,144	5,669,908	5,669,352	5,669,627	5,670,625
5,669,071	5,670,156	5,669,932	5,669,444	5,669,628	5,670,852
5,669,096	5,670,158	5,669,957	5,669,457	5,669,629	5,670,887
5,669,144	5,670,178	5,670,014	5,669,458	5,669,632	5,670,955
5,669,155	5,670,344	5,670,053	5,669,459	5,669,635	5,671,108
5,669,247	5,670,369	5,670,075	5,669,525	5,669,657	5,671,221
5,669,314	5,670,439	5,670,126	5,669,513	5,669,685	5,671,288
5,669,397	5,670,466	5,670,131	5,669,620	5,669,936	5,670,368
5,669,520	5,670,472	5,670,136	5,669,660	5,669,943	5,670,601
5,669,564	5,670,475	5,670,246	5,669,690	5,670,008	5,670,778
5,669,639	5,670,476	5,670,255	5,669,734	5,670,181	5,669,110
5,669,671	5,670,521	5,670,260	5,669,735	5,670,182	5,669,211
5,669,703	5,670,561	5,670,274	5,669,758	5,670,500	5,669,212
5,669,793	5,670,651	5,670,283	5,669,779	5,670,622	5,669,258
5,669,796	5,670,775	5,670,396	5,669,801	5,670,720	5,669,272
5,669,855	5,670,783	5,670,416	5,669,803	5,670,738	5,669,288
5,669,951	5,670,840	5,670,494	5,669,836	5,670,740	5,669,322
5,670,077	5,671,063	5,670,509	5,669,861	5,670,741	5,669,379
5,670,199	5,671,064	5,670,527	5,670,826	5,670,945	5,669,442
5,670,329	5,671,322	5,670,541	5,670,838	5,671,109	5,669,365
5,670,330	5,669,394	5,670,542	5,670,093	5,671,244	5,669,682
5,670,482	5,669,446	5,670,543	5,670,098	5,671,296	5,669,78

DESIGN PATENTS

01 :	384.082	384.021	384.164		384.158		384.049		384.048
04 :	383.909	384.042	384.168		384.182		384.056		384.155
	384.030	384.047	384.178	13 :	383.933		384.080		384.174
	384.076	384.061	384.184		383.985		384.110	27 :	383.898
	384.124	384.062	383.885	08 :	384.150	18 :	383.928		383.934
	384.181	384.078	383.907		384.125		384.060		384.015
05 :	383.886	384.096	384.065		383.897	19 :	383.931		384.059
06 :	383.888	384.099	384.141		383.942	20 :	383.983		384.083
	383.889	384.104	383.980	09 :	383.918		383.887		384.148
	383.891	384.107	384.063		383.948		383.937	29 :	384.113
	383.896	384.112	384.100		383.966	23 :	384.167		384.114
	383.902	384.118	384.144		383.991	24 :	383.947	32 :	383.955
	383.903	384.120	384.176		384.005		384.133		383.956
	383.904	384.127	383.890	12 :	384.004	25 :	383.895	34 :	383.901
	383.936	384.130	383.900		384.005		383.911		383.954
	383.949	384.131	383.917		384.006		384.040		383.959
	383.960	384.132	383.920		384.007		384.105		384.115
	383.967	384.133	383.921		384.008		384.116	36 :	383.908
	383.971	384.134	383.930		384.009		384.140		383.963
	383.979	384.139	383.941		384.034		384.173		383.964
	383.982	384.142	383.950		384.035	26 :	383.892		383.972
	383.997	384.143	384.071		384.036		383.924		384.001
	384.002	384.145	384.156		384.039		383.932		384.016

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

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384,077	383,476	41 :	384,111	47 :	383,894	384,084		383,957
384,101	383,477		383,915		384,119	384,098		383,958
384,102	383,481		384,029	48 :	383,910	383,993		383,968
383,914	383,498		384,053		383,916	384,013		384,135
383,952	384,114	42 :	384,149		383,929	384,117		384,137
383,962	384,120		383,953		383,945	383,961		
384,166	384,106		383,969		383,946	384,028		
383,951	384,151		383,970		384,050	383,968	53 :	
383,912	384,152		383,978		384,051	384,019		
383,940	384,179		383,999		384,052	384,094		

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05 :	0,035	0,008	0,040	0,042
06 :	0,037	0,009	0,041	12 : 0,043

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For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1200 O.G. 98, on July 29, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was decreased, effective October 1, 1997, and was announced in the *Official Gazette* at 1202 O.G. 47, on September 16, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

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— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a).....	450.00
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USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4).....	49.00	98.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4).....	360.00	720.00
USPTO was ISA but not IPEA.....	395.00	790.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office.....	535.00	1070.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office.....	465.00	930.00
Other National fees		
— For each independent claim in excess of 3.....	41.00	82.00
— For each claim in excess of 20.....	11.00	22.00
— For each application containing a multiple dependent claim.....	135.00	270.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1).....	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1).....	130.00	130.00

Sept. 9, 1997

BRUCE A. LEHMAN
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on September 27, 1994 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,349,702 through 5,351,338
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on September 25, 1990 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,958,383 through 4,959,874
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on September 23, 1986 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,612,672 through 4,613,990
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(a)-(g), as amended Oct. 1, 1996, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f))\$510.00
By other than a small entity\$1,020.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f))\$1,025.00
By other than a small entity\$2,050.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f))\$1,540.00
By other than a small entity\$3,080.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f))\$65.00
By other than a small entity\$130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable\$680.00
(2) unintentional\$1,600.00

Notice of Expiration of Patents
Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED July 23, 1997
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 32,529	06/865,375	10/27/87
(4,530,404)	(06/511,397)	(07/23/85)
Re. 33,495	07/413,427	12/18/90
(4,849,521)	(07/115,276)	(07/18/89)
Re. 33,702	07/529,658	10/01/91
(4,848,074)	(07/251,234)	(07/18/89)
Re. 33,917	07/714,209	05/05/92
(4,847,954)	(07/202,696)	(07/18/89)
4,530,118	06/539,512	07/23/85
4,530,123	06/374,023	07/23/85
4,530,127	06/414,989	07/23/85
4,530,131	06/546,253	07/23/85
4,530,138	06/429,594	07/23/85
4,530,147	06/528,909	07/23/85
4,530,150	06/534,132	07/23/85
4,530,156	06/634,150	07/23/85
4,530,164	06/459,531	07/23/85
4,530,180	06/578,193	07/23/85
4,530,186	06/541,681	07/23/85
4,530,192	06/472,951	07/23/85
4,530,210	06/450,609	07/23/85
4,530,216	06/493,668	07/23/85
4,530,217	06/486,369	07/23/85
4,530,220	06/594,376	07/23/85
4,530,227	06/514,978	07/23/85
4,530,235	06/544,735	07/23/85
4,530,243	06/548,780	07/23/85
4,530,248	06/522,646	07/23/85
4,530,263	06/555,878	07/23/85
4,530,268	06/572,216	07/23/85
4,530,269	06/494,065	07/23/85
4,530,273	06/599,072	07/23/85
4,530,278	06/438,346	07/23/85
4,530,285	06/541,164	07/23/85
4,530,289	06/642,735	07/23/85
4,530,292	06/597,276	07/23/85
4,530,294	06/597,448	07/23/85
4,530,296	06/502,780	07/23/85
4,530,301	06/574,857	07/23/85
4,530,309	06/615,425	07/23/85
4,530,316	06/376,695	07/23/85
4,530,318	06/572,250	07/23/85
4,530,321	06/570,064	07/23/85
4,530,322	06/315,666	07/23/85
4,530,323	06/563,564	07/23/85
4,530,344	06/518,174	07/23/85
4,530,363	06/543,945	07/23/85
4,530,365	06/517,512	07/23/85
4,530,366	06/443,889	07/23/85
4,530,372	06/416,207	07/23/85
4,530,373	06/468,780	07/23/85
4,530,387	06/418,072	07/23/85
4,530,393	06/516,044	07/23/85
4,530,403	06/460,893	07/23/85
4,530,409	06/358,864	07/23/85
4,530,410	06/445,173	07/23/85
4,530,412	06/599,687	07/23/85
4,530,416	06/497,397	07/23/85
4,530,425	06/498,486	07/23/85
4,530,430	06/387,781	07/23/85
4,530,435	06/441,087	07/23/85

Patent Number	Serial Number	Issue Date	4,530,846	06/466,398	07/23/85
4,530,442	06/645,021	07/23/85	4,530,854	06/422,335	07/23/85
4,530,461	06/547,868	07/23/85	4,530,868	06/561,603	07/23/85
4,530,465	06/450,660	07/23/85	4,530,876	06/522,756	07/23/85
4,530,476	06/292,260	07/23/85	4,530,877	06/454,430	07/23/85
4,530,480	06/483,493	07/23/85	4,530,878	06/372,671	07/23/85
4,530,481	06/503,552	07/23/85	4,530,883	06/650,559	07/23/85
4,530,505	06/440,272	07/23/85	4,530,886	06/678,612	07/23/85
4,530,511	06/544,685	07/23/85	4,530,892	06/477,383	07/23/85
4,530,513	06/489,492	07/23/85	4,530,893	06/556,193	07/23/85
4,530,520	06/587,394	07/23/85	4,530,895	06/599,189	07/23/85
4,530,521	06/592,112	07/23/85	4,530,897	06/547,465	07/23/85
4,530,524	06/402,930	07/23/85	4,530,904	06/414,290	07/23/85
4,530,542	06/509,818	07/23/85	4,530,906	06/482,171	07/23/85
4,530,544	06/582,692	07/23/85	4,530,908	06/489,004	07/23/85
4,530,551	06/570,201	07/23/85	4,530,921	06/538,612	07/23/85
4,530,558	06/562,637	07/23/85	4,530,927	06/479,378	07/23/85
4,530,571	06/471,189	07/23/85	4,530,932	06/536,889	07/23/85
4,530,573	06/411,827	07/23/85	4,530,933	06/452,882	07/23/85
4,530,576	06/375,092	07/23/85	4,530,935	06/488,530	07/23/85
4,530,589	06/534,043	07/23/85	4,530,939	06/558,663	07/23/85
4,530,592	06/477,557	07/23/85	4,530,943	06/518,510	07/23/85
4,530,595	06/407,920	07/23/85	4,530,948	06/620,592	07/23/85
4,530,596	06/465,325	07/23/85	4,530,957	06/455,701	07/23/85
4,530,597	06/465,422	07/23/85	4,530,964	06/478,468	07/23/85
4,530,599	06/527,342	07/23/85	4,530,968	06/622,312	07/23/85
4,530,600	06/351,028	07/23/85	4,530,975	06/429,539	07/23/85
4,530,603	06/426,887	07/23/85	4,530,979	06/504,762	07/23/85
4,530,606	06/429,151	07/23/85	4,530,981	06/639,943	07/23/85
4,530,609	06/520,113	07/23/85	4,530,984	06/595,853	07/23/85
4,530,613	06/605,149	07/23/85	4,530,986	06/496,280	07/23/85
4,530,614	06/488,549	07/23/85	4,530,987	06/504,681	07/23/85
4,530,618	06/474,065	07/23/85	4,530,991	06/541,022	07/23/85
4,530,628	06/558,521	07/23/85	4,530,999	06/667,430	07/23/85
4,530,643	06/532,126	07/23/85	4,531,007	06/486,285	07/23/85
4,530,655	06/443,644	07/23/85	4,531,009	06/537,393	07/23/85
4,530,656	06/521,799	07/23/85	4,531,010	06/566,996	07/23/85
4,530,667	06/566,654	07/23/85	4,531,011	06/472,101	07/23/85
4,530,669	06/468,224	07/23/85	4,531,015	06/599,413	07/23/85
4,530,670	06/522,822	07/23/85	4,531,016	06/586,266	07/23/85
4,530,681	06/550,235	07/23/85	4,531,022	06/457,803	07/23/85
4,530,682	06/470,781	07/23/85	4,531,027	06/626,369	07/23/85
4,530,693	06/445,220	07/23/85	4,531,031	06/609,379	07/23/85
4,530,703	06/509,636	07/23/85	4,531,034	06/591,788	07/23/85
4,530,708	06/494,448	07/23/85	4,531,038	06/619,296	07/23/85
4,530,710	06/544,669	07/23/85	4,531,052	06/422,823	07/23/85
4,530,712	06/593,261	07/23/85	4,531,055	06/455,677	07/23/85
4,530,718	06/594,626	07/23/85	4,531,058	06/343,558	07/23/85
4,530,730	06/464,648	07/23/85	4,531,062	06/442,017	07/23/85
4,530,745	06/620,095	07/23/85	4,531,067	06/508,967	07/23/85
4,530,747	06/504,180	07/23/85	4,531,071	06/560,852	07/23/85
4,530,749	06/270,769	07/23/85	4,531,073	06/499,772	07/23/85
4,530,753	06/631,503	07/23/85	4,531,079	06/498,451	07/23/85
4,530,754	06/631,504	07/23/85	4,531,088	06/405,870	07/23/85
4,530,763	06/512,534	07/23/85	4,531,090	06/593,431	07/23/85
4,530,764	06/514,396	07/23/85	4,531,101	06/643,672	07/23/85
4,530,765	06/591,609	07/23/85	4,531,103	06/448,663	07/23/85
4,530,768	06/577,354	07/23/85	4,531,107	06/511,500	07/23/85
4,530,772	06/582,351	07/23/85	4,531,113	06/508,363	07/23/85
4,530,773	06/555,336	07/23/85	4,531,119	06/676,597	07/23/85
4,530,776	06/582,761	07/23/85	4,531,123	06/385,671	07/23/85
4,530,783	06/356,344	07/23/85	4,531,124	06/327,713	07/23/85
4,530,784	06/524,917	07/23/85	4,531,126	06/379,194	07/23/85
4,530,786	06/647,044	07/23/85	4,531,134	06/593,052	07/23/85
4,530,790	06/509,883	07/23/85	4,531,142	06/466,921	07/23/85
4,530,793	06/445,295	07/23/85	4,531,146	06/513,618	07/23/85
4,530,794	06/555,474	07/23/85	4,531,151	06/476,670	07/23/85
4,530,798	06/430,110	07/23/85	4,531,160	06/491,129	07/23/85
4,530,807	06/610,494	07/23/85	4,531,171	06/597,507	07/23/85
4,530,811	06/452,628	07/23/85	4,531,175	06/622,529	07/23/85
4,530,818	06/345,513	07/23/85	4,531,185	06/528,282	07/23/85
4,530,820	06/526,879	07/23/85	4,531,189	06/355,317	07/23/85
4,530,822	06/615,719	07/23/85	4,531,210	06/506,758	07/23/85
4,530,828	06/419,023	07/23/85	4,531,213	06/643,086	07/23/85
4,530,829	06/416,665	07/23/85	4,531,215	06/506,565	07/23/85
4,530,830	06/562,268	07/23/85	4,531,229	06/436,041	07/23/85
4,530,834	06/419,637	07/23/85	4,847,915	07/191,439	07/18/89
4,530,844	06/634,738	07/23/85	4,847,917	07/245,744	07/18/89
			4,847,919	07/236,922	07/18/89

Patent Number	Serial Number	Issue Date	4,848,269	07/051,143	07/18/89
4,847,924	07/140,398	07/18/89	4,848,270	07/126,929	07/18/89
4,847,925	07/111,991	07/18/89	4,848,271	07/219,991	07/18/89
4,847,926	07/048,384	07/18/89	4,848,275	07/056,668	07/18/89
4,847,928	07/036,787	07/18/89	4,848,276	07/157,661	07/18/89
4,847,929	07/128,801	07/18/89	4,848,282	07/126,268	07/18/89
4,847,933	07/195,968	07/18/89	4,848,293	07/185,630	07/18/89
4,847,938	07/156,871	07/18/89	4,848,295	07/252,811	07/18/89
4,847,946	07/172,431	07/18/89	4,848,296	07/277,485	07/18/89
4,847,947	07/197,201	07/18/89	4,848,304	07/306,227	07/18/89
4,847,960	07/215,572	07/18/89	4,848,305	07/182,202	07/18/89
4,847,970	07/136,347	07/18/89	4,848,306	07/145,598	07/18/89
4,847,971	07/164,326	07/18/89	4,848,307	07/195,838	07/18/89
4,847,975	07/251,184	07/18/89	4,848,312	07/208,700	07/18/89
4,847,979	07/165,017	07/18/89	4,848,315	07/201,953	07/18/89
4,847,984	07/255,307	07/18/89	4,848,331	06/930,696	07/18/89
4,847,985	06/918,882	07/18/89	4,848,341	07/125,330	07/18/89
4,847,989	06/504,926	07/18/89	4,848,351	07/159,171	07/18/89
4,847,998	06/618,545	07/18/89	4,848,358	07/092,928	07/18/89
4,848,003	06/594,764	07/18/89	4,848,359	07/167,973	07/18/89
4,848,006	07/192,573	07/18/89	4,848,362	06/941,649	07/18/89
4,848,007	07/139,836	07/18/89	4,848,368	07/185,425	07/18/89
4,848,016	07/102,022	07/18/89	4,848,370	07/171,717	07/18/89
4,848,023	07/152,165	07/18/89	4,848,372	07/020,886	07/18/89
4,848,024	06/928,972	07/18/89	4,848,373	07/037,605	07/18/89
4,848,025	07/143,379	07/18/89	4,848,384	07/302,963	07/18/89
4,848,026	07/114,226	07/18/89	4,848,385	07/128,156	07/18/89
4,848,032	07/290,116	07/18/89	4,848,399	07/200,554	07/18/89
4,848,034	07/198,160	07/18/89	4,848,412	07/257,612	07/18/89
4,848,035	07/221,270	07/18/89	4,848,413	07/121,697	07/18/89
4,848,038	07/100,349	07/18/89	4,848,417	07/176,941	07/18/89
4,848,048	07/160,319	07/18/89	4,848,419	07/130,419	07/18/89
4,848,051	07/184,201	07/18/89	4,848,422	07/130,890	07/18/89
4,848,057	06/611,728	07/18/89	4,848,431	06/875,423	07/18/89
4,848,061	07/161,701	07/18/89	4,848,436	07/099,400	07/18/89
4,848,064	07/161,380	07/18/89	4,848,438	07/159,853	07/18/89
4,848,065	06/880,127	07/18/89	4,848,439	07/191,468	07/18/89
4,848,078	07/215,286	07/18/89	4,848,443	07/077,972	07/18/89
4,848,080	07/119,555	07/18/89	4,848,445	07/114,799	07/18/89
4,848,092	07/103,890	07/18/89	4,848,447	07/249,422	07/18/89
4,848,095	07/190,109	07/18/89	4,848,448	07/137,960	07/18/89
4,848,097	07/220,320	07/18/89	4,848,453	07/257,885	07/18/89
4,848,104	07/107,579	07/18/89	4,848,454	07/127,189	07/18/89
4,848,106	07/158,240	07/18/89	4,848,457	07/189,890	07/18/89
4,848,110	07/231,062	07/18/89	4,848,459	07/180,778	07/18/89
4,848,112	07/233,267	07/18/89	4,848,460	07/267,257	07/18/89
4,848,114	07/158,888	07/18/89	4,848,463	07/269,387	07/18/89
4,848,116	07/196,060	07/18/89	4,848,468	07/136,257	07/18/89
4,848,118	07/072,289	07/18/89	4,848,472	07/272,148	07/18/89
4,848,129	07/064,320	07/18/89	4,848,475	07/173,330	07/18/89
4,848,131	07/114,350	07/18/89	4,848,477	07/259,724	07/18/89
4,848,134	07/072,128	07/18/89	4,848,480	07/291,383	07/18/89
4,848,141	07/178,397	07/18/89	4,848,482	07/110,849	07/18/89
4,848,143	07/198,797	07/18/89	4,848,483	07/037,723	07/18/89
4,848,149	07/150,001	07/18/89	4,848,484	07/281,225	07/18/89
4,848,156	07/224,890	07/18/89	4,848,494	07/291,372	07/18/89
4,848,164	07/199,433	07/18/89	4,848,497	07/062,462	07/18/89
4,848,165	07/136,678	07/18/89	4,848,499	07/237,335	07/18/89
4,848,167	07/186,180	07/18/89	4,848,509	07/269,403	07/18/89
4,848,173	07/119,684	07/18/89	4,848,512	07/196,077	07/18/89
4,848,181	07/153,960	07/18/89	4,848,522	07/127,901	07/18/89
4,848,185	07/033,006	07/18/89	4,848,524	07/081,236	07/18/89
4,848,201	06/910,639	07/18/89	4,848,526	07/270,708	07/18/89
4,848,202	07/114,616	07/18/89	4,848,531	07/079,734	07/18/89
4,848,206	07/164,804	07/18/89	4,848,542	07/182,884	07/18/89
4,848,207	07/105,873	07/18/89	4,848,553	07/174,670	07/18/89
4,848,212	07/042,354	07/18/89	4,848,556	07/144,610	07/18/89
4,848,221	07/115,157	07/18/89	4,848,558	07/215,621	07/18/89
4,848,233	06/782,325	07/18/89	4,848,559	07/219,893	07/18/89
4,848,237	07/125,535	07/18/89	4,848,560	07/071,016	07/18/89
4,848,238	07/063,604	07/18/89	4,848,566	07/158,417	07/18/89
4,848,240	06/576,962	07/18/89	4,848,571	07/261,150	07/18/89
4,848,253	07/155,159	07/18/89	4,848,572	07/058,214	07/18/89
4,848,255	07/183,718	07/18/89	4,848,574	07/184,412	07/18/89
4,848,256	07/054,320	07/18/89	4,848,576	07/168,770	07/18/89
4,848,262	07/236,696	07/18/89	4,848,577	07/246,631	07/18/89
4,848,265	07/130,011	07/18/89	4,848,578	07/203,236	07/18/89
4,848,267	07/028,972	07/18/89	4,848,580	06/603,094	07/18/89
			4,848,581	07/120,398	07/18/89

Patent Number	Serial Number	Issue Date	4,848,912	07/149,607	07/18/89
4,848,583	07/159,341	07/18/89	4,848,922	07/185,007	07/18/89
4,848,587	07/046,923	07/18/89	4,848,926	07/147,328	07/18/89
4,848,588	07/158,930	07/18/89	4,848,937	06/857,121	07/18/89
4,848,589	07/147,151	07/18/89	4,848,940	06/947,911	07/18/89
4,848,599	07/146,754	07/18/89	4,848,943	07/037,496	07/18/89
4,848,601	06/432,830	07/18/89	4,848,947	07/105,452	07/18/89
4,848,603	07/198,974	07/18/89	4,848,949	06/920,187	07/18/89
4,848,605	07/035,972	07/18/89	4,848,951	07/233,120	07/18/89
4,848,606	07/076,707	07/18/89	4,848,954	07/263,828	07/18/89
4,848,610	07/181,000	07/18/89	4,848,960	07/177,995	07/18/89
4,848,619	07/168,269	07/18/89	4,848,965	07/205,852	07/18/89
4,848,620	07/303,094	07/18/89	4,848,968	07/155,367	07/18/89
4,848,623	07/232,837	07/18/89	4,848,970	07/232,396	07/18/89
4,848,625	07/121,530	07/18/89	4,848,974	07/101,116	07/18/89
4,848,631	07/201,305	07/18/89	4,848,980	07/178,024	07/18/89
4,848,632	07/046,844	07/18/89	4,848,981	06/801,447	07/18/89
4,848,637	07/237,433	07/18/89	4,848,982	07/177,531	07/18/89
4,848,638	07/088,245	07/18/89	4,848,988	07/151,602	07/18/89
4,848,651	07/230,570	07/18/89	4,848,991	07/258,766	07/18/89
4,848,659	07/059,403	07/18/89	4,848,995	07/152,735	07/18/89
4,848,667	07/252,126	07/18/89	4,848,996	07/254,510	07/18/89
4,848,669	07/185,557	07/18/89	4,849,000	07/160,238	07/18/89
4,848,675	07/198,456	07/18/89	4,849,002	07/113,936	07/18/89
4,848,677	07/264,528	07/18/89	4,849,003	07/203,877	07/18/89
4,848,678	07/163,552	07/18/89	4,849,006	07/083,470	07/18/89
4,848,685	07/151,936	07/18/89	4,849,007	06/934,298	07/18/89
4,848,686	06/943,120	07/18/89	4,849,008	06/899,757	07/18/89
4,848,689	07/094,763	07/18/89	4,849,009	07/092,257	07/18/89
4,848,692	06/935,496	07/18/89	4,849,011	07/086,397	07/18/89
4,848,696	07/281,249	07/18/89	4,849,012	07/223,598	07/18/89
4,848,700	07/038,953	07/18/89	4,849,014	07/208,055	07/18/89
4,848,703	07/137,035	07/18/89	4,849,021	07/196,219	07/18/89
4,848,710	07/209,139	07/18/89	4,849,024	07/153,201	07/18/89
4,848,711	06/665,352	07/18/89	4,849,026	06/761,781	07/18/89
4,848,712	07/161,183	07/18/89	4,849,033	07/184,234	07/18/89
4,848,721	07/293,102	07/18/89	4,849,040	07/096,309	07/18/89
4,848,734	07/185,529	07/18/89	4,849,042	07/000,318	07/18/89
4,848,738	07/118,018	07/18/89	4,849,049	07/084,295	07/18/89
4,848,741	07/195,214	07/18/89	4,849,050	07/131,057	07/18/89
4,848,744	07/005,709	07/18/89	4,849,054	07/144,724	07/18/89
4,848,749	07/222,461	07/18/89	4,849,055	07/071,935	07/18/89
4,848,759	07/159,302	07/18/89	4,849,056	07/077,383	07/18/89
4,848,762	07/168,812	07/18/89	4,849,058	07/245,688	07/18/89
4,848,769	07/078,811	07/18/89	4,849,069	07/131,059	07/18/89
4,848,773	07/161,985	07/18/89	4,849,070	07/243,750	07/18/89
4,848,780	07/152,956	07/18/89	4,849,071	07/131,058	07/18/89
4,848,786	07/037,260	07/18/89	4,849,072	07/098,984	07/18/89
4,848,797	07/171,767	07/18/89	4,849,076	07/107,682	07/18/89
4,848,799	07/192,163	07/18/89	4,849,077	06/761,107	07/18/89
4,848,803	07/096,942	07/18/89	4,849,078	07/147,996	07/18/89
4,848,805	07/252,404	07/18/89	4,849,080	07/051,568	07/18/89
4,848,809	07/101,099	07/18/89	4,849,081	07/209,766	07/18/89
4,848,810	07/220,393	07/18/89	4,849,086	07/127,657	07/18/89
4,848,821	07/208,508	07/18/89	4,849,095	07/047,342	07/18/89
4,848,825	07/191,909	07/18/89	4,849,096	06/883,522	07/18/89
4,848,830	07/184,065	07/18/89	4,849,098	07/178,457	07/18/89
4,848,831	07/089,500	07/18/89	4,849,101	07/225,173	07/18/89
4,848,837	07/108,594	07/18/89	4,849,105	07/110,747	07/18/89
4,848,839	07/146,887	07/18/89	4,849,107	07/086,084	07/18/89
4,848,840	07/230,967	07/18/89	4,849,111	07/186,156	07/18/89
4,848,845	07/168,782	07/18/89	4,849,119	07/183,304	07/18/89
4,848,846	07/014,656	07/18/89	4,849,120	07/188,694	07/18/89
4,848,848	07/121,489	07/18/89	4,849,125	06/945,756	07/18/89
4,848,850	07/245,793	07/18/89	4,849,129	07/191,309	07/18/89
4,848,854	07/180,116	07/18/89	4,849,132	07/048,013	07/18/89
4,848,856	07/166,977	07/18/89	4,849,136	07/201,872	07/18/89
4,848,864	07/125,301	07/18/89	4,849,138	07/084,572	07/18/89
4,848,865	07/187,212	07/18/89	4,849,144	07/090,399	07/18/89
4,848,867	07/247,784	07/18/89	4,849,147	07/190,055	07/18/89
4,848,871	07/252,754	07/18/89	4,849,149	07/041,301	07/18/89
4,848,876	07/180,324	07/18/89	4,849,150	07/142,918	07/18/89
4,848,878	07/142,637	07/18/89	4,849,156	07/083,282	07/18/89
4,848,880	07/120,372	07/18/89	4,849,157	07/188,169	07/18/89
4,848,894	07/200,990	07/18/89	4,849,164	07/161,518	07/18/89
4,848,897	07/174,840	07/18/89	4,849,170	07/246,732	07/18/89
4,848,900	07/064,863	07/18/89	4,849,171	07/020,947	07/18/89
4,848,902	07/159,701	07/18/89	4,849,175	07/140,965	07/18/89
		07/18/89	4,849,177	07/047,737	07/18/89

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4,849,181	06/803,094	07/18/89	4,849,474	07/271,348	07/18/89
4,849,183	07/090,516	07/18/89	4,849,484	07/098,271	07/18/89
4,849,187	07/173,997	07/18/89	4,849,486	06/883,710	07/18/89
4,849,189	06/932,039	07/18/89	4,849,497	07/229,680	07/18/89
4,849,190	07/045,515	07/18/89	4,849,500	06/837,524	07/18/89
4,849,191	06/918,017	07/18/89	4,849,502	07/158,450	07/18/89
4,849,197	07/156,725	07/18/89	4,849,504	07/165,344	07/18/89
4,849,200	07/176,713	07/18/89	4,849,511	07/054,649	07/18/89
4,849,201	07/241,998	07/18/89	4,849,514	07/164,769	07/18/89
4,849,210	07/084,294	07/18/89	4,849,515	07/234,717	07/18/89
4,849,216	06/946,370	07/18/89	4,849,516	07/109,263	07/18/89
4,849,218	06/929,330	07/18/89	4,849,523	07/092,027	07/18/89
4,849,220	07/183,810	07/18/89	4,849,533	07/188,682	07/18/89
4,849,221	07/110,701	07/18/89	4,849,534	06/703,641	07/18/89
4,849,223	06/814,413	07/18/89	4,849,535	06/831,852	07/18/89
4,849,230	07/205,004	07/18/89	4,849,541	07/189,267	07/18/89
4,849,231	07/133,785	07/18/89	4,849,543	06/798,543	07/18/89
4,849,233	07/119,645	07/18/89	4,849,545	07/168,921	07/18/89
4,849,236	07/002,659	07/18/89	4,849,546	07/191,522	07/18/89
4,849,242	06/846,526	07/18/89	4,849,550	07/172,386	07/18/89
4,849,243	07/136,232	07/18/89	4,849,552	07/146,258	07/18/89
4,849,244	07/273,151	07/18/89	4,849,554	07/171,649	07/18/89
4,849,251	07/186,778	07/18/89	4,849,562	07/240,463	07/18/89
4,849,252	06/836,206	07/18/89	4,849,564	07/236,707	07/18/89
4,849,257	07/126,642	07/18/89	4,849,570	07/266,184	07/18/89
4,849,258	07/048,911	07/18/89	4,849,571	07/196,702	07/18/89
4,849,264	07/161,770	07/18/89	4,849,574	07/240,311	07/18/89
4,849,265	07/193,581	07/18/89	4,849,580	07/154,934	07/18/89
4,849,269	07/219,359	07/18/89	4,849,587	07/123,950	07/18/89
4,849,283	07/074,110	07/18/89	4,849,590	07/176,718	07/18/89
4,849,285	07/056,386	07/18/89	4,849,591	07/130,344	07/18/89
4,849,291	07/127,812	07/18/89	4,849,592	07/151,143	07/18/89
4,849,294	07/216,061	07/18/89	4,849,594	07/245,032	07/18/89
4,849,295	07/131,755	07/18/89	4,849,595	07/185,158	07/18/89
4,849,297	07/304,399	07/18/89	4,849,599	06/834,307	07/18/89
4,849,299	07/131,792	07/18/89	4,849,600	07/234,971	07/18/89
4,849,321	07/013,605	07/18/89	4,849,601	07/229,402	07/18/89
4,849,330	06/730,231	07/18/89	4,849,605	07/167,241	07/18/89
4,849,339	06/618,500	07/18/89	4,849,607	07/183,090	07/18/89
4,849,342	06/823,367	07/18/89	4,849,609	07/055,824	07/18/89
4,849,347	06/676,453	07/18/89	4,849,612	07/100,782	07/18/89
4,849,348	06/874,069	07/18/89	4,849,615	07/036,773	07/18/89
4,849,349	06/826,734	07/18/89	4,849,617	07/026,967	07/18/89
4,849,351	06/939,230	07/18/89	4,849,622	07/145,509	07/18/89
4,849,353	06/712,473	07/18/89	4,849,624	07/211,383	07/18/89
4,849,374	07/227,849	07/18/89	4,849,634	07/164,537	07/18/89
4,849,375	07/289,062	07/18/89	4,849,636	07/195,715	07/18/89
4,849,379	07/149,507	07/18/89	4,849,637	07/103,753	07/18/89
4,849,380	07/149,506	07/18/89	4,849,638	07/028,650	07/18/89
4,849,385	07/089,654	07/18/89	4,849,639	06/900,098	07/18/89
4,849,387	07/112,462	07/18/89	4,849,647	07/119,394	07/18/89
4,849,399	07/190,318	07/18/89	4,849,650	07/174,086	07/18/89
4,849,400	07/230,838	07/18/89	4,849,659	07/132,377	07/18/89
4,849,402	06/915,074	07/18/89	4,849,663	07/294,964	07/18/89
4,849,404	07/163,732	07/18/89	4,849,667	07/273,997	07/18/89
4,849,405	06/835,550	07/18/89	4,849,670	06/689,889	07/18/89
4,849,408	07/001,517	07/18/89	4,849,678	07/163,964	07/18/89
4,849,415	06/690,802	07/18/89	4,849,679	07/140,858	07/18/89
4,849,422	07/004,028	07/18/89	4,849,685	07/103,398	07/18/89
4,849,425	06/824,088	07/18/89	4,849,690	07/114,464	07/18/89
4,849,427	07/159,841	07/18/89	4,849,691	07/014,967	07/18/89
4,849,429	06/906,268	07/18/89	4,849,693	07/162,020	07/18/89
4,849,434	07/074,873	07/18/89	4,849,704	07/038,687	07/18/89
4,849,436	06/838,536	07/18/89	4,849,706	07/214,250	07/18/89
4,849,437	07/181,536	07/18/89	4,849,709	06/919,351	07/18/89
4,849,440	07/161,578	07/18/89	4,849,715	07/209,752	07/18/89
4,849,443	07/096,849	07/18/89	4,849,717	07/052,099	07/18/89
4,849,448	07/156,939	07/18/89	4,849,719	06/642,907	07/18/89
4,849,449	06/939,635	07/18/89	4,849,732	07/175,684	07/18/89
4,849,451	06/865,647	07/18/89	4,849,740	07/220,701	07/18/89
4,849,452	06/808,014	07/18/89	4,849,742	07/274,476	07/18/89
4,849,464	07/144,720	07/18/89	4,849,762	06/560,635	07/18/89
4,849,466	07/086,336	07/18/89	4,849,766	07/069,392	07/18/89
4,849,467	07/202,029	07/18/89	4,849,767	07/127,451	07/18/89
4,849,469	07/099,193	07/18/89	4,849,768	07/188,701	07/18/89
4,849,472	07/048,889	07/18/89	4,849,769	07/056,773	07/18/89
4,849,473	07/048,888	07/18/89	4,849,771	07/185,967	07/18/89
			4,849,776	06/763,040	07/18/89
			4,849,777	07/158,338	07/18/89

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4,849,784	07/117,269	07/18/89	5,228,229	07/761,342	07/20/93
4,849,786	07/108,641	07/18/89	5,228,230	07/859,839	07/20/93
4,849,794	07/075,594	07/18/89	5,228,232	07/851,312	07/20/93
4,849,805	07/123,199	07/18/89	5,228,238	07/685,954	07/20/93
4,849,806	07/154,499	07/18/89	5,228,244	07/913,216	07/20/93
4,849,808	07/183,929	07/18/89	5,228,245	07/848,784	07/20/93
4,849,827	07/171,724	07/18/89	5,228,251	07/821,987	07/20/93
4,849,829	07/082,434	07/18/89	5,228,253	07/728,394	07/20/93
4,849,850	07/132,245	07/18/89	5,228,257	07/664,089	07/20/93
4,849,857	07/105,141	07/18/89	5,228,262	07/778,678	07/20/93
4,849,858	06/921,716	07/18/89	5,228,265	07/943,478	07/20/93
4,849,863	07/189,030	07/18/89	5,228,268	07/869,533	07/20/93
4,849,866	07/256,188	07/18/89	5,228,274	07/824,260	07/20/93
4,849,875	07/084,318	07/18/89	5,228,281	07/864,199	07/20/93
4,849,882	07/087,603	07/18/89	5,228,304	07/893,826	07/20/93
4,849,888	07/166,547	07/18/89	5,228,306	07/871,079	07/20/93
4,849,893	07/263,975	07/18/89	5,228,309	07/939,696	07/20/93
4,849,897	07/028,392	07/18/89	5,228,312	07/716,072	07/20/93
4,849,904	07/064,030	07/18/89	5,228,314	07/690,923	07/20/93
4,849,905	07/114,485	07/18/89	5,228,318	07/825,397	07/20/93
4,849,908	07/048,898	07/18/89	5,228,335	07/660,654	07/20/93
4,849,910	06/912,827	07/18/89	5,228,345	07/607,029	07/20/93
4,849,911	06/911,471	07/18/89	5,228,346	07/990,376	07/20/93
4,849,922	07/131,833	07/18/89	5,228,348	07/669,724	07/20/93
4,849,931	07/047,565	07/18/89	5,228,354	07/882,411	07/20/93
4,849,934	06/918,300	07/18/89	5,228,356	07/797,383	07/20/93
4,849,936	06/878,244	07/18/89	5,228,363	07/773,859	07/20/93
4,849,940	07/131,012	07/18/89	5,228,364	07/778,330	07/20/93
4,849,946	07/212,487	07/18/89	5,228,369	07/806,010	07/20/93
4,849,947	07/054,766	07/18/89	5,228,370	07/824,877	07/20/93
4,849,948	07/046,518	07/18/89	5,228,371	07/141,697	07/20/93
4,849,949	07/198,103	07/18/89	5,228,374	07/743,441	07/20/93
4,849,957	07/102,341	07/18/89	5,228,375	07/950,215	07/20/93
4,849,958	07/116,609	07/18/89	5,228,378	07/775,997	07/20/93
4,849,959	07/208,209	07/18/89	5,228,379	07/782,059	07/20/93
4,849,960	07/006,048	07/18/89	5,228,381	07/828,035	07/20/93
4,849,961	06/933,203	07/18/89	5,228,384	07/982,908	07/20/93
4,849,962	07/153,610	07/18/89	5,228,399	07/860,682	07/20/93
4,849,968	07/164,020	07/18/89	5,228,406	07/804,400	07/20/93
4,849,973	07/098,144	07/18/89	5,228,409	07/844,765	07/20/93
4,849,978	07/068,862	07/18/89	5,228,431	07/615,444	07/20/93
4,849,979	07/093,429	07/18/89	5,228,432	07/760,291	07/20/93
4,849,986	07/084,086	07/18/89	5,228,435	07/699,485	07/20/93
4,850,003	07/100,222	07/18/89	5,228,436	07/928,308	07/20/93
4,850,004	07/178,004	07/18/89	5,228,465	07/800,527	07/20/93
4,850,009	07/203,549	07/18/89	5,228,468	07/894,131	07/20/93
4,850,016	07/150,126	07/18/89	5,228,477	07/850,307	07/20/93
4,850,025	06/910,890	07/18/89	5,228,482	07/908,472	07/20/93
4,850,027	07/150,000	07/18/89	5,228,483	07/889,515	07/20/93
4,850,035	07/041,294	07/18/89	5,228,490	07/867,528	07/20/93
4,850,041	07/049,889	07/18/89	5,228,492	07/726,770	07/20/93
4,850,045	07/115,669	07/18/89	5,228,513	07/695,434	07/20/93
4,850,047	07/086,807	07/18/89	5,228,516	07/821,516	07/20/93
5,228,140	07/916,166	07/20/93	5,228,517	07/514,934	07/20/93
5,228,141	07/872,559	07/20/93	5,228,521	07/783,258	07/20/93
5,228,145	07/951,838	07/20/93	5,228,526	07/655,432	07/20/93
5,228,146	07/814,100	07/20/93	5,228,528	07/671,201	07/20/93
5,228,147	07/729,530	07/20/93	5,228,529	07/809,303	07/20/93
5,228,155	07/945,398	07/20/93	5,228,535	07/951,586	07/20/93
5,228,156	07/924,728	07/20/93	5,228,544	07/835,938	07/20/93
5,228,157	07/353,532	07/20/93	5,228,546	07/764,794	07/20/93
5,228,158	07/908,392	07/20/93	5,228,547	07/855,541	07/20/93
5,228,159	07/889,260	07/20/93	5,228,548	07/838,447	07/20/93
5,228,162	07/842,501	07/20/93	5,228,552	07/884,873	07/20/93
5,228,163	07/738,508	07/20/93	5,228,560	07/778,215	07/20/93
5,228,167	07/900,458	07/20/93	5,228,563	07/801,751	07/20/93
5,228,172	07/623,376	07/20/93	5,228,566	07/874,815	07/20/93
5,228,174	07/809,664	07/20/93	5,228,569	07/962,720	07/20/93
5,228,184	07/905,996	07/20/93	5,228,576	07/732,640	07/20/93
5,228,191	07/878,240	07/20/93	5,228,578	07/871,060	07/20/93
5,228,200	07/890,861	07/20/93	5,228,582	07/864,039	07/20/93
5,228,202	07/929,955	07/20/93	5,228,589	07/917,360	07/20/93
5,228,204	07/951,818	07/20/93	5,228,597	07/942,034	07/20/93
5,228,213	07/863,449	07/20/93	5,228,607	07/712,073	07/20/93
5,228,223	07/828,041	07/20/93	5,228,608	07/633,998	07/20/93
5,228,225	07/784,511	07/20/93	5,228,610	07/744,764	07/20/93
5,228,226	07/879,192	07/20/93	5,228,613	07/949,800	07/20/93
			5,228,615	07/657,991	07/20/93

Patent Number	Serial Number	Issue Date	Patent Number	Serial Number	Issue Date
5,228,625	07/772,355	07/20/93	5,228,944	07/654,968	07/20/93
5,228,628	07/745,201	07/20/93	5,228,945	07/794,899	07/20/93
5,228,637	07/817,279	07/20/93	5,228,951	07/770,348	07/20/93
5,228,642	07/642,213	07/20/93	5,228,952	07/870,398	07/20/93
5,228,644	07/705,807	07/20/93	5,228,953	07/783,698	07/20/93
5,228,650	07/729,536	07/20/93	5,228,969	07/540,335	07/20/93
5,228,651	07/804,557	07/20/93	5,228,970	07/759,262	07/20/93
5,228,652	07/617,776	07/20/93	5,228,977	07/793,875	07/20/93
5,228,655	07/873,468	07/20/93	5,228,981	07/870,165	07/20/93
5,228,656	07/929,398	07/20/93	5,228,982	07/689,192	07/20/93
5,228,657	07/800,288	07/20/93	5,228,983	07/891,983	07/20/93
5,228,659	07/927,344	07/20/93	5,228,992	07/845,018	07/20/93
5,228,660	07/712,838	07/20/93	5,228,997	07/628,358	07/20/93
5,228,664	07/806,122	07/20/93	5,228,999	07/808,657	07/20/93
5,228,667	07/981,528	07/20/93	5,229,000	07/674,930	07/20/93
5,228,672	07/675,773	07/20/93	5,229,005	07/650,302	07/20/93
5,228,677	07/917,980	07/20/93	5,229,014	07/809,940	07/20/93
5,228,678	07/840,570	07/20/93	5,229,021	07/803,817	07/20/93
5,228,683	07/871,002	07/20/93	5,229,023	07/775,188	07/20/93
5,228,686	07/771,751	07/20/93	5,229,024	07/732,894	07/20/93
5,228,688	07/615,352	07/20/93	5,229,028	07/758,657	07/20/93
5,228,691	07/993,371	07/20/93	5,229,029	07/500,957	07/20/93
5,228,695	07/921,726	07/20/93	5,229,032	07/828,224	07/20/93
5,228,696	07/910,537	07/20/93	5,229,040	07/477,790	07/20/93
5,228,699	07/510,049	07/20/93	5,229,047	07/787,026	07/20/93
5,228,706	07/915,646	07/20/93	5,229,050	07/831,548	07/20/93
5,228,709	07/942,806	07/20/93	5,229,051	07/725,955	07/20/93
5,228,711	07/830,295	07/20/93	5,229,053	07/897,326	07/20/93
5,228,717	07/803,922	07/20/93	5,229,063	07/843,528	07/20/93
5,228,723	07/716,772	07/20/93	5,229,065	07/814,579	07/20/93
5,228,724	07/736,105	07/20/93	5,229,067	07/884,742	07/20/93
5,228,731	07/915,278	07/20/93	5,229,078	07/613,395	07/20/93
5,228,732	07/752,616	07/20/93	5,229,085	07/247,521	07/20/93
5,228,733	07/981,206	07/20/93	5,229,087	07/523,107	07/20/93
5,228,739	07/894,812	07/20/93	5,229,093	07/893,950	07/20/93
5,228,747	07/452,109	07/20/93	5,229,094	07/839,719	07/20/93
5,228,762	07/778,135	07/20/93	5,229,100	07/208,698	07/20/93
5,228,763	07/860,171	07/20/93	5,229,102	07/634,576	07/20/93
5,228,764	07/926,994	07/20/93	5,229,103	07/876,519	07/20/93
5,228,771	07/856,297	07/20/93	5,229,108	07/789,931	07/20/93
5,228,772	07/742,990	07/20/93	5,229,110	07/681,711	07/20/93
5,228,774	07/789,600	07/20/93	5,229,114	07/087,356	07/20/93
5,228,781	07/878,351	07/20/93	5,229,119	07/780,877	07/20/93
5,228,784	07/700,840	07/20/93	5,229,120	07/831,456	07/20/93
5,228,788	07/912,038	07/20/93	5,229,135	07/797,496	07/20/93
5,228,789	07/813,146	07/20/93	5,229,147	07/650,731	07/20/93
5,228,790	07/792,793	07/20/93	5,229,148	07/839,392	07/20/93
5,228,796	07/868,220	07/20/93	5,229,163	07/691,758	07/20/93
5,228,799	07/826,362	07/20/93	5,229,165	07/435,137	07/20/93
5,228,806	07/701,170	07/20/93	5,229,168	07/806,188	07/20/93
5,228,811	07/838,130	07/20/93	5,229,169	07/822,773	07/20/93
5,228,819	07/859,221	07/20/93	5,229,174	07/823,339	07/20/93
5,228,822	07/924,359	07/20/93	5,229,177	07/822,982	07/20/93
5,228,823	07/696,195	07/20/93	5,229,178	07/773,015	07/20/93
5,228,827	07/818,023	07/20/93	5,229,190	07/848,346	07/20/93
5,228,828	07/656,275	07/20/93	5,229,197	07/736,259	07/20/93
5,228,837	07/953,338	07/20/93	5,229,201	07/703,902	07/20/93
5,228,841	07/855,711	07/20/93	5,229,220	07/863,557	07/20/93
5,228,843	07/678,264	07/20/93	5,229,228	07/705,370	07/20/93
5,228,847	07/808,803	07/20/93	5,229,250	07/745,675	07/20/93
5,228,851	07/769,217	07/20/93	5,229,267	07/750,147	07/20/93
5,228,853	07/734,361	07/20/93	5,229,280	07/312,976	07/20/93
5,228,855	07/861,100	07/20/93	5,229,288	07/690,132	07/20/93
5,228,857	07/880,584	07/20/93	5,229,291	07/626,233	07/20/93
5,228,859	07/806,149	07/20/93	5,229,293	07/349,560	07/20/93
5,228,860	07/876,030	07/20/93	5,229,295	07/862,201	07/20/93
5,228,874	07/944,956	07/20/93	5,229,300	07/657,229	07/20/93
5,228,877	07/824,336	07/20/93	5,229,301	07/711,786	07/20/93
5,228,882	07/529,983	07/20/93	5,229,313	07/818,237	07/20/93
5,228,888	07/850,640	07/20/93	5,229,350	07/732,003	07/20/93
5,228,899	07/571,998	07/20/93	5,229,358	07/621,390	07/20/93
5,228,906	07/877,017	07/20/93	5,229,363	07/658,590	07/20/93
5,228,921	07/797,778	07/20/93	5,229,364	07/670,296	07/20/93
5,228,922	07/656,530	07/20/93	5,229,365	07/700,599	07/20/93
5,228,923	07/626,986	07/20/93	5,229,367	07/642,840	07/20/93
5,228,924	07/787,538	07/20/93	5,229,368	07/683,187	07/20/93
5,228,937	07/680,058	07/20/93	5,229,371	07/974,376	07/20/93
			5,229,373	07/066,248	07/20/93
			5,229,376	07/667,894	07/20/93

Patent Number	Serial Number	Issue Date	Patent Number	Serial Number	Issue Date
5,229,386	07/849,179	07/20/93	5,229,938	07/373,355	07/20/93
5,229,387	07/763,469	07/20/93	5,229,940	07/828,270	07/20/93
5,229,392	07/872,028	07/20/93	5,229,951	07/588,940	07/20/93
5,229,398	07/964,416	07/20/93	5,229,955	07/665,957	07/20/93
5,229,399	07/964,423	07/20/93	5,229,962	07/714,447	07/20/93
5,229,407	07/911,395	07/20/93	5,229,977	07/900,171	07/20/93
5,229,408	07/696,863	07/20/93	5,229,980	07/889,051	07/20/93
5,229,412	07/173,442	07/20/93	5,229,982	07/713,269	07/20/93
5,229,413	07/830,108	07/20/93	5,229,991	07/647,808	07/20/93
5,229,418	07/691,399	07/20/93	5,230,004	07/825,980	07/20/93
5,229,421	07/947,661	07/20/93	5,230,029	07/814,369	07/20/93
5,229,438	07/620,017	07/20/93	5,230,033	06/667,166	07/20/93
5,229,441	07/516,012	07/20/93	5,230,035	07/837,119	07/20/93
5,229,453	07/710,284	07/20/93	5,230,046	07/419,274	07/20/93
5,229,455	07/755,754	07/20/93	5,230,059	07/554,001	07/20/93
5,229,457	07/786,783	07/20/93	5,230,069	07/577,395	07/20/93
5,229,459	07/777,957	07/20/93	5,230,075	07/533,216	07/20/93
5,229,470	07/670,097	07/20/93	5,230,080	07/665,246	07/20/93
5,229,471	07/578,343	07/20/93	5,230,085	07/680,743	07/20/93
5,229,497	07/592,149	07/20/93	5,230,098	07/437,204	07/20/93
5,229,499	07/587,689	07/20/93			
5,229,510	07/816,982	07/20/93			
5,229,511	07/894,881	07/20/93			
5,229,518	07/795,415	07/20/93			
5,229,530	07/956,090	07/20/93			
5,229,531	07/924,286	07/20/93			
5,229,546	07/698,937	07/20/93			
5,229,551	07/787,387	07/20/93			
5,229,582	07/730,795	07/20/93			
5,229,584	07/665,350	07/20/93			
5,229,592	07/911,412	07/20/93			
5,229,596	07/864,727	07/20/93			
5,229,601	07/847,721	07/20/93			
5,229,604	07/825,749	07/20/93			
5,229,608	07/820,255	07/20/93			
5,229,616	07/758,732	07/20/93			
5,229,628	07/559,328	07/20/93			
5,229,640	07/938,764	07/20/93			
5,229,654	07/726,980	07/20/93			
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5,229,676	07/768,574	07/20/93			
5,229,677	07/764,505	07/20/93			
5,229,688	07/741,478	07/20/93			
5,229,694	07/780,631	07/20/93			
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5,229,725	07/864,517	07/20/93			
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5,229,768	07/827,737	07/20/93			
5,229,777	07/787,250	07/20/93			
5,229,796	07/599,636	07/20/93			
5,229,835	07/741,851	07/20/93			
5,229,846	07/746,026	07/20/93			
5,229,852	07/550,274	07/20/93			
5,229,856	07/766,322	07/20/93			
5,229,859	07/766,216	07/20/93			
5,229,867	07/634,431	07/20/93			
5,229,871	07/751,542	07/20/93			
5,229,881	07/896,325	07/20/93			
5,229,885	07/754,058	07/20/93			
5,229,888	07/775,999	07/20/93			
5,229,893	07/899,005	07/20/93			
5,229,894	07/808,935	07/20/93			
5,229,903	07/654,449	07/20/93			
5,229,910	07/659,263	07/20/93			
5,229,923	07/560,411	07/20/93			
5,229,924	07/743,234	07/20/93			
5,229,927	07/883,762	07/20/93			
5,229,930	07/828,201	07/20/93			
5,229,935	07/556,725	07/20/93			

Reissue Applications Filed

Attorney or Agent: Robert N. Rountree, Dallas, Tex., Ex. Gp.: 2511, Requester: Owner

4,581,721, Reexam. No. 90/004,717, Aug. 8, 1997, Cl. 365/189.01, MEMORY SYSTEM USING PIPELINE CIRCUITRY FOR IMPROVED SPEED, James H. Cline, et. al., Owner of Record: *Texas Instruments Inc., Dallas, Tex.*, Attorney or Agent: Robert N. Rountree, Dallas, Tex., Ex. Gp.: 2511, Requester: Owner

4,958,876, Reexam. No. 90/004,722, Aug. 11, 1997, Cl. 296/039.2, VEHICLE CARGO BED LINER, Joseph Diaco, et. al., Owner of Record: *York Products, Inc., Hanover, Pa.*, Attorney or Agent: Clifford A. Poff, Pittsburgh, Pa., Ex. Gp.: 3102, Requester: Owner

5,047,183, Reexam. No. 90/004,706, June 27, 1997, Cl. 264/040.3, METHOD OF INJECTION MOLDING ARTICLES OF THERMOPLASTIC MATERIALS, Helmut Eckhardt, et. al., Owner of Record: *Battenfeld GmbH, Meinerzhagen, Germany*, Attorney or Agent: Toren McGeady & Associates, New York, N.Y., Ex. Gp.: 1307, Requester: Robert C. J. Tuttle, Brooks & Kushman, Southfield, Mich.

5,073,694, Reexam. No. 90/004,723, Aug. 11, 1997, Cl. 219/121.7, METHOD AND APPARATUS FOR LASER CUTTING A HOLLOW METAL WORKPIECE, Jeff M. Tessier, et. al., Owner of Record: *Synthes (U.S.A.), Paoli, Pa.*, Attorney or Agent: Caspar C. Schneider Jr. & Robert A. Osmann, Arlington, Va., Attorney in Reexam is: Fish & Richardson, New York, N.Y., Ex. Gp.: 2511, Requester: Owner

5,105,808, Reexam. No. 90/004,718, Aug. 8, 1997, Cl. 607/138, INTRAUTERINE CAUTERIZING METHOD, Robert S. Neuwerth, et. al., Owner of Record: *Gynelab Products, Raleigh, N.C.*, Attorney or Agent: Kenyon & Kenyon, New York, N.Y., Request has new attorney, Olson & Hierl, Chicago, Ill., Ex. Gp.: 3311, Requester: Benton S. Duffett, Jr., Burns Doane Swecker & Mathis, Alexandria, Va.

5,129,912, Reexam. No. 90/004,710, July 31, 1997, Cl. 606/139, DEVICE AND METHOD FOR APPLYING SUTURE, Wayne A. Noda, et. al., Owner of Record: *Urohealth Systems, Inc., Costa Mesa, Calif.*, Attorney or Agent: Burns Doane Swecker & Mathis, Alexandria, Va., Ex. Gp.: 3309, Requester: Audley A. Ciamporero, Johnson & Johnson, New Brunswick, N.J.

5,320,629, Reexam. No. 90/004,711, July 31, 1997, Cl. 606/139, DEVICE AND METHOD FOR APPLYING SUTURE, Wayne A. Noda, et. al., Owner of Record: *Urohealth Systems, Inc., Costa Mesa, Calif.*, Attorney or Agent: Burns Doane Swecker & Mathis, Alexandria, Va., Ex. Gp.: 3309, Requester: Audley A. Ciamporero, Johnson & Johnson, New Brunswick, N.J.

5,394,791, Reexam. No. 90/004,715, Aug. 5, 1997, Cl. 099/427, STEAM GENERATOR FOR CONVECTION OVEN, Serge C. Vallee, Owner of Record: *Premark FEG Corp., Wilmington, Del.*, Attorney or Agent: Mark P. Levy, Thompson Hine & Flory, Dayton, Ohio, Ex. Gp.: 3405, Requester: John D. Simpson, Hill Steadman & Simpson, Chicago, Ill.

5,402,974, Reexam. No. 90/004,721, Aug. 8, 1997, Cl. 248/205.5, SELF-CLOSING HOLDER, William E. Adams, Owner of Record: *Adams Mfg. Corp., Portersville, Pa.*, Attorney or Agent: Lynn J. Alstadt, Buchanan Ingersoll P. C., Pittsburgh, Pa., Ex. Gp.: 3505, Requester: Owner

5,466,420, Reexam. No. 90/004,707, July 11, 1997, Cl. 422/164, AIR BAG INFLATOR, Todd S. Parker, et. al., Owner of Record: *Morton International, Inc., Chicago, Ill.*, Attorney or Agent: Gerald White, Morton International, Chicago, Ill., Ex. Gp.: 1312, Requester: Terrell C. Birch, Birch Stewart Kolasch & Birch, Falls Church, Va.

5,511,455, Reexam. No. 90/004,709, July 21, 1997, Cl. 084/291, CURVED TOP SOLID BODY GUITAR, Ned Steinberger, Owner of Record: *Gibson Guitar Corp., Nashville, Tenn.*,

Attorney or Agent: Lucian Wayne Beavers, Gibson Guitar Corp., Nashville, Tenn., Ex. Gp.: 2112, Requester: Horing Welikson & Bienstock, New York, N.Y.

5,527,521, Reexam. No. 90/004,719, Aug. 8, 1997, Cl. 424/009.3, LOW DENSITY MICROSPHERES AND SUSPENSIONS AND THEIR USE AS CONTRAST AGENTS FOR COMPUTED TOMOGRAPHY AND IN OTHER APPLICATIONS, Evan C. Unger, Owner of Record: *Imarx Pharmaceutical Corp., Tucson, Ariz.*, Attorney or Agent: Frank Payton, Woodcock Washburn Kurtz Mackiewicz & Norris, Philadelphia, Pa., Ex. Gp.: 1211, Requester: Freddie K. Park, Morrison & Foerster, Palo Alto, Calif.

5,529,766, Reexam. No. 90/004,712, July 31, 1997, Cl. 424/009.52, CONTRAST AGENTS, Jo Klaveness, et. al., Owner of Record: *Nycomed Imaging AS, Oslo, Norway*, Attorney or Agent: Bacon & Thomas, Alexandria, Va., Ex. Gp.: 1819, Requester: Freddie K. Park, Morrison & Foerster, Palo Alto, Calif.

5,547,656, Reexam. No. 90/004,720, Aug. 8, 1997, Cl. 424/009.4, LOW DENSITY MICROSPHERES THEIR USE AS CONTRAST AGENTS FOR COMPUTED TOMOGRAPHY AND IN OTHER APPLICATIONS, Evan C. Unger, Owner of Record: *Imarx Pharmaceutical Corp., Tucson, Ariz.*, Attorney or Agent: Frank Payton, Woodcock Washburn Kurtz Mackiewicz & Norris, Philadelphia, Pa., Ex. Gp.: 1211, Requester: Freddie K. Park, Morrison & Foerster, Palo Alto, Calif.

5,570,581, Reexam. No. 90/004,714, Aug. 1, 1997, Cl. 060/483, HYDRAULIC VALVE OPERATOR, Kirk H. Preston, Owner of Record: *Pacific Technical Equipment and Engineering Inc., Huntington Beach, Calif.*, Attorney or Agent: Vern Schooley, Fulwider Patton Lee & Utecht, Long Beach, Calif., Ex. Gp.: 3401, Requester: E. H. Wachs Co., c/o Patnaude Videbeck & Marsh, Oakbrook Terrace, Ill.

Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED JULY 8, 1997 DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
112,909	71/095,869	10/03/1916
339,206	71/378,380	09/29/1936
339,210	71/375,166	09/29/1936
339,237	71/377,246	09/29/1936
339,246	71/379,444	09/29/1936
634,999	71/689,838	10/02/1956
635,002	71/694,126	10/02/1956
635,017	71/695,449	10/02/1956
635,036	71/695,732	10/02/1956
635,037	71/696,371	10/02/1956
635,045	72/001,168	10/02/1956
635,047	72/001,601	10/02/1956
635,048	72/001,954	10/02/1956
635,054	71/692,913	10/02/1956
635,055	71/692,914	10/02/1956
635,056	71/692,915	10/02/1956
635,064	72/003,405	10/02/1956

Reg. Number	Serial Number	Reg. Date	1,048,788	73/077,921	09/28/1976
635,071	72/004,584	10/02/1956	1,048,789	73/077,922	09/28/1976
635,072	72/004,776	10/02/1956	1,048,790	73/078,008	09/28/1976
635,073	71/699,499	10/02/1956	1,048,791	73/078,189	09/28/1976
635,081	71/682,434	10/02/1956	1,048,792	73/078,344	09/28/1976
635,083	71/699,194	10/02/1956	1,048,793	73/079,628	09/28/1976
635,089	72/004,506	10/02/1956	1,048,796	73/081,228	09/28/1976
635,090	72/004,507	10/02/1956	1,048,797	73/081,245	09/28/1976
635,108	71/700,281	10/02/1956	1,048,798	73/081,493	09/28/1976
635,109	72/000,709	10/02/1956	1,048,800	73/082,168	09/28/1976
635,110	72/002,261	10/02/1956	1,048,801	73/082,233	09/28/1976
635,111	72/002,337	10/02/1956	1,048,802	73/082,005	09/28/1976
635,112	72/002,338	10/02/1956	1,048,805	73/082,094	09/28/1976
635,113	72/002,339	10/02/1956	1,048,806	73/082,202	09/28/1976
635,123	71/674,057	10/02/1956	1,048,807	73/081,800	09/28/1976
635,128	71/693,064	10/02/1956	1,048,811	73/052,563	09/28/1976
635,143	71/700,777	10/02/1956	1,048,815	73/065,413	09/28/1976
635,148	71/674,783	10/02/1956	1,048,816	73/068,648	09/28/1976
635,165	72/002,349	10/02/1956	1,048,818	73/068,721	09/28/1976
635,173	72/001,383	10/02/1956	1,048,819	73/069,172	09/28/1976
635,178	72/002,211	10/02/1956	1,048,827	73/081,216	09/28/1976
635,184	71/691,248	10/02/1956	1,048,829	73/081,401	09/28/1976
635,191	72/000,796	10/02/1956	1,048,831	73/081,550	09/28/1976
635,203	72/004,528	10/02/1956	1,048,833	73/081,909	09/28/1976
635,207	71/665,835	10/02/1956	1,048,838	73/050,218	09/28/1976
635,216	71/684,456	10/02/1956	1,048,840	73/061,193	09/28/1976
635,223	72/002,295	10/02/1956	1,048,842	73/070,247	09/28/1976
635,224	72/002,329	10/02/1956	1,048,843	73/070,373	09/28/1976
635,225	72/002,330	10/02/1956	1,048,844	73/073,094	09/28/1976
635,229	72/002,593	10/02/1956	1,048,845	73/075,859	09/28/1976
635,231	71/668,764	10/02/1956	1,048,846	73/080,131	09/28/1976
635,239	71/688,974	10/02/1956	1,048,847	73/081,593	09/28/1976
635,245	71/697,386	10/02/1956	1,048,848	73/081,597	09/28/1976
635,246	71/697,388	10/02/1956	1,048,862	73/002,534	09/28/1976
635,249	71/698,386	10/02/1956	1,048,863	73/034,199	09/28/1976
635,262	72/003,084	10/02/1956	1,048,868	73/056,099	09/28/1976
635,263	71/689,340	10/02/1956	1,048,873	73/064,313	09/28/1976
635,274	72/003,663	10/02/1956	1,048,878	73/070,273	09/28/1976
635,276	71/688,271	10/02/1956	1,048,879	73/070,733	09/28/1976
635,277	72/001,186	10/02/1956	1,048,885	73/080,821	09/28/1976
635,279	72/001,525	10/02/1956	1,048,889	73/082,202	09/28/1976
635,285	71/655,272	10/02/1956	1,048,895	73/037,719	09/28/1976
635,287	71/669,132	10/02/1956	1,048,896	73/041,707	09/28/1976
635,288	71/669,853	10/02/1956	1,048,898	73/041,707	09/28/1976
635,289	71/669,854	10/02/1956	1,048,898	73/048,616	09/28/1976
635,290	71/670,736	10/02/1956	1,048,905	73/058,297	09/28/1976
635,291	71/672,669	10/02/1956	1,048,907	73/064,639	09/28/1976
635,293	71/682,915	10/02/1956	1,048,911	73/066,102	09/28/1976
635,295	71/689,560	10/02/1956	1,048,915	73/072,270	09/28/1976
635,300	71/696,716	10/02/1956	1,048,917	73/081,932	09/28/1976
635,302	71/699,444	10/02/1956	1,048,920	73/061,400	09/28/1976
635,305	71/699,683	10/02/1956	1,048,926	73/055,749	09/28/1976
635,306	71/699,806	10/02/1956	1,048,930	73/071,932	09/28/1976
635,310	72/003,094	10/02/1956	1,048,932	73/076,971	09/28/1976
635,312	72/000,371	10/02/1956	1,048,939	73/001,971	09/28/1976
635,314	72/000,449	10/02/1956	1,048,943	73/068,077	09/28/1976
635,315	72/000,450	10/02/1956	1,048,948	73/073,096	09/28/1976
635,321	71/677,394	10/02/1956	1,048,962	73/032,556	09/28/1976
635,322	71/690,148	10/02/1956	1,048,964	73/042,057	09/28/1976
635,325	71/690,312	10/02/1956	1,048,965	73/042,593	09/28/1976
635,326	71/690,346	10/02/1956	1,048,966	73/044,952	09/28/1976
635,336	71/690,261	10/02/1956	1,048,967	73/045,027	09/28/1976
635,337	71/694,681	10/02/1956	1,048,968	73/046,031	09/28/1976
635,344	71/699,005	10/02/1956	1,048,975	73/055,947	09/28/1976
635,345	71/691,916	10/02/1956	1,048,977	73/056,466	09/28/1976
995,384	72/438,795	10/08/1974	1,048,978	73/056,468	09/28/1976
995,938	72/432,833	10/15/1974	1,048,980	73/056,471	09/28/1976
1,048,763	73/051,025	09/28/1976	1,048,983	73/057,818	09/28/1976
1,048,766	73/065,510	09/28/1976	1,048,986	73/059,953	09/28/1976
1,048,773	73/071,891	09/28/1976	1,048,997	73/066,064	09/28/1976
1,048,776	73/072,955	09/28/1976	1,048,998	73/066,591	09/28/1976
1,048,778	73/073,395	09/28/1976	1,049,002	73/078,354	09/28/1976
1,048,779	73/074,383	09/28/1976	1,049,004	73/079,585	09/28/1976
1,048,780	73/075,580	09/28/1976	1,049,010	73/080,640	09/28/1976
1,048,781	73/075,713	09/28/1976	1,049,019	73/079,197	09/28/1976
1,048,782	73/075,841	09/28/1976	1,049,020	73/081,630	09/28/1976
1,048,786	73/076,380	09/28/1976	1,049,024	73/050,723	09/28/1976
1,048,787	73/077,889	09/28/1976	1,049,026	73/079,810	09/28/1976
			1,049,027	73/079,910	09/28/1976
			1,049,028	73/080,219	09/28/1976

Reg. Number	Serial Number	Reg. Date
1,049,030	73/055,017	09/28/1976
1,049,031	73/058,605	09/28/1976
1,049,033	73/080,322	09/28/1976
1,049,034	73/038,915	09/28/1976
1,049,036	73/052,721	09/28/1976
1,049,039	73/060,241	09/28/1976
1,049,042	73/066,445	09/28/1976
1,049,043	73/069,324	09/28/1976
1,049,044	73/070,438	09/28/1976
1,049,045	73/016,382	09/28/1976
1,049,047	73/070,696	09/28/1976
1,049,055	73/076,262	09/28/1976
1,049,058	73/066,371	09/28/1976
1,049,059	73/076,330	09/28/1976
1,049,061	73/076,332	09/28/1976
1,049,062	73/050,907	09/28/1976
1,049,063	73/059,781	09/28/1976
1,049,064	73/060,908	09/28/1976
1,049,066	73/014,875	09/28/1976
1,049,069	73/042,786	09/28/1976
1,049,071	73/047,362	09/28/1976
1,049,078	73/078,647	09/28/1976
1,049,081	73/079,375	09/28/1976
1,049,085	73/079,578	09/28/1976
1,049,086	73/079,664	09/28/1976
1,049,089	73/079,943	09/28/1976
1,049,110	73/047,090	09/28/1976
1,049,112	73/060,467	09/28/1976
1,049,125	73/080,875	09/28/1976
1,049,131	73/007,656	09/28/1976
1,049,132	73/028,176	09/28/1976
1,049,137	73/057,384	09/28/1976
1,049,141	73/069,294	09/28/1976
1,049,144	73/079,752	09/28/1976
1,049,145	73/082,084	09/28/1976
1,049,146	73/082,086	09/28/1976
1,049,147	73/082,088	09/28/1976
1,049,148	73/082,089	09/28/1976
1,049,149	73/082,090	09/28/1976
1,049,150	73/082,158	09/28/1976
1,049,151	73/082,159	09/28/1976
1,049,153	73/082,235	09/28/1976
1,049,155	73/036,457	09/28/1976
1,049,158	73/063,590	09/28/1976
1,049,160	73/066,478	09/28/1976
1,049,163	73/069,327	09/28/1976
1,049,165	73/073,743	09/28/1976
1,049,167	73/045,312	09/28/1976
1,049,168	73/049,663	09/28/1976
1,049,171	73/070,546	09/28/1976
1,049,172	73/049,733	09/28/1976
1,049,173	73/058,878	09/28/1976
1,049,174	73/061,392	09/28/1976
1,049,180	73/080,644	09/28/1976
1,049,191	73/071,910	09/28/1976
1,049,192	73/075,167	09/28/1976
1,049,195	73/079,323	09/28/1976
1,049,197	73/006,975	09/28/1976
1,049,199	73/056,195	09/28/1976
1,049,200	73/063,229	09/28/1976
1,049,201	73/065,603	09/28/1976
1,049,203	73/071,671	09/28/1976
1,049,204	73/074,243	09/28/1976
1,049,205	73/079,881	09/28/1976
1,049,209	73/055,144	09/28/1976
1,049,212	73/077,228	09/28/1976
1,049,214	73/080,915	09/28/1976
1,049,215	73/081,318	09/28/1976
1,049,217	73/066,927	09/28/1976
1,049,220	73/048,120	09/28/1976
1,049,236	73/038,411	09/28/1976
1,049,239	73/051,566	09/28/1976
1,049,240	73/052,266	09/28/1976
1,049,242	73/054,515	09/28/1976
1,049,244	73/056,107	09/28/1976
1,049,245	73/056,261	09/28/1976
1,049,246	73/060,807	09/28/1976

1,049,250	73/063,700	09/28/1976
1,049,252	73/064,954	09/28/1976
1,049,253	73/065,210	09/28/1976
1,049,254	73/065,470	09/28/1976
1,049,257	73/071,928	09/28/1976
1,049,263	73/081,655	09/28/1976
1,049,265	72/389,348	09/28/1976
1,049,266	72/465,965	09/28/1976
1,049,267	72/414,566	09/28/1976
1,049,270	72/463,574	09/28/1976
1,049,271	72/439,438	09/28/1976
1,049,278	72/417,817	09/28/1976
1,049,280	72/460,401	09/28/1976
1,049,282	72/450,320	09/28/1976
1,049,283	72/458,919	09/28/1976
1,049,287	73/063,332	09/28/1976
1,049,288	73/054,847	09/28/1976
1,049,293	73/049,063	09/28/1976
1,049,295	73/033,864	09/28/1976
1,049,296	73/049,870	09/28/1976
1,049,300	73/082,743	09/28/1976
1,049,301	73/039,780	09/28/1976
1,049,305	73/056,839	09/28/1976
1,049,310	72/452,956	09/28/1976

**Terminal Disclaimers Required
to Overcome Judicially-Created
Double Patenting Rejections in Utility and Plant
Applications Filed on or After June 8, 1995**

Section 532 of Public Law 103-465, 108 Stat. 4809 (1994), amended 35 U.S.C. § 154(a)(2) to provide that any patent issuing on a utility or plant application filed on or after June 8, 1995 will expire twenty years from its filing date, or, if the application claims the benefit of an earlier filed application under 35 U.S.C. §§ 120, 121, or 365(c), twenty years from the earliest filing date for which a benefit under 35 U.S.C. §§ 120, 121, or 365(c) is claimed. Therefore, any patent issuing on a continuing utility or plant application filed on or after June 8, 1995 will expire twenty years from the earliest filing date for which a benefit is claimed under 35 U.S.C. §§ 120, 121, or 365(c), subject to the provisions of 35 U.S.C. § 154(b).

A number of applicants have argued that a terminal disclaimer under 37 C.F.R. § 1.321 should not be required in a continuing application filed on or after June 8, 1995 to overcome a judicially-created double patenting rejection based upon an application for which a benefit is claimed under 35 U.S.C. §§ 120, 121, or 365(c), as any patent issuing on such continuing application would expire no later than the patent issuing on the application which formed the basis for the rejection. The above-mentioned amendment to 35 U.S.C. § 154 notwithstanding, there are at least two reasons for insisting upon a terminal disclaimer to overcome a judicially-created double patenting rejection in such an application.

First: 35 U.S.C. § 154(b) includes provisions for patent term extension based upon various prosecution delays during the application process. Thus, 35 U.S.C. § 154 does not currently ensure that any patent issuing on a continuing utility or plant application filed on or after June 8, 1995 will necessarily expire twenty years from the earliest filing date for which a benefit is claimed under 35 U.S.C. §§ 120, 121, or 365(c). Also, legislation is pending in Congress (H.R. 400 and S. 507, 105th Cong., 1st Sess. (1997)) that would expand the opportunity for adjusting patent terms, prospectively or retroactively, for utility and plant applications applied for on or after June 8, 1995. Therefore, whether under the present statutory provision or pending or future changes to it, the current twenty-year term provision of 35 U.S.C. § 154(a)(2) cannot be relied upon in many cases as ensuring the expiration date of a patent issuing on a utility or plant application filed on or after June 8, 1995.

Second: 37 C.F.R. § 1.321(c)(3) requires that a terminal disclaimer filed to obviate a double patenting rejection include a provision that any patent granted on that application be enforceable only for and during the period that the patent is

commonly owned with the application or patent which formed the basis for the rejection. This requirement serves to avoid the potential for harassment of an accused infringer by multiple parties with patents covering the same patentable invention (37 C.F.R. § 1.601(n)). See, e.g., *In re Van Ornum*, 686 F.2d 937, 944-48, 214 USPQ 761,767-70 (CCPA 1982). Not insisting upon a terminal disclaimer to overcome a judicially-created double patenting rejection in an application subject to twenty-year term under 35 U.S.C. § 154(a)(2) would result in the potential for the problem that 37 C.F.R. § 1.321(c)(3) was promulgated to avoid.

Accordingly, a terminal disclaimer under 37 C.F.R. § 1.321 is (still) required in an application to overcome a judicially-created double patenting rejection, even if the application was filed on or after June 8, 1995 and claims the benefit under 35 U.S.C. §§ 120, 121, or 365(c) of the filing date of an application which forms the basis for the rejection. Examiners should respond to arguments that a terminal disclaimer under 37 C.F.R. § 1.321 should not be required in a continuing application filed on or after June 8, 1995 to overcome a judicially-created double patenting rejection due to the change to 35 U.S.C. § 154 by citing this *Official Gazette* notice.

Inquiries regarding this matter should be directed to Senior Legal Advisor Robert W. Bahr at (703) 305-9285.

September 5, 1997

Stephen G. Kunin
Deputy Assistant Commissioner
for Patent Policy and Projects

Service by Publication

A petition to cancel the registrations identified below having been filed, and the notice of such proceedings sent by certified mail to registrants at their last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

Jeanne Savage, Baltimore, Md., Reg. No. 1,411,222, for the mark "METRO", Canc. No. 26,491.

Guardsman Systems Inc., Richardson, Tex., Reg. No. 1,105,507, for the mark "THE SILENT PARTNER", Canc. No. 26,288.

JEAN BROWN
Technical Program Manager
Trademark Trial
and Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

**Certificates of Correction
For the Week of September 30, 1997**

D. 376,552	5,407,855	5,523,212	5,556,521
D. 378,228	5,411,760	5,523,266	5,556,979
D. 380,174	5,423,849	5,524,213	5,557,753
D. 382,228	5,444,103	5,526,093	5,559,793
4,749,862	5,457,651	5,530,334	5,559,813
4,932,609	5,461,629	5,532,232	5,560,097
5,046,023	5,466,675	5,534,180	5,561,016
5,085,117	5,470,828	5,534,392	5,561,087
5,146,565	5,474,983	5,534,641	5,561,128
5,150,580	5,477,118	5,537,026	5,563,783
5,202,231	5,491,402	5,538,629	5,566,650
5,280,563	5,500,845	5,539,045	5,567,703
5,307,478	5,501,011	5,540,932	5,568,337
5,346,776	5,514,131	5,541,582	5,568,503
5,354,997	5,514,261	5,547,026	5,568,948
5,372,295	5,514,899	5,548,797	5,571,701
5,394,297	5,522,189	5,549,109	5,579,307

5,581,285	5,606,884	5,621,476	5,635,230
5,581,509	5,608,068	5,622,222	5,635,279
5,582,407	5,608,334	5,622,298	5,635,419
5,582,871	5,608,409	5,622,527	5,635,516
5,582,944	5,608,600	5,622,858	5,636,123
5,583,722	5,610,797	5,623,529	5,636,222
5,585,123	5,610,838	5,623,685	5,636,286
5,585,135	5,611,062	5,624,631	5,637,579
5,586,954	5,611,445	5,624,723	5,637,723
5,588,927	5,611,461	5,625,582	5,639,006
5,589,926	5,611,538	5,625,696	5,639,277
5,590,190	5,611,598	5,625,900	5,639,541
5,590,244	5,612,061	5,625,961	5,639,852
5,590,252	5,612,350	5,626,008	5,640,745
5,591,110	5,613,981	5,626,850	5,641,484
5,591,605	5,614,034	5,626,896	5,642,475
5,593,427	5,614,125	5,626,938	5,642,863
5,594,852	5,614,633	5,627,939	5,643,730
5,594,922	5,614,985	5,628,257	5,644,628
5,595,268	5,615,011	5,628,845	5,645,025
5,596,458	5,615,276	5,629,301	5,646,098
5,597,661	5,615,616	5,629,318	5,646,141
5,599,378	5,615,954	5,629,945	5,646,302
5,600,112	5,616,431	5,630,479	5,647,089
5,600,453	5,617,121	5,630,507	5,647,594
5,601,579	5,618,057	5,631,064	5,650,563
5,601,600	5,618,820	5,631,460	5,651,663
5,601,700	5,619,003	5,631,946	5,652,617
5,601,983	5,619,024	5,632,534	5,654,451
5,602,786	5,619,343	5,632,748	5,654,648
5,603,863	5,620,761	5,633,291	
5,604,678	5,621,022	5,633,502	

Summary of Final Decisions
Issued by the
Trademark Trial and Appeal Board
August 11-15, 1997

Date Issued	Type of Case ⁽¹⁾	Proceeding on App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's Mark and Goods/Services	Applicant's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
8-12	OPP	90,118	Software AG v. A-BAS, Inc.	2(d)	Opposition Sustained	"ADABAS" et al. [(financial management database management system software)]	"A-BAS" [(computer software for use by accountants)]		No
8-12	OPP	90,496	Fosco Int'l, Ltd. v. Ashland Oil, Inc.	2(d)	Opposition Dismissed	"ECOLOTEC" [(chemical products, namely, binders for use in the preparation of cores and molds for the foundry industry)]	"ECOSER" [(binders for making cores and molds for use in the manufacturing of metal castings)]		No
8-12	EX	74/499,516	Nucor Corp.	2(e)(2)	Refusal Reversed		"HI-TEC" [(steel sheet and strip, and lengths of steel sheet and strip formed into rolls and coils)]		No
8-13	CANC	21,824	Jules Jurgesen/Rubicon, Inc. v. Fabrice d'Orlogi Sincero S.A. et al.	abandonment	Petition to Cancel Granted	"URBAN JURGENSEN" [(wrist watches)]	"URBAN" [(mechanical watches with manual or automatic winding; electrical and electronic watches; watch parts, movements, and dials; watch cases; diving watches; and chronometers)]		No

(1) EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (S)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MR)=MOTION TO REOPEN

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Box Non-Fee Amendment	Non-fee amendments to patent applications.
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Box Designations	Explanation
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Box 9	Coupon orders for U.S. patent and trademark copies.
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Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
Box EEO	Mail for the Office of Civil Rights.
Box Interference	Communications relating to interferences and applications and patents involved in interference.
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Arkansas	Little Rock: Arkansas State Library	(501) 682-2053
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	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	San Francisco Public Library	(415) 557-4500
	Sunnyvale Center for Innovation, Invention and Ideas	(408) 730-7290
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Delaware	Newark: University of Delaware Library	(302) 831-2965
Dist. of Columbia	Washington: Howard University Libraries	(202) 806-7252
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	Miami-Dade Public Library	(305) 375-2665
	Orlando: University of Central Florida Libraries	(407) 823-2562
	Tampa Campus Library, University of South Florida	(813) 974-2726
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Hawaii	Honolulu: Hawaii State Public Library System	(808) 586-3477
Idaho	Moscow: University of Idaho Library	(208) 885-6235
Illinois	Chicago Public Library	(312) 747-4450
	Springfield: Illinois State Library	(217) 782-5659
Indiana	Indianapolis-Marion County Public Library	(317) 269-1741
	West Lafayette Siegesmund Engineering Library, Purdue University	(765) 494-2872
Iowa	Des Moines: State Library of Iowa	(515) 281-4118
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Mississippi	Jackson: Mississippi Library Commission	(601) 359-1036
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	Cincinnati and Hamilton County, Public Library of.....	(513) 369-6936
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	Houston: The Fondren Library, Rice University.....	(713) 527-8101 Ext. 2587
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West Virginia	Morgantown: Evansdale Library, West Virginia University.....	(304) 293-2510 Ext. 113
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	Madison.....	(414) 286-3051
Wyoming	Milwaukee Public Library.....	(307) 237-4935
	Casper: Natrona County Public Library.....	(307) 237-4935

PATENT EXAMINING CORPS

BRUCE A. LEHMAN, Commissioner
 LAWRENCE J. GOFFNEY Jr., Assistant Commissioner for Patents
 EDWARD R. KAZENSKY, Deputy Assistant Commissioner for Patents
 STEPHEN G. KUNIN, Deputy Assistant Commissioner for Patent Policy

PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100— THEODORE MORRIS, Director.....	308-0661	12/22/95
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director.....	308-1235	03/08/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director.....	308-0651	01/04/96
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director.....	308-2351	02/14/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director.....	308-0196	04/27/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director.....	308-1782	08/22/95
SPECIAL LAWS AND ADMINISTRATION, GROUP 2200—ROBERT E. GARRETT, Director.....	308-0511	09/29/95
COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300— JOSEPH J. ROLLA, Director.....	305-3900	09/29/95
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director.....	305-3900	10/04/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500— JANICE A. HOWELL, Director.....	308-0956	09/15/95
TELECOMMUNICATIONS, GROUP 2600—NICHOLAS P. GODICI, Director.....	305-3900	05/25/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director.....	308-0661	08/25/95
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director.....	308-1113	09/26/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director.....	308-1148	10/10/95
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director.....	308-0858	10/25/95
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director.....	308-0861	11/06/95
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director.....	308-2168	04/02/96

*A communication from the examiner should have been received in most applications filed prior to this date.

Patents will Expire as Follows:

- (1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers. 35 U.S.C. 154(c)(1).
 - (2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
 - (3) All design patents are granted for a term of 14 years from the date of the grant.
- However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
 Philip G. Hampton, II, Assistant Commissioner
 Robert M. Anderson, Deputy Assistant Commissioner
 David E. Bucher, Director, Trademark Examining Office
 Condition of Trademark Applications as of September 1, 1997

Law Office	Oldest Date	
	New*	Amendment Filed
Law Office 101—Ron Williams, Managing Attorney, (703) 308-9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	03/12/97	07/28/97
Law Office 102—Myra Kurzbard, Managing Attorney, (703) 308-9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	01/29/97	06/12/97
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308-9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	02/07/97	08/18/97
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308-9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	01/15/97	05/16/97
Law Office 105—Thomas Howell, Managing Attorney, (703) 308-9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	02/18/97	06/06/97
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308-9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	02/14/97	05/20/97
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308-9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	04/11/97	07/11/97
Law Office 108—David Shallant, Managing Attorney, (703) 308-9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	01/10/97	06/30/97
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308-9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	01/13/97	07/22/97
**Collective Marks—Class 200 **Certification Marks—Classes A & B		
Office of Trademark Services—Terror Simms, Director, (703) 308-9100 Trademark Assistance Center—(703) 308-9000 Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188 Intent-To-Use—(ITU)—(703) 308-9500 Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126 Affidavits Under Sections 8 & 15 (All Classes)..... Renewals (All Classes)..... Section 12(c) Publications (All Classes).....	07/14/97 07/14/97 07/25/97	—0— —0— —0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305-8747 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

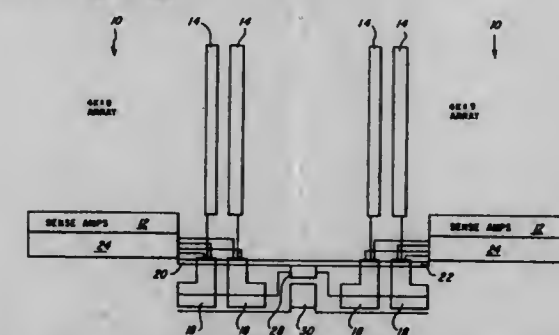
REEXAMINATIONS

SEPTEMBER 30, 1997

Matter enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,601,019 (3339th)
 MEMORY WITH REDUNDANCY
 Ashwin H. Shah; James D. Gallia, both of Dallas; I-Fay Wang, Richardson, and Shivaling S. Mahant-Shetti, Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
 Reexamination Request No. 90/004,346, Aug. 29, 1996.
 Reexamination Certificate for Patent 4,601,019, issued Jul. 15, 1986, Ser. No. 528,209, Aug. 31, 1983.
 Int. Cl.⁶ G11C 13/00

U.S. Cl. 365—200



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1, 3 and 13 are determined to be patentable as amended.

Claims 2, 4-12 and 14-24 dependent on an amended claim are determined to be patentable.

New claims 25-117 are added and determined to be patentable.

1. A memory comprising:

(a) a plurality of memory cells arranged in rows and columns, [said] the columns of memory cells being organized by bit positions, each bit position including more than one of [said] the columns of memory cells and at least one secondary sense amplifier, each bit position further including a plurality of primary sense amplifiers each of which is coupled between one of the columns and the at least one secondary sense amplifier;

(b) at least one redundant column of memory cells, and a redundant sense amplifier operatively connected thereto;

(c) at least two output means, said output means being connected to respective ones of the [said array] primary sense amplifiers to provide simultaneous data outputs corresponding to memory cells at different ones of [said] the bit portions, the simultaneous data outputs being provided to external contact pads;

(d) redundancy select logic means for storing defect position information, including both defective column address infor-

mation and also bit position defect information indicating which of [said] the bit positions includes [said] a defective column; and

(e) means for comparing externally received column address signals with [said stored] the defective column address [signals] information to provide a match signal;

(f) [said] the redundancy select logic means including means responsive to [a said] the match signal to connect [said] the redundant [column] sense amplifier to [said] the output means corresponding to the one of [said] the bit positions which is encoded by [said] the bit position defect information, whenever [said] the externally received column address signals match [said] the stored defective column address information;

(g) each of [said array] memory cells arranged in rows and columns, [said] the redundant column of memory cells, [said] the sense amplifiers, [said] the output means, [said] the means for comparing and [said] the redundancy select logic being integrated on a single chip.

B1 4,840,815 (3340th)
 LOW CALORIC ALKYL GLYCOSIDE POLYESTER FAT SUBSTITUTES

Richard S. Meyer; Jeffrey M. Root, both of Tacoma; Michael L. Campbell, Kent, and Daryl B. Winter, Seattle, all of Wash., assignors to Curtis-Burns, Inc., Rochester, N.Y.

Reexamination Request No. 90/002,670, Mar. 11, 1992.

Reexamination Certificate for Patent 4,840,815, issued Jun. 20, 1989, Ser. No. 122,188, Nov. 18, 1987.

Continuation-in-part of Ser. No. 49,625, May 13, 1987, abandoned.

Int. Cl.⁶ A23D 5/00

U.S. Cl. 426—611

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1-7 are cancelled.

1. A low calorie food composition comprising: nonfat ingredients, and

fat ingredients, wherein from about 5.0% to about 95% of the fat ingredients comprises an alkyl glycoside fatty acid polyester having at least four fatty acid ester groups, wherein the fatty acid ester groups comprise both saturated and unsaturated fatty acid ester groups, each fatty acid having from 4 to 24 carbon atoms, and wherein the alkyl glycoside moiety comprises a saccharide portion and an alkyl portion, the alkyl portion having from 1 to 24 carbon atoms.

REISSUES

SEPTEMBER 30, 1997

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 35,616

ELASTOMERIC COVERING MATERIAL AND HAND GLOVE MADE THEREWITH

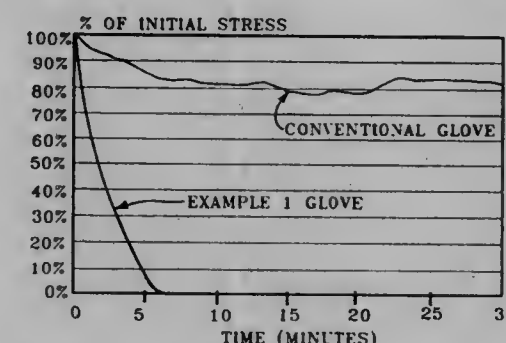
Neil E. Tillotson, Dixville Notch, N.H., and Luc G. DeBecker, Vancleave, Miss., assignors to Tillotson Corporation, Boston, Mass.

Original No. 5,014,362, dated May 14, 1991, Ser. No. 522,390, May 11, 1990. Application for reissue Nov. 13, 1995, Ser. No. 556,080

Int. Cl.⁶ A41D 19/00

U.S. Cl. 2—168

21 Claims



1. A closely fitting glove comprising a layer of elastomeric material (a) comprising nitrile butadiene rubber, (b) having an initial configuration adapted to receive and fit closely about a hand, and (c) characterized by (i) being substantially impermeable to water vapor and liquid water, (ii) having a tensile strength of at least about 1500 psi as measured according to ASTM D-412 on a sample of the elastomeric material having a thickness from about 4.0 to about 4.5 mils, and (iii) having a thickness and elastic properties such that the glove is capable of being stretched to fit closely about the hand and when stretched from the initial configuration to fit closely about the hand, the elastomeric material conforms to the configuration of the hand, initially exerting [a predetermined] an initial pressure on the hand and thereafter still fitting closely about the hand, but relaxing, within about 6 minutes after the glove is stretched to fit about said hand, to exert on the hand a reduced pressure which is [substantially] less than about [80%] 50% of the [predetermined] initial pressure.

Re. 35,617

TORQUE LIMITING DEVICE FOR AIR IMPACT TOOL

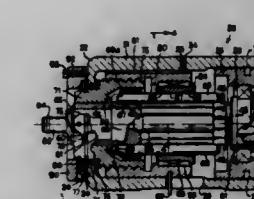
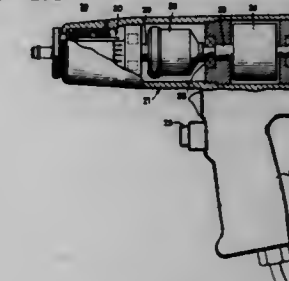
Bert Krivec, Brookfield, Wis., assignor to Snap-on Technologies, Inc., Lincolnshire, Ill.

Original No. 5,346,022, dated Sep. 13, 1994, Ser. No. 11,497, Jan. 29, 1993. Application for reissue Apr. 22, 1996, Ser. No. 636,027

Int. Cl.⁶ B25B 23/157; F16D 3/56

U.S. Cl. 173—178

21 Claims



21. A torque limiting mechanism comprising: first and second rotatable torque structures, the first torque structure including a rigid torque member having a peripheral drive surface including a plurality of drive surface portions, the second torque structure having an axis of rotation and including a plurality of flexible and resilient torque members spaced radially from the axis and engageable with said peripheral drive surface; a retainer disposed entirely radially outwardly of the entirety of said resilient torque members and disposed in engagement therewith for holding said resilient torque members in engagement with said peripheral drive surface with a predetermined force for preventing rotation of said resilient torque members and said rigid torque member relative to each other at torques below a predetermined torque, said resilient torque members being yieldable at said predetermined torque and above to accommodate relative rotation between said resilient torque members and said rigid torque member; and rotatable adjusting structure disposed entirely radially outboard of the entirety of said resilient torque members and threadedly engaged with said retainer for cooperation therewith to effect axial movement of said retainer relative to said resilient torque members for varying the predetermined force to vary the torque at which said resilient torque members will yield.

PLANT PATENTS

GRANTED SEPTEMBER 30, 1997

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

10,044

PETUNIA PLANT NAMED 'SUNLACE'
Reinhard W. Rother, 56 Emerald Monbulk Road, Emerald,
Victoria 3782, Australia
Filed Jul. 15, 1996, Ser. No. 679,896
Int. Cl.⁶ A01H 5/00

U.S. Cl. Pkt.—68.1

1 Claim

1. A new and distinct cultivar of Petunia plant named 'Sunlace',
as illustrated and described.

10,047

CHRYSANTHEMUM PLANT NAMED 'CREAM
DIAMOND'

Susan M. Polys, Salinas, Calif., assignor to Yoder Brothers,
Inc., Barberton, Ohio

Filed Feb. 22, 1996, Ser. No. 605,729

Int. Cl.⁶ A01H 5/00

U.S. Cl. Pkt.—78

1 Claim

1. A new and distinct Chrysanthemum plant named Cream
Diamond, as described and illustrated.

10,045

PETUNIA PLANT NAMED SUNVALE
Reinhard W. Rother, 56 Emerald Monbulk Road, Emerald,
Victoria 3782, Australia
Filed Jul. 15, 1996, Ser. No. 680,164
Int. Cl.⁶ A10H 5/00

U.S. Cl. Pkt.—68.1

1 Claim

1. A new and distinct cultivar of Petunia plant named 'Sunvale',
as illustrated and described.

10,048

NEW GUINEA IMPATIENS NAMED 'ORANGE CRUSH'
Scott C. Trees, Arroyo Grande, Calif., assignor to Ball Horti-
cultural Company, West Chicago, Ill.

Filed Jul. 24, 1996, Ser. No. 685,674

Int. Cl.⁶ A01H 5/00

U.S. Cl. Pkt.—87.6

1 Claim

1. A new and distinct cultivar of New Guinea Impatiens named
'Orange Crush', substantially as herein shown and described,
which:

10,046

CHRYSANTHEMUM PLANT NAMED 'STUNNING LYNN'
Leon Glicenstein, Salinas, Calif., assignor to Yoder Brothers,
Inc., Barberton, Ohio
Filed Feb. 22, 1996, Ser. No. 605,613
Int. Cl.⁶ A01H 5/00

U.S. Cl. Pkt.—76

1 Claim

1. A new and distinct Chrysanthemum plant named Stunning
Lynn, as described and illustrated.

(a) exhibits attractive large orange flowers with a fuchsia eye,

(b) forms glossy dark green foliage,

(c) exhibits a good basal branching character, and

(d) exhibits a compact upright mounded growth habit.

PATENTS

GRANTED September 30, 1997

ERRATA

For	See
CLASS	PATENT NO.
029-740	5,671,537
251-315	5,671,911
254-267	5,671,912
256-031	5,671,913
257-077	5,671,914
412-007	5,672,030
439-852	5,672,084
602-027	5,672,156
602-032	5,672,157
524-052	5,672,639
349-062	5,673,128

PATENTS

GRANTED SEPTEMBER 30, 1997

GENERAL AND MECHANICAL

5,671,477

BALL CATCHING GLOVE HAVING A PROJECTING PROTECTING UNIT

Akio Aoki, Osaka, Japan, assignor to Trion Corporation, Japan

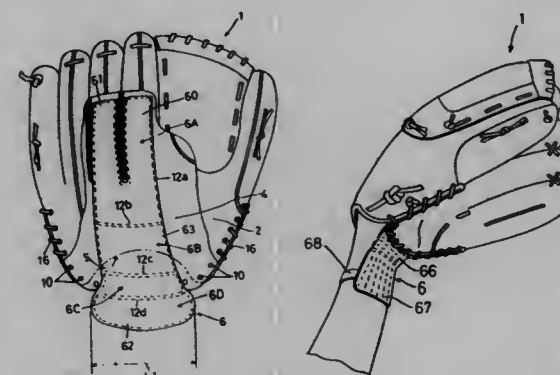
Filed Jun. 4, 1996, Ser. No. 658,026

Claims priority, application Japan, Feb. 27, 1996, 8-039221

Int. Cl.⁶ A63B 71/14; A41D 13/10

U.S. Cl. 2-19

8 Claims



1. A ball catching glove, comprising:
 - a first outer shell;
 - a second outer shell;
 - a finger opening located between said first and second outer shells;
 - an inner shell disposed inwardly of the second outer shell;
 - a protector unit attached to at least one of said inner shell and said second outer shell for protecting a user's palm, wherein a portion of said protector unit projects from said finger opening; and
 - a first shock absorbing member, with said first shock absorbing member located between said inner shell and said protector unit.

5,671,478

CUSHION DEVICE FOR A BODY PART HAVING TWO CURVED PLATES OF DIFFERENT RADII

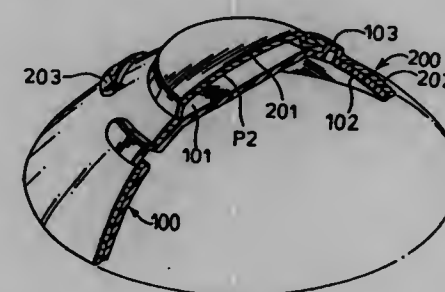
Fu-Hsin Yen, Taipei Hsien, Taiwan, assignor to Comax Sporting Good Co., Ltd., Chia-I Hsien, Taiwan

Filed Feb. 5, 1996, Ser. No. 597,058

Int. Cl.⁶ A41D 13/00

U.S. Cl. 2-22

2 Claims



1. A cushion device adapted to be disposed in a carrying bag to protect a body part from collision comprising:
 - two curved plates with different radii of curvature, said curved plates being connected to each other and forming a void therebetween, each of said curved plates having a central portion and a peripheral portion around said central portion,

said peripheral portion of one of said curved plates having the same radius of curvature as said peripheral portion of the other one of said curved plates, said central portion of said one of said curved plates having a radius of curvature smaller than said radius of curvature of said peripheral portion, said central portion of the other one of said curved plates having a radius of curvature greater than said same radius of curvature of said peripheral portion.

5,671,479

REVERSIBLY COLLAPSIBLE LAP TRAY

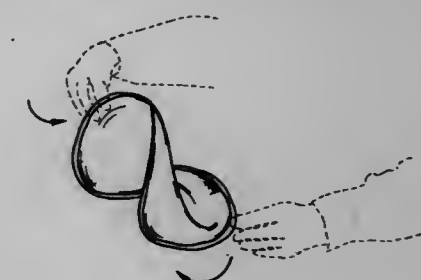
Ted Randall Dedrick, 14135 Campo Rd., Jamul, Calif. 92035

Filed May 1, 1995, Ser. No. 432,526

Int. Cl.⁶ A41D 13/04; 27/00; 27/06

U.S. Cl. 2-46

21 Claims



1. A foldable lap tray, comprising:
 - a flexible web of sufficient size to cover the lap of a wearer, said web defining a plane when in an opened configuration;
 - elongated spring material in the form of a loop attached to a periphery of the flexible web and adapted to fold into a smaller multi-looped folded configuration upon twisting the spring material out of the plane of the web; and
 - a foldable bib connected to the flexible web and including a means to attach the bib around the neck of a wearer.

5,671,480

SIGNALING DEVICE

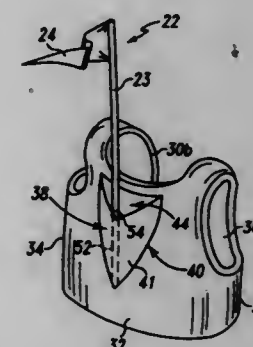
Kevin Krout, 110 Woodlawn Pl., Crawfordsville, Ind. 47933, and Dennis Wilson, 300 S. Indiana St., Roachdale, Ind. 46172

Filed Jan. 25, 1996, Ser. No. 591,382

Int. Cl.⁶ A41D 1/04; B63C 9/08; G09F 17/00

U.S. Cl. 2-102

2 Claims



1. A flotation vest equipped with a signaling device, comprising:
 - a flotation vest wearable about the torso of a user;

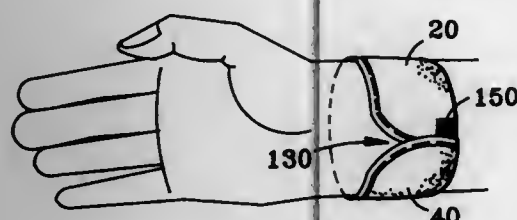
3517

a cover member disposed on the back of the flotation vest and cooperating therewith to form therebetween a wedge-shaped interior region, said cover member including a pocket disposed longitudinally thereof;

a visibility-enhancing member receivable within said pocket; and

a wedge disposed between the back of the flotation vest and the pocket for orienting the pocket to project the visibility-enhancing means upwardly and diverging rearwardly away from the user to reduce or prevent contact between the visibility-enhancing member and the head or back of the user.

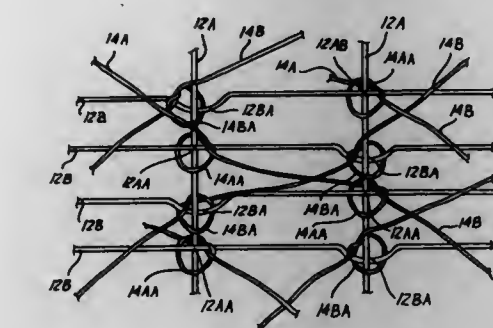
5,671,481
FOLDING SWEATBAND WITH INTERIOR COMPARTMENT
 B. Joan Giard, 19 Discovery Rd., Essex Junction, Vt. 05452
 Filed Jul. 12, 1996, Ser. No. 680,322
 Int. Cl.⁶ A45C 13/30; A41D 20/00
 U.S. Cl. 2—170 18 Claims



1. A sweatband to be worn by a user, comprising:
- (a) an elongated first panel of fabric, said first panel having first and second sides, at least said first side being moisture-absorbent, said first panel having first and second ends, and having first and second edges extending between said first and second ends, said first panel being adapted to be folded along a first fold line extending between said first and second ends;
 - (b) a second panel of fabric fastened to said first panel along at least said first end and along at least a portion of said first and second edges of said first panel to form a pocket, said pocket opening toward said second end; and
 - (c) means for temporarily fastening said first end of said first panel to said second end of said first panel to form a closed loop having an interior surface, said interior surface including said pocket; and said closed loop being adapted to fit the user.

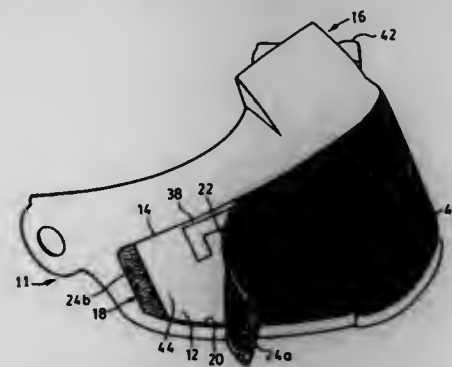
5,671,482
STOCKING HAVING A COMFORT FOOT AREA
 Lee A. Alvera, 4002 42nd St. SW., Grandville, Mich. 49418
 Filed Oct. 11, 1994, Ser. No. 322,450
 Int. Cl.⁶ A41B 11/02
 U.S. Cl. 2—241 3 Claims

1. A sock having a comfort foot area (10) comprising:
- A) a nylon stocking (12) having a plurality of nylon stocking vertical threads (12A) and a plurality of nylon stocking horizontal threads (12B) in a standard box weaved over and under pattern forming junction points therebetween; and
 - B) a stocking sole (14) positioned at a bottom of the nylon stocking (12), the stocking sole (14) comprises a plurality of stocking sole left diagonal threads (14A) and a plurality of stocking sole right diagonal threads (14B), the stocking sole left diagonal threads (14A) have stocking sole left diagonal thread loop crossings (14AA) which are simple knots positioned at each diagonal junction point affixing the stocking sole left diagonal threads (14A) to the nylon stocking vertical threads (12A) and the nylon stocking horizontal threads (12B) in a junction region, stocking sole right diagonal threads (14B) have stocking sole right diagonal thread loop crossings



(14BA) each of which is a simple knot affixing the stocking sole right diagonal threads (14B) to the nylon stocking vertical threads (12A) and the nylon stocking horizontal threads (12B) in a second junction region, the stocking sole (14) functions as a comfort foot area.

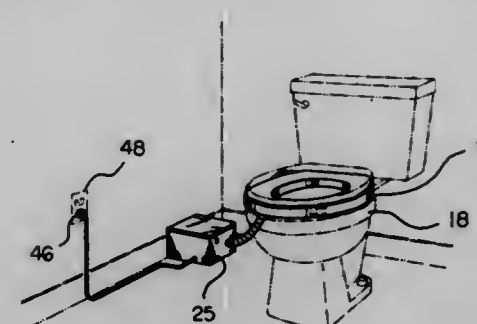
5,671,483
REMOVABLE SUBSIDIARY HELMET FACE SHIELD LENS
 Douglas Alvin Reuber, Lindsay, Canada, assignor to Ontario Limited, Lindsay, Canada
 Filed Jun. 6, 1995, Ser. No. 469,079
 Int. Cl.⁶ A42B 3/24
 U.S. Cl. 2—424 22 Claims



20. In combination,
- a weather lens and a face shield of a helmet, said weather lens comprising:
 - a sheet of flexible plastic;
 - a gasket extending from said sheet of plastic along a perimeter and on a first side of said sheet to space said weather lens from an inner lens forming part of said face shield, when said weather lens is mounted on said face shield;
 - a first fastener portion, extending from said sheet on said first side, for mounting said sheet to said shield;
 - said shield having a convex surface and a complementary fastener portion, comprising:
 - a second fastener portion affixed to said convex surface of said face shield;
 - an opposite surface for engaging said first fastener portion to mount said weather lens to said face shield in an overlapping relationship with said inner lens;

whereby said weather lens may be quickly mounted and removed from said face shield, and said complementary fastener position.

5,671,484
TOILET VENTILATOR APPARATUS
 Robert Lee, III, P.O. Box 477, Clayton, La. 71326
 Filed Jul. 22, 1996, Ser. No. 685,989
 Int. Cl.⁶ E03D 9/04
 U.S. Cl. 4—213 8 Claims



1. A toilet ventilator apparatus for evacuating unpleasant odors from a toilet to an area adjacent thereto comprising, in combination:

a toilet seat having a top surface, a bottom surface adapted to rest on a lip of a toilet bowl, an odor collection channel formed therein and terminated at an evacuation nozzle, and a plurality of oblong odor collection vents disposed on the bottom surface and in communication with the odor collection channel for receiving unpleasant odors contained in the air within the vicinity of a toilet bowl, the vents positioned adjacent an outer periphery of the toilet seat for preventing inadvertent splashes therein with the vents formed above the lip of the toilet bowl $\frac{1}{4}$ of an inch from the outer periphery of the toilet seat, wherein the vents are constructed to be $\frac{1}{2}$ of an inch in width and positioned on opposite sides of the toilet seat; and

a vacuum further comprising:

- a hollow, rigid, and generally box-shaped housing situated on a floor adjacent the toilet bowl, the housing having an inlet and an outlet extended therefrom, the outlet having a screen disposed thereover with the air being evacuated at a location adjacent to the housing, wherein the screen is adapted to prevent dust and debris from entering the housing;
- a motor disposed within the housing with the motor having a fixed stator coupled to the housing and a rotatable rotor positioned in a general axial alignment with the inlet and outlet of the housing;
- a fan coupled to the rotor and with the fan adapted to transfer air with unpleasant odors therein through the housing from the inlet to the outlet, the fan having a plurality of blades formed of essentially flat imperforate members rotatable in a plane of rotation with the blades being angled and offset from the plane of rotation;
- a power cable having a first end adapted to receive power from an external power source and a second end extended through the housing for delivering power to the motor for rotating the rotor;
- a pressure switch coupled on a hinge between the toilet seat and the toilet bowl with the pressure switch situated on a lower surface of an essentially stationary inboard portion of the hinge, wherein the coupling of the inboard portion of the hinge to the toilet bowl is performed with a bolt, a complementary washer, nut, and a spring situated between the bolt and washer, whereby the pressure switch has one orientation where the inboard portion is lowered and the spring is biased for allowing the vacuum to be energized when pressure is applied to the toilet seat and another

orientation when pressure is removed from the toilet seat with the inboard portion raised and the spring unbiased for preventing the vacuum from being energized;

circuitry for allowing the present invention to be actuated solely via the pressure switch, manually via a three-terminal switch, or not actuated under any circumstance, wherein the three-terminal switch has a first terminal thereof electrically connected to the second end of the power cable, a second terminal electrically connected to a first terminal of the motor with a second terminal of the motor being connected to the second end of the power cable, and a third terminal coupled to a first terminal of the pressure switch, a second terminal of the pressure switch coupled to the first terminal of the motor, whereby the three-terminal switch has a first orientation wherein the first terminal thereof contacts the second terminal thereof for manual actuation of the motor, a second orientation wherein the first terminal thereof contacts the third terminal thereof for actuation of the motor via solely the pressure switch, and a third orientation wherein the first terminal is open for precluding actuation of the motor;

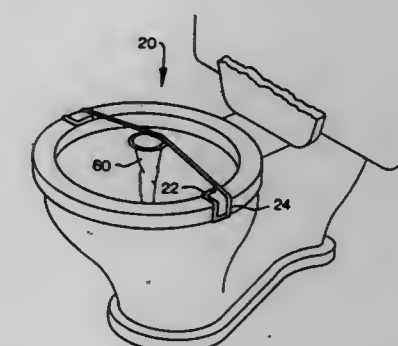
a flexible evacuation hose coupled between the evacuation nozzle on the toilet seat and the inlet of the housing;

a replaceable charcoal filter disposed within the housing for removing unpleasant odors from the evacuated air; and

scents means for masking the unpleasant odors contained in the evacuated air, the scents means adapted to receive power from the second end of the power cable, the scents means located within the housing and having an associated conduit with an outlet thereof situated adjacent the fan near the outlet of the housing, and a scent switch situated on a top portion of the housing for allowing the dispersion of scented air from the outlet upon the depression thereof;

whereby when the vacuum is energized, unpleasant odors contained within the air in the vicinity of a toilet bowl are evacuated through the toilet seat and through the vacuum to be filtered, optionally scented, and then deposited at a location remote from the toilet bowl.

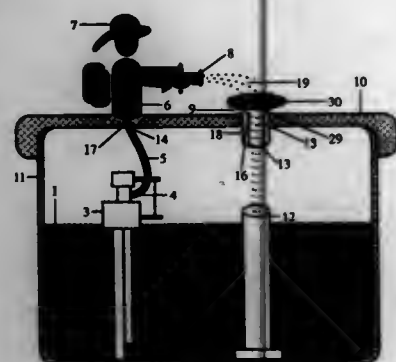
5,671,485
SUPPORT DEVICE FOR EMPTYING COLOSTOMY BAG
 Robert E. Middlestead, HC #3 Box 78, Tionesta, Pa. 16353
 Filed Sep. 29, 1995, Ser. No. 536,625
 Int. Cl.⁶ E03D 9/00
 U.S. Cl. 4—315 4 Claims



1. A metallic wire support for use in suspending a colostomy bag having an open end, over the opening of a toilet, the support adapted to be secured to the rim of a toilet having an outer side wall, the support comprising, in combination:
- a first grasping end wherein the metallic wire support is formed into a first upwardly disposed L-shaped extent and a first downwardly disposed U-shaped extent having an opened upper extent and a closed lower extent, the first downwardly disposed U-shaped extent being integral with, and formed 90 degrees relative to, the first upwardly disposed L-shaped extent;

a first arm formed integral with, and extending upwardly from, the first grasping end;
 a second grasping end wherein the metallic wire support is formed into a second upwardly disposed L-shaped extent and a second downwardly disposed U-shaped extent having an opened upper extent and a closed lower extent, the second downwardly disposed U-shaped extent being integral with, and formed 90 degrees relative to, the second upwardly disposed L-shaped extent;
 a second arm formed integral with, and extending upwardly from, the second grasping end;
 a centrally disposed circular spring having a first end, a second end and an inner periphery, the first end of the circular spring being integral with the first arm, the second end of the circular spring being integral with the second arm, the circular spring functioning such that when compression is applied to the ends the inner periphery increases;
 the first grasping end adapted to be removably secured to the rim of a toilet such that the first upwardly disposed L-shaped extent is disposed over the rim of the toilet with the first downwardly disposed U-shaped extent positioned at the side of the toilet;
 the second grasping end adapted to be removably secured to the rim of a toilet such that the second upwardly disposed L-shaped extent is disposed over the rim of the toilet with the second downwardly disposed U-shaped extent positioned at the side of the toilet; and
 the spring and the first and second arms which extend downwardly from the first and second ends, respectively, of the spring acting together, using resiliency of the spring, so as to hold the first and second grasping ends firmly against the outer side wall of the toilet rim when the support is secured thereto.

5,671,486
DECORATIVE COVER FOR A TOILET TANK
 John E. Collavo, 1402 Missouri Ave., Bridgeville, Pa. 15017
 Filed Aug. 28, 1996, Ser. No. 697,616
 Int. Cl.⁶ E03D 11/12
 U.S. Cl. 4—353 4 Claims

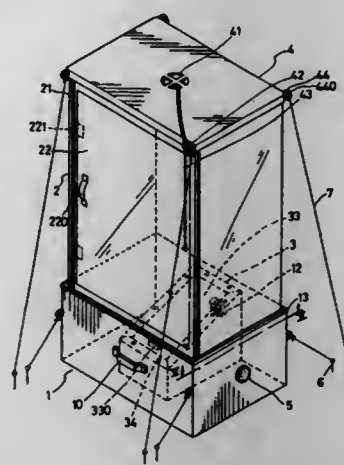


1. A decorative cover for a standard toilet tank with a top opening, a fill standpipe, a cup type float valve flushing mechanism connected to said fill standpipe and having a water discharge vent for delivering refill water from said standpipe to said bowl after flushing and a water outlet for refilling said tank with water from said standpipe after flushing, and a waste standpipe therein, comprising:

- a flat rectangular lid plate having a circumferential lip whereby said circumferential lip is adapted to surround said standard toilet tank around said top opening and having a primary orifice and a secondary orifice, said primary orifice being opposite said cup type float valve flushing mechanism and said secondary orifice being opposite said standpipe when said flat rectangular lid plate is mounted on said standard toilet tank;
- a primary figure mounted on said flat rectangular lid plate and having a primary conducting channel therein, said primary

conducting channel having a primary discharge end and a primary receiving end, said primary receiving end having a nipple connector installed therein, and having a discharge tube connecting said nipple connector with said water discharge vent of said cup-type float valve flushing mechanism; and,
 c) a secondary figure mounted on said flat rectangular lid plate opposite said primary discharge end, and having a bowl-shaped cavity with a perimeter, said cavity having baffles disposed therein along said perimeter, and having a secondary conducting channel from said perimeter, said secondary conducting channel having a secondary discharge end and a secondary receiving end for receiving water from said cavity, said secondary figure positioned on said flat rectangular lid plate whereby actuation of said cup type float valve flushing mechanism discharges water from said standpipe to said water discharge vent through said discharge tube and primary conducting channel into said bowl-shaped cavity against said baffles and into said conducting channel and thence into said waste standpipe.

5,671,487
PORTABLE MOBILE TOILET
 Jen-Yue Chen, P.O. Box 90, Tainan 704, Taiwan
 Filed Apr. 16, 1996, Ser. No. 633,369
 Int. Cl.⁶ A47K 11/04
 U.S. Cl. 4—477 4 Claims



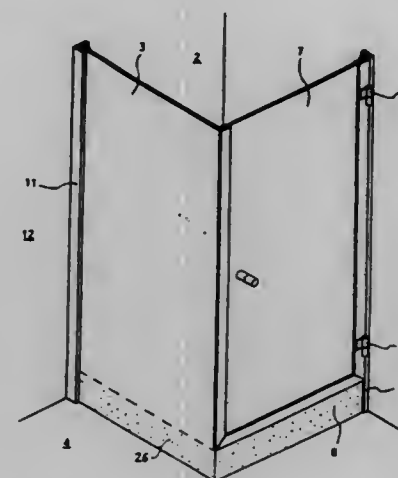
1. A portable and mobile toilet located on ground, comprising: a case having an open upper side, a closed lower side and four vertical sides forming four corners, said lower side and said four vertical sides each having an outer layer and an inner layer, a grip fixed on a vertical side, an air hole provided in said outer layer of a first of said vertical sides, a movable flap provided inside of said air hole to close and open said air hole, a suction fan fixed in a second of said vertical sides, a flange provided on an upper edge of said four vertical sides, a position ear with a hole provided at each of the four corners, an inner cavity formed by said lower side and said four vertical sides, two holes provided in said second vertical side, and a first air passageway formed between said outer layer and said inner layer of said lower side and said four vertical sides;

four vertical elongate walls each having a lower end adhered to an upper end of said case, each wall made of an opaque flexible material, having a plurality of air apertures in the lower end for gas to flow in and out, a zipper provided along a vertical side edge of every two adjacent vertical walls for connecting together said every two adjacent vertical walls, a first one of said four walls having a door, a grip fixed on said door for opening and closing, and adhering tapes fixed on an inner side of said door for securing said door when closed; a bowl removably located in said cavity of said case, the bowl having two projections in a rear side to fit in said two holes of

said second side of said case to secure itself with said case, an air hole provided in said rear side facing said suction fan, an inner cavity for accommodating a waste bag therein, a liftable cover with a pull block thereon removably closing said inner cavity, a plurality of air holes in sides of the bowl, and second air passageways inside said sides thereof communicating with said air holes;

an upper cover closing an upper side of said four walls, each wall made of two layers of a flexible material forming a hollow cavity for filling a gas therein, the upper cover having an extraction fan, a switch connected to said extraction fan, a pull string fastened to said switch, and a plurality of position ears, each with a hole, provided on the upper cover;
 a stopper removably closing said air hole in said case, preventing air from flowing out of said case; and,
 a plurality of ropes each having an upper end bound on one of said position ears on said upper cover and said case, and a lower end fixed tightly in the ground so as to stably secure said case and said upper cover after said toilet is assembled.

5,671,488
SHOWER PARTITION
 Hans-Gerd Greferath, Bad Salzungen, Germany, assignor to Temotrans B.V., Purmerend, Netherlands
 PCT No. PCT/EP95/02315, § 371 Date Apr. 15, 1996, § 102(e)
 Date Apr. 15, 1996, PCT Pub. No. WO95/34237, PCT Pub. Date Dec. 21, 1995
 PCT Filed Jun. 14, 1995, Ser. No. 591,649
 Claims priority, application Germany, Jun. 14, 1994, 44 20 711.5
 Int. Cl.⁶ A47K 3/22
 U.S. Cl. 4—607 10 Claims



1. In combination with a shower compartment which includes a shower tray on the floor thereof wherein the shower tray includes an edge around a portion of its circumference, a shower partition comprising:

- a primary partition adjacent the edge of the shower tray and extending upwards from the floor to a predetermined height above the shower tray, wherein the primary partition comprises a single piece, and wherein the primary partition is at least partially transparent above the edge and has a lower portion extending between the floor and the edge of the shower tray which includes a decoration thereon to conceal the shower tray below the edge.

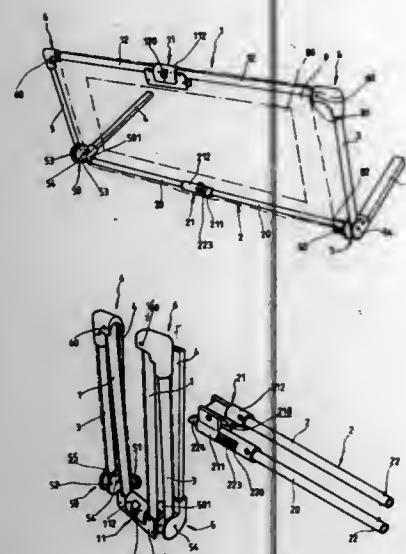
5,671,489
TONGUE AND GROOVE SHOWER AND BATH SUPPORT SYSTEM
 Kenneth Salach, 3855 W. Johnson Rd., LaPorte, Ind. 46350
 Filed Mar. 2, 1995, Ser. No. 396,480
 Int. Cl.⁶ A47K 3/22
 U.S. Cl. 4—614 7 Claims



1. A bathing enclosure for a base section having a plurality of walls, a floor, a drain, a top surface, and a mounting flange, said bathing enclosure comprising:
 a first wall section having a wall portion with an end;
 a second wall section having a wall portion with an end;
 a tongue on said wall portion of said first wall section, said tongue running along substantially the entire vertical length of said end of said wall portion, said tongue includes a flat back surface, a flat front surface and a partially rounded end; and
 a groove on said wall portion of said second wall section, said groove running along substantially the entire vertical length of said end of said wall portion, said groove includes an elongated back flange, a short front flange, and a notch for receiving said partially rounded end of said tongue;
 wherein said groove receives said tongue to create a water-tight sealed vertical seam.

5,671,490
COLLAPSIBLE BED RAIL STRUCTURE
 Sung-Tsun Wu, 8F-1, No. 249, Chung Ching Road, Pan Chiao City, Taipei Hsien, Taiwan
 Filed Nov. 13, 1996, Ser. No. 748,405
 Int. Cl.⁶ A47C 21/08
 U.S. Cl. 5—426 18 Claims

1. A bed rail structure comprising:
 two upright rods, each having an upper end to which an upper corner joint is fixed and a lower end pivoted to a lower corner joint so as to be rotatable relative to the lower corner joint;
 an upper horizontal rod extending between the upper corner joints of the upright rods, comprising two first sections, each having an inner end pivoted to an upper central joint so as to be rotatable relative to each other between an expanded condition and a collapsed condition and an outer end pivoted to the respective upper corner joint;
 first retaining means provided on each of the first sections of the upper horizontal rod to maintain the first sections in the expanded condition and first releasing means for releasing the first sections from the expanded condition and allowing the first sections to be moved to the collapsed condition;
 a lower horizontal rod extending between the lower corner joints of the upright rods, comprising two second sections having inner ends pivoted to each other by means of a lower central joint to be rotatable relative to each other among an expanded condition, a collapsed condition and a rail open condition and outer ends releasably connected to the respective lower corner joints;

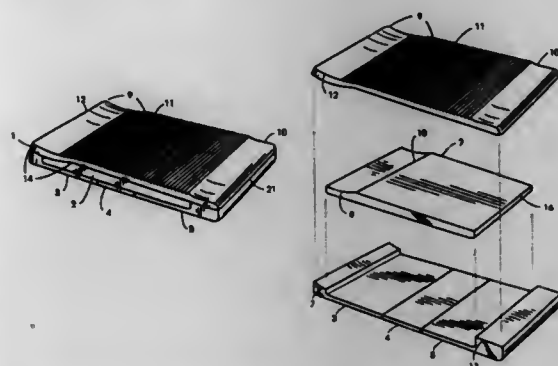


a pair of said pockets are arranged over corresponding visors attached to said interior of said automobile.

5,671,492
CONTOURED ASYMMETRICAL MATTRESS
Keith Douglas Simon, 1040 High Rd., Woodside, Calif. 94062
Filed Mar. 14, 1995, Ser. No. 403,406
Int. Cl.⁶ A47C 27/14

U.S. Cl. 5-722

40 Claims

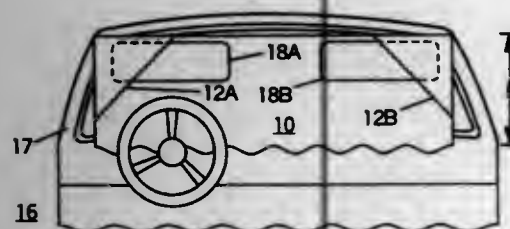


second retaining means provided on the second sections of the lower horizontal rod to maintain the second sections in the expanded condition and second releasing means for releasing the second sections from the expanded condition and allowing the second sections to be moved to the collapsed condition; third retaining means for releasably retaining the outer end of a first one of the second sections to a first one of the lower corner joints and fourth retaining means for releasably retaining the outer end of a second one of the second sections to a second one of the lower corner joints; a transverse bar fixed to and extending from each of the lower corner joints in a direction substantially normal to the upright rod and the lower horizontal rod, adapted to be placed and held under a matrix; and a resilient cover sheet extending between the upper and lower horizontal rods and between the upright rods.

5,671,491
FUNCTIONAL ADVERTISING BLANKET
Jeff Ladd, 62 Welles Dr. North, Newington, Conn. 06111
Filed Nov. 19, 1996, Ser. No. 751,991
Int. Cl.⁶ A47G 9/06; G09F 21/04

U.S. Cl. 5-417

6 Claims



1. A multi-purpose blanket in combination with an automobile comprising:
first and second opposing surfaces, said first surface consisting of a cloth material and said second surface consisting of a vinyl;
first and second sides defining a rectangle wherein said first side is shorter than said second side; first indicia on one of said first and second surfaces defining an advertising logo; and
pockets formed on opposing corners of said first and second sides, said pockets providing means for securing said rectangle to a substrate, said blanket is adapted for arranging on an interior of an automobile for providing a sun screen to a windshield and

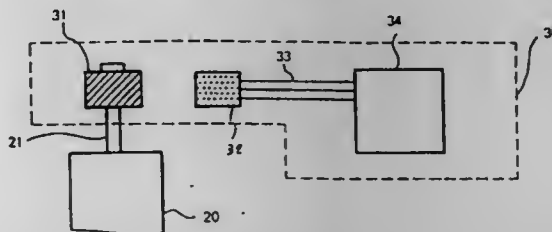
1. A mattress having a plurality of layers comprising:
a. an elongated base of generally uniform thickness;
b. at least one first raised section at one end of said base;
c. an elongated middle member adapted to be placed on top of at least a portion of said base adjacent to said raised section; and
d. an elongated upper member adapted to be placed on top of at least a portion of said middle layer and said first raised section.

5,671,493
WASHINGS WEIGHT DETECTION APPARATUS AND METHOD THEREOF
Gyeong Ho Moon, Kyungsangnam-Do, Rep. of Korea, assignor to LG Electronics Inc., Rep. of Korea
Filed Jul. 7, 1995, Ser. No. 499,436
Claims priority, application Rep. of Korea, Jul. 7, 1994, 1994-16345

U.S. Cl. 8-159

Int. Cl.⁶ D06F 33/02

6 Claims



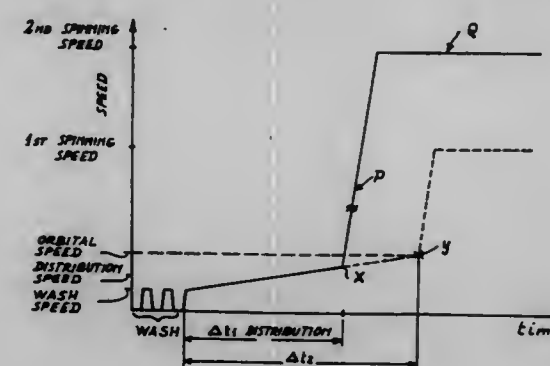
3. A method for detecting a washings weight of washing machine comprising the steps of:
A) first water level determining process including, detecting said washings weight before the supplying of water and determining the first water level;
B) second water level determining process including, detecting washing weight again after supplying the water to low level when said first water level is higher than medium low level, and determining the second water level;
C) first actual water level determining process, including, comparing said first water level with said second water, determining the actual water level according to the difference of said two levels, supplying the water, and proceed the washing operation;

D) third water level determining process including, supplying the water up to lower level when said first water level is not higher than low level, detecting said washings weight, and determining a third water level;
E) second actual water level determining process including, comparing said first water level with said third water level and determining said first water level as the actual water level when said first water level is higher than said third water level or a water level difference between the two levels is not larger than level 1 which is lowest level supplying the water and proceed the washing operation; and
F) returning to the step B) when said water level difference is not smaller than two level after canceling the determination of third water level.

5,671,494
METHOD AND ARRANGEMENT FOR ACHIEVING LOAD BALANCE IN WASHING MACHINES
Claudio Civanelli, Ispra, and Rocco Galli, Travedona, both of Italy, assignors to Whirlpool Europe B.V., Veldhoven, Netherlands
Filed Dec. 20, 1995, Ser. No. 575,570
Claims priority, application Italy, Dec. 21, 1994, MI94A2600
Int. Cl.⁶ D06F 33/02

U.S. Cl. 8-159

11 Claims



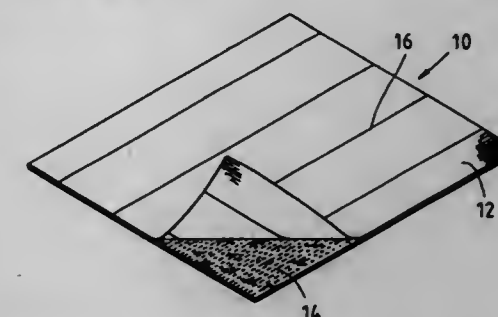
1. A method for achieving load balance in washing machines provided with a rotary drum driven by an electric motor under the control of control means, and in which a circuit is provided for measuring a physical quantity associated with information relative to the state, balanced or unbalanced, of the load in the drum, the method comprising: gradually increasing the drum speed from a wash speed toward an orbital speed during a stage in which the physical quantity is continuously monitored to ascertain the state of load distribution within the drum, and or accelerating the drum during a stage of maximum acceleration causing an instantaneous rotational speed increase up to a first high speed, to hereby orbit the load, at the moment in which a state of balanced load distribution with the drum is detected.

5. A washing machine comprising a rotary drum driven by an electric motor under the control of control means, a circuit for measuring a physical quantity associated with information relative to the state, balanced or unbalanced, of the load in the drum wherein the washing machine includes, after a wash stage but before a high speed spinning stage, a stage in which the drum rotational speed is gradually increased from the wash speed toward an orbital speed during which the physical quantity is continuously monitored, and means for causing an instantaneous rotational speed increase up to a first high speed, to thereby orbit the load, when the measuring circuit senses that the load is in a balanced state within the drum.

5,671,495
RECYCLABLE SHOE MIDSOLE CLOTH AND METHOD OF MAKING SAME
H. J. Chen, 5F-3, No. 229, Shuej-Fu Rd., Ta-Ya Hsian, Tai-chung Hsien, Taiwan
Continuation-in-part of Ser. No. 205,410, Mar. 3, 1994, abandoned. This application Jun. 14, 1995, Ser. No. 490,302
Int. Cl.⁶ A43D 29/00

U.S. Cl. 12-146 R

10 Claims

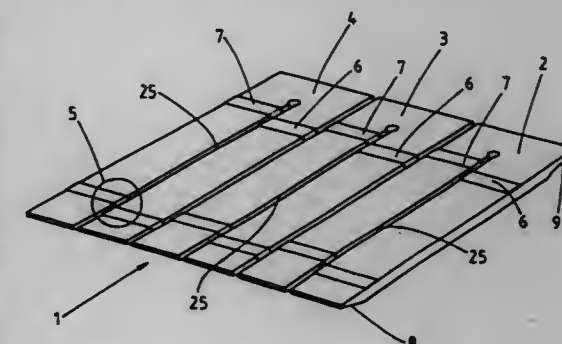


1. A method of making a recyclable shoe midsole (10) from decomposable waste fabric products comprising the steps of:
recovering decomposable waste fabric products,
cutting the decomposable waste fabric products into smaller pieces of a predetermined length and area,
stirring the smaller pieces of the decomposable waste fabric products to be loose,
drawing threads after kneading and twisting a first portion of stirred smaller pieces of the decomposable waste fabric products;
weaving the threads into a woven fabric layer.
combing, rolling and pressing a second portion of the stirred smaller pieces of the decomposable waste fabric products to form a nonwoven layer of a predetermined thickness,
joining the nonwoven layer to at least one said woven fabric layer with a water soluble, decomposable adhering agent, and
producing a shoe midsole (10) from a joined said nonwoven layer and the at least one said woven fabric layer.

5,671,496
PORTABLE WHEEL CHAIR RAMP
Allan Smith, 43 Sir Ross Smith Avenue, North Haven, SA 5018, Australia
Filed Nov. 2, 1995, Ser. No. 556,796
Claims priority, application Australia, Jun. 15, 1992, PL2918
Int. Cl.⁶ E01C 5/00

U.S. Cl. 14-69.5

7 Claims



1. A portable wheel chair ramp, the ramp having at least two leaves hinged together by at least two hinges that form a hinge line that extends in the direction of intended passage of a wheel chair, said hinges being formed by fabric strips attached to respective adjacent leaves and extending between the respective adjacent leaves, wherein

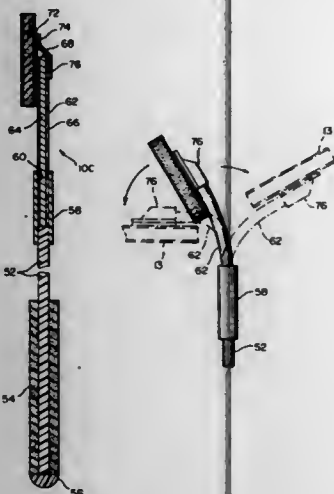
a first strip is attached to a first side of a first leaf and extends between the first leaf and a second leaf and is attached to a second side of the second leaf,
and a second strip is attached to the second side of the first leaf and extends between adjacent leaves and is attached to the first side of the second leaf.

5,671,497
APPLICATOR FOR APPLYING LOTION TO HARD-TO-REACH AREAS OF BODY

Joel M. Abdo, 11830 208th Pl. SE., Issaquah, Wash. 98027
Continuation-in-part of Ser. No. 494,067, Jun. 23, 1995, abandoned. This application Feb. 9, 1996, Ser. No. 599,027

Int. Cl.⁶ B25G 1/02; A47K 7/02
U.S. Cl. 15—144.1

10 Claims



1. An applicator for applying substances to hard-to-reach portions of a user's body, comprising:
a handle having a first end configured to be gripped by a user, and a second opposite end;
an attachment portion carried by said second end; and
a pad removably attachable to said attachment portion;
wherein said handle includes a rigid portion extending from said first end to an opposite end portion, a sleeve having an axial opening into which said opposite end portion is received, and a bendable portion having opposite end portions received into said axial opening and engaging said attachment portion, respectively, at least one of said rigid portion and said bendable portion being removably received into said axial opening to provide a detachable connection between said rigid portion and said bendable portion; and
wherein said bendable portion comprises a bendable metal core end a cylindrical outer plastic covering.

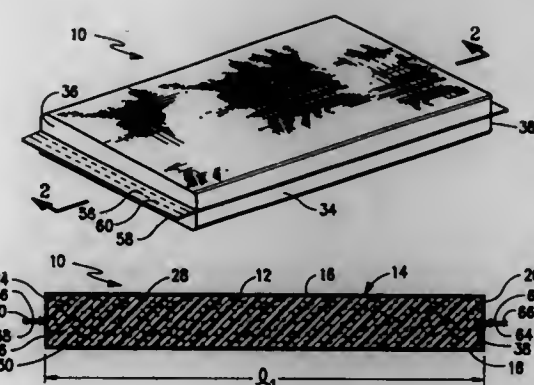
5,671,498
SCRUBBING DEVICE
Timothy J. Martin, and Metta J. Martin, both of 1888 S. Arbutus, Lakewood, Colo. 80228

Filed Apr. 4, 1995, Ser. No. 416,176
Int. Cl.⁶ A47K 7/03; A47L 13/17

U.S. Cl. 15—244.3

15 Claims

1. A scrubbing device adapted for use in manually dislodging unwanted scales from a target surface, comprising:
(a) a first layer of closed-cell foam material operative to form a base panel that may be gripped by a hand of a human user; and
(b) a second layer disposed in contact with said first layer and mechanically retained thereagainst, said second layer formed as a flexible sheet of woven strands of polyester material



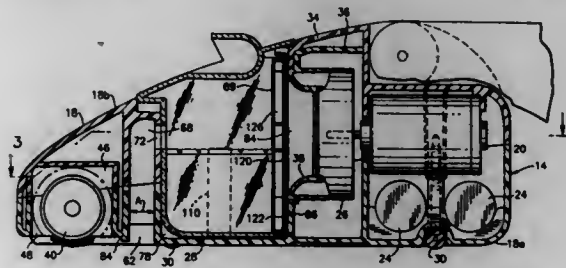
5,671,499
VACUUM CLEANER WITH ALL COMPONENTS IN FLOOR TRAVELING HEAD

M. Anthony Melito, East Haven; Deborah L. Potvin, Middletown; Gregg C. Krehel, Newtown, and Anthony Brooks Rorke, Guilford, all of Conn., assignors to Black & Decker Inc., Newark, Del.

Filed Jan. 11, 1996, Ser. No. 584,651
Int. Cl.⁶ A47L 9/28

U.S. Cl. 15—339

14 Claims



9. A vacuum cleaner having a floor traveling head with wheels and an elongate handle connected to the head, the floor traveling head comprising:
a housing having the handle pivotally connected thereto;
a first motor located inside the housing;
an impeller connected to the motor;
a combined collection basket and filter assembly removably mounted to the housing;
rechargeable batteries connected to the housing;
a switch connecting the batteries to the motor, the switch being connected to the housing; and
a rotatable brush connected to the housing.

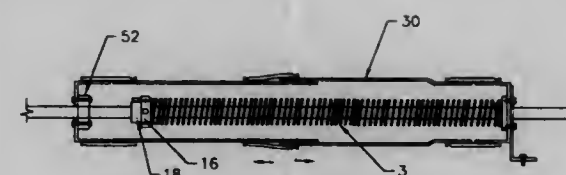
5,671,500
OVERHEAD DOOR SPRING SHIELD SYSTEM
Brett Balk, 726 S. Covell, Sioux Falls, S. Dak. 57104

Filed Aug. 7, 1995, Ser. No. 511,993
Int. Cl.⁶ E05F 1/08

U.S. Cl. 16—72

11 Claims

1. An overhead door spring shield system comprising:
a spring assembly including an elongated coiled spring having a fixedly held first end and a second end attached to an adjustable lock;



- a rod extending through a center bore of the coiled spring and pivotally attached on each end to a door frame mount, the adjustable lock being fixedly attached to the rod at a point so that the second end of the spring rotates with the rod when the door is opened or closed;
- a tubular shaped spring protection cover having opposing first and second ends extending the substantial length of the spring assembly shielding it from exposure to airborne moisture, the length of the spring protection cover between the first and second ends being adjustable without requiring the removal of the protection cover from about the coiled spring;
- an anchor cap having an opening sized to fit over the first end of the spring protection cover;
- an access cap having an opening sized to fit over the second end of the spring protection cover; and
- bearing means attached to the access cap and defining a second opening in the access cap through which the rod passes to permit rotation of the rod relative to the access cap.

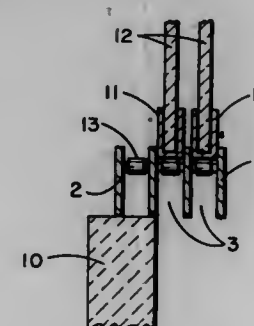
5,671,501
SELF CLEANING SLIDING DOOR BOTTOM TRACK ASSEMBLY

Abraham J. Laramie, 2817 Oak Lynn Ave., Apt. A, Eustis, Fla. 32726-6531

Filed Jun. 3, 1996, Ser. No. 656,831
Int. Cl.⁶ A47H 15/00

U.S. Cl. 16—96 R

2 Claims



1. A bottom track assembly for sliding doors comprising:
a plurality of horizontal elongated rigid dividers having a top edge and a base edge;
a plurality of circular rods for connecting the dividers, said plurality of circular rods being separated by a space to leave an open track between each divider so that dirt and water can fall through the dividers; and
wherein the rods have circular rollers which rotate around the rods when the sliding doors are moved between the dividers of the track assembly.

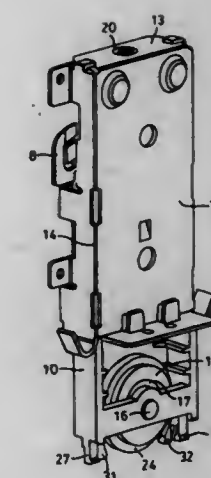
5,671,502
ROLLER MECHANISM FOR A SLIDING DOOR
Lucian S. Ezman, ul. Tyszkiewicza, 35 m24, Warsaw, Poland

Filed May 29, 1996, Ser. No. 654,713
Int. Cl.⁶ A47H 15/00; E05D 15/06

U.S. Cl. 16—105

17 Claims

1. A roller mechanism for a sliding door of the type having a door panel, a rectangular frame with rigid bottom, top and side



members, and a lower track for receiving a roller, the roller mechanism comprising:

- (i) a rigid bracket member to attach said roller mechanism to said sliding door;
- (ii) a roller housing containing a roller, said roller housing being vertically adjustable within said bracket member, said roller being receivable within said lower track and facilitating the sliding movement of said door; and,
- (iii) lower track engaging means, said engaging means being releasably retained within said lower track and comprising a pair of leading and a pair of following track retainers, one of said leading and one of said following track retainers being rigid and capable of supporting said sliding door when said roller is removed from said lower track, the other of said leading and of said following track retainers being flexibly resilient such that they may be displaced to allow for the insertion and removal of said lower track engaging means into and out of said lower track.

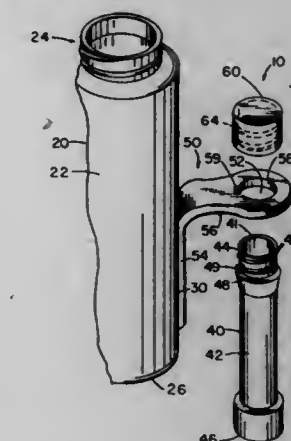
5,671,503
ATTACHABLE STORAGE HANDLE FOR BEVERAGE CONTAINER

Peggy Uebelacker, and John Caravella, both of 27844 Quail View La., Wesley Chapel, Fla. 33544-3400

Filed Sep. 6, 1996, Ser. No. 709,280
Int. Cl.⁶ A47B 95/02

U.S. Cl. 16—110.5

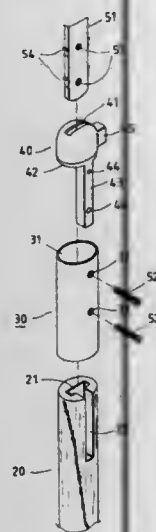
1 Claim



1. A removable storage handle for a beverage container comprising: an attaching member, a storage container body and a resealable closure means;
said attaching member is substantially configured having a vertical portion and a horizontal portion;

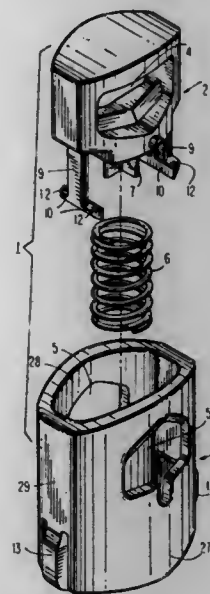
said vertical portion configured to be attached to an exterior surface of a beverage container body and to conform substantially flush with said beverage container body;
said horizontal portion protruding radially outward from said vertical portion and containing a hole vertically therethrough;
said hole comprising an inner circumferential surface with said inner circumferential surface containing a groove;
said storage container body is substantially tube shaped with an open top end and a closed bottom end;
said top end having an outer surface comprising a collar and a spline;
said collar at least partially surrounding said outer surface of storage container body and seating up against said attaching member and said spline engaging said groove of said hole when said storage container body is engaged within said hole;
said resealable closure means matingly engages said top end thereby creating an interlocking synergistic union between said attaching member, said storage container body and said resealable closure means.

5,671,504
WOODEN HANDLE OF GARDENING TOOL
Fu-Chi Gou, No. 20, Lane 363, Fu-Chien Rd., Fu-Shin Hsian, Chang-Hua Hsien, Taiwan
Filed Apr. 17, 1996, Ser. No. 633,489
Int. Cl.⁶ A47B 95/02
U.S. Cl. 16—111 R 2 Claims



1. A wooden handle of a gardening tool, said wooden handle comprising:
a handle of a wood material and provided at one end thereof with a slot formed by an axial slot and a side slot such that said slot has a T-shaped cross section;
a reinforcing sleeve fitted over said one end of said handle; and
a protective body engaged to said handle and said reinforcing sleeve, said protective body provided with a top slot corresponding in location to said axial slot of said handle and adapted to be engaged to a blade shank of a gardening tool, wherein said protective body is provided with a rod made integrally therewith,
wherein said rod of said protective body is engaged in said side slot of said handle.

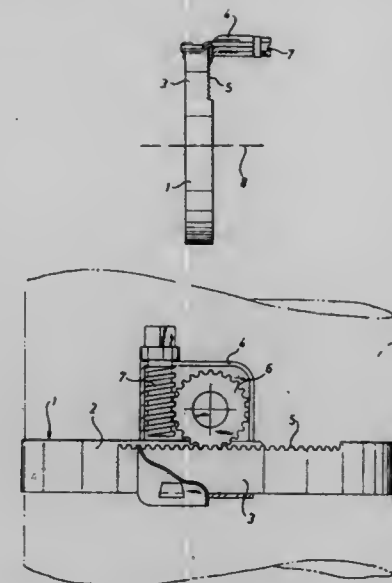
5,671,505
PRELOADABLE CORD LOCK REQUIRING LESS FORCE TO PRELOAD AND TO ACTUATE
Joseph Anscher, Muttontown, N.Y., assignor to National Molding Corp., Farmingdale, N.Y.
Filed May 15, 1996, Ser. No. 647,536
Int. Cl.⁶ F16G 11/00
U.S. Cl. 24—115 G 12 Claims



1. A loadable cord lock comprising:
an outer telescoping member having an obverse wall, a reverse wall, and a pair of side walls joining the obverse wall and the reverse wall, the outer telescoping member having an aperture defined through its obverse wall and its reverse wall;
an inner telescoping member having an aperture defined therethrough and having at least one arm, the inner member being slidable within the outer member;
engagement means disposed on an inner surface of at least one side wall of the outer telescoping member;
at least one wing projecting from said at least one arm in a direction towards the obverse wall or the reverse wall of the outer telescoping member, said at least one wing defining a shoulder which locks onto said engagement means for retaining the cord lock in a loaded position wherein the aperture of the inner telescoping member is at least partially aligned with the aperture of the outer telescoping member such that the cord lock may receive a cord through an area defined by an overlap of both of said apertures in said loaded position;
a means for biasing said inner and outer members toward a cord locking position wherein the aperture of the inner member is out of alignment with the aperture of the outer member to an extent which is sufficient to pinch a cord threaded through the overlap of the apertures; and
a means for disengaging said shoulder from said engagement means.

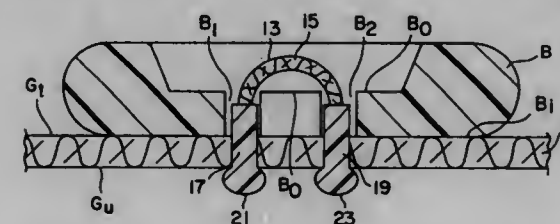
5,671,506
HOSE CLAMP
Roger Eliasson, Bösshult, Sweden, assignor to ABA of Sweden AB, Anderstorp, Sweden
PCT No. PCT/SE94/01168, § 371 Date Jun. 10, 1996, § 102(e) Date Jun. 10, 1996, PCT Pub. No. WO95/16162, PCT Pub. Date Jun. 15, 1995
PCT Filed Dec. 5, 1994, Ser. No. 656,224
Claims priority, application Sweden, Dec. 10, 1993, 9304108 Int. Cl.⁶ F16L 33/02
U.S. Cl. 24—19 1 Claim

1. A hose clamp of annular configuration, comprising:
a band bent to an angular shape;



said band having two opposite end portions extending in an overlapping relationship through a housing;
one end portion of said band being secured to said housing; the opposite end portion of said band being arranged for displacement through said housing;
said housing enclosing a screw mechanism in engagement with a row of gear teeth formed in said opposite end portion of said band and by which said hose clamp is tightenable about an object;
said screw mechanism including a screw worm arranged to tighten said hose clamp;
said screw worm having threads;
the rotational axis of said screw worm extending substantially in parallel with in parallel with a normal passing through the centre of the annular configuration of said hose clamp;
said row of gear teeth being formed in said opposite end portion of said band and defining one lengthwise marginal edge of said band; and
said screw mechanism further comprises a toothed wheel meshing with said row of gear teeth and with said screw worm threads.

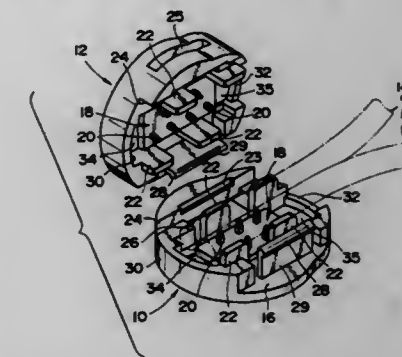
5,671,507
FASTENER FOR ATTACHING A BUTTON OR THE LIKE TO A GARMENT OR PIECE OF FABRIC
Charles L. Deschenes, North Attleboro; Randall Jay Sword, Danvers, and Christine Joann Jantz, Cambridge, all of Mass., assignors to Avery Dennison Corporation, Pasadena, Calif.
Filed Jan. 11, 1996, Ser. No. 584,963
Int. Cl.⁶ A44B 1/00; D05B 3/00
U.S. Cl. 24—114.7 16 Claims



1. A fastener for attaching a button or the like to a garment or piece of fabric, the button having an outer surface and two or more holes, said fastener comprising:
a. a filament, at least of portion of said filament being made of thread;

b. a first foot at one end of said filament, said first foot being made of plastic; and
c. a second foot at the opposite end of said filament, said second foot being made of plastic;
wherein said filament and said first and second feet are appropriately dimensioned so that said first and second feet are insertable through a corresponding pair of holes in the button and through the garment in such a way as to be retained by the underside of the garment, with said filament extending through the corresponding pair of holes and over the outer surface of the button.

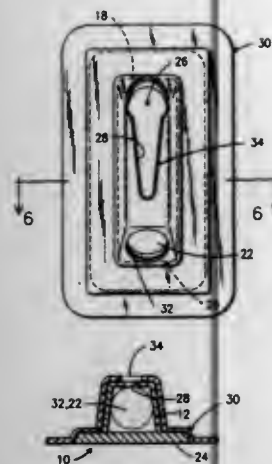
5,671,508
CORD FASTENER
Ryukichi Murai, Toyama, Japan, assignor to YKK Corporation, Tokyo, Japan
Filed Jun. 6, 1996, Ser. No. 659,310
Claims priority, application Japan, Jun. 7, 1995, 7-166950 Int. Cl.⁶ F16G 11/00
U.S. Cl. 24—115 K 13 Claims



1. A cord fastener comprising:
two fastener members adapted to be coupled together to hold a portion of a cord therebetween, said two fastener members having identical construction and each including a cord-receiving portion for receiving the portion of the cord, at least one tooth projecting from said cord-receiving portion for biting engagement with the portion of the cord, a support wall disposed on at least one side of said cord-receiving portion at such a position that said support wall of each of said two fastener members makes no interference with the support wall on the opposite fastener member when said two fastener members are assembled together, a locking portion, and a resilient leg interlockingly engageable with said locking portion on the opposite fastener member to join said two fastener members when they are forced together in a connecting direction, said at least one tooth biting into said portion of the cord in said connecting direction during joining of said two fastener members.

5,671,509
ROPE LOCK
Man Fu E. Yeung, Rowland Heights, Calif., assignor to Sunco Products, Inc., Industry, Calif.
Filed Jun. 18, 1996, Ser. No. 665,570
Int. Cl.⁶ F16G 11/00 5 Claims

1. A rope lock for use with devices utilizing a flexible line facilitating the fastening of the line in a desired position, said rope lock comprising in combination:
a main body having a top side, a bottom side, a flange portion, a first end and a second end;
a central bore extending through said main body from said first end to said second end; and



a gripping means for securing the line in a desired position, said gripping means being coupled to said main body intermediate to said first and second ends so as to cooperate with said central bore such that the line can be readily adjusted and re-secured without necessitating the movement of any parts; and

a pliable boot sized to cooperatively receive said main body and said flange portion of said rope lock, said pliable boot extending out over said flange portion to facilitate being coupled to the device thereby securing said rope lock encompassed within to the device,

whereby the line passes through said central bore and into engagement with said gripping means cooperating therewith so to releasably secure the line to said main body.

5,671,510

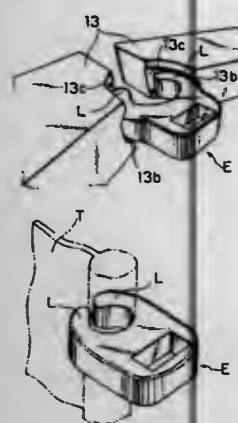
SLIDE FASTENER ELEMENTS

Yoshimichi Maeda; Toshio Aoki; Masafumi Mikkaichi, and Kenichiro Iai, all of Toyama-ken, Japan, assignors to YKK Corporation, Tokyo, Japan

Filed Aug. 23, 1995, Ser. No. 518,309
Claims priority, application Japan, Aug. 24, 1994, 6-199320
Int. Cl.⁶ A44B 19/06

U.S. Cl. 24-408

4 Claims



2. A slide fastener element for attachment to an elongated slide fastener tape, comprising:

a coupling head having a protuberance;

a pair of opposed attaching legs extending from said coupling head, said attaching legs shaped to at least partially surround and clasp an elongate mounting portion of the fastener tape, said attaching legs shaped to extend from base ends at said coupling head to distal ends thereof with a smooth continuous arcuate outer surface and from said distal ends thereof to said base end with a smooth continuous arcuate inner surface.

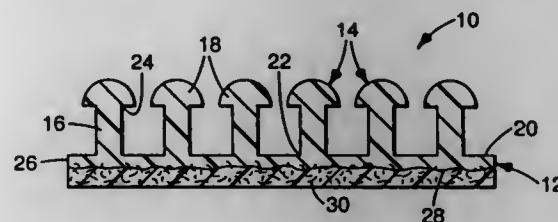
5,671,511
INTERENGAGING FASTENER MEMBER HAVING
FABRIC LAYER

Jiro Hattori, Atsugi; Shinji Torigoe, Sagami-hara; Norihito Shibahara, Hachioji, and Osamu Sawajiri, Sagami-hara, all of Japan, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 25, 1994, Ser. No. 295,616
Claims priority, application Japan, Aug. 25, 1993, 5-210660
Int. Cl.⁶ A44B 18/00; 17/00

U.S. Cl. 24-444

5 Claims



1. An interengaging fastener member comprising a base layer of a molded polymeric material and a fabric layer, said plate layer having first and second major surfaces, and a plurality of headed stems adjoining and projecting generally orthogonally from the first major surface in a predetermined spaced relationship, each of the headed stems including a stem connected at a proximal end thereof to the first major surface and a head connected to a distal end of the stem, wherein said fabric layer is bonded to said second major surface by a resin interspersed within a fibrous structure of said fabric layer.

5,671,512

INTERENGAGING FASTENER HAVING REDUCED
ENGAGEMENT FORCE

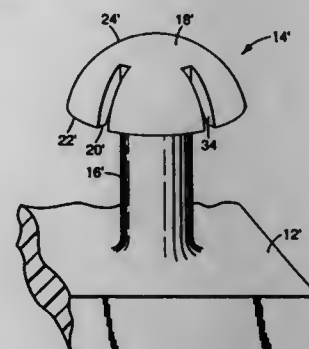
Jiro Hattori, Atsugi; Shinji Torigoe, Sagami-hara; Norihito Shibahara, Tokyo, and Osamu Sawajiri, Sagami-hara, all of Japan, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 281,463, Jul. 27, 1994. This application Jan. 19, 1996, Ser. No. 588,620

Claims priority, application Japan, Jul. 30, 1993, 5-190157
Int. Cl.⁶ A44B 18/00

U.S. Cl. 24-452

10 Claims



1. An interengaging fastener member comprising:

(a) a base;

(b) a plurality of headed stems arranged on said base in a predetermined spaced relationship, each of said headed stems including a unitary stem adjoining and projecting from said base, and a head connected to a distal end of said stem; and

(c) engagement force reduction means for enabling at least a portion of said headed stems to resiliently deflect to facilitate interengagement of said fastener member with an opposed, like fastener member wherein said engagement force reduction means comprises an undercut portion formed in a bottom surface of said head, said undercut portion being within an

outer circumferential horizontal portion of said bottom surface of said head engageable with a corresponding outer circumferential horizontal portion on an opposing interengaging fastener member.

5,671,513

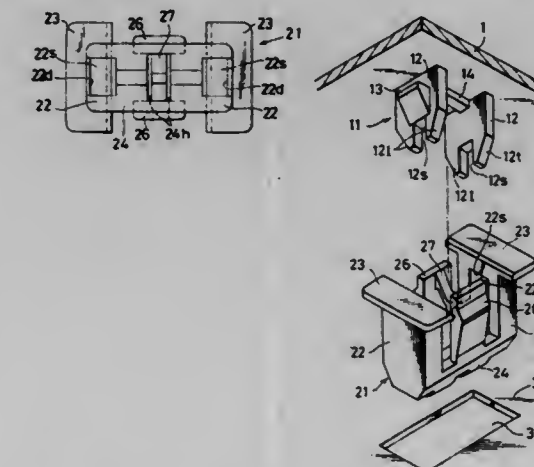
CLIP

Selichi Kawahara, Kure, and Yoshiaki Hamamoto, Hiroshima, both of Japan, assignors to Molten Corporation, Hiroshima, and Nifco Inc., Yokohama, both of Japan

Filed Jul. 12, 1995, Ser. No. 501,759
Claims priority, application Japan, Jul. 18, 1994, 6-186811
Int. Cl.⁶ A44B 17/00; 21/00; F16B 19/00

U.S. Cl. 24-573.1

6 Claims



1. A clip, comprising:

a fastener unit and a leg unit, said fastener unit having a pair of support plates projecting in parallel from an underside of a trim plate to be fastened and being formed at their distal ends with slits and a pair of engagement members provided one on an upper outer surface portion of each support plate,

said leg unit having a pair of parallel wall plates formed on upper inner surface portions with steps engaging with said engagement members and a base connecting said pair of wall plates and formed with a pair of opposing elastic legs at positions spaced from said wall plates and with a pair of lugs for engagement with said slits, each step of each wall plate comprising an upper end of a recess formed to extend to and open at a lower end of said wall plate while maintaining a constant sectional area; and

an elastic link connecting said elastic legs.

5,671,514

SWIVEL HOOK

Hiroshi Matoba, and Hirokazu Watanabe, both of Toyama-ken, Japan, assignors to YKK Corporation, Japan

Filed Jul. 18, 1996, Ser. No. 683,211
Claims priority, application Japan, Jul. 20, 1995, 7-184324
Int. Cl.⁶ A44B 13/00

U.S. Cl. 24-601.2

4 Claims

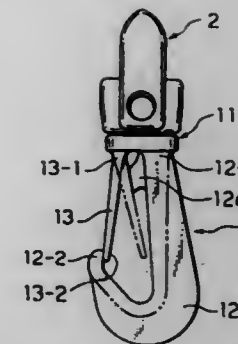
1. A swivel hook including:

a head portion having a planar surface;

a hook-shaped leg projecting at a base end thereof from said planar surface of said head portion; and

an unhooking-preventing leg projecting at a base end thereof from said planar surface of said head portion toward a tip of said hook-shaped leg and resiliently deformable about said base end thereof,

wherein a restriction means is provided between said hook-shaped leg and said unhooking-preventing leg, located at the



base end of said legs, for restricting movement of said unhooking-preventing leg within an elastic-limit range of said base end of said unhooking-preventing leg when said unhooking-preventing leg is deformed.

5,671,515

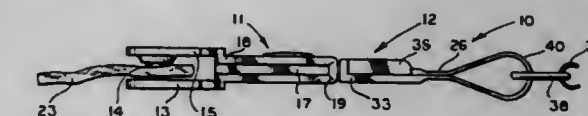
QUICK RELEASE CLASP

Michael D. Evans, 6728 Walnut Dr., Gates Mills, Ohio 44040
Filed Apr. 10, 1996, Ser. No. 630,486

Int. Cl.⁶ A44B 21/00

U.S. Cl. 24-615

6 Claims



4. Apparatus for releasably attaching a first item to a second item comprising a first member having one end adapted to be attached to the first item, a second member having one end adapted to be attached to the second item, a receiver positioned at the other end of one of said members, a tab extending outwardly from the other end of the other of said members, said tab being adapted to slide within and releasably engage said receiver, a body member on said other of said members, said tab extending outwardly from one side of said body member, and a flap for engaging said second item extending outwardly from the other side of said body member.

5,671,516

EASY CONNECT AND RELEASE SEAT BELT BUCKLE

Robert C. Sartori, 1541 Kuhle Dr., Sun Prairie, Wis. 53590
Filed Jan. 28, 1996, Ser. No. 671,738

Int. Cl.⁶ A44B 11/00

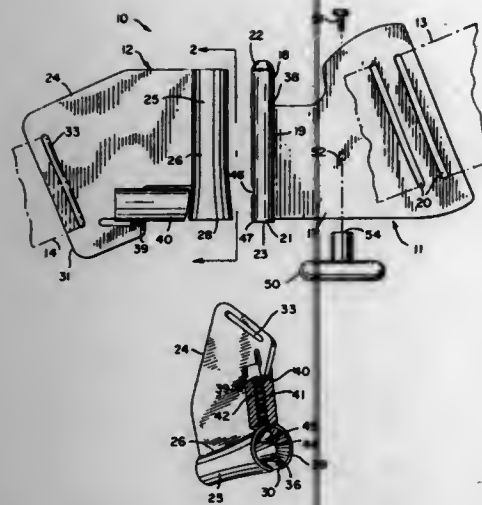
U.S. Cl. 24-652

22 Claims

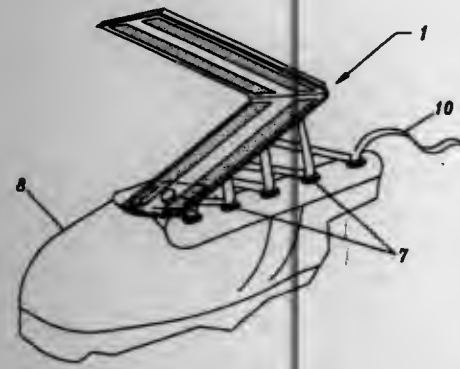
1. An easy to connect and release seat belt buckle comprising:

(a) a plunger section comprising a base, a cylindrical plunger pin mounted to an edge of the base, the plunger pin having a leading end and a diameter which is substantially greater than the thickness of the base, the base suited to be connected to a flexible seat belt;

(b) a receptacle section comprising a base and a receptacle mounted to the base, the receptacle having a cylindrical bore therein with its diameter closely matching the outer diameter of the plunger pin so that the plunger pin can fit closely into the bore of the receptacle, the receptacle having an entrance end and wherein the wall defining the receptacle flares out from the diameter of the receptacle bore which closely matches the diameter of the plunger pin to a larger diameter at the entrance end to facilitate insertion of the plunger pin into the receptacle bore, the wall of the receptacle having a slot therein extending from the entrance opening to a terminal position and sized to admit the plunger base to allow the plunger pin to be inserted into the bore of the receptacle without interference from the base but the slot being substan-

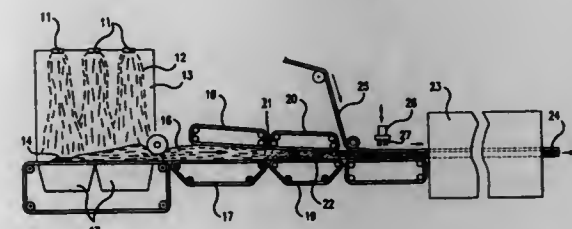
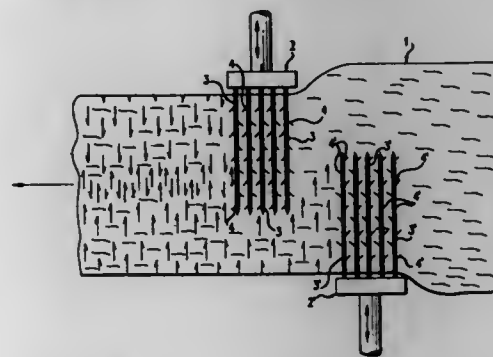


5,671,517
SHOE LACE SAFETY GUARD
Mervin Gourley, 9312 Burnet Ave., North Hills, Calif. 91343
Filed Sep. 9, 1996, Ser. No. 711,106
Int. Cl.⁶ A43B 23/26; 23/00; 11/00
U.S. Cl. 24—712.1



1. A device for attachment to the laces of shoes comprising:
 - an inner fastener element joined at a fold to an outer fastener element shaped to cover a plurality of laces of a shoe;
 - an inner surface of the inner fastener element and the outer fastener element have a means for attachment when the inner fastener element and the outer fastener element are folded together;
 - a tab attached to the inner fastener element at an end opposite the fold wherein the tab and the inner fastener element have a snap cooperatively located for fastening the tab when folded over against the inner fastener element; and
 - the tab and the fold located such that the tab is attachable to the laces opposite the fold wherein a bow formed by tying the laces retains the device at the fold.

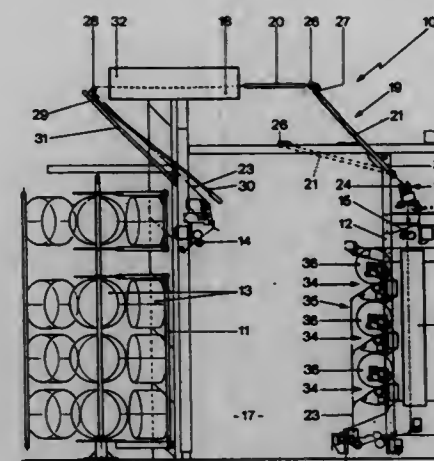
5,671,518
METHODS FOR PRODUCING A MINERAL WOOL NEEDLE-FELT AND A MINERAL WOOL PRODUCT USING A THIXOTROPIC ADDITIVE
Hans Kummermehr, Ludwigshafen; Lothar Bihi, Kaiserslautern, and Reinhard Stoyke, Dudenhofen, all of Germany, assignors to Isover Saint-Gobain, Courbevoie, France
PCT No. PCT/EP93/00148, § 371 Date Oct. 15, 1993, § 102(e) Date Oct. 15, 1993, PCT Pub. No. WO93/15246, PCT Pub. Date Aug. 5, 1993
PCT Filed Jan. 22, 1993, Ser. No. 119,238
Claims priority, application Germany, Jan. 24, 1992, 42 01 868.4
Int. Cl.⁶ D04H 1/48; 1/06
U.S. Cl. 28—112 14 Claims



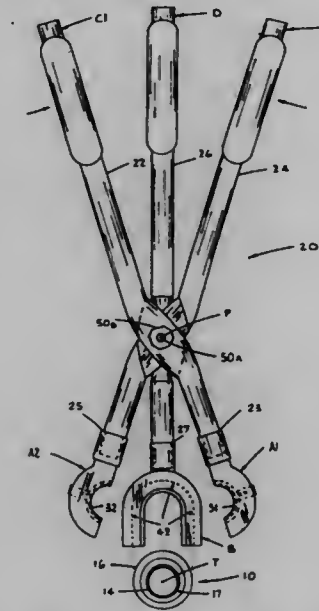
1. A method for producing a mineral wool product with fiber positions at an acute angle to a main face of said product, comprising the steps of:
 - producing fibers in a fiberizing device;
 - providing a binder to said fibers in a chute of the fiberizing device;
 - depositing said fibers in the form of a laminar mat on a production line;
 - providing a processing aid to said fibers, wherein said processing aid includes a thixotropic additive; and
 - crimping said laminar mat by introducing forces parallel to a surface of said laminar mat and in a direction of movement of the laminar mat before said binder hardens.

5,671,519
YARN TEXTURING MACHINE WITH COOLING ARRANGEMENT FOR HEATED FALSE-TWISTED YARN
Geoffrey Naylor, Macclesfield, United Kingdom, assignor to Rieter Scragg Limited, Cheshire, United Kingdom
Filed May 20, 1996, Ser. No. 650,171
Claims priority, application United Kingdom, May 23, 1995, 9510681
Int. Cl.⁶ D02J 13/00; D02G 1/02
U.S. Cl. 28—249 20 Claims

1. A yarn texturing machine comprising:
 - a first frame adapted to support a package of a supply yarn;
 - a first yarn feed device;
 - a heating device;
 - a cooling arrangement;
 - a false-twist device and
 - a second feed device wherein the cooling arrangement comprises a tube having an outer surface and inlet and outlet ends



5,671,520
COMBINATION TOOL FOR QUICK TUBE JOINT DISASSEMBLY
Don R. Scarborough, Piedmont, S.C., assignor to Patent Consultants & Services, Inc., Greenville, S.C.
Filed Feb. 21, 1995, Ser. No. 391,790
Int. Cl.⁶ F16L 35/00
U.S. Cl. 29—237 9 Claims

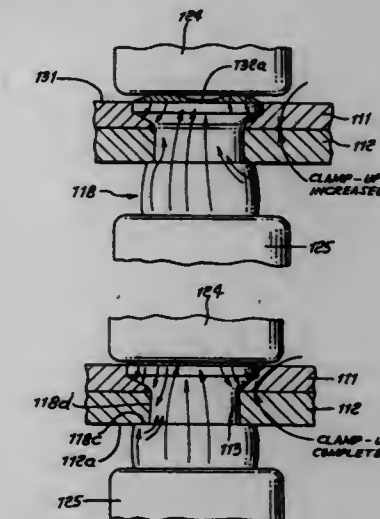


1. A combination tool for disassembly of a tubular conduit fitting for a fluid conduit line, said conduit fitting having a female connector and a male connector axially connected with each other, said male connector having a connector flange and a concentric retainer spring disposed within said flange, said tool comprising:
 - a first elongated handle having a first jaw and collar fixture and a second elongated handle having a second jaw and collar fixture;
 - said first and second handles being pivotally connected to form pliers;
 - a third elongated handle pivotally attached to said first and second handles having a flange retainer fixture for holding said connector flange during said disassembly;

said pliers and said third elongated handle having a first operating position prior to which a collar portion of said first and second jaw and collar fixtures engages said retainer spring to displace and release said retainer spring and a second operating position prior to which a jaw portion of said first and second jaw and collar fixtures grips said female connector; and

said first, second and third handles being pivotally arranged with respect to each other in said combination tool so that said conduit fitting can be disassembled by correlated pivotal movements of said handles after said spring is released to cause said male and female connectors to axially separate when said second operating position is achieved.

5,671,521
RIVET CLAMP-UP DEFORMATION
Franklin S. Briles, 230 Burma Rd., Fallbrook, Calif. 92028
Filed Feb. 6, 1996, Ser. No. 588,613
Int. Cl.⁶ B23Q 17/00
U.S. Cl. 29—407.05 12 Claims



1. In the method of clamping together two workpiece sheets using a rivet, one sheet having a work surface, and bore, and a counterbore, which is frusto-conical and tapers forwardly between a side of the one sheet and the bore, and toward the bore, the other sheet having a bore, the sheets stacked to provide upper and lower sheets, with the bores therein coaxially aligned, the steps that include:

- a) providing a metallic rivet having an axially extending shank defining an axis, the rivet metal consisting essentially of fine-grained, ductile, aluminum alloy;
- b) providing the rivet with a head having an end face defining a ring-shaped dome and a forwardly tapered frusto-conical section located forwardly of the end face;
- c) installing said shank in said bore, with part of said head in the counterbore, so that the periphery of said head end face projects above the work surface, the end face formed to provide a ring-shaped dome protruding axially in an upward direction, said dome located to extend about said axis in substantially axial alignment with the outer surface of the shank, the ring-shaped dome forming a central recess;
- d) the rivet head provided with a peripheral side wall spaced radially from a side wall defined by the workpiece counterbore, the rivet shank having an end terminal;
- e) applying force to said ring-shaped dome and to said end terminal to cause the shank proximate said end terminal to expand and engage the exposed outer surface of the lower sheet, and simultaneously to cause said ring-shaped dome to flatten, and to cause fine-grain shank aluminum alloy metal to backflow upwardly to effect flow of metal upwardly and centrally to said recess;

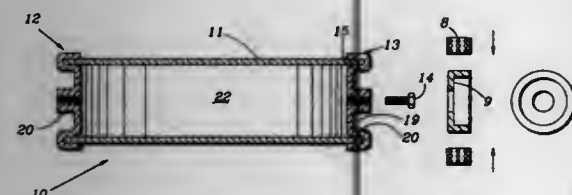
- f) said force application being continued to cause said expanding end terminal to form a buck-tail adjacent the lower sheet outer surface exerting clamping force against the outer surface, and to produce a flattened top surface of the rivet head, with said top surface lowered toward but spaced above the upper surface level of the upper sheet, whereby the two sheets are held in forcibly clamped-up condition between said head and said buck-tail, after formation is completed;
- g) said rivet metal having a fine-grain size between 5 and 9, where grain size is determined by ASTM E:112;
- h) said force application continued to cause the formed buck-tail to have a diameter of at least 1.4 times the initial undeformed diameter of the rivet shank, and whereby the fine grain of the rivet head and buck-tail metal allow deformation of the head and buck-tail so as to substantially eliminate spring back during clamp up;
- i) said rivet metal having a % elongation value of at least 12 as measured during tensile testing to failure of a specimen of said rivet metal.

5,671,522
METHOD AND APPARATUS FOR SEALING A PRESSURE VESSEL

Armand Aronne, Massapequa, N.Y., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Jan. 29, 1996, Ser. No. 593,666
Int. Cl.⁶ B23P 11/00

U.S. Cl. 29—419.2



1. A method of constructing a container having an interior chamber suitable for retaining pressurized fluids comprising:
- forming a hollow cylindrical body having opposing first and second open ends, each of said ends having circular edges;
 - forming first and second end closures each having an annular recess constructed to receive the first and second ends of the cylindrical body in a mating relation, said first and second end closures being manufactured of a material capable of sustaining an induced magnetic field, each of said recesses being formed as a slot defined by a circular base and cylindrical side walls, said slot opening towards the interior chamber;
 - engaging the first and second end closures on the first and second ends of the cylindrical body to form an assembled container having an enclosed inner chamber, said engagement accomplished by inserting the circular edge of each of said first and second ends of the cylindrical body into the slot of the end closure until the edge substantially seats on the base of the slot and the sides of the slot engage the cylindrical body;
 - surrounding each of the engaged assemblies of said first and second ends of the cylindrical body and said first and second end closures with an electrically conductive coil; and
 - applying a pulse of current to the coil to create a magnetic field to generate a force on each of the engaged assemblies sufficient to magnetically pulse form said assemblies into a sealed joint.

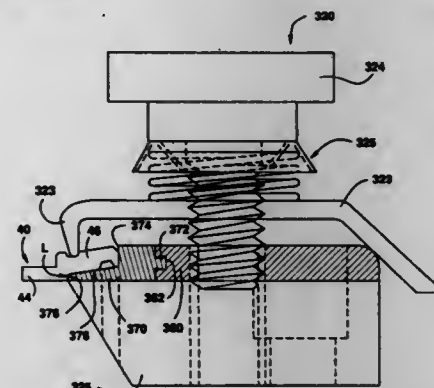
5,671,523
METHOD FOR SUPPORTING KEYS AND KEY BLANKS DURING CUTTING THEREOF

Vincent Juchlewicz, Salem, Va., assignor to Medeco Security Locks, Inc., Salem, Va.

Filed Sep. 15, 1995, Ser. No. 529,103
Int. Cl.⁶ B23Q 7/00

U.S. Cl. 29—559

19 Claims



8. A method of supporting a key blank including an upper planar portion, a lower planar portion defining an elongated heel, and an intermediate portion therebetween defining a ledge portion, the method comprising the steps of:
- providing a vise having a substantially vertical portion, a flat surface extending away from the vertical portion, and an upper jaw opposing the flat surface, wherein the flat surface angles upwardly relative to a horizontal axis away from the vertical portion;
 - placing the key blank on the vise so that the lower planar portion engages the flat surface and the ledge portion; abuts the vertical portion; and
 - moving the upper jaw toward the key blank so the upper jaw engages the key blank to secure the key blank to the vise.

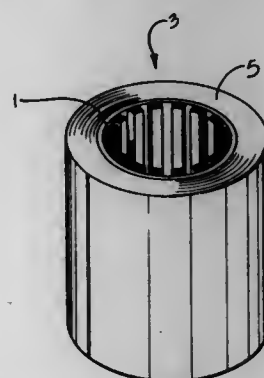
5,671,524
MAGNETIC ANNEALING OF AMORPHOUS ALLOY FOR MOTOR STATORS

Ben Lee Damsky, Belmont, and Jan Stein, Cupertino, both of Calif., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Sep. 19, 1994, Ser. No. 308,659
Int. Cl.⁶ H02K 15/02

U.S. Cl. 29—596

7 Claims



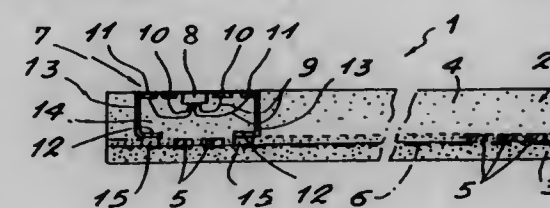
1. A method for preparing a motor stator comprising providing a stator whose teeth are made of magnetic steel and whose yoke is made of thin strip amorphous metal alloy, imposing a magnetic field on said stator to produce a field circumferentially in the yoke with said magnetic field being applied at such a temperature as to effect magnetic annealing of the yoke without disturbing the magnetic field of the teeth.

5,671,525
METHOD OF MANUFACTURING A HYBRID CHIP CARD
Jean-Christophe Fidalgo, Gemenos, France, assignor to Gemplus Card International, Gemenos, France

Division of Ser. No. 388,102, Feb. 13, 1995, Pat. No. 5,598,032. This application Oct. 4, 1995, Ser. No. 539,322
Int. Cl.⁶ H01P 11/00

U.S. Cl. 29—600

15 Claims



1. A method of manufacturing a chip card, the method comprising the steps of:
- attaching an antenna to a lower thermoplastic sheet, the antenna having two contact terminals;
 - covering the antenna with an upper thermoplastic sheet, the upper thermoplastic sheet and the lower thermoplastic sheet forming a chip card body, the upper thermoplastic sheet having a cavity formed therein such that, after the antenna is covered with the upper thermoplastic sheet, the cavity reveals the two contact terminals of the antenna and the cavity opens out on a face of the chip card body;
 - and then mounting an electronic module in the cavity of the chip card body, the electronic module having two contact zones connected to an integrated circuit, and connecting the two contact zones of the electronic module to the two contact terminals of the antenna.

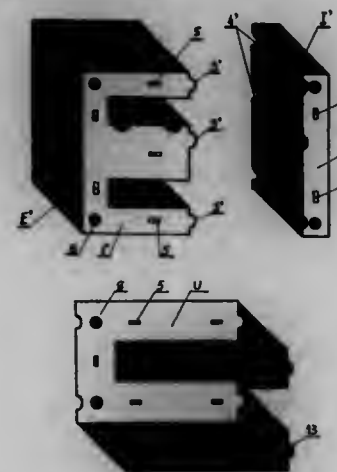
5,671,526
METHOD OF PREPARING TRANSFORMER CORES WITHOUT WASTE

Alessandro Meriano, Ceranesi, Italy, assignor to Tranceria Ligure S.R.L., Italy

Filed Mar. 2, 1995, Ser. No. 397,569
Claims priority, application Italy, Mar. 8, 1994, GE94A0022
Int. Cl.⁶ H01F 3/04

U.S. Cl. 29—609

7 Claims



1. A method for the preparation of E-I transformer cores, with minimized waste, wherein the transformer cores comprise lamination stacks of blankings from a steel sheet, in the form of co-fitting E-I elements, with each of the E elements comprising two outer and one central co-extensive parallel horizontal legs interconnected with a vertical element, said method comprising the steps of:
- a) forming a blanking in the form of two E elements of substantially equal height, integrally connected to each other at the

respective free ends of their three parallel legs, with the vertical elements of the two E elements being parallel and wherein the distance between the vertical elements is substantially equal to the height of the E elements;

- b) removing first and second I elements from the blanking from which the connected two E elements are formed, with a first I element being removed from and comprising the area of the blanking longitudinally defined by the parallel vertical elements of the two connected E elements and laterally defined by adjacent connected central and a first pair of outer legs, and with the second I element being removed from and comprising the area of the blanking longitudinally defined by the parallel vertical elements of the two connected E elements and laterally defined by adjacent central and the other of the connected outer legs; and
- c) separating the E elements to obtain two pairs of E-I elements; and
- d) forming the E-I transformer core from the pairs of E-I elements;

wherein the improvement comprises providing each pair of E-I elements with interconnection means between the E and I element thereof, with said interconnection means comprising snap co-fitting protuberances and recesses at the free ends of one or more of the E element and in a co-fitting side of the I element, wherein protuberances are formed in the E element legs by forming a co-fitting recess in the adjacent legs of the other E element, with the separation of the E elements; and wherein protuberances in the I elements are formed by forming a co-fitting recess in an E element leg during forming and removal of the I element from the blanking adjacent thereto, and wherein recesses are formed in an I element by removal of material therefrom.

5. A method for the preparation of U-I transformer cores, with minimized waste, wherein the transformer cores comprise lamination stacks of blankings from a steel sheet, in the form of co-fitting U-I elements, with each of the U elements comprising two co-extensive parallel horizontal legs interconnected with a vertical element, said method comprising the steps of:

- a) forming a blanking in the form of one or more sets of two U elements integrally serially connected to each other, with the respective free ends of the parallel legs of one U element being integrally connected with the vertical element of the other U element, whereby respective vertical elements of the U elements are parallel and wherein the distance between the vertical elements is substantially equal to the height of the U elements;
- b) removing I elements from the blanking from which the connected two U elements are formed, with each of the I elements being removed from and comprising the area of the blanking longitudinally defined by the parallel vertical elements of two connected U elements and laterally defined by the parallel legs of a U element; and
- c) separating the U elements to obtain pairs of U-I elements; and
- d) forming the U-I transformer core from the pairs of U-I elements;

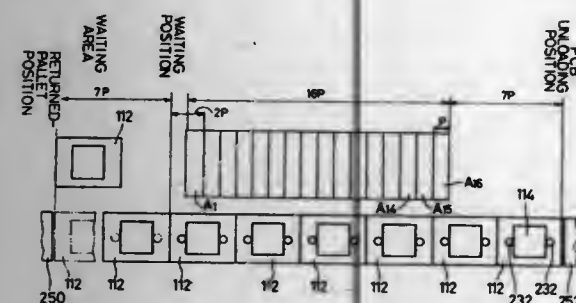
wherein the improvement comprises providing each pair of U-I elements with interconnection means between the U and I element thereof, with said interconnection means comprising snap co-fitting protuberances and recesses at the free ends of the U element and in a co-fitting side of the I element, wherein protuberances are formed in the U element legs by forming a co-fitting recess in the adjacent vertical element of the other U element, with the separation of the U elements; and wherein protuberances in the I elements are formed by forming a co-fitting recess in the leg of the U element during forming and removal of the I element from the blanking adjacent thereto and wherein recesses are formed in the I element by removal of material therefrom.

5,671,527

ELECTRONIC-COMPONENT MOUNTING SYSTEM
Koichi Asai, Nagoya; Koso Matsumoto, Aichi-ken; Kunio Ooe, Chiryu, and Masayuki Shimmura, Anjo, all of Japan, assignors to Fuji Machine Mfg. Co., Ltd., Aichi-ken, Japan
Filed Nov. 1, 1995, Ser. No. 551,633
Int. Cl.⁶ H05K 3/32; H02/13/04

U.S. Cl. 29—740

23 Claims



1. An electronic-component mounting system comprising:
 - a plurality of supporting devices each of which supports and positions at least one object, said supporting devices being movable along a reference line;
 - a plurality of mounting units arranged along said reference line, each of said mounting units including (a) a mounting device which mounts at least one electronic component on said at least one object supported by each of said supporting devices, and (b) a moving device which moves said mounting device in a three-dimensional space, each of said mounting units having a mounting area in which said mounting device mounts said at least one component on the at least one object;
 - a feeding device which feeds said plurality of supporting devices along said reference line such that said at least one object supported by each of said supporting devices is moved from the mounting area of a most upstream one of said mounting units to the mounting area of a most downstream one of said mounting units in a direction of feeding of the supporting devices, while said feeding device positions each of said supporting devices when said mounting device of each of said supporting devices mounts said at least one component on said at least one object supported by each of said supporting devices;
 - a positioning error detector which detects an error of positioning of said at least one object with respect to each of said supporting devices located in a waiting area where each of said supporting devices waits for being fed by said feeding device; and
 - a control device which controls each of said mounting units so that said mounting device of each of said mounting units mounts said at least one component, at a position corrected based on the detected positioning error, on said at least one object supported by each of said supporting devices fed to the mounting area of each of said mounting units.

5,671,528

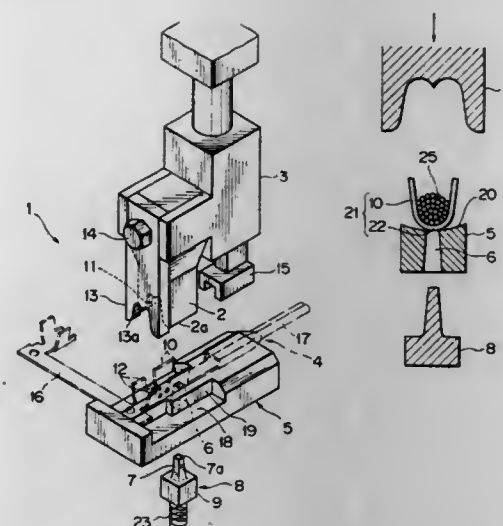
APPARATUS FOR CRIMPING ELECTRICAL TERMINALS

Takayoshi Endo, and Yuji Hatagishi, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan
Filed Feb. 9, 1996, Ser. No. 598,805
Claims priority, application Japan, Feb. 17, 1995, 7-029140
Int. Cl.⁶ H01R 43/042

U.S. Cl. 29—753

5 Claims

1. A terminal crimping apparatus for crimping a conductive barrel of an electrical terminal to a stripped wire composed of a plurality of cores comprising:
 - an anvil having a receiving surface to receive the terminal and a punching hole penetrating through said anvil with an opening in the receiving surface;



- a crimper having a curved surface to crimp the terminal; wherein said crimping is performed between said crimper and said anvil;
- an auxiliary punch having a protrusion that can pass through said punching hole to extend from the opening in the receiving surface, wherein said protrusion has a sectional area radially smaller than a base block of said auxiliary punch, and said base block has a sectional area larger than said punching hole to prevent said base block from entering said punching hole.

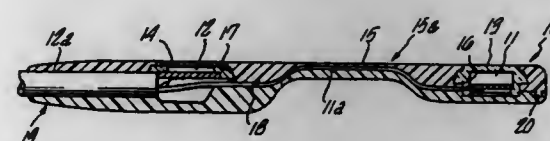
5,671,529

METHOD OF FORMING A MOLDED PULSE OXIMETER SENSOR

Dale Nelson, Corona, Calif., assignor to Sensormedics Corporation, Yorba Linda, Calif.
Continuation of Ser. No. 267,849, Jun. 29, 1994, Pat. No. 5,425,360, which is a continuation of Ser. No. 919,220, Jul. 24, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 473,733
Int. Cl.⁶ H01R 43/00

U.S. Cl. 29—825

10 Claims



1. A method of forming a molded pulse oximeter sensor apparatus utilizing an overmolding step, comprising:
 - supplying a preform first section having an interior surface and an exterior surface;
 - securing oximeter sensing components in a fixed configuration to said interior surface of said preform first section so that the position of said sensing components will be maintained during overmolding; and
 - utilizing injection molding to overmold a second section which is bonded to said preform first section such that said sensing components are enclosed between said preform first section and said overmolded second section, and wherein the bond between said preform first section and said overmolded second section at their peripheries comprises a mechanical bond of overlapping elements.

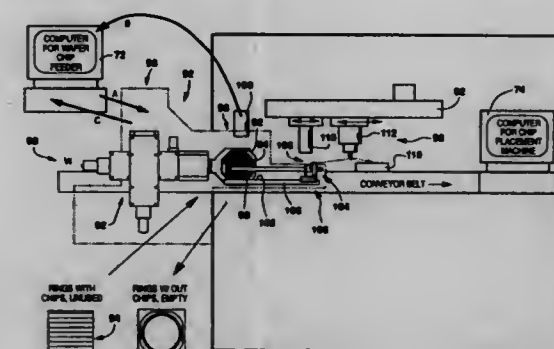
5,671,530

FLIP-CHIP MOUNTING ASSEMBLY AND METHOD WITH VERTICAL WAFER FEEDER

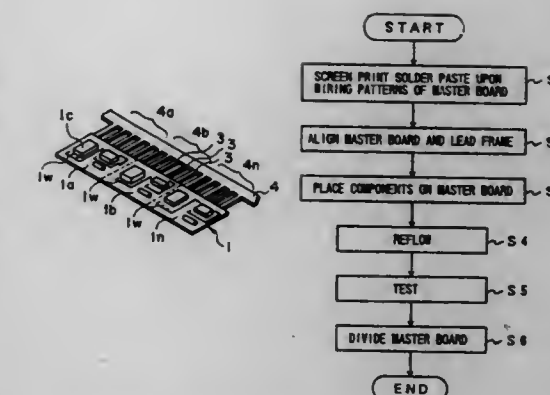
Christopher David Combs, Wheeling, Ill.; Andrew Russell Baker, Kokomo, Ind.; Steven Lee Davidson, Carmel, Ind., and Thomas Rezsonya, Galveston, Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.
Filed Oct. 30, 1995, Ser. No. 550,262
Int. Cl.⁶ H05K 3/30; H02/13/02; H02/13/04; H02/13/08

U.S. Cl. 29—834

20 Claims



1. A flip chip feeder device for receiving and feeding at least one flip chip wafer having a first planar surface and a second planar surface, said flip chip wafer having a plurality of flip chips formed within said first planar surface, each of said flip chips having a first and a second planar surface corresponding to said first and said second planar surfaces of said at least one flip chip wafer, comprising:
 - a loading station for providing a loading location where said at least one flip chip wafer is received with said first and said second planar surfaces being substantially perpendicular to a first plane;
 - a pick-up station for providing a pick-up location where at least one of said flip chips is retrieved from said at least one flip chip wafer;
 - wafer translating means for translating said at least one flip chip wafer between said loading station and said pick-up station with said first and said second planar surfaces of said at least one flip chip wafer remaining substantially perpendicular to said first plane; and
 - chip pick-up means for retrieving a first of said flip chips from said at least one flip chip wafer at said pick-up station and for flipping said first flip chip to a flipped position such that said first and said second planar surfaces of said first flip chip are substantially parallel with said first plane.



- (c) connecting each interconnection lead to the corresponding pad electrode while the circuit regions are mechanically connected with each other in the form of said master print circuit board, each interconnection lead being connected to the corresponding pad electrode by attaching said lead frame structure to said master print circuit board such that, in each of said lead frame regions, said interconnection lead is soldered to the corresponding pad electrode of the print circuit region; and
- (d) dividing said master print circuit board, after said step (c), to thereby separate the circuit regions and form individual printed circuit boards.

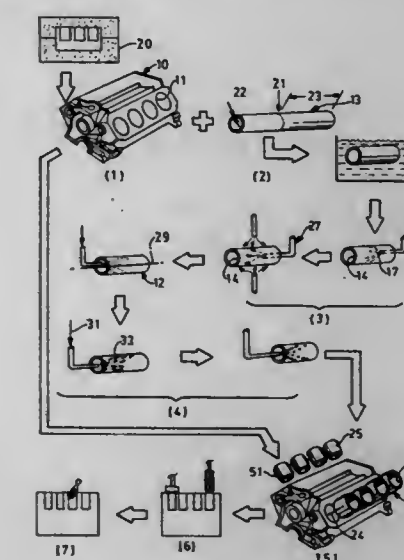
5,671,532

METHOD OF MAKING AN ENGINE BLOCK USING COATED CYLINDER BORE LINERS

V. Durga Nageswar Rao, Bloomfield Township; Robert Alan Rose, Grosse Pointe Park; David Alan Yeager, Plymouth, and Daniel Michael Kabat, Oxford, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.
Filed Dec. 9, 1994, Ser. No. 352,952
Int. Cl.⁶ B23P 1/500

U.S. Cl. 29—888.061

15 Claims



1. A method of making an engine block using coated cylinder bore liners, comprising:
 - (a) casting a metallic engine block having one or more cylinders bores;
 - (b) extruding a metallic tubing and fabricating a thin walled liner from said extruded tubing for each bore, said liner having a tube axis, a cleansed inner surface and an outer surface with an outer diameter slightly greater than the internal diameter of said cylinder bore;

5,671,531

FABRICATION PROCESS FOR CIRCUIT SUBSTRATE HAVING INTERCONNECTION LEADS

Hiroshi Mugiya, Kawasaki, Japan, assignor to Fujitsu, Ltd., Kawasaki, Japan
Filed Oct. 19, 1995, Ser. No. 545,256
Claims priority, application Japan, Mar. 17, 1995, 7-058574
Int. Cl.⁶ H05K 3/34

U.S. Cl. 29—840

8 Claims

1. A method for producing an apparatus that includes a print circuit board, said method comprising the steps of:
 - (a) forming a plurality of circuit regions on a single master print circuit board such that each of said plurality of circuit regions includes a conductor pattern for the print circuit board of said apparatus, each of said plurality of circuit regions having a pad electrode thereon;
 - (b) forming a lead frame structure including a lead frame body having a plurality of lead frame regions, each lead frame region having an interconnection leads with each interconnection lead corresponding to a pad electrode, the interconnection leads extending from said lead frame body as an integral part therein;

- (c) relatively rotating said liner with respect to at least one nozzle for applying a plurality of materials to the internal surface of said liner to form a coating system, the materials comprising first a metal texturing fluid that is applied at high pressure to expose fresh metal of said surface, secondly a bond coating material that is thermally sprayed to form a metallurgical bond with said internal surface, and thirdly a topcoat anti-friction material that is plasma sprayed to adhere to said bond coating;
- (d) interference fitting said coated liner to said cylinder bore by freezing said liner while maintaining the block at about ambient temperature to permit implanting of the liner; and
- (e) honing said coated internal surface to remove up to 100 microns of topcoating, leaving a finished surface that is concentric to said tube axis within ± 15 microns.

5,671,533

MANUFACTURE OF FORGED COMPONENTS

Ian Leslie Dillamore, West Midlands; Eric Grundy, and Robert Anthony Yeardey, both of Leeds, all of England, assignors to Doncaster plc, England

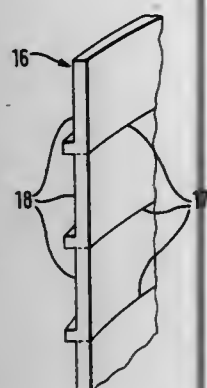
Filed Jul. 5, 1995, Ser. No. 498,388

Claims priority, application United Kingdom, Jul. 6, 1994, 9413631

Int. Cl.⁶ B23P 15/00

U.S. Cl. 29—889.7

20 Claims



1. A method of manufacturing a forged metallic component comprising the steps of rotating casting means about an axis of rotation to generate a centrifugal casting force, feeding molten alloy to said rotating casting means for casting a plurality of elongate rectilinear blanks extending substantially parallel to and radially spaced from said axis of rotation, separating each of said blanks into a plurality of preforms having a required configuration for forging to a desired component, and forging each of said preforms to produce said component.

5,671,534

RAZOR BLADE ASSEMBLY

M. Dave Mayerovitch, 17300 17th St., #J-368, Tustin, Calif. 92780

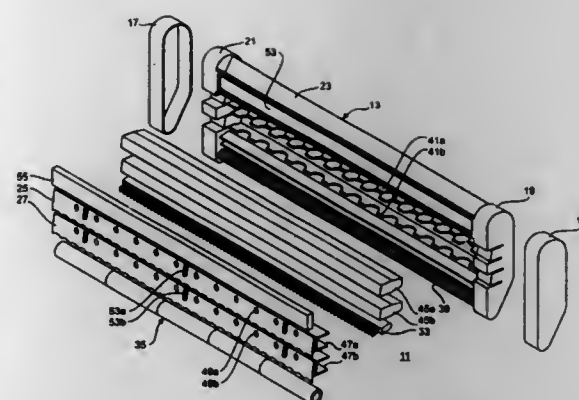
Filed Jul. 15, 1996, Ser. No. 680,149

Int. Cl.⁶ B26B 21/14; 21/44

U.S. Cl. 30—41

12 Claims

1. A razor blade assembly comprising:
- a body assembly having a pair of body end portions and at least one body cross member extending therebetween;
 - a first U-shaped housing extending between the body end portions, the first U-shaped housing having a plurality of recesses formed thereon;
 - a resilient foam insert at least a portion of which being disposable within the first U-shaped housing, the insert being pre-impregnated with a lubricating material;



- a second U-shaped housing having a plurality of fluid dispensing apertures formed therein, said second U-shaped housing being supportable by the foam insert and translatable within the first U-shaped housing beyond the recesses formed thereof;
- a plurality of blade supporting members disposed upon the second U-shaped housing; and
- a first blade extending between the body end portions adjacent the blade support members.

5,671,535

SHAVING APPARATUS WITH CONTROLLABLE MOTOR SPEED

Albertus J. C. Van Der Borst; Jan Tiesinga; Jacobus N. Dekker, and Ate K. Damstra, all of Drachten, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

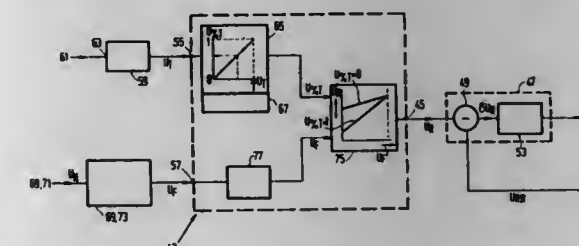
Filed May 31, 1995, Ser. No. 455,125

Claims priority, application European Pat. Off., Jun. 1, 1994, 94201558

Int. Cl.⁶ B26B 19/14

U.S. Cl. 30—43.6

55 Claims



1. A shaving apparatus which comprises: at least one electric motor, at least one electrical control unit, at least one transducer operatively associated with said at least one control unit, at least one cutting unit which is provided with an external cutting member with at least one hair trap opening and an internal cutting member which can be driven relative to the external cutting member by said electric motor, which motor has a speed which is controllable by means of said electrical control unit, and wherein the electrical control unit varies the motor speed in accordance with a predetermined control rule as a function of at least one physical quantity which is measurable by means of the at least one transducer.

5,671,536

LINE FEED CONFIGURATION FOR LINE TRIMMERS

Robert G. Everts, and Harold J. Coleman, both of Chandler, Ariz., assignors to Ryobi North America, Inc., Easley, S.C.

Filed Feb. 15, 1996, Ser. No. 601,788

Int. Cl.⁶ A01G 3/06

U.S. Cl. 30—276

13 Claims

1. A line trimmer head, comprising:
- a rotatable drive shaft;

5,671,538

ASSEMBLY JIG FOR ATTACHING TO A CABINET CARCASE HINGES PREVIOUSLY ATTACHED TO A DOOR

Horst Lautenschläger, Reinheim, Germany, assignor to MEPLA-Werke Lautenschläger GmbH & Co. KG, Germany

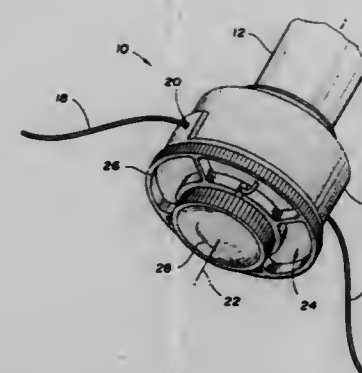
Filed Feb. 1, 1996, Ser. No. 593,142

Claims priority, application Germany, Nov. 25, 1995, 295 18 683 U

Int. Cl.⁶ F05D 11/00; G01B 3/00

U.S. Cl. 33—194

11 Claims



- a housing mounted to said drive shaft for rotation therewith, and having an open end and at least one peripheral aperture formed through the housing;
- a spool including a flange with a hole formed therein, said flange being positioned at least partially within said housing adjacent said open end of said housing;
- said spool forming a guide channel therethrough in communication with said peripheral aperture for receiving a flexible line inserted through said peripheral aperture and for guiding said flexible line through said spool to a position extending beyond said flange to facilitate insertion of said flexible line into said hole formed in said flange to secure said line with respect to said spool.

5,671,537

CHAIN SAW ATTACHMENT FOR USE IN TRIMMING SHRUBBERY

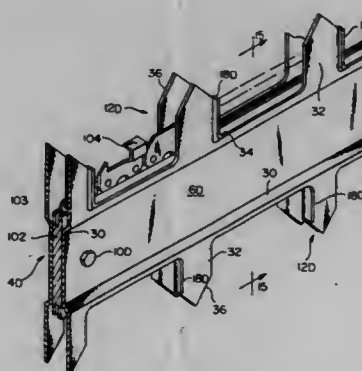
Nestor V. Dofredo, 1531 15th Ave. S., Seattle, Wash. 98144

Continuation-in-part of Ser. No. 538,499, Sep. 29, 1995, Pat. No. 5,560,111. This application Oct. 1, 1996, Ser. No. 723,591

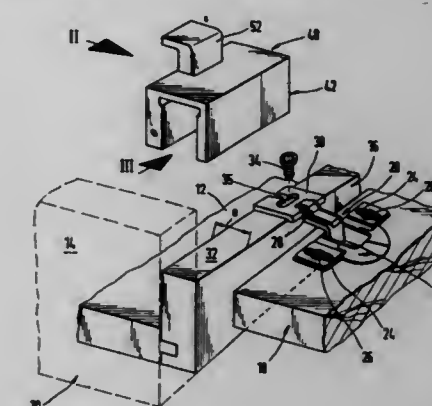
Int. Cl.⁶ B27B 17/02

U.S. Cl. 30—371

13 Claims



1. An attachment for a chain saw of a type having an elongated chain guide with opposite faces bounded by a periphery, and an endless chain powered by a motor to move around said periphery, said attachment comprising first and second elongated members mountable on said opposite faces; each said member including an elongated center portion configured to be secured to the chain guide in a position closely adjacent to the corresponding face thereof, an elongated angled portion extending laterally outwardly from an edge of said center portion and forming an acute angle with the chain guide, and a plurality of spaced apart teeth positioned to project from said angled portion substantially parallel to the chain guide over and beyond the chain; each said tooth including, on an upstream edge of said tooth, relative to the motion of the chain about the chain guide, an angled surface angled laterally outwardly in an upstream direction to help retain the chain on a path around said periphery.



1. A device for aiding in the assembly of a cabinet door to a cabinet carcass by way of a hinge, the hinge to be fastened against a free edge of an elongated, stick-like frame element projecting from a side wall of the cabinet carcass, where the hinge is pre-mountable on the door, the hinge having a mounting plate for placement against the free edge of the frame element for fixation in a proper installed position on the frame element.

the device comprising a body adapted for straddling the free edge of the frame element by way of lateral extensions extending from either side of the body, the device being releasably securable against both a front side and rear side of the frame element, the body having at least one first recess extending into a lateral end face of the body, the at least one first recess having a width equal to or greater than a width of the mounting plate and having a height substantially equal to a thickness of the mounting plate.

5,671,539

HOLSTER APPARATUS FOR LUMINESCENT WEAPON ELEMENTS

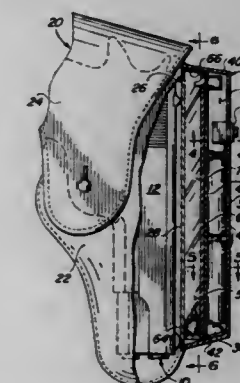
Larry A. Barone, P.O. Box 344, Goodyear, Maricopa County, Ariz. 85338

Filed Sep. 30, 1996, Ser. No. 723,986

Int. Cl.⁶ F41G 1/32

U.S. Cl. 33—241

15 Claims



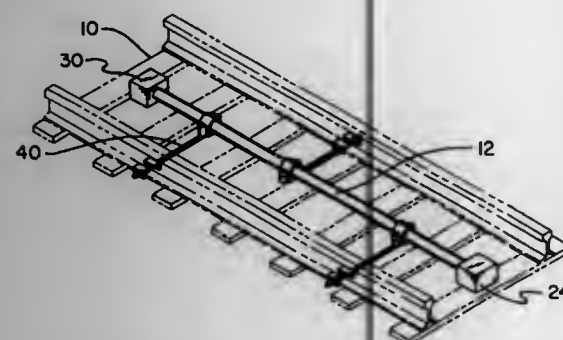
1. Apparatus for illuminating photoluminescent material on a weapon comprising in combination:

a holster for holding the weapon;
an opening in the holster adjacent to the photoluminescent material on the weapon;
a lamp housing secured to the holster adjacent to the opening, including
a first portion for holding a battery, and
a second portion disposed over the opening for holding a lamp for providing illumination for the photoluminescent material; and
switch means for connecting the lamp and the battery to provide light to illuminate the photoluminescent material.

5,671,540
LASER BEAM TRACK ALIGNMENT SAFETY DEVICE
Daniel S. Davis, 6814 Whiteoak Dr., Pensacola, Fla. 32503
Filed Sep. 28, 1994, Ser. No. 314,317
Int. Cl.⁶ E01B 35/00

U.S. Cl. 33—287

1 Claim

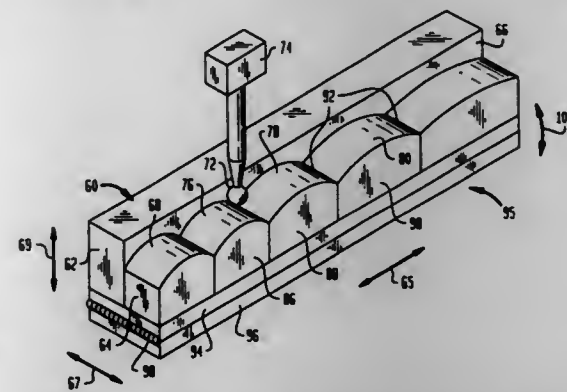


1. A new and improved laser beam track alignment safety device for providing a safety device for railroad and trolley cars which monitors the alignment of the rails comprising, in combination:
a tube having an open first end, an open second end, and an intermediate extent therebetween, the tube having an inner surface and an outer surface;
a first metal housing having an opening therein, the opening of the first metal housing secured to the open first end of the tube;
a laser transmitter secured within the first metal housing;
a second metal housing having an opening therein, the opening of the second metal housing secured to the open second end of the tube;
a laser receiver secured within the second metal housing;
a restriction plate secured within the inner surface of the intermediate extent of the tube, the restriction plate having a transmitting aperture formed therethrough;
a plurality of tie rods, each of the tie rods having a first end and a second end, each first end having an upper securement bracket and a lower securement bracket, the upper securement bracket and the lower securement bracket coupling around the outer surface of the tube and secured thereto by a fastening means, each second end having an inner bracket and an outer bracket, the inner bracket and the outer bracket coupling around a lower end of the rails and secured thereto by a fastening means with alternating tie rods securing to opposing rails, the plurality of tie rods being situated at interval points along the intermediate extent of the tube, the plurality of tie rods securing the tube at a position beneath an upper end of the rails at which a railroad or trolley car would be situated for travelling.

5,671,541
ACCURACY VERIFICATION DEVICES FOR COORDINATE MEASURING MACHINES
YuZhong Dai, Coventry, and Thomas Charlton, Jr., North Kingston, both of R.I., assignors to Brown & Sharpe Manufacturing Company, North Kingstown, R.I.
Filed Sep. 1, 1995, Ser. No. 523,048
Int. Cl.⁶ G01B 3/30

U.S. Cl. 33—502

23 Claims



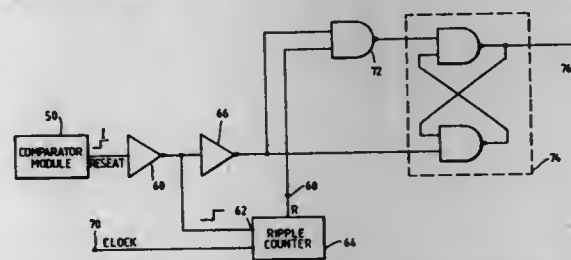
1. A device for verifying the dimensional accuracy of a machine including a fixed element, a movable element and measuring devices for measuring the position of the movable element relative to the fixed element, comprising:
a block adapted to be mounted in a fixed position relative to the fixed element of the machine, said block having a surface with a predetermined nonplanar contour along a direction of elongation, said contour having known geometric characteristics, wherein said block is configured such that the movable element of the machine is movable along said nonplanar contour while in continuous contact with said surface for verifying the accuracy of the machine by comparing said known geometric characteristics of said block with the values derived from readings of the measuring devices of the machine.

5,671,542
SIGNAL PROCESSING CIRCUIT FOR TRIGGER PROBE
James Zannis, Wotton-Under-Edge; David R. Whittle, Gloucester, both of England; David Ian Pilborough, Schaumburg, Ill., and Andrew James Harding, Almondsbury, England, assignors to Renishaw, PLC, Gloucestershire, United Kingdom
Continuation of Ser. No. 331,654, Nov. 7, 1994, abandoned.
This application Jan. 4, 1996, Ser. No. 582,890
Claims priority, application United Kingdom, Mar. 19, 1993, 9305687

U.S. Cl. 33—561

Int. Cl.⁶ G01B 5/03

7 Claims



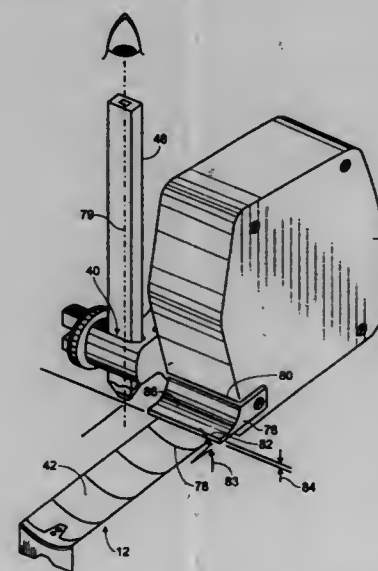
1. A signal processing circuit for receiving a sensor signal from a position sensing probe on a coordinate positioning machine and for generating a trigger signal to instruct a control of said machine, said processing circuit including:
means for generating a trigger signal, indicating sensing of a surface by said probe, to said control when an amplitude of

said sensor signal exceeds a predetermined threshold, and a reset signal when the amplitude of said sensor signal returns below said predetermined threshold, said reset signal being indicative to said control that said probe is capable of making a further surface measurement; and
filtering means, operable when the amplitude of said sensor signal exceeds said predetermined threshold and said trigger signal has been generated, for inhibiting the generation of said reset signal when the amplitude of said sensor signal passes below said predetermined threshold as a result of an oscillation of the amplitude of said sensor signal at a frequency in excess of a predetermined frequency.

5,671,543
TAPE MEASURE MARKING DEVICE AND METHOD FOR USE THEREOF
Todd A. Sears, 355 W. Dartmouth, Gladstone, Oreg. 97207
Filed Jun. 7, 1995, Ser. No. 473,716
Int. Cl.⁶ B25H 7/04; G01B 3/10

U.S. Cl. 33—668

23 Claims



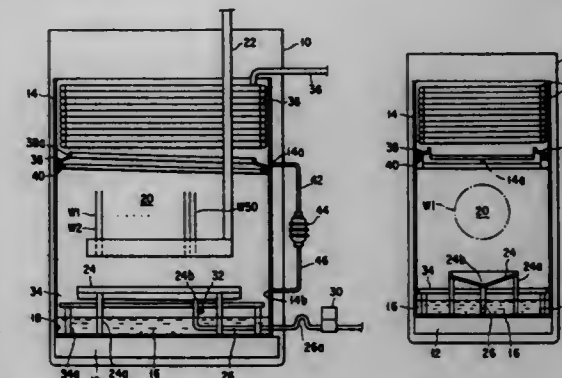
1. A marking device for use with a tape measure having an extensible tape, a first side and a second side, a front and a bottom, and an opening between the first side and the second side disposed substantially at the juncture of the front and the bottom, through which the tape extends, comprising:
a substantially rigid C-member for removable attachment to the tape measure, said C-member having a central portion and two side portions disposed at opposite ends of said central portion for attaching said central portion to the tape measure adjacent the front of the tape measure immediately above the opening between the first side and the second side, said central portion of said C-member having an indexing portion for identifying a position on the tape; and
a marking implement holding member extending from one said side portion of said C-member, said marking implement holding member being adapted to hold a marking implement having a marking tip so that the center of said marking tip is laterally aligned with said indexing portion.

5,671,544
SUBSTRATE DRYING APPARATUS AND SUBSTRATE DRYING METHOD
Kenji Yokomizo, Onojo; Hiroshi Tanaka, Kurume; Shori Mokuo, Saga-ken, and Teruomi Minami, Kurume, all of Japan, assignors to Tokyo Electron Limited, Tokyo, and Tokyo Electron Kyushu Limited, Tosu, both of Japan
Division of Ser. No. 330,793, Oct. 28, 1994, Pat. No. 5,575,079.
This application Aug. 20, 1996, Ser. No. 697,132
Claims priority, application Japan, Oct. 29, 1993, 5-294333; Jan. 17, 1994, 6-016979; Feb. 15, 1994, 6-040396; Aug. 23, 1994, 6-221161

U.S. Cl. 34—78

Int. Cl.⁶ F26B 21/06

15 Claims



1. An apparatus for drying a target substrate, comprising:
a process bath having a first region for containing said substrate, and a second region for containing a volatile treatment liquid;
heating means for evaporating said treatment liquid to form evaporated treatment liquid;
cooling means arranged above said first region, for condensing evaporated treatment liquid to form condensed treatment liquid;
a receiver arranged between said first and second regions, for receiving a mixture of water and condensed treatment liquid when said substrate is being dried in said first region, said water having been removed from said substrate by evaporated treatment liquid while said condensed treatment liquid having been generated by condensation of evaporated treatment liquid;
an exhaust pipe connected to said receiver, for exhausting said mixture from said receiver to an outside of said process bath;
a valve arranged on said exhaust pipe, for opening and closing said exhaust pipe;
a branch pipe connected to said exhaust pipe at a location between said receiver and said valve, and having a discharge port located in said process bath and above said treatment liquid, for returning condensed treatment liquid from said receiver to said second region, in a state where said valve is closed when no target substrate is being dried in said first region.

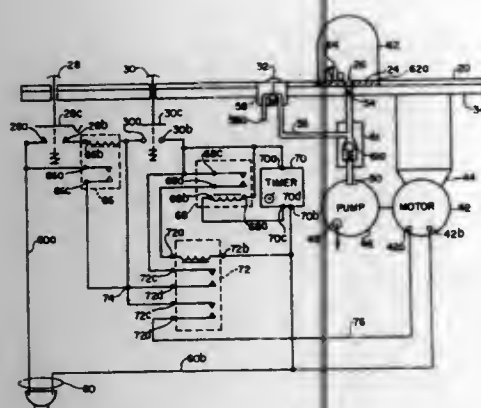
5,671,545
Patent Not Issued For This Number

5,671,546
VACUUM REMEDIATION SYSTEM
David M. Haala, 804 Third Ave. SW., Sleepy Eye, Minn. 56085
Filed Dec. 14, 1995, Ser. No. 572,551
Int. Cl.⁶ F26B 13/30

U.S. Cl. 34—92

15 Claims

1. For use in remediating apparatus, a vacuum remediation system comprising:



vacuum application means for applying a vacuum to the apparatus to be remediated;
vacuum means coupled to said vacuum application means for providing a reduced pressure sufficient to vaporize and evacuate moisture from the apparatus to be remediated;
control means coupled to said vacuum means for controlling the remediation of the apparatus; and
pulsation means for providing vibration to the apparatus being remediated for assisting in removing moisture vapor and contamination particles from the apparatus being remediated.

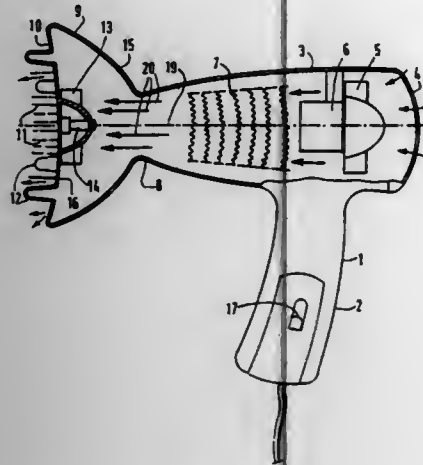
5,671,547 HAIR DRESSING ACCESSORY FOR A HAIR DRYER APPLIANCE

Paul Truchet, Gleize, and Daniel Bonfoux, Saint-Genis-Laval, both of France, assignors to SEB S.A., Ecully, France
PCT No. PCT/FR94/01537, § 371 Date Oct. 30, 1995, § 102(e)
Date Oct. 30, 1995, PCT Pub. No. WO95/17836, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 27, 1994, Ser. No. 505,344
Claims priority, application France, Dec. 30, 1993, 93 15919
Int. Cl. A45D 23/00

U.S. Cl. 34—96

18 Claims

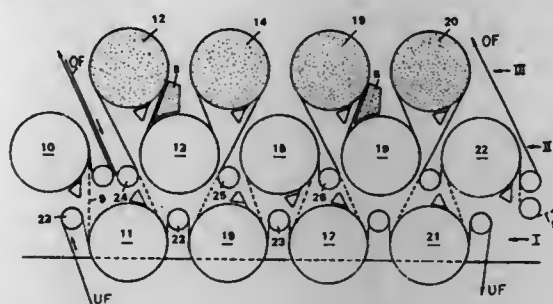


1. An accessory (9, 48) secured to the blowing and (8) of a hair dryer appliance (1), the accessory being organized so that the air expelled from the hair dryer appliance passes therethrough, and including elements designed to come into contact with the hair, said elements being composed of fingers (12, 49) or stiff bristles (11), the accessory being characterized in that it includes vibrator means (13, 14, 45, 46) for generating vibrations and transferring the vibrations to said elements (11, 12) while drying hair.

5,671,548 THREE ROW DRYING CYLINDER GROUP Dieter Blaschka, Mochenwangen; Werner Lettenberger, Schlier-Wetzelsreute, and Andreas Merz, Ravensburg, all of Germany, assignors to Volth Sulzer Papiermaschinen GmbH, Germany

Filed Jun. 13, 1996, Ser. No. 662,705
Claims priority, application Germany, Jun. 30, 1995, 295 10 485 U

Int. Cl. F26B 11/02
U.S. Cl. 34—117 20 Claims



1. A three row drying cylinder group for the drying section of a paper or board or web making machine, the drying cylinder group comprising:

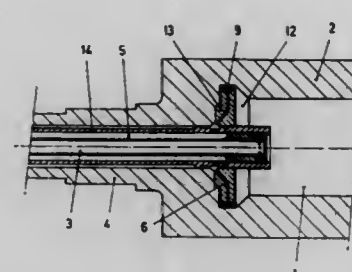
- a top row of drying cylinders, a middle row of drying cylinders having axes below the axes of the top row of cylinders and a bottom row of drying cylinders having axes below the axes of the middle row of drying cylinders;
- a bottom dryer felt, first guide means causing the bottom dryer felt to wrap around at least the bottom of each of the bottom row of drying cylinders for pressing a web against at least the bottoms of the bottom row of drying cylinders;
- a top dryer felt, second guide means causing the top dryer felt to wrap around at least the top of each of the top row of drying cylinders for pressing the web against at least the tops of the top row of drying cylinders;
- a first one of the top and bottom felts wraps the drying cylinders only in the respective first one of the top and bottom rows of drying cylinders without wrapping the drying cylinders in either of the other rows of drying cylinders;
- the second one of the felts wraps all of the cylinders of the respective second one of the top and bottom rows of drying cylinders, and the respective guide means for the second felt guides the second felt to also wrap around at least one of the drying cylinders of the middle row of drying cylinders along the path of the second dryer felt from one of the drying cylinders in the second row of drying cylinders to the next adjacent drying cylinder in the second row of drying cylinders.

5,671,549 STEAM-HEATED CORRUGATING ROLLERS Desiderio Garcia Jimenez, Pamplona, Spain, assignor to Talleres Irunes, S.A., Pamplona, Spain

Filed Sep. 11, 1995, Ser. No. 526,227
Claims priority, application Spain, Jun. 22, 1995, 9501245
Int. Cl. D21G 5/00

U.S. Cl. 34—125 5 Claims

- 1. A steam-heated corrugating roller comprising: an inner chamber in which the heating steam is introduced; condensate outlet conduits, placed into one end of said chamber, to let out condensates;
- a ring housing which is reached by said condensate outlet conduits and in which there is a ring made up of several independent sectors, the independent sectors that make up the ring are set inside the ring housing with the possibility of radial movement between two extreme positions, one in which they rest on the bottom of the housing, thus closing off the conduits, and the other in which they occupy the position



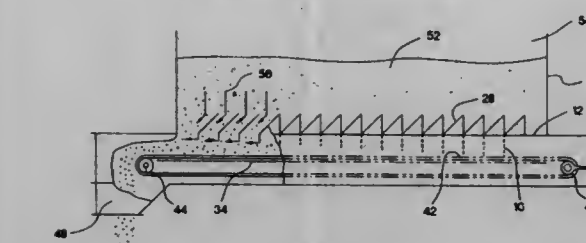
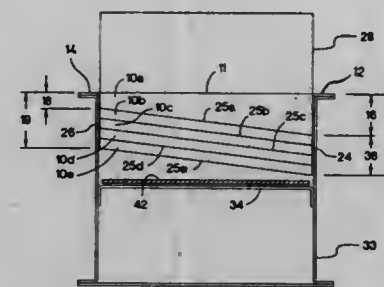
furthermost removed from said bottom, thus leaving open said conduits, such that when the roller is stopped, the determinant sectors of the ring occupy by their own weight a stable position; whereas when the roller spins, the sectors of the ring move by centrifugal action to the position furthest removed from the bottom of the housing.

5,671,550 PROPORTIONING PARTICULATE CONVEYING APPARATUS Christianus M. T. Westelaken, P.O. Box 1349, Grand Bend, Ontario, Canada, NOM-ITO

Filed Dec. 9, 1994, Ser. No. 353,124
Int. Cl. F26B 17/12

U.S. Cl. 34—167

18 Claims



10. A cross-flow dryer having a particulate material inlet in an upper portion thereof, a particulate material discharge in a lower portion thereof, and foraminous side walls disposed between the inlet and the discharge, for flow and drying of particulate material therebetween, further comprising:

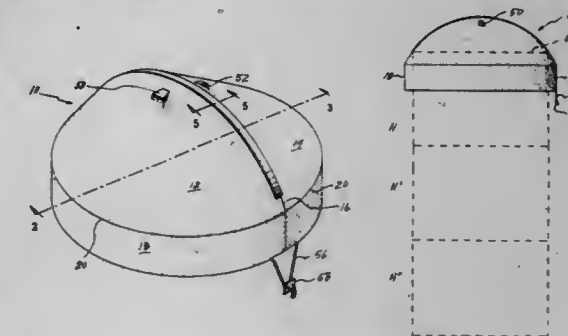
- an essentially horizontal particulate material conveying apparatus disposed above the discharge, for receiving particulate material flowing between the side walls, the conveying apparatus having a first end and a discharge end, and containing;
- a plurality of spatially separate, essentially parallel, vertically oriented proportioning plates disposed between the first end

and the discharge end, each plate having side edges, a top edge, and a bottom edge, for flow of particulate material therebetween, and
an endless particulate material conveyor, proximate to and below the bottom edge of the proportioning plates, for receiving particulate material flowing between the plates, and for moving a predetermined amount of particulate material from the first end to the discharge end of the conveying apparatus, wherein a distance between the bottom edge of each plate and the conveyor varies a preset distance from one side edge of the plate to an opposing side edge of the plate.

5,671,551 HAY STORAGE DEVICE AND METHOD Bernard Adam, 400 Chemin Racine, R.R. 1, Granby, Canada, J2G 8C6

Filed Oct. 30, 1995, Ser. No. 550,252
Claims priority, application United Kingdom, Nov. 1, 1994, 9422537

Int. Cl. F26B 19/00
U.S. Cl. 34—201 10 Claims



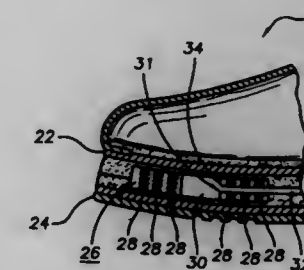
1. A protective device for a hay bale, the protective device comprising a flexible cover adapted to substantially cover an upper surface of said hay bale, means for spacing said cover from said surface and vent means comprising a plurality of apertures formed in said cover to permit the egress of air from the space between the upper surface and the cover, said vent means also having means associated therewith for preventing the ingress of moisture there-through.

5,671,552 ATHELETIC SHOE Virginia G. Pettibone, and Latesisa O. Pettibone, both of 17153 Pettibone La., Foley, Ala. 36535

Filed Jul. 18, 1995, Ser. No. 503,558
Int. Cl. A43B 13/28; 13/20

U.S. Cl. 36—27

15 Claims



1. An athletic shoe, comprising: an upper portion for engaging the top of a foot on which said athletic shoe is worn;

a bottom portion connected to said upper portion for engaging a sole of said foot, said bottom portion having at least an upper

and a lower strata generally conforming to the outline of said sole and spaced from one another to define a cavity therebetween, said cavity being positioned in alignment beneath a ball of said foot;

a plurality of helical spring members mounted in said cavity and adapted for providing a spring action perpendicular to said sole, each of said plurality of spring members having a first end molded within said lower strata and a second end molded within said upper strata;

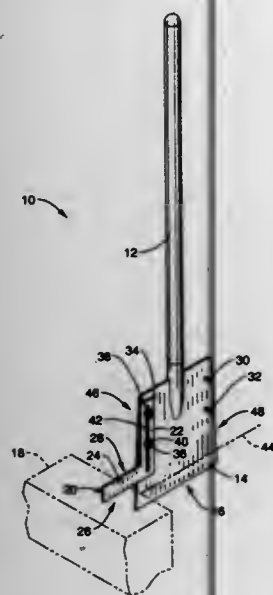
an air bladder disposed within said cavity;

a rigid tube member forming an air passageway therein in connection between a first end opening and a second end having an intake aperture therethrough, said first end opening being in fluid connection with said air bladder and said intake aperture being exposed to the atmosphere; and

a valve connected to said rigid tube member in a manner to block the passage of air through said intake aperture when said valve is in a closed position and to allow the passage of air through said intake aperture when said valve is in an open position;

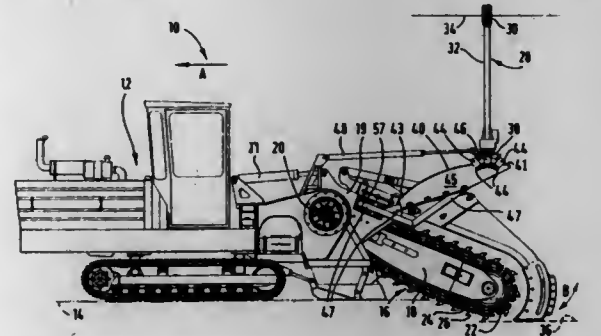
said air bladder and said rigid tube member being disposed within said cavity in a manner such that said plurality of springs are divided into three sections of multiple springs.

5,671,553
GRADING APPARATUS
Glenn E. Burkhart, 4643 Oakbough Way, Carmichael, Calif. 95608
Filed May 9, 1995, Ser. No. 437,572
Int. Cl.⁶ E01H 5/06, 5/02
U.S. Cl. 37—270 16 Claims



1. A grading apparatus, comprising;
- displacing means for grading soil, said displacing means including a blade, said displacing means including a handle, said blade including an elongated, downwardly disposed grading edge;
 - guide means for adjustably positioning said blade relative to an external surface feature, said guide means including a vertical slot;
 - at least one horizontally disposed protrusion on said blade slidably associated with said vertical slot in said guide means; and
 - fastening means associated with said protrusion for attaching said blade to said guide means through said vertical slot in said guide means.

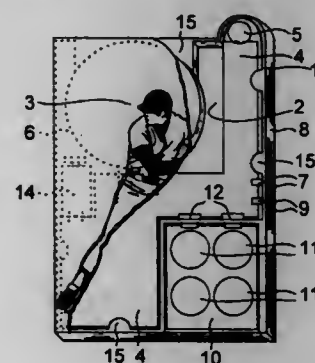
5,671,554
SENSOR POSITIONING APPARATUS FOR TRENCH EXCAVATOR
Jack Geelhoed, Boston, United Kingdom, assignor to J. Mastenbroek & Company Limited, Lincolnshire, England
Filed Jul. 10, 1995, Ser. No. 500,096
Claims priority, application United Kingdom, Nov. 11, 1993, 9323298
Int. Cl.⁶ G05D 1/04
U.S. Cl. 37—348 30 Claims



1. Excavating apparatus comprising:
- a prime mover having excavating means for excavating a trench with a floor which is to be substantially parallel to a reference signal,
- said apparatus having sensor means for detecting said reference signal and said excavating means being pivotable relative to said prime mover to vary the depth of said trench,
- said sensor means being moveable relative to said excavating means such that, as said excavating means pivots, said sensor means moves relative to said prime mover along a path which is substantially the same in direction and distance as the path of movement relative to said prime mover of the lowest surface of said excavating means,
- said sensor means being moveable relative to said excavating means along an arcuate path having a centre of curvature in the region of the end of said excavating means remote from the prime mover, and
- arcuate guide means for defining said arcuate path of movement of said sensor means relative to said excavating means,
- said sensor being mounted for movement upon said arcuate guide means.

5,671,555
VOICE INTERACTIVE SPORTSCARD
Gary L. Fernandes, 16025 Lake Hills Blvd., Bellevue, Wash. 98008
Filed Feb. 8, 1995, Ser. No. 385,672
Int. Cl.⁶ G09F 1/00
U.S. Cl. 40—124.03 2 Claims

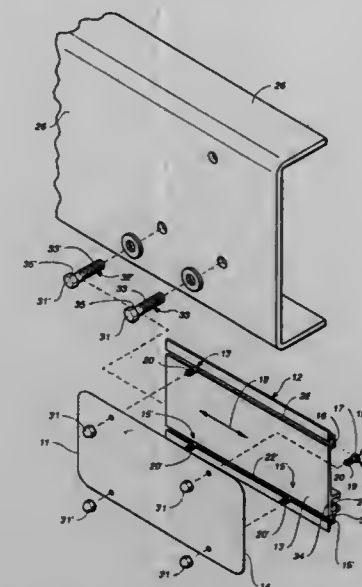
1. A voice interactive sportscard for generating a voice interaction



and physical interaction between the user and the voice interactive sportscard comprising:

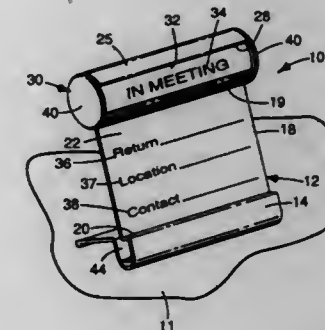
- a support body structure including printed pictorial, graphic and text front and rear cover artwork forming an inner cavity;
- an electronic microchip speech recognition, synthesis, and control processing device including a microphone and speaker to generate a voice interactive conversation incorporated into the inner cavity, and;
- a touch sensitive activation switch.

5,671,556
EXTRUDED LICENSE PLATE MOUNTING BRACKET FOR MULTIPLE LICENSE PLATES
Robert I. Huntley, Denton, Tex., assignor to Paccar Inc., Bellevue, Wash.
Continuation of Ser. No. 653,826, May 28, 1996, abandoned, which is a continuation of Ser. No. 341,394, Nov. 17, 1994, abandoned. This application Dec. 18, 1996, Ser. No. 768,789
Int. Cl.⁶ G09F 7/10
U.S. Cl. 40—200 20 Claims



1. A license plate mounting bracket for slidably mounting a plurality of license plates in a side-by-side relation comprising:
- an elongated frame member having a uniform transverse cross-section and a length sufficient for mounting more than one license plate in a side-by-side relation therein, said frame member providing a mounting surface formed for supportably seating a frame engaging surface of said at least one license plate thereon said elongated frame member further having a backside supporting surface positioned opposite said frame engaging surface, said backside supporting surface having a mounting apparatus protruding rearwardly therefrom adapted to connect said elongated frame member to a bumper; and
- a mounting groove defined by said mounting surface and extending continuously from one end of said frame member to substantially an opposite end thereof, and formed and dimensioned to receive an enlarged head of a fastener with said fastener oriented to extend forwardly of said mounting surface for sliding movement of said fastener along said groove through a plurality of positions when said fastener is released relative to said mounting surface, and said groove being formed to secure said head of said fastener in a manner enabling tightening of said fastener at said plurality of positions to secure said license plate to said mounting surface at a desired location therealong.

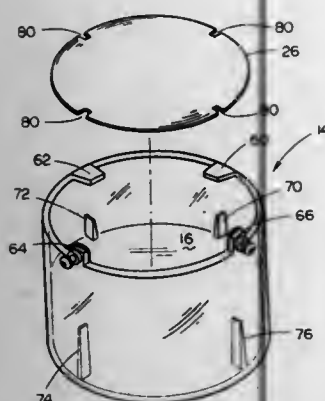
5,671,557
NOTICE ASSEMBLY
Bruce W. Carlson, Minneapolis; Thomas J. Barnidge, Burnsville; Tanya M. Laine, Inver Grove Heights; Mary K. Miller-Bruns, Eagan, and Kenneth J. Kirchhoff, Gem Lake, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Oct. 29, 1993, Ser. No. 145,788
Int. Cl.⁶ G09F 11/02
U.S. Cl. 40—358 12 Claims



1. A notice assembly for use at a predetermined location to notify others of information concerning a person when the person is absent from the location, said notice assembly comprising:
- a support portion comprising a vertical wall part having opposite normally upper and lower opposite edges and having a major front surface extending between said upper and lower edges, and a hollow tubular part having an axis and having an axially extending viewing opening, said tubular part being fixed along the upper edge of said vertical wall part with said axis parallel to said upper edge and said viewing opening facing in the same direction as the front surface of said vertical wall part, means adapted for supporting said wall part and said tubular part on a surface with said wall part projecting generally vertically upwardly and with said tubular part uppermost;
- a display member comprising a portion mounted for rotation about said axis in said tubular part, said portion of said display member having a peripheral surface bearing a plurality of axially extending circumferentially spaced sets of graphic symbols providing information about the location of the person, each of said sets of graphic symbols being positionable at the viewing opening of said tubular part to afford viewing thereof,
- graphic symbols visible on said front surface of said wall part that provide incomplete information about one or more of
- the location of the person,
 - the time of return for the person,
 - the normal work hours for the person, and
 - an alternate person to contact when the person is absent; and
- ink receptive means on said front surface for affording application of indicia to said assembly using quick drying ink from a quick drying ink applying implement to complete said information and for affording subsequent removal of the ink.

5,671,558
FLUSH VALVE ADVERTISING DISPLAY DEVICE
Donald D. Lakin, 1011 S. 22nd St., Omaha, Nebr. 68108
Continuation-in-part of Ser. No. 312,261, Sep. 26, 1994. This application Mar. 8, 1996, Ser. No. 614,788
Int. Cl.⁶ G09F 3/18
U.S. Cl. 40—661 5 Claims

1. An advertisement display device for placement upon a flush valve cap having a wrench boss protruding from a substantially horizontal upper surface and a substantially cylindrical body having a lower circumferential edge, comprising:



- (a) a plastic flush valve cap cover having a generally flat upper face and a substantially cylindrical sidewall having a lower edge;
- (b) a plurality of flanges extending from said lower edge of said cylindrical sidewall wherein said plurality of flanges includes a pair of downwardly directed securement flanges and a pair of inwardly directed securement flanges;
- (c) a pair of set screws operatively associated with said pair of downwardly directed securement flanges; and
- (d) a plurality of ribs arranged around an interior of said flush valve cover.

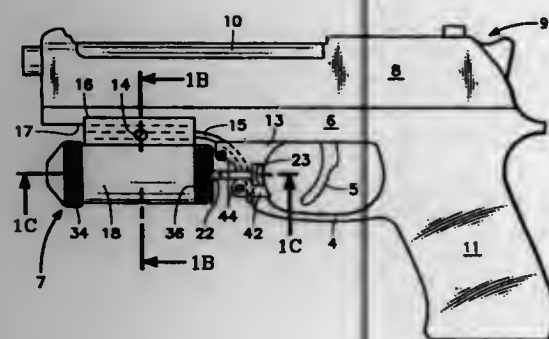
5,671,559

NON LETHAL FIREARM DEVICE

Edward C. Ludaesher, 1341 Garden St., and Joseph A. Kaniewski, 2301 Earhardt Ct., both of Oxnard, Calif. 93030
Filed Jun. 8, 1995, Ser. No. 488,593
Int. Cl. F41C 9/00; A61H 3/18

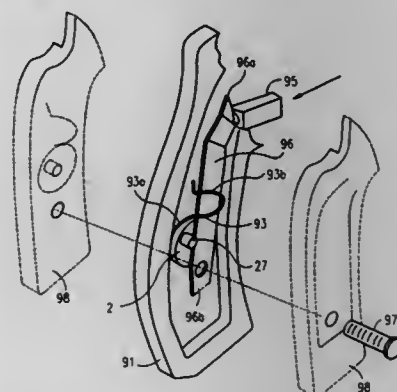
U.S. Cl. 42-1.08

14 Claims



1. A firearm mounted chemical agent dispenser, comprising:
- a firearm trigger guard mounting clamp;
 - a firearm barrel mounting bracket;
 - a flexible mounting arm coupling said clamp to said bracket and firmly holding said bracket against said firearm barrel;
 - a canister housing coupled to said mounting bracket;
 - a canister of compressed chemical agent disposed within said housing, said canister having an actuator button and an exit nozzle in line with said firearm barrel;
 - a finger actuated plunger proximal to said trigger guard and in communication with said actuator button;
 - a front cap disposed on said canister housing having an actuator ridge for contact with said actuator button, and an aperture for passage of fluid from said nozzle; and
 - a spring disposed between said actuator ridge and said actuator button.

5,671,560
FIREARM WITH SAFETY DEVICE
Yehuda Meller, Holon, Israel, assignor to Binyamin Yirmiyahu, and Mordechai Yirmiyahu, both of Israel, part interest to each
Continuation-in-part of Ser. No. 372,761, Jan. 13, 1995, Pat. No. 5,581,927. This application Sep. 30, 1996, Ser. No. 720,452
Int. Cl. F41A 17/00
U.S. Cl. 42-70.11 19 Claims



1. A firearm including a frame having a grip for manually grasping the firearm, and a control member movable from a first position to a second position to enable firing the firearm; characterized in that said firearm further includes:
- a locking device carried by said frame for receiving a removable key, said locking device including a latch element movable by an inserted key either to a locking position or to a releasing position;
 - a locking member movably carried by said frame;
 - and a spring acting on said locking member to bring a first surface of the locking member into contact with said control member such that the locking member moves with the control member from said first position to said second position to enable firing the firearm;
 - said locking member including a second surface located with respect to said latch element of the locking device so as to be engaged thereby when the latch element is in its locking position, to block the movement of the locking member, and thereby of the control member, from said first position to said second position, to prevent the firing of the firearm when the latch element is in its locking position;
 - said locking device including a cylindrical housing formed with external threads, and said grip including a cylindrical cavity formed with internal threads for threadedly receiving said housing.

5,671,561

MODULAR, COMBINATION LASER AND ELECTRONIC AIMING SYSTEM

Acie G. Johnson, Pine Bluff; Glenn W. Prentice, and W. Craig Burke, both of Little Rock, all of Ark., assignors to Emerging Technologies, Inc., Little Rock, Ark.

Filed Nov. 14, 1995, Ser. No. 557,939

Int. Cl. F41G 1/34

U.S. Cl. 42-103

13 Claims

1. A weapon comprising:
- a shooting apparatus that has a barrel; and
 - a combination sight, comprising:
- an electronic sight portion mounted on said shooting apparatus and disposed above said barrel, said electronic sight portion comprising:
 - a lens mounted on said shooting apparatus;
 - a first frame mounted on said shooting apparatus; and
 - a first light source, said first light source being secured to said first frame and being mounted on said shooting apparatus at a desired distance from said lens; and



- a laser sight portion mounted on said shooting apparatus and disposed above said barrel, said laser sight portion comprising:
- a second frame mounted on said shooting apparatus between said first frame and said lens; and
- a second light source, said second light source being secured to said second frame and mounted on said shooting apparatus in a position to avoid interfering with operation of said electronic sight portion.

5,671,562

LIQUID LEVEL CONTROL DEVICE

Ah N. Fah, 12/176 Canterbury Rd., Bayswater, 3153 Victoria, Australia

PCT No. PCT/AU93/00422, § 371 Date Apr. 21, 1995, § 102(e)
Date Apr. 21, 1995, PCT Pub. No. WO94/04971, PCT Pub. Date Mar. 3, 1994

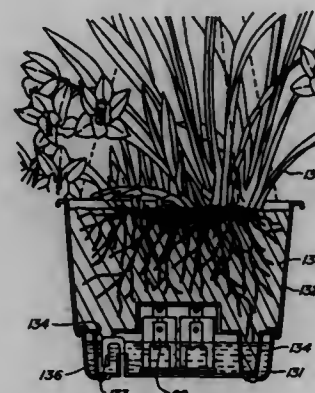
PCT Filed Aug. 18, 1993, Ser. No. 387,838

Claims priority, application Australia, Aug. 19, 1992, PL4162; Aug. 19, 1992, 21106/92

Int. Cl. A01G 31/02

U.S. Cl. 47-79

10 Claims



1. A liquid level control device for controlling the level of water from a water supply, the liquid level control device adapted to be located in a vessel for holding water,
- the liquid level control device comprising:
- a first flow controller comprising
 - a first float located in a first chamber moveable between an up position and a down position responsive to a level of water in the first chamber,
- the first chamber being open at its bottom to allow water ingress and egress and having a first vent to allow egress of air, and a first valve communicated to the water supply, the first valve being operatively connected with the first float such that when the first float is at the down position when the level of water in the first chamber is at or below a first predetermined level of water, the first valve opens to allow water into the vessel and into the first chamber to tend to raise the first float and to displace air in the first chamber via the first vent,

and when the first float is at the up position when the level of water in the first chamber is at or above a second predetermined level of water the first valve closes to prevent further water flow into the vessel;

- a second flow controller comprising
 - a second float communicated to the vessel and moveable between an up position and a down position responsive to a level of water, and
 - a second valve being operatively connected with the second float and being connected to the first vent such that when the second float rises, in consequence of the first valve allowing water into the vessel, the second valve opens to allow air to flow from the first chamber via the first vent and the second valve to escape to atmosphere,
- and the second valve being operatively connected to the second float so that when the level of water in the vessel drops to a third predetermined level of water in consequence of water in the vessel being used or being removed, the second float falls to a level of water to close the second valve, before the first float has fallen to a level of water to open the first valve, to thereby prevent air flow via the first vent into the first chamber to establish, as the level of water in the vessel falls still further, a partial vacuum in the first chamber which maintains the level of water therein at a level of water such that the first float will not fall to a level of water to open the first valve; and
- a breather for the first chamber located with an opening such that, when the level of water in the vessel falls to below a fourth predetermined level of water in consequence of water in the vessel being used or being removed air enters through the breather into the first chamber to overcome the partial vacuum to allow water to flow out of the first chamber to allow the first float to fall to a level of water to open the first valve to commence allowing water into the vessel.

5,671,563

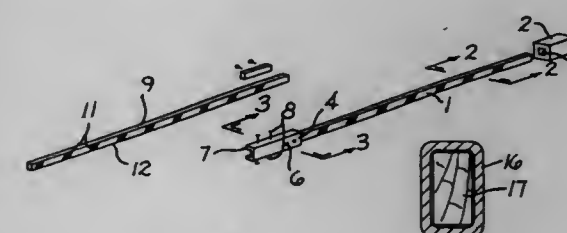
VEHICLE CONTROL ARM DEVICE

Alfred Marcum, 3012 Cedar Point Rd., Crestwood, Ky. 40014
Filed Oct. 15, 1993, Ser. No. 136,155

Int. Cl. E01F 3/68

U.S. Cl. 49-49

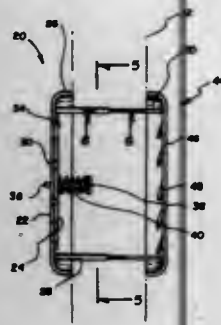
13 Claims



1. A generally elongate vehicle control gate arm arrangement pivotable to a position for restricting flow of vehicular traffic, including:
- a gate arm segment, comprising a tubular shell having a first end and a second end and defining a chamber therein defining an inner periphery having a selected cross-sectional shape;
 - a core defining an outer periphery having a cross-sectional shape substantially similar to the cross-sectional shape of the inner periphery of said chamber and a length less than the length of said tubular shell and received within said tubular shell so that a portion of the outer periphery of said core is in contact with the inner periphery of said tubular shell and wherein said core is terminated inwardly of said second end so that said tubular shell extends outwardly from said core a selected distance to provide a flexible end of said tubular shell so that vehicles

attempting to bypass the second end of said gate arm segment strike said flexible end of said tubular shell.

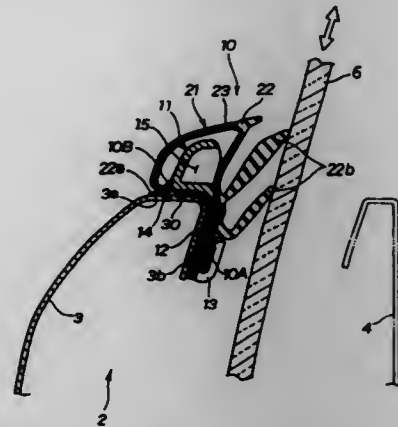
5,671,564
COMMUNICATION PORTAL
Stanley D. Lyle, P.O. Box 3162, Landers, Calif. 92285
Filed Dec. 20, 1996, Ser. No. 770,987
Int. Cl.⁶ E06B 7/28
U.S. Cl. 49—171



1. A communication portal for providing a safer means for identifying a person knocking on a door comprising, in combination:

- said door having an opening therethrough, the opening being about five feet above a recipient surface, the opening having a diameter of a predetermined distance;
- a circular interior component comprising an outer plate and an inner plate, the circular component positioned with respect to the opening at an interior of the door, the outer plate having a diameter of a predetermined distance greater than the diameter of the opening in the door, the outer plate having an inwardly extending peripheral wall abutting the door, the outer plate having a pair of internally threaded collars extending inwardly therefrom, the outer plate having a plurality of apertures therethrough arranged in two concentric circles, the outer plate having an arcuate slot therethrough disposed within an outer circle thereof, the inner plate having a diameter of a predetermined distance less than the diameter of the opening in the door, the inner plate having a plurality of apertures therethrough arranged in two concentric circles, the inner plate having a knob extending outwardly therefrom disposed within an outer circle thereof, the circular interior component including a central shaft extending through a central portion of the inner plate and secured to a central portion of the outer plate, the central shaft having a spring disposed thereon for urging the inner plate against the outer plate with the knob extending through the arcuate slot whereby shifting of the knob to a first position will align the apertures of the outer plate and the inner plate, shifting of the knob to a second position will disalign the apertures; and
- a circular exterior component comprising a singular plate, the circular exterior component positioned with respect to the opening at an exterior of the door, the singular plate having a diameter of a predetermined distance equal to the diameter of the outer plate of the circular interior component, the singular plate having a plurality of slots therethrough, the plurality of slots being aligned with the plurality of apertures of the outer plate of the circular interior component, the singular plate having a pair of externally threaded rods extending inwardly thereof for coupling with the internally threaded collars of the outer plate.

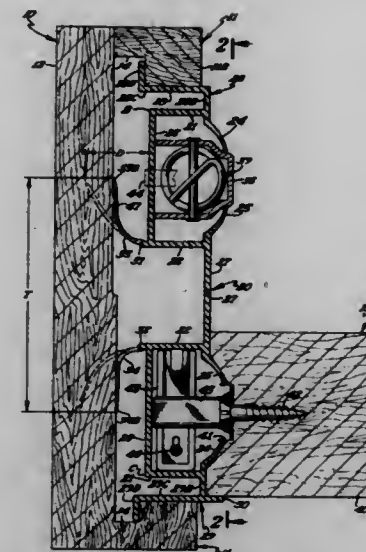
5,671,565
STRUCTURE AND METHOD OF FITTING DOOR MOLDINGS
Yoshinobu Furuse, Saitama-ken, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 22, 1995, Ser. No. 577,400
Claims priority, application Japan, Dec. 26, 1994, 6-323295
Int. Cl.⁶ B60J 1/16
U.S. Cl. 49—377
15 Claims



1. An improved vehicular door, comprising: inner and outer door panels located adjacent to each other with a space therebetween for housing an extendable and retractable pane of window glass, said outer door panel including a curved portion extending upwardly, a horizontal portion and a fall portion, wherein said horizontal portion extends integrally from said curved portion towards said window glass pane and said fall portion extends integrally downwardly from said horizontal portion so that said fall portion has a surface approximately parallel with an outer surface of said window glass pane;
- a door molding covering a gap between said fall portion and said window glass pane, wherein said door molding includes a molding member, a core member, and a clip member, said clip member having a contact surface with horizontal and vertical portions, with said vertical portion extending downwardly and
- a door molding fitting means, fitted on said contact surface portions of said clip member of said door molding, for firmly attaching said door molding to said horizontal portion and said fall portion of said outer door panel to maintain a firm fitting state over a long period of time even if an external force acts upon said door molding in any one of an up, down, left and right directions.

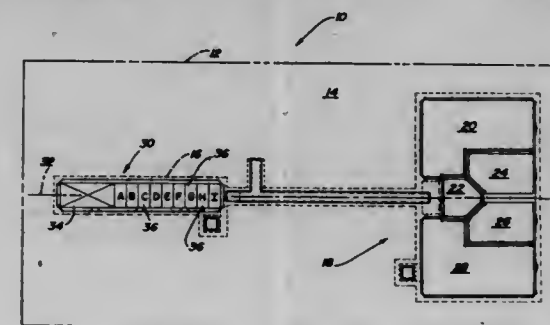
5,671,566
WINGED JAMB LINER
Ronald E. Tix, Hastings, and Alvin F. Priem, Minnetonka, both of Minn., assignors to Clim-A-Tech Industries, Inc., Hopkins, Minn.
Filed Sep. 13, 1995, Ser. No. 527,402
Int. Cl.⁶ E05D 13/00
U.S. Cl. 49—419
20 Claims

1. A longitudinally elongated liner mountable in a recessed track of a window frame having a window frame opening for abutting against the sash of a window unit that is mounted for slidable movement in the window frame, comprising a longitudinally elongated main body that includes a longitudinally elongated channel guide, the guide including transversely spaced first and second side walls that have front edges and a rear wall extending between and joined to the side walls, and means joined to the channel guide for extension into the recessed track for mounting the guide to the window frame, said means including first and second retainer flanges, and a wing affixed to the main body to extend the longitudinal length of the main body and rearwardly of the main body,



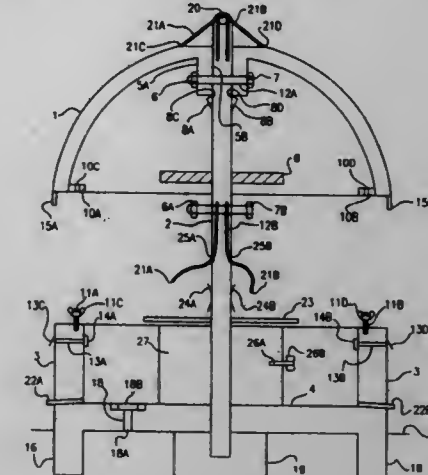
said wing having a free terminal longitudinal edge, and a fluid sealing portion extending the longitudinal length of the main body for forming a fluid seal with the window frame rearwardly of the main body, at least said fluid sealing portion of the wing being of a substantially greater resiliency than the main body.

5,671,567
SUPPORT FACILITY
Cyril J. Silberman, Minnetonka; David E. Carlson, Coon Rapids; Michael P. Creely, Plymouth; Gary M. Hassebrook, Coon Rapids; Mark A. McCorkell, Eden Prairie; C. Andrew Cheng, New Brighton, and Richard H. Elde, Minneapolis, all of Minn., assignors to Uni-Systems, Inc., Minneapolis, Minn.
Filed Mar. 18, 1994, Ser. No. 210,719
Int. Cl.⁶ B66B 9/16; B66F 5/00
U.S. Cl. 52—29
9 Claims



1. An adjustable facility for supporting a nose wheel assembly of a large aircraft during maintenance and repair, comprising: an elongated pit defined in the floor, said pit having a width, a length and an opening where said pit intersects said floor;
- a trolley assembly positioned in said pit, said trolley assembly including means for moving said trolley assembly lengthwise within said pit, a support platform that is large enough to support a nose wheel assembly of a large aircraft and means for raising and lowering said support platform;
- a plurality of spacer blocks positioned versus said pit so as to cover portions of said opening that are not covered by said support platform, said spacer blocks being movable lengthwise of said pit; and
- engaging means connected to said trolley assembly for engaging at least one of said spacer block so that said trolley assembly is capable of positioning said spacer blocks along said opening when the position of said support platform is to be changed.

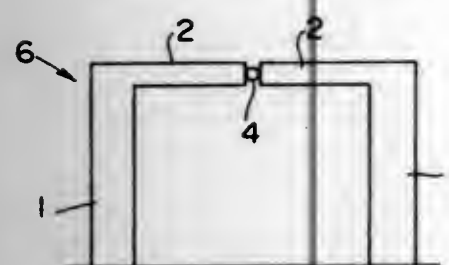
5,671,568
HURRICANE SHELTER
Frank Armanno, Sr., 14399 Picea Ct., Fort Pierce, Fla. 34951
Filed Nov. 22, 1996, Ser. No. 753,275
Int. Cl.⁶ E04H 9/00
U.S. Cl. 52—66
25 Claims



1. A shelter design to provide an internal safe space in which to house and protect human life from the dangers of storms having high velocity winds and extremely heavy rain fall, such as hurricanes, comprising:
 - (a) a foundation resting on and covering a portion of the earth, said foundation forming a floor for said shelter,
 - (b) a base wall being closed on itself and defining said safe space within the closure of said base wall, said base wall lying within the area of and resting on said foundation and said base wall being secured to said foundation,
 - (c) a column positioned vertically and having an upper and lower end, said column generally passing through the center of the safe space and also passing through said foundation at said column's lower end, and said column extending upward above the base wall at said column's upper end,
 - (d) a dome extending about the top of said base wall to provide a cover to said safe space, said dome having a dome port passing in a vertical direction through its center, said dome port having an aperture that is configured to pass closely about said column and said column extending through said dome port to enable said dome to be raised to an upper position above said base wall to provide access to said safe space, and lowered to a lower position where said dome rests on said base wall to provide overhead closure to said safe space, said dome remaining centered about said column while being raised and lowered, and
 - (e) means for detachably connecting said dome to said base wall to enable said dome to be raised to its upper position when detached from said base wall to provide access to said safe space and to be lowered on to said base wall and connected to said base wall to secure said safe space from intrusion of wind, rain and flying debris occurring during a storm.

5,671,569
SEISMIC RESPONSE CONTROLLED FRAME OF BENDING DEFORMATION CONTROL TYPE
Takaji Kobori, Yukihiro Omika, Masayuki Nagata, Jun Okawa, and Yukimasa Yamamoto, all of Tokyo, Japan, assignors to Kajima Corporation, Tokyo, Japan
Filed Nov. 29, 1995, Ser. No. 564,408
Claims priority, application Japan, Jun. 8, 1995, 7-141784; Jun. 16, 1995, 7-150067
Int. Cl.⁶ E04B 1/98
U.S. Cl. 52—167.6
21 Claims

1. In a multi-storied frame building, a seismic force response controlled frame, comprising:



- a first column having a top connected to a cantilevered wall girder having at least one tip end horizontally extending from said top of said first column;
- a second column in alignment with said tip end of said wall girder and spaced therefrom; and
- a passive mass damper connected between the tip end of said wall girder and said second column to damp displacement of said tip end of said wall girder by generating damping force when said tip end of said wall girder and said second column are displaced relative to each other responsive to seismic force.

5,671,570

LOT CONFIGURATION AND BUILDING POSITION AND METHOD FOR RESIDENTIAL HOUSING

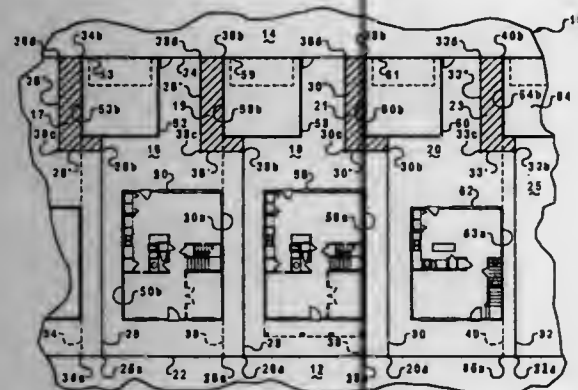
Mark I. Kaufman, and Donald J. Meeks, Jr., both of 15995 N. Barkers Landing, Houston, Tex. 77079

Filed Jun. 19, 1996, Ser. No. 666,813

Int. Cl.⁶ E02D 1/00

U.S. Cl. 52-169.2

10 Claims



1. A method for locating buildings on adjacent lots, each lot having a front property line and a rear property line and a common property line between said lots, said common property line having laterally offset portions disposed between said front and rear property lines and a section of said common property line extending between said laterally offset portions, comprising the steps of:
- placing a construction reference line extending on each lot across said section of common property line and at least partially between said front and rear property lines and spaced from and between said offset portions of said common property line;
- placing a building on one of said lots and having a side edge of said building facing one of said laterally offset portions of said common property line and in a predetermined position with respect to said construction reference line; and
- placing another building on said adjacent lot and having a side edge of said another building facing another of said laterally offset portions of said common property line and in a predetermined position with respect to said construction reference line.

5,671,571

PLASTERING AND LINING STRIP FOR WINDOW STILES, DOOR STILES OR THE LIKE AT THE TRANSITION TO THE PLASTER

August Braun, Theresienstrasse 36, 66440 Blieskastel, Germany

PCT No. PCT/EP93/00440, § 371 Date Dec. 8, 1994, § 102(c)

Date Dec. 8, 1994, PCT Pub. No. WO93/17204, PCT Pub.

Date Sep. 2, 1993

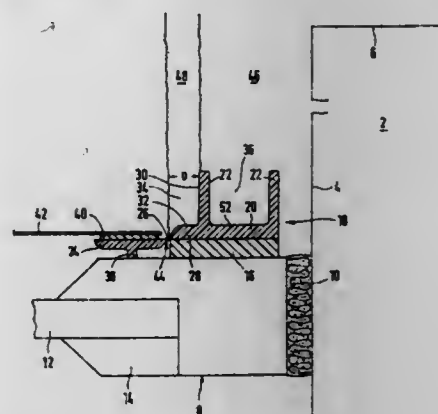
PCT Filed Feb. 25, 1993, Ser. No. 295,632

Claims priority, application Germany, Feb. 26, 1992, 42 05 927.5

Int. Cl.⁶ E06B 1/34; 1/62

U.S. Cl. 52-211

19 Claims



1. A plastering and lining strip, comprising:
- a first strip portion extending in a longitudinal direction, said first strip portion including:
- a base strip extending in the longitudinal direction, said base strip being defined by front and rear oppositely located sides, and two oppositely located edge faces connecting said front and rear sides together, said sides and said edge faces being essentially parallel to each other, said rear side being fastenable to a window or door stile; and
- a web affixed to and projecting away from said front side and extending in the longitudinal direction, said web being positioned at a distance away from a selected one of said edge faces to form a plaster receiving space having an L-shaped cross section as viewed in the longitudinal direction, with a region of said base strip extending from the selected one edge face to said web forming a spacing extension that constitutes a leg of the L-shaped cross section, said spacing extension having a diminished thickness at said selected one edge face whereby, when the plaster receiving space is filled with the plaster, said spacing extension is essentially completely covered;
- a second strip portion comprising a protective cover plate extending essentially parallel to said first strip portion; and
- a breakable material bridge extending essentially parallel to said first strip portion and said second strip portion, and removably connecting said protective cover plate to said base strip in an area of the selected one edge face.

5,671,572

METHOD FOR EXTERNALLY REINFORCING GIRDERS

Jose Luis Siller-Franco, Miguel Angel 78, Col. Mixcoac, Mexico D.F., Mexico, 03910

Filed Feb. 8, 1995, Ser. No. 385,462

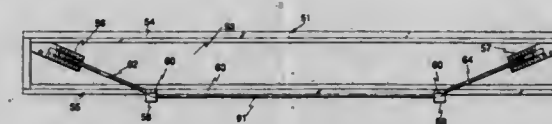
Claims priority, application Mexico, Feb. 11, 1994, 941088

Int. Cl.⁶ E04C 5/08

U.S. Cl. 52-223.8

22 Claims

1. A method of externally reinforcing a girder for increasing the load bearing capacity thereof, said girder comprising first and second ends, a web, an upper or compression flange, and a lower



5,671,573

PRESTRESSED CONCRETE JOIST

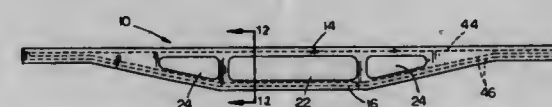
Mahe K. Tadros, Amin Elnein, and Mohsen Saleh, all of Omaha, Nebr., assignors to Board of Regents, University of Nebraska-Lincoln, Lincoln, Nebr.

Filed Apr. 22, 1996, Ser. No. 635,996

Int. Cl.⁶ E04C 3/22; 3/26; 5/08

U.S. Cl. 52-223.8

5 Claims



1. A precast, prestressed concrete joist comprising:
- (a) generally horizontal top and bottom concrete members, said top member having a generally flat top face and said bottom member having a generally flat bottom face, opposing

left and right angled surfaces adjoining said top and bottom members wherein said top member forms two opposing prismatic ends,

- (b) a concrete web interposed between said top and bottom members having at least one opening therein;
- (c) one or more prestress steel strands extending lengthwise through the top member and prismatic ends; and
- (d) one or more steel strands extending lengthwise between the prismatic ends through said left and right angled surfaces and said bottom member.

5,671,574

COMPOSITE INSULATED WALL

Robert T. Long, Ames, Iowa, assignor to Thermomass Technologies, Inc., Ames, Iowa

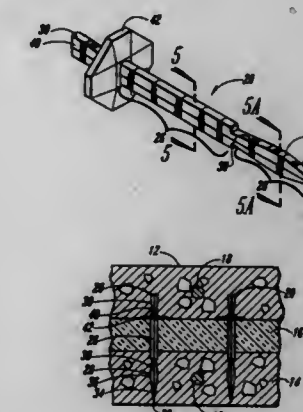
Continuation of Ser. No. 255,528, Jul. 26, 1994, abandoned.

This application Mar. 13, 1996, Ser. No. 615,638

Int. Cl.⁶ E04C 2/22

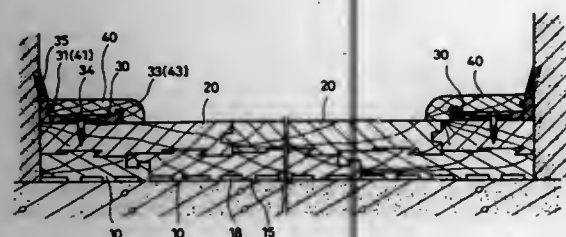
U.S. Cl. 52-309.11

2 Claims



parallel to said insulating material, said first and second hook shaped ends of said hook connector hooked over said first and second elongated members respectively, and further wherein said first and second hook shaped ends extend partially into said layer of insulating material and are separated by a narrow gap.

5,671,575
FLOORING ASSEMBLY
Chang-Pen Wu, 5/F-2, No. 35, An-Shun 4th St., Pel-Tun Dist., Taichung City, Taiwan
Filed Oct. 21, 1996, Ser. No. 735,399
Int. Cl.⁶ E04F 15/22
U.S. Cl. 52—403.1 5 Claims



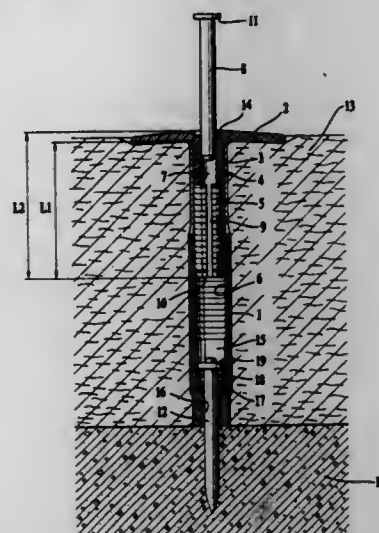
1. An improved flooring assembly comprising a required number of foundation elements, flooring elements, decorative strip seats and decorative strips, all of which being cut into desired lengths and widths, and a front side of each foundation element and a rear side of each flooring element being provided with corresponding face grooves and face projections; wherein said foundation elements each have one side of a joint between said face groove and said face projection forming a vertical surface while the other side thereof forming an inclined surface, and a slightly raised auxiliary groove being provided at the joint; a bottom side of each of said foundation elements being distributed with a plurality of non-skid strips to define dampness blocking clearances, one side of the front side of each of said foundation elements being provided with a linear groove and a side groove to form a linear strip and a side strip respectively, and the opposite side of the other side of the front side being provided with a linear groove and a side groove for forming a linear strip and a side strip respectively, so that various foundation elements may inter-engage by means of said linear grooves and strips as well as said side grooves and strips to expand the flooring area to both sides as well as to the front and the back;

said flooring elements each have one side of a joint between said face groove and face projection forming a vertical surface while the other side thereof forming an inclined surface, a slightly lower auxiliary block being provided at the joint as well; the periphery of each of said flooring elements being provided with corresponding positioning grooves and positioning blocks so that various flooring elements may inter-engage to expand the flooring area to both sides as well as to the front and the back;

said decorative strip seats are substantially L-shaped and are secured to rims of the flooring elements by means of tap screws, one side of each of said decorative seats being provided with a vertically oriented projected strip with the other side thereof being provided with a horizontally oriented projected strip and an inclined elastic piece; and said decorative strips are also substantially L-shaped for matching said decorative strip seats, said decorative strips having grooves for matching said projected strips of said decorative strip seats so that said decorative strips may couple to said decorative strip seats as an integral whole;

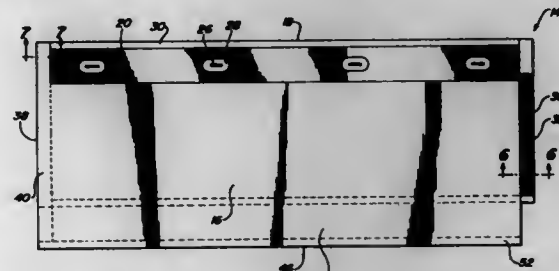
thereby said foundation elements, said flooring elements, said decorative strip seats and said decorative strips may be assembled easily and speedily according to the floor area of a room and may be dismantled.

5,671,576
DEVICE FOR ATTACHING INSULATION MATERIAL
Remo Kluser, Altstätten, Switzerland, assignor to Hilti Aktiengesellschaft, Fürstentum, Liechtenstein
Filed Feb. 12, 1996, Ser. No. 599,690
Claims priority, application Germany, Feb. 10, 1995, 195 04 463.0
Int. Cl.⁶ E04D 5/14
U.S. Cl. 52—512 5 Claims



1. A device for attaching insulation material (13) to a base material (B), such as a structural member, comprising an axially extending hollow receptacle (1) having a leading end to be fastened to a surface of the base material and a trailing end to be spaced outwardly from the base material, and a pressure component (4) having an axially extending shaft (3) with an axial length (L1) and a central throughbore (7), said shaft (3) having a leading end to be inserted into the trailing end of said receptacle and a trailing end with a large area head (2) projecting laterally outwardly from said shaft (3), said receptacle (1) having an inside surface and said shaft (3) having an outside surface each having a profiled surface (5, 6) arranged to interconnect in a positively locked manner, said shaft (3) having at least one axially extending slot therethrough extending from the leading end thereof for at least a part of the axial length (L1) thereof, and an axially elongated stud-shaped expanding element (8) drivable into said throughbore (7) of the said shaft (3) from the trailing end towards the leading end.

5,671,577
ROOFING SHINGLE
Kenneth L. Todd, Belleville, Mich., assignor to MASCO Corporation, Taylor, Mich.
Filed Jun. 6, 1995, Ser. No. 469,138
Int. Cl.⁶ E04D 11/12
U.S. Cl. 52—519 13 Claims

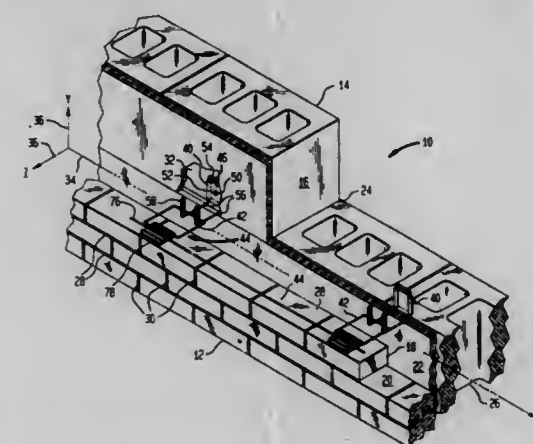


1. A roofing system incorporating a plurality of roofing shingles, said shingles arranged on a roof of a building partly overlapped by and partly overlapping adjacent roofing shingles to provide a

substantially water impervious barrier for the building roof, said roofing system comprising:

a plurality of shingles each having an integral body having an inner surface engaging the roof of the building and an outer surface exposed to form a decorative surface area of the building roof upon application of said shingles, said shingle body including first and second edge sections having outwardly disposed interlocking means and third and fourth edge sections having inwardly disposed interlocking means; said interlocking means of said first and fourth edge sections having complementary interlocking ribs, said interlocking ribs of said first and fourth edge sections having a substantially triangular outer end with longitudinal locking ridges for selective mating engagement with an adjacent shingle; said interlocking means of said second and third edge sections having complementary tongue and grooves, said tongue and grooves of said second and third edge sections having a substantially dove-tail cross-sectional configuration for selective mating engagement with an adjacent shingle; wherein said inwardly disposed interlocking means of said fourth edge section lockingly mates with said outwardly disposed interlocking means of a first overlapped adjacent shingle, said inwardly disposed interlocking means of said third edge section lockingly mates with outwardly disposed interlocking means of a second overlapped adjacent shingle, said outwardly disposed interlocking means of said second edge section lockingly mates with inwardly disposed interlocking means of a first overlapping adjacent shingle and said outwardly disposed interlocking means of said first edge section lockingly mates with inwardly disposed interlocking means of a second overlapping adjacent shingle.

5,671,578
SURFACE-MOUNTED VENEER ANCHOR FOR SEISMIC CONSTRUCTION SYSTEM
Ronald Peter Hohmann, Syosset, N.Y., assignor to Hohmann & Barnard, Inc., Happaug, N.Y.
Filed Apr. 24, 1995, Ser. No. 427,199
Int. Cl.⁶ E04B 1/02
U.S. Cl. 52—562 20 Claims

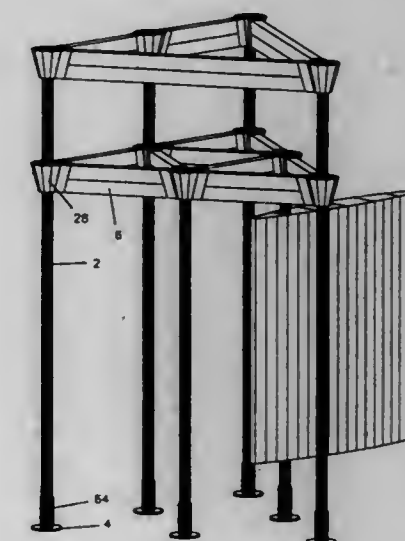


1. A seismic construction system for use in the construction of a wall structure having an inner wythe having an outer surface and an outer wythe of a facing material in spaced apart relationship forming a cavity therebetween, said system comprising, in combination:

a veneer anchor mountable on said outer surface of said inner wythe, in turn, comprising:
a baseplate substantially planar in form;
a spaced pair of transverse wire portions attached to and extending from said baseplate, each transverse wire portion attached at one end thereof to said baseplate and, when the baseplate is secured to said inner wythe, each of said pair of

transverse wire portions extending into said cavity and terminating therewithin; and,
a pair of elongated eye wire portions formed continuous with each said transverse wire portion and attached thereto at the end opposite the attachment end, said elongated eye wire portion forming an eye adapted, when installed in said wall structure, to be disposed in said cavity and to lie in a plane normal to the inner wythe surface;
a box tie device having a closed first end portion and an open second end portion, said first end portion being captively disposed in one pair of said eye wire portions; and,
a facing anchor adapted to be embedded within said outer facing wythe;
whereby, upon surface mounting of said veneer anchor on said inner wythe, captively disposing the closed end of the box tie device in the eye wire portion thereof, and the embedding the open end of said box tie device secured to the facing anchor and the facing anchor in the outer wythe; a seismic construct is formed.

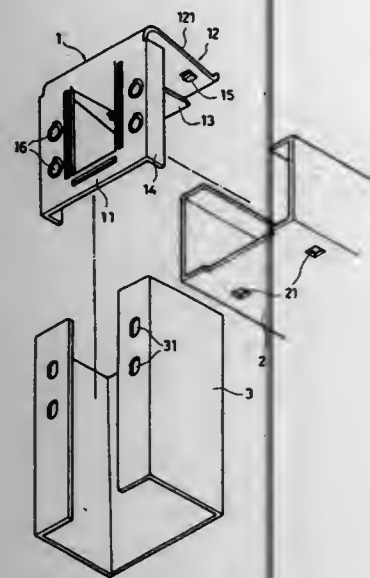
5,671,579
DISPLAY HAVING MODULAR ELEMENT STRUCTURE
Santiago Miranda Camino, Perry Allan King, both of Milan; Andrea Secco, and Lorenzo Secco, both of Dosson Di Casier, all of Italy, assignors to Applicazioni S.R.L., Dosson Di Casier, Italy
PCT No. PCT/EP94/03484, § 371 Date Apr. 3, 1996, § 102(e) Date Apr. 3, 1996, PCT Pub. No. WO95/10677, PCT Pub. Date Apr. 20, 1995
PCT Filed Oct. 14, 1994, Ser. No. 615,176
Claims priority, application Italy, Oct. 15, 1993, VE93A0028
Int. Cl.⁶ A47F 5/10
U.S. Cl. 52—653.1 19 Claims



1. A modular element structure for display spaces comprising:
a tubular upright provided with a base and comprising at least one recess,
a collar formed in at least two longitudinally separate portions embracing said tubular upright, each of said separate portions being provided with a projection complimentary to said recess, a threaded band of one of said separate portions mating with a threaded band of another of said separate portions when said separate portions are combined to form said collar, and an outwardly projecting lower band,
a tubular sleeve mountable over said collar from above and resting on said projecting lower band via a complimentary portion, a height of said tubular sleeve being such as to leave said threaded band upperly free.

a plurality of beams provided, at least at one end, with an endpiece provided with hooking means to attach to said tubular sleeve, and
a ring nut engageable with said threaded band to lock said endpiece of said beam to said tubular sleeve.

5,671,580
FRAME ASSEMBLY
Kuo-Hua Chou, No. 17, Alley 10, Lane 118, Su-Wei Rd.,
Wu-Ku Hsiang, Taipei County, Taiwan
Filed Jan. 23, 1996, Ser. No. 590,198
Int. Cl.⁶ E04C 2/38
U.S. Cl. 52—656.4

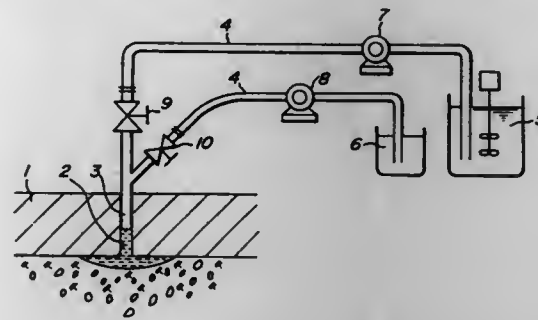


1. A frame assembly for doors and windows comprising:
a substantially right-angled fastening element having a connecting portion and a clamping portion, said connecting portion being formed by a first longitudinally extended side of said fastening element and having a side plate formed on opposing transverse sides of said first side and extending orthogonally thereto, said first side having a plurality of threaded holes formed therethrough, said clamping portion being formed by (a) a grip plate formed by a second longitudinally extended side of said fastening element, and (b) a clamp plate disposed in clamping relationship with said grip plate, said clamp plate being punched from a central portion of said connecting portion and bent into said clamping relationship with said grip plate, said grip plate having a pair of hook pieces respectively disposed at opposing transverse sides thereof adjacent a distal end of said grip plate;
a first frame having a plurality of locking holes formed therethrough and an open end, said connecting portion of said fastening element being inserted into said open end of said first frame with said plurality of locking holes disposed in respective aligned relationship with said plurality of threaded holes of said connecting portion for securement by a plurality of threaded fasteners; and,
a second frame having a pair of fastening holes formed through a rear wall thereof, said clamping portion of said fastening element being coupled to said second frame with said rear wall of said second frame captured between said clamp plate and said grip plate, said pair of hook pieces being respectively engaged within said pair of fastening holes.

2 Claims

5,671,581
WATER CUT-OFF PROCESS FOR CONCRETE STRUCTURE
Shigeo Nagahama, 341-1, Aza-Ishizaki, Kamlnokuni-Cho, Hiyama-Gun, Hokkaido, Japan
Filed Dec. 7, 1995, Ser. No. 568,995
Claims priority, application Japan, Dec. 7, 1994, 6-303801
Int. Cl.⁶ E04G 23/00
U.S. Cl. 52—741.41

10 Claims



1. A water cut-off process for a concrete wall of an underground structure having water-leaking portions, wherein a void is formed between the concrete wall and the ground, said process comprising the following steps:
drilling a through-hole extending from the inside into the outside of the concrete wall of said underground structure at each water-leaking portion thereof;
inserting a pipe into each through-hole, each pipe including a valve;
temporarily interrupting a large amount of water spouting from a discharge end of each pipe by shutting off said valve;
grouting cement slurry under low pressure through each pipe into each through-hole and pushing the cement slurry into the void between said concrete wall and the ground using a grouting pump against the pressure of the leaking water, while mixing an accelerating agent into said cement slurry, allowing the mixture of said cement slurry and said accelerating agent to stand for approximately one day to form a hardened cement layer on a surface of said concrete wall facing the ground where said void is formed;
cutting off the end of said pipe projecting from a surface of said concrete wall away from the ground;
removing unhardened cement from each pipe if water continues to leak therefrom;
packing a mound of a cement powder composition over each water-leaking pipe under pressure using a cement filling gun; compressing said packed cement powder in said pipe and said through-hole by exerting a strong impacting stress thereon using an impacting tool to consolidate and compact said cement powder composition in said pipe and said through-hole;
repeating the processes of packing and compressing said cement powder composition until said through-hole is filled with said cement powder composition; and
leveling off the resulting through-hole with a cement paste.

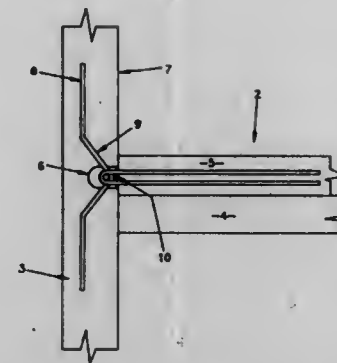
5,671,582
FLOOR TO WALL TIE METHOD OF CONSTRUCTION
Alan Michael Reay, Christchurch, New Zealand, assignor to Engineering Certifiers Limited, Christchurch, New Zealand
Filed Aug. 23, 1995, Ser. No. 518,199
Claims priority, application New Zealand, Oct. 3, 1994, 264597

Int. Cl.⁶ E04B 1/00

U.S. Cl. 52—745.05

4 Claims

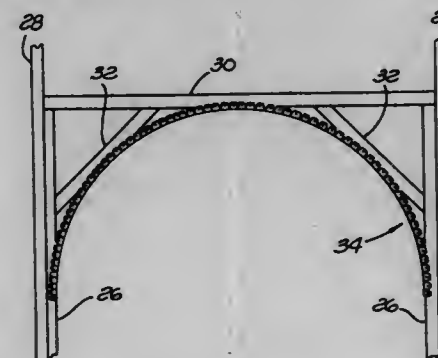
1. In a method of construction of a building of two or more storeys comprising:



a) precasting in a mould a plurality of concrete walls each defining outer and inner wall surfaces with each inner wall surface being inclusive of a plurality of inwardly-extending cavities formed by a packing material strategically positioned in the mould preliminary to the moulding and with shaped lengths of metal bars so positioned within the mould that an engageable portion of each metal bar is extendable into a respective cavity-defining area preliminary to the moulding;
b) removing the packing materials from the formed cavities of the walls;
c) precasting in a mould a plurality of floor slabs of appropriate dimensions;
d) positioning the walls and floor slabs in respective positions on the site;
e) securing metal floor tie bars to the floor slabs with engageable outboard tie bar portions being extendable outwardly from each floor slab end;
f) interengaging the engageable outboard portion of the floor tie bar with a respective engageable portion of the side wall metal bar;
g) covering the floor tie bars with a topping; and
h) with each tie bar being retained in position with the metal bar pin element, each tie bar having two limbs and being formed from a metal flat and the limbs formed from a first flat, end, after said end has been slotted and rolled to fit around the metal bar circumferential dimensions and welded into shape.

5,671,583
CONSTRUCTION MEMBER AND METHOD FOR FORMING ARCHWAYS AND THE LIKE
Arthur Ray Turner, 9 The Parapet, Terranora N.S.W. 2486, Australia
Continuation-in-part of Ser. No. 763,424, Sep. 20, 1991, which is a continuation of Ser. No. 489,484, Mar. 6, 1990. This application Jan. 8, 1992, Ser. No. 818,165
Int. Cl.⁶ E04G 15/02
U.S. Cl. 52—745.16

6 Claims

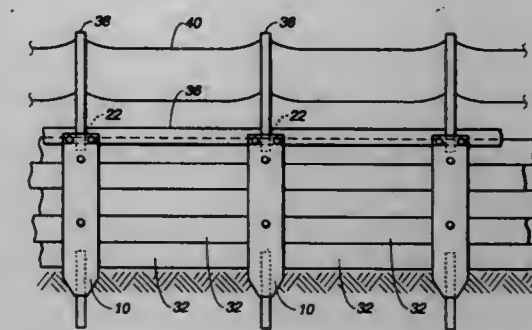


1. A method for constructing an archway in a frame that defines an opening with a width, comprising the steps of:

a) providing a flat flexible member having a solid center sheet section defining longitudinal edges and with a longitudinal axis, a first surface and a second surface, said flat flexible member further having tabs extending from said longitudinal edges of said second surface of said center sheet section, said flexible member being constructed to be flexible enough to be manually bent;
b) manually bending said flat flexible member along the longitudinal axis of said solid center sheet section into a radial arch shape without yielding said flexible member; and,
c) attaching said tabs to the frame such that said flexible member forms an archway.

5,671,584
METHOD AND APPARATUS FOR CONSTRUCTING A RETAINING WALL
John F. Mueller, 80 Chamberlain Ave., Novato, Calif. 94947
Filed Aug. 28, 1996, Ser. No. 704,156
Int. Cl.⁶ E04B 2/60; E04H 17/22
U.S. Cl. 52—780

6 Claims

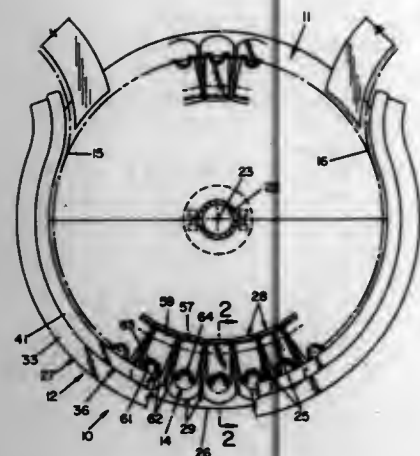


1. A retaining wall apparatus comprising:
a plurality of stake members adapted to be driven into the ground;
a plurality of post members, each post member having first and second elongate, vertical plates joined in a spaced, generally parallel relationship by first and second vertical brace portions, thereby defining a central cavity between a pair of open web portions; and
at least one plank member, wherein when said stake members are driven into the ground, said post members are placed over said stake members so that said stake members are inserted into and engage said post member central cavity, and said at least one plank member is inserted between opposing web portions of adjacent post members to form a wall.

5,671,585
QUICK CHANGE CONNECTION FOR FILLING AND CAPPING MACHINES
Michael H. Peronek, Strongsville, and Daniel L. Goodell, Tallmadge, both of Ohio, assignors to FCI, Inc., Cleveland, Ohio
Filed May 13, 1996, Ser. No. 645,555
Int. Cl.⁶ B65B 7/28; 59/04
U.S. Cl. 53—253

50 Claims

50. A bottling machine for filling or capping containers having a generally circular cross-section comprising: a rotatable star wheel means mounted on a hub of said bottling machine for moving said containers through said machine; means on said star wheel means for supporting said containers including pocket support means for holding and supporting said containers therein; rear guide means located radially outwardly from said star wheel means for retaining said container within said pocket support means during rotation of the said star wheel means; said rear guide means including side-wall guide means for maintaining the sidewall of said containers in position during rotation of said star wheel; said star wheel includ-



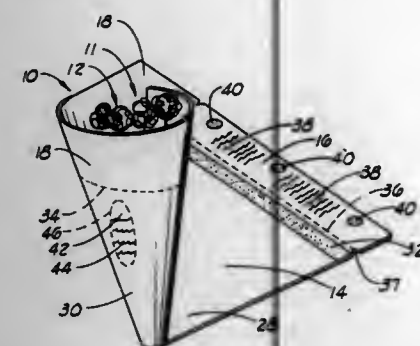
ing a first semi-circular half and a second semi-circular half and means for mounting said halves to said hub including bayonet clamp means having a rod portion extending through each of said halves and a complementary rod grasping portion on said second half, said rod portion including handle means on a first end for actuating said clamp means, locking means on a second end for inserting and releasably retaining within said rod grasping portion and biasing means for actuating the locking means.

5,671,586 SHEETS AND SHEET ROLLS OF WRAPPING MATERIAL HAVING DETACHABLE LABELS

Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Oklahoma City, Okla., not individually, but as trustee of The Family U/T/A dated December 8, 1995, Charles A. Coddington Authorized Signatory for Southpac Trust International, Inc., trustee
Continuation of Ser. No. 67,317, May 25, 1993, Pat. No. 5,493,843, which is a continuation-in-part of Ser. No. 979,510, Nov. 19, 1992, abandoned, and Ser. No. 965,585, Oct. 23, 1992, abandoned, which is a continuation of Ser. No. 893,586, Jun. 2, 1992, Pat. No. 5,181,364, which is a continuation of Ser. No. 707,417, May 28, 1991, abandoned, which is a continuation of Ser. No. 502,358, Mar. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 249,761, Sep. 26, 1988, abandoned, which is a continuation-in-part of Ser. No. 219,083, Jul. 13, 1988, Pat. No. 4,891,031, which is a continuation of Ser. No. 4,275, Jan. 5, 1987, Pat. No. 4,773,182, which is a continuation of Ser. No. 613,080, May 22, 1984, abandoned. This application May 28, 1995, Ser. No. 448,148
Int. Cl.⁶ B65B 25/02; 11/02; 5/06; 47/04

U.S. Cl. 53—397

6 Claims



1. A method of wrapping a floral grouping with a sheet of material, the steps of the method comprising:
providing a sheet of material having a wrapping area sized to substantially encompass the floral grouping and a detachable

label area having information related to the floral grouping displayed thereon, the sheet of material having a bonding material disposed thereupon for securing the wrapping area around the floral grouping;
placing a floral grouping upon a portion of the wrapping area; and
wrapping the floral grouping with the sheet of material and causing the bonding material to bondingly connect to another portion of the sheet of material such that the sheet of material is secured about the floral grouping with the wrapping area substantially encompassing the floral grouping and the information of the detachable label area being viewable.

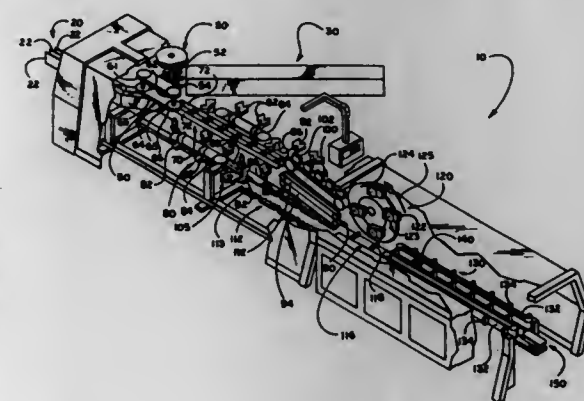
5,671,587 METHOD AND APPARATUS FOR LOADING BOTTOM-LOADING BASKET-STYLE CARRIER

Glenn Robinson, Atlanta, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Apr. 13, 1995, Ser. No. 421,113
Int. Cl.⁶ B65B 21/14; 21/24; 5/06; 43/26

U.S. Cl. 53—398

9 Claims



1. An apparatus for loading containers into open-bottomed carriers, the carriers having a pair of opposing bottom panels adjoining side walls thereof, the apparatus comprising:
a container feeder assembly having conveyor mechanism for translating at least one column of a series of groupings of predetermined numbers of containers along a first level;
a carrier feeder for retrieving the carriers from a carrier infeed supplier;
a carrier timer-transport assembly disposed in operative communication with said carrier feeder for receiving the carriers from said carrier feeder and initiating transport of the carriers in synchronous parallel motion with said at least one column of a series of groupings of predetermined numbers of containers at a second level above said first level such that the carriers are aligned over respective ones of said groupings of predetermined numbers of containers;
a gripper assembly for grasping and pulling the bottom panels of the carriers outwardly with respect to a centerline thereof such that the bottom panels are substantially transversely disposed with respect to side walls of the carriers and the sidewalls of the carrier are disposed in erected condition distal the centerline of the carrier as the carriers are translated;
a declination belt assembly having a pair of continuous downwardly-declining pathways each defined by at least one downwardly-declining elongated endless belt having a face adapted for receiving in direct face contacting relationship therewith transversely extended bottom panels of the carriers and transporting the carriers in synchronous downwardly-declining linear motion over respective ones of said groupings of predetermined numbers of containers; and
a bottom panel closure mechanism for securing the bottom panels of each carrier together.

5,671,588 METHOD AND APPARATUS FOR APPLYING CARRIERS TO CONTAINERS

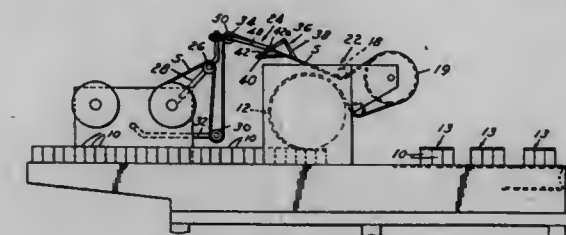
John Chan, DeSoto, Tex., and Richard L. Chaddock, Huntington Beach, Calif., assignors to Owens-Illinois Labels Inc., Toledo, Ohio

Filed Sep. 8, 1995, Ser. No. 524,925

Int. Cl.⁶ B65B 17/02; 27/04; 55/24

U.S. Cl. 53—398

14 Claims



1. In an apparatus for applying a can carrier to successive groups of cans from a strip of carriers on a roll where the strip is fed from the roll to an applicator, the improvement comprising a cleaning device interposed between said roll and said applicator.
said cleaning device including opposite cleaning means between which the strip of carriers is moved such that dirt, dust and material plate-out is removed from the surface of said strip, said cleaning means comprises an upper brush and a lower brush, and
and means for adjusting the position and the angle of said brushes with respect to said strip of carriers.

5,671,589 TAPE PERFORATING HEAD ASSEMBLY AND METHOD

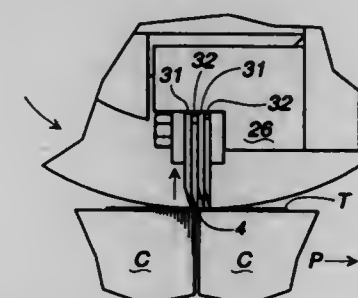
Gerald O. Irvine, Tucson, Ariz.; Bobby L. Miller, Jr., and Matthew V. Sundquist, both of Marietta, Ga., assignors to Riverwood International Corporation, Atlanta, Ga.

Filed Feb. 28, 1996, Ser. No. 608,173

Int. Cl.⁶ B65B 61/18

U.S. Cl. 53—412

15 Claims



14. A method of taping a series of article carriers together into a single package, and of scoring a perforated tear line in a packaging tape used to hold the carriers together, on a packaging machine, said method comprising the steps of:
moving the series of article carriers along a path of travel through the packaging machine;
positioning at least two of the carriers adjacent one another along the path of travel;
applying at least one piece of packaging tape across the sides of the at least two carriers and holding the at least two carriers together in response thereto;
positioning at least one headpiece, the headpiece having a plurality of parallel perforating blades reciprocally supported thereon, adjacent the path of travel;
moving said at least one headpiece in timed relationship with the movement of the at least two carriers along the path of travel;

engaging said at least one piece of packaging tape with said plurality of perforating blades;
scoring the perforated tear line in said at least one piece of packaging tape between the at least two article carriers with one of said plurality of perforating blades in response thereto; and
independently moving the others of said plurality of perforating blades inwardly of said headpiece in response to striking the respective sides of the at least two carriers.

5,671,590 CASING FOR HOUSING DISC CARTRIDGE AND METHOD FOR PACKAGING THE CASING

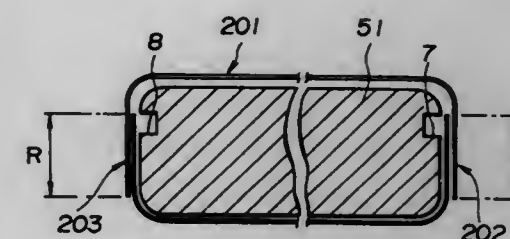
Takatsugu Funawata, Masaei Fukaya, and Hiroyuki Honma, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 277,783, Jul. 20, 1994, Pat. No. 5,450,952, which is a continuation of Ser. No. 36,626, Mar. 24, 1993, abandoned. This application Feb. 17, 1995, Ser. No. 390,101
Claims priority, application Japan, Mar. 31, 1992, 4-103958; Mar. 31, 1992, 4-103959; Mar. 31, 1992, 4-103960; Mar. 31, 1992, 4-103965

Int. Cl.⁶ B65B 53/02

U.S. Cl. 53—442

1 Claim



1. A packaging method for a casing having a top, a bottom, lateral sides and having an opening and a cut-out formed out of the top and bottom at the opening of the casing and a pair of grooves formed along each of the lateral sides of the casing, comprising the steps of
covering at least said opening and said cut-out with a sheet-shaped member,
applying heat shrinkable film around said casing so that overlapping portions are formed at offset positions from the grooves on the lateral sides of the casing, and
heat-shrinking the film around the casing and fusing the ends of said film.

5,671,591 INTEGRATED CONTAINER MOULDING AND FILLING FACILITY

Bruce Forester Fleenor, Roswell, Ga., assignor to Ashland, Inc., Russell, Ky.

Filed May 1, 1995, Ser. No. 432,398

Int. Cl.⁶ B65B 29/00; 31/00; 55/24

U.S. Cl. 53—452

20 Claims

1. An integrated method of making containers for ultra-high purity chemicals used in the fabrication of semiconductor wafers comprising
forming molded containers,
testing said containers for leaks with injected highly filtered air,
exposing said newly formed containers to ionized air, conveying said containers to a filling area, exposing said containers to ionized air while conveying said containers, and
filling said containers with ultra-high purity chemicals, all steps occurring in an environment maintained free of contamination according to semiconductor manufacturer standards which are defined as a resistivity of ultra pure water of at least 18

megohm-cm at 25° C., less than about 25 ppb of electrolytes other than said ultra-high purity chemical itself, a particulate content of less than 150/ml and a particle size less than 0.2 micron, a microorganism content less than 10/ml and total organic carbon less than 100 ppb.

5,671,592

MEDICINE PACKING APPARATUS

Shoji Yuyama, Toyonaka; Takaaki Murakami, Osaka, and Kunihiko Kano, Toyonaka, all of Japan, assignors to Yuyama Mfg. Co., Ltd., Osaka-fu, Japan

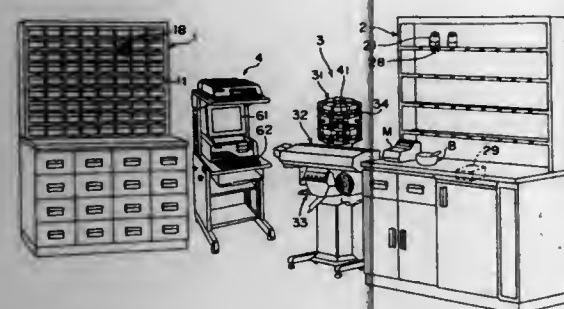
Filed Aug. 31, 1995, Ser. No. 522,491

Claims priority, application Japan, Oct. 21, 1994, 6-256542

Int. Cl.⁶ B65B 1/04, 1/30

U.S. Cl. 53—493

19 Claims



1. A medicine packing apparatus comprising: medicine storage shelves for storing a large number of medicine containers each having a medicine contained therein; a relatively small number of medicine feed means on each of which one of the medicine containers is set for feeding a medicine in a quantity conforming to a prescription; packing means for packing the medicine fed from the medicine feed means by one dose; identification means provided for each of the medicine containers; read means for reading medicine data from the identification means of the medicine container set on the medicine feed means; set location memory means for memorizing the set location for the medicine container on the basis of the medicine data read by the read means; and set location search means for searching, on the basis of the set location data for each medicine memorized in the set location memory means, the medicine feed means on which a medicine container for the medicine corresponding to the prescription is set.

5,671,593

SEMI-AUTOMATIC PACKAGE WRAPPING MACHINE

Larry J. Ginestra, Rockford, and Michael E. Miller, South Beloit, both of Ill., assignors to Wrap-It-Up, Inc., Rockford, Ill.

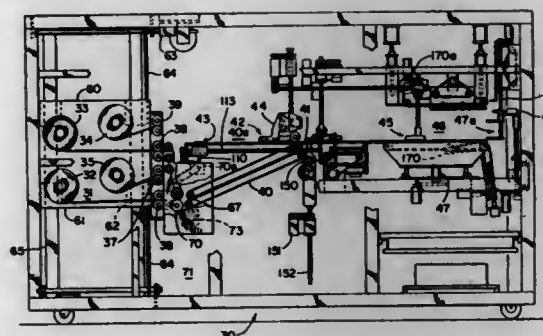
Filed Dec. 28, 1995, Ser. No. 583,140

Int. Cl.⁶ B65B 11/22, 59/00

U.S. Cl. 53—504

28 Claims

18. A method of automatically wrapping a box of arbitrary size in a machine having a plurality of paper supplies and a processor controlled cutter, the method comprising the steps of: placing a box of arbitrary size in an arbitrary position in the machine; operating a computer controlled pusher to advance the box to a ready-to-wrap position; automatically measuring the length, width and height of the box as it is advanced to the ready-to-wrap position;



selecting one of the paper supplies and cutting from the supply a sheet of paper having dimensions calculated to wrap the box, pressing the leading edge of the sheet to the box and, without tumbling the box, overwrapping the paper around four sides thereof leaving two edges with unfolded flaps extending therefrom; relatively advancing the box and a set of folding fingers so that the unfolded flaps engage the fingers and two short flaps are folded against the box edge; folding the two remaining long flaps against the box edge.

5,671,594

DENSITY CONTROL MEANS FOR AN AGRICULTURAL FEED BAGGING MACHINE

Steven R. Cullen, Astoria, Oreg., assignor to Versa Corp., Astoria, Oreg.

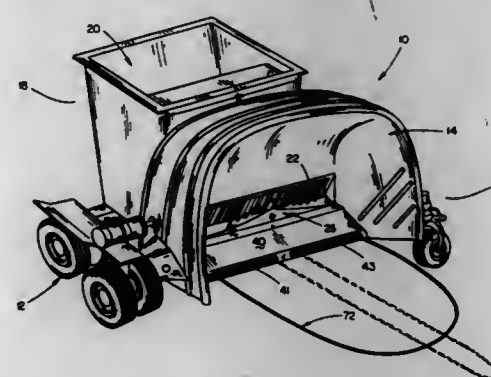
Continuation of Ser. No. 448,995, May 24, 1995, which is a continuation-in-part of Ser. No. 200,760, Feb. 23, 1994, Pat. No. 5,425,220, which is a continuation-in-part of Ser. No. 3,540, Jan. 13, 1993, Pat. No. 5,297,377, which is a

continuation-in-part of Ser. No. 912,873, Jul. 13, 1992, abandoned. This application Dec. 9, 1996, Ser. No. 762,195

Int. Cl.⁶ B65B 1/24

U.S. Cl. 53—567

2 Claims



1. An agricultural bagging machine for bagging agricultural material into an agricultural bag having a closed end and an open mouth comprising: a frame having rearward and forward ends; a tunnel on said frame having an intake end for receiving the material to be bagged and an output end adapted to receive the open mouth of the agricultural bag; said tunnel having a top wall and opposite side walls; a hopper on said frame forwardly of said tunnel for receiving the material to be bagged; a horizontally disposed rotor at the intake end of said tunnel for forcing the material to be bagged from said hopper through said tunnel and into said bag; and an elongated beveled press plate positioned on said frame rearwardly of said rotor;

said elongated beveled press plate having a longitudinal axis which is disposed transversely to the flow path of the material being forced rearwardly by said rotor;

said beveled press plate including opposite ends, and a front wall which extends upwardly into the path of the material being forced rearwardly by said rotor;

said front wall of said beveled press plate including first and second wall portions which are angularly disposed with respect to each other, each of said wall portions extending upwardly, outwardly and rearwardly so that the material moving into engagement therewith is moved upwardly, outwardly and rearwardly.

5,671,595

RECEIVING TABLE FOR HARVESTERS

Dominik Bürmann, Verl, Germany, assignor to claus obg beschraekt haftende offene handelsgesellschaft, Harsewinkel, Germany

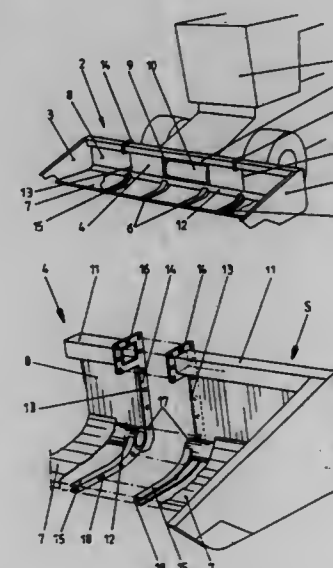
Filed Jun. 29, 1995, Ser. No. 496,398

Claims priority, application Germany, Aug. 4, 1994, 44 28 857.3

Int. Cl.⁶ A01D 47/00

U.S. Cl. 56—208

4 Claims



1. A receiving table for harvesters, comprising a central part mountable on a harvester; two side parts connected with said central part, said central part and said two side parts each having an upper main support, a lower main support, a rear wall and a bottom wall; a plurality of transverse supports connected with the lower main support of said central part and a transverse support connected with the lower main support of each side part, said transverse supports of said side parts being connected with said transverse supports of said central part; and a plurality of connecting flanges arranged on said rear wall of said central part and a connecting flange on each side wall and connecting said upper and said lower main supports of said central part and said side parts with one another; connecting means for connecting said central part and said side parts, said connecting flanges connecting said upper and lower main supports and extending over a whole height of said rear walls.

5,671,596

BOBBIN AND CORE SLEEVE TRANSPORT SYSTEM FOR A ROVING FRAME

Karl-Heinz Mack, Wellheim; Karl-Heinz Zettler, Reutlingen, and Hans-Peter Weeger, Hattenhofen, all of Germany, assignors to Zinser Textilmaschinen GmbH, Ebersbach/Fils, Germany

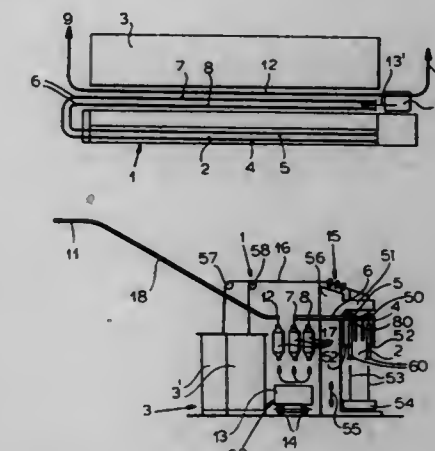
Filed Dec. 15, 1995, Ser. No. 573,378

Claims priority, application Germany, Dec. 19, 1994, 44 45 263.2; Dec. 19, 1994, 44 45 264.0; Dec. 19, 1994, 44 45 265.9

Int. Cl.⁶ D01H 9/10, 9/14

U.S. Cl. 57—281

19 Claims



1. A bobbin and core sleeve transport system comprising: a roving frame formed with a flyer region having at least one row of flyers; a suspension carriage track extending through said row of flyers; a suspension carriage train of a certain length displaceable along said suspension carriage track and provided with hangers receiving full bobbins from said roving frame and carrying empty core sleeves to said roving frame; and a parking track connected to said suspension carriage track at least at one end thereof so as to permit said suspension carriage train to travel from said suspension carriage track directly onto said parking track, said parking track being of a length sufficient to accommodate a full length of said suspension carriage train, and terminating at said roving frame so as to be incapable of directly delivering bobbins to a spinning frame or directly receiving empty core sleeves from a spinning frame, said parking track extending alongside said roving frame.

5,671,597

LOW NO_x FUEL NOZZLE ASSEMBLY

Aaron S. Butler, Ledyard, and Thomas J. Madden, Vernon, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

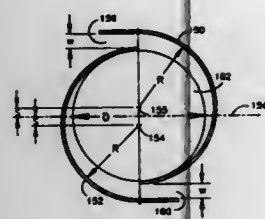
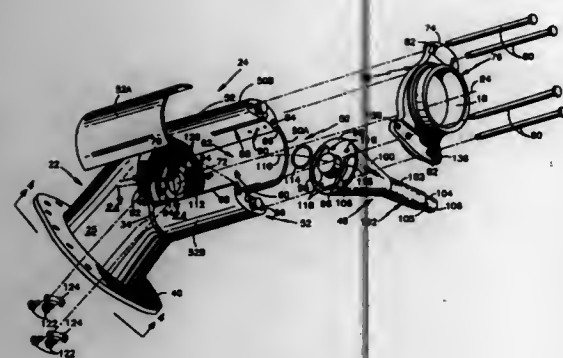
Filed Dec. 22, 1994, Ser. No. 363,189

Int. Cl.⁶ F02C 7/20

U.S. Cl. 60—39.31

4 Claims

1. A low NO_x nozzle assembly for use in an industrial gas turbine engine, comprising: a support fixture, including a housing having an internal cavity extending from an interface surface at one end of said housing to a mounting surface at a distal end thereof; a tangential entry scroll swirler, comprising a centerbody positioned axially within a mixing chamber of an assembly formed by an endcap and a pair of arc scrolls, said endcap including an outlet aperture disposed in axial registration with said mixing chamber and having a first diameter, said assembly being removably engaged to a radially outward region of said interface surface and said centerbody being removably



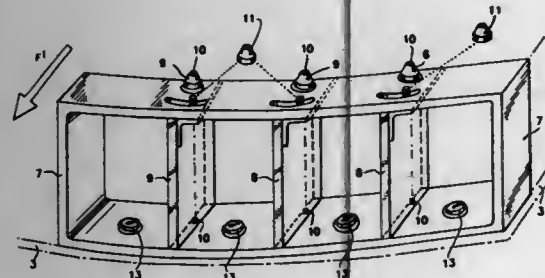
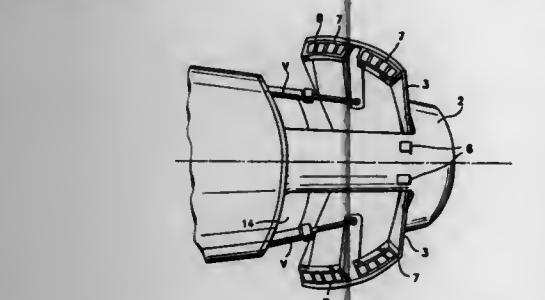
engaged, separate from said assembly, to a central region of said interface surface.

5,671,598
FORWARD MOUNTED PIVOTING DOOR REVERSER WITH EFFLUX CONTROL DEVICE
Robert R. Standish, Gazeran, France, assignor to Societe de Construction des Avions Hurel-Dubois, Meudon la Foret, France

Filed Dec. 5, 1995, Ser. No. 567,158
Claims priority, application European Pat. Off., Sep. 13, 1995, 95402067

Int. Cl.⁶ F02K 1/62
U.S. Cl. 60—226.2

3 Claims



1. A thrust reverser for a turbo-fan engine with mixed hot and cold airflow, said thrust reverser being mounted on the aft fuselage of an aircraft, the thrust reverser comprising:
thrust reversing pivoting doors, installed forward of an aft ring exit nozzle structure, and movable from a stowed position in which they complete a fan duct fairing of the engine and do not interfere with said airflow to a deployed position in which

they block the mixed airflow and direct it in a forward direction, according to a reverse thrust efflux pattern;
a pivoting door actuator attached to the center of each pivoting door for moving the door from said stowed position to said deployed position;
deflector box assemblies, on each door forward extremity, mounted perpendicularly to the door, in order to direct said reverse thrust efflux pattern away from the aircraft fuselage and tail surfaces, each deflector box assembly comprising:
a box frame without front and back plates,
a plurality of deflectors that pivot within the box frame and that can be oriented to a desired angle in order to control the efflux flow pattern.

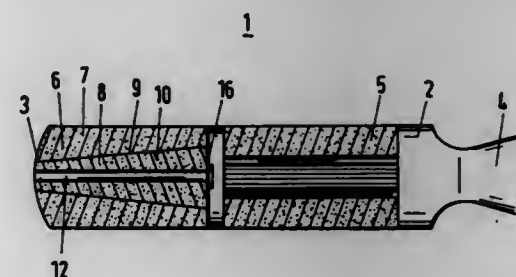
5,671,599
SOLID-PROPELLANT ROCKET ENGINE WITH INNER AND OUTER BURNER SURFACES
Johann Höcherl, Unterhaching, Germany, assignor to Bayern-Chemie Gesellschaft für Flugchemische Antriebe GmbH, Aschau, Germany

Filed Mar. 8, 1996, Ser. No. 613,258
Claims priority, application Germany, Mar. 11, 1995, 19508830.1

Int. Cl.⁶ F02K 9/10

U.S. Cl. 60—234

10 Claims



1. A solid-propellant rocket engine, comprising:
chamber means defining a combustion chamber;
a support structure connected to said chamber means;
at least one thrust nozzle at a downstream end of said combustion chamber;
a two-part grain arranged in said combustion chamber including one part forming an outwardly disposed inner surface burner part and another part forming an inwardly disposed outer surface burner part, said outer surface burner part being connected to said support structure, said outer surface burner part having a cross-section changing over its length and being arranged in a space defined by said inner surface burner part which space corresponds to a shape of said outer surface burner part, said outer surface burner part being axially displaceable relative to said inner surface burner part;
a thermal barrier arranged at a nozzle side end of said two-part grain, said outer surface burner part being fitted gap-free into said inner surface burner part wherein a circumferential contour formed by a contact surface of said inner surface burner part and said outer surface burner part encloses a cross-section expanding from a front end of said two-part grain to a rear, nozzle-side end of said two-part grain; and
detachable, positive-locking connection means for maintaining said inner surface burner part and said outer surface burner part connected in an inactive state and releasing the connection between said inner surface burner part and said outer surface burner part upon ignition of said two part grain, thereby allowing movement of said outer surface burner part from said inactive position into a rear, active position providing a defined flow gap between said contact surfaces of said two-part grain.

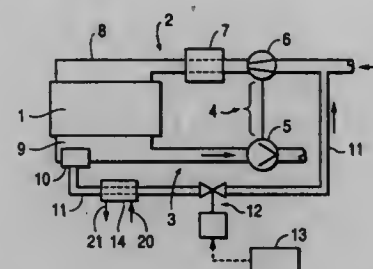
5,671,600
METHOD OF REDUCING THE NO_x EMISSION OF A SUPERCHARGED PISTON-TYPE INTERNAL COMBUSTION ENGINE

Franz Pischinger, Aachen; Manfred Dürholz, Heinsberg; Gerhard Lepperhoff, Stolberg, and Georg Hühwobl, Aachen, all of Germany, assignors to FEV Motorentechnik GmbH & Co. KG, Aachen, Germany

Filed Nov. 9, 1995, Ser. No. 555,788
Claims priority, application Germany, Nov. 9, 1994, 44 39 940.5

Int. Cl.⁶ F02B 37/00; F02M 25/06
U.S. Cl. 60—605.2

4 Claims



1. A method of reducing NO_x emissions of a turbocharged internal combustion engine having an exhaust conduit guiding an exhaust gas stream, a charge-air intake conduit guiding a charge-air stream and a turbocharger including a turbine disposed in the exhaust conduit and a compressor disposed in the charge-air intake conduit; comprising the following steps:

- after an engine operation close to full load conditions is reached, branching off, by a controlled operation of a valve, a partial exhaust gas quantity from the exhaust gas stream upstream of the turbine as viewed in a direction of exhaust gas flow;
- passing the partial exhaust gas quantity through a particle filter;
- introducing the partial exhaust gas quantity into the charge-air stream upstream of the compressor; and
- heating the particle filter by at least one part of the exhaust gas stream.

5,671,601
GEOHERMAL POWER PLANT OPERATING ON HIGH PRESSURE GEOHERMAL FLUID

Lucien Y. Bronicki, Yavne, Israel; Gilbert Rioulet, Paris, France; Nadav Amir, Rehovot, Israel; Moshe Grassianni, Herzlyia, Israel; Asher Elovic, Macabeem, Israel; Yoel Gilon, Jerusalem, Israel, and Alex Moritz, Holon, Israel, assignors to Ormat Industries, Ltd., Yavne, Israel

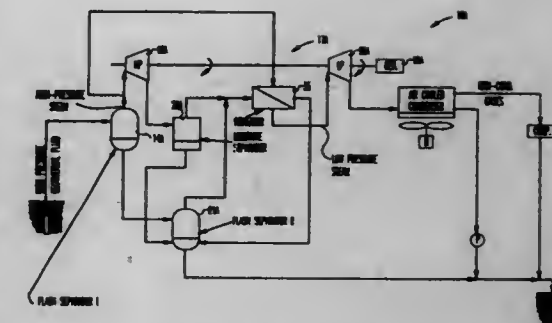
Continuation of Ser. No. 124,792, Sep. 22, 1993, abandoned, which is a continuation of Ser. No. 955,686, Oct. 2, 1992, abandoned. This application Oct. 27, 1994, Ser. No. 329,781

Int. Cl.⁶ F03G 7/00
U.S. Cl. 6—641.5

37 Claims

1. A method for producing power from geothermal fluid comprising the steps of:

- producing steam using said geothermal fluid;
- providing a high pressure steam turbine for producing power from steam produced from said geothermal fluid;
- separating moisture from heat depleted steam exiting said steam turbine for producing dried heat depleted steam and liquid;
- draining said liquid into a chamber for collecting said liquid;
- supplying further liquid to said chamber, the temperature of the further liquid being higher than the temperature of liquid draining into said chamber; and
- flashing liquid in said chamber for producing steam and supplying it together with said dried heat depleted steam to



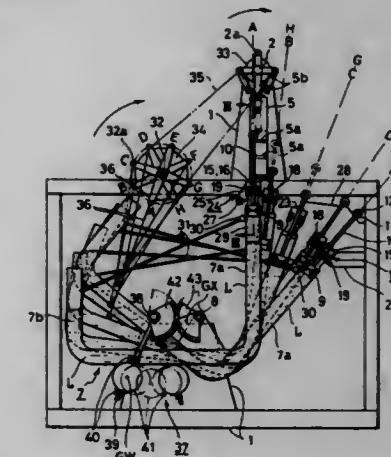
the inlet of a further steam turbine for producing power and further heat depleted steam.

5,671,602
POWER GENERATING APPARATUS AND VACUUM GENERATING APPARATUS BY APPLYING TORRICELLI'S VACUUM
Kunio Hashimoto, Kitakyushu, Japan, assignor to Kabushiki Kaisha Nihon Pipe Conveyor Kenkyusho, Fukuoka-ken, Japan

Filed Apr. 12, 1995, Ser. No. 421,425
Claims priority, application Japan, Dec. 6, 1994, 6-302441
Int. Cl.⁶ F03G 3/00

U.S. Cl. 60—721

7 Claims



1. A power generating apparatus applying Torricelli's vacuum comprising:
a frame;
a plurality of operating tubes each of which is pivotally supported by a pivotal shaft provided at an intermediate portion of said frame so that each of said operating tubes can freely make rising-up and falling-down movements;
a crankshaft having a plurality of crank parts;
each of said plurality of operating tubes being provided with a piston at an upper end thereof, said piston being slidably and hermetically fit into each of said operating tubes, each of said operating tubes having an inside for accommodating a liquid, under each said piston on the inside of said operating tube Torricelli's vacuum is formed when said operating tube is in a position directed substantially overhead;
each said piston being connected with a respective one of said crank parts of said crankshaft by driven means;
accompanying rotation of said crankshaft, said operating tubes being driven to said rising-up and falling-down movements in mutually different phases;
each of said operating tubes and said liquid therein being mutually related so as to be able to balance in gravity about both sides of said pivotal shaft of said operating tubes by making said pivotal shaft as a border thereof.

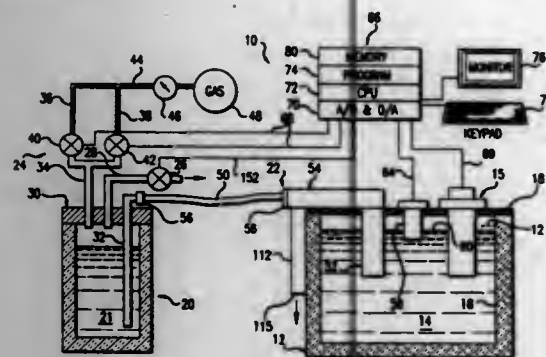
5,671,603
APPARATUS FOR CONTROLLING LEVEL OF CRYOGENIC LIQUID

E. Joel McCorkle, Woodbury; Herman Vogel, Newtown, both of Conn.; Marcel Margulies, Scarsdale, N.Y., and Richard T. Ferranti, Huntington, Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Dec. 8, 1995, Ser. No. 569,436
Int. Cl.⁶ F17C 13/02

U.S. Cl. 62—49.2

18 Claims



1. An apparatus for controlling level of cryogenic liquid, comprising a vessel for containing a cryogenic liquid having a liquid level in the vessel subject to an intrinsic declination, a pressure tank for holding a supply of the cryogenic liquid, a transfer duct connected to transfer liquid from the tank to the vessel by pressure in the tank, pressure means for selectively effecting pressure in the tank so as to effect the transfer, a primary sensor disposed to sense the liquid level being above or below a selected operating level, and a controller operatively connected between the primary sensor and the pressure means for commanding the pressure means to effect control pressure to the tank, the control pressure comprising a first series of pressure pulses effected when the liquid level is below the operating level such that the pressure in the tank is augmented until the liquid level reaches the operating level, whereby the liquid level is maintained substantially at the operating level in compensation for the intrinsic declination.

5,671,604
APPARATUS FOR ICING A PACKAGE

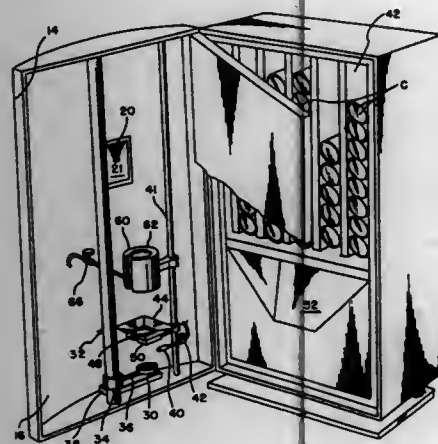
Arthur G. Rndick, Atlanta, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.

Filed Jan. 22, 1996, Ser. No. 589,659

Int. Cl.⁶ F25D 13/06

U.S. Cl. 62—52.1

26 Claims



1. Apparatus for vending packaged beverages with frosted coatings of ice on exterior surfaces of the rended package comprising:

a cabinet for storing a supply of the packaged beverages to be rendered, said cabinet having a front face with a delivery port therein through which the packaged beverages are rendered; spray means for applying a mist of freezable liquid to the exterior surfaces of the packaged beverages; and refrigeration means for freezing the liquid on the exterior surfaces to form a frosted coating of ice thereon.

5,671,605
REFRIGERANT RECOVERY SYSTEM

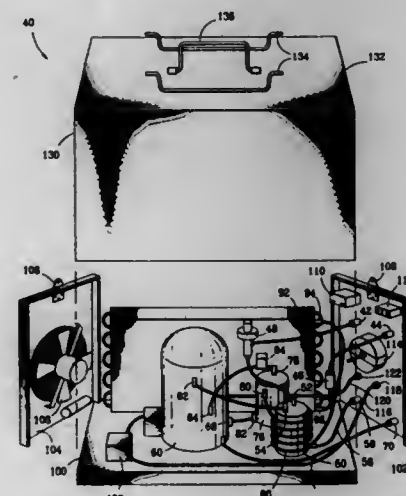
David Helterbrand, deceased, late of Garland, Tex., by Mark A. Helterbrand, executor, assignor to DaveCo Industries, Inc., Garland, Tex.

Filed Sep. 15, 1995, Ser. No. 528,619

Int. Cl.⁶ F25B 47/00

U.S. Cl. 62—85

17 Claims



9. A method for recovering refrigerant from a cooling system, comprising:

mounting an oil separator directly to a heat conductive aluminum base in a heat conductive relationship therewith; compressing the refrigerant using a compressor; separating oil from the refrigerant using the oil separator having a cylindrical side wall and opposing ends for receiving incoming refrigerant before the refrigerant is drawn into the compressor, the oil separator having a helical coil disposed in a heat transfer relationship with the cylindrical side wall of the oil separator for receiving the refrigerant after the refrigerant is compressed by the compressor, thereby cooling the refrigerant; condensing the refrigerant using a condenser coil for receiving the refrigerant after the refrigerant has passed through the helical coil for further cooling the refrigerant, causing it to condense; disposing the oil separator within an enclosure, which includes the heat conductive aluminum base; and forcing air into the enclosure, around the oil separator mounted directly to the aluminum base, through the condenser coil, and then exteriorly of the enclosure, wherein the air is forced into the enclosure in a first direction which is substantially at right angles to a second direction at which the air is forced through the condenser coil; and wherein the step of forcing air into the enclosure pressurizes the air within the enclosure and around the oil separator.

5,671,606
METHOD AND APPARATUS FOR SENSING AND CONTROLLING THE LEVEL OF ICE IN AN ICE DISPENSER

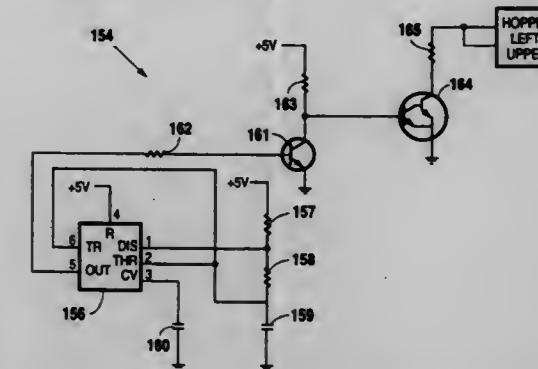
Alfred A. Schroeder; Bennet G. Credle; Richard L. Laughlin, and Thomas J. Chadwell, all of San Antonio, Tex., assignors to Lancer Corporation

Filed Sep. 18, 1995, Ser. No. 529,551

Int. Cl.⁶ F25C 1/00; G06M 7/00

U.S. Cl. 62—137

10 Claims



1. An apparatus for monitoring and controlling the level of ice in an ice storage container, comprising:
an emitter mounted within the ice storage container;
a detector mounted within the ice storage container directly opposite from said emitter;
a pulse circuit for applying a duty cycle signal to said emitter wherein said duty cycle signal permits the application of increased power to said emitter to increase the signal level of a pulse train output by said emitter, said pulse circuit comprising:
a timer configured to generate a pulse train signal,
an inverter for amplifying the pulse train signal, and
a power transistor for amplifying the pulse train signal; and
a receiver circuit for outputting a signal responsive to the pulse train detected by said detector.

5,671,607
COMPRESSION REFRIGERATION MACHINE

Herbert Clemens; Ulrich Plantikow, and Detlef Wüsthoff, all of Munich, Germany, assignors to SEP Gesellschaft Für Technische Studien Entwicklung Planung mbH, Ismaning, Germany

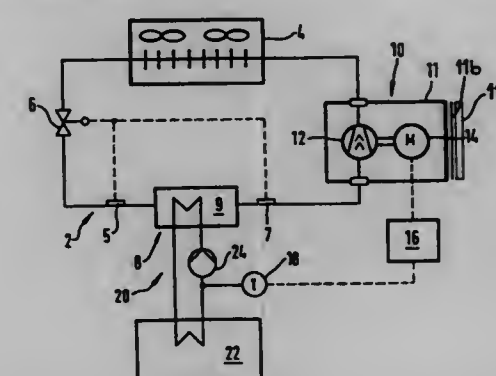
Filed Nov. 7, 1995, Ser. No. 551,856

Claims priority, application Germany, Nov. 7, 1994, 44 39 780.1

Int. Cl.⁶ F25B 1/00; 39/04

U.S. Cl. 62—228.4

27 Claims



1. A compression refrigeration machine having ammonia as refrigerant, a condenser, a throttle device, an evaporator device and

a motor-compressor unit which comprises an electric motor and a compressor driven by the electric motor, wherein the motor-compressor unit is arranged in a semi-hermetic or hermetic encapsulation, the electric motor in the semi-hermetic encapsulation is arranged outside the suction gas stream flowing into the compressor and outside the discharge gas stream exiting from the compressor in such a manner that the electric motor is only exposed to an essentially static ammonia atmosphere and the motor-compressor unit and the semi-hermetic encapsulation are composed of materials stable or resistant to ammonia.

5,671,608
GEOHERMAL DIRECT EXPANSION HEAT PUMP SYSTEM

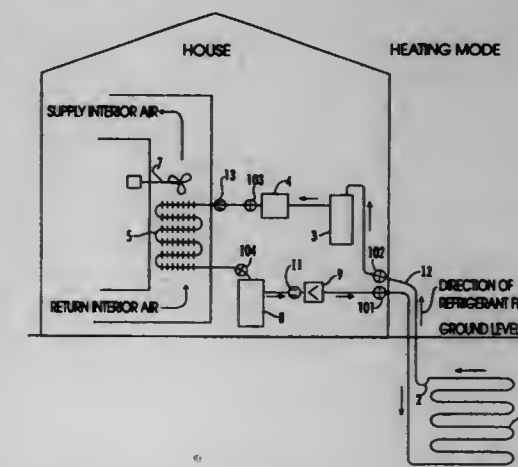
B. Ryland Wiggs, Franklin; Jack L. Womack, Tullahoma, and William C. Bickford, Murfreesboro, all of Tenn., assignors to Geothermal Heat Pumps, Inc., Murfreesboro, Tenn.

Filed Apr. 19, 1996, Ser. No. 634,868

Int. Cl.⁶ F25D 23/12

U.S. Cl. 62—260

11 Claims



1. A geothermal direct expansion heat pump system, including subterranean heat exchange tubes, an accumulator, a compressor, interior air heat exchange tubes, a receiver, and a thermal expansion valve, and tubing connecting them in series, said tubing carrying a refrigerant through said system, wherein the subterranean heat transfer tubes have an internal diameter to length ratio between 1/4,000 and 1/6,000, with 5 tubes per ton of compressor BTU capacity.

5,671,609
REFRIGERATION STORAGE TRAILER

Nicola Lionetti, 759 S. Mayfair, Daly City, Calif. 94015

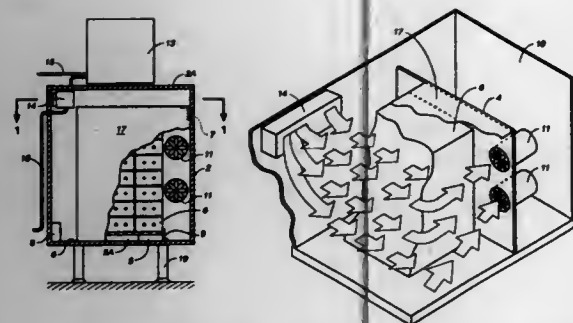
Filed Aug. 15, 1996, Ser. No. 700,733

Int. Cl.⁶ F25D 17/04

U.S. Cl. 62—407

12 Claims

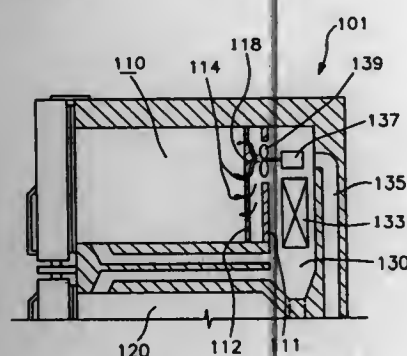
1. A refrigeration storage trailer apparatus for holding pallet's of produce including:
an insulated rectilinear cabin having
first, second, third and fourth outer walls,
a floor,
a ceiling and
a longitudinal axis extending from the first to the second walls parallel to the third and fourth walls, the third and fourth walls being substantially longer than the first and second;
a plurality of coolers mounted adjacent to the ceiling and along a cooler row which is parallel to the longitudinal axis and to the fourth wall;



a condensing unit mounted external to the cabin and operatively connected to the coolers;
a fifth partition wall mounted parallel to the second wall and spatially separated therefrom, thereby forming an air suction chamber;
at least one fan in the fifth wall for creating a pressure differential between opposite sides of the fifth wall; and
means for creating an air pathway extending from the coolers, transversely across the longitudinal axis, along the third wall, through the fan, through the air chamber and back to the coolers.

5,671,610
FAN GUARD OF A FREEZING CHAMBER IN A REFRIGERATOR
Jun-Chul Shin, Incheon, Rep. of Korea, assignor to Daewoo Electronics, Co., Ltd., Seoul, Rep. of Korea
Filed Apr. 5, 1996, Ser. No. 628,263
Claims priority, application Rep. of Korea, Apr. 6, 1995, 95-6771

Int. Cl.⁶ F25D 17/08
U.S. Cl. 62—418 3 Claims



1. A fan guard of a freezing chamber in a refrigerator including a plurality of cool air holes formed in one plane of the freezing chamber of the refrigerator comprising:
a single projection located on the fan guard and formed between an adjacent pair of the cool air holes for guiding a flow of cool air while projecting said cool air toward a cooling fan for circulating the cool air, wherein said cool air holes are formed around an area facing said cooling fan, and said projection is formed in said area facing said cooling fan.

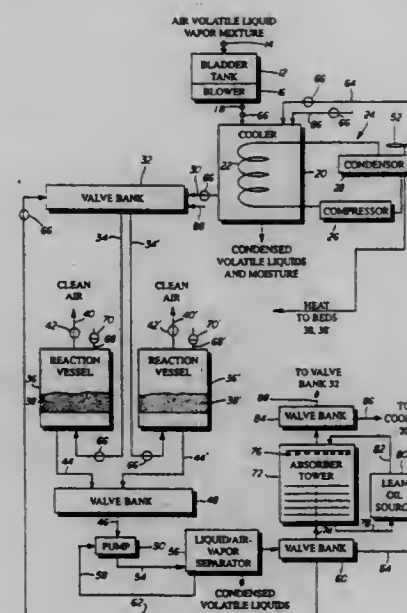
5,671,611
COOLER CHEST WITH ICE-SURROUNDED FOOD COMPARTMENT
Gene Kirk Quigley, 406 Karney Ave. NE., Palm Bay, Fla. 32907
Filed Jun. 10, 1996, Ser. No. 665,494
Int. Cl.⁶ F25D 3/08
U.S. Cl. 62—457.7 3 Claims

1. An insulated ice cooler comprising:

a. A narrow coolant compartment immediately within the insulated side walls of the cooler, which compartment is sealed against leakage of liquids at its bottom and sides, and which coolant compartment surrounds a main central compartment used for food and beverage storage, which main central compartment is also sealed against leakage of liquids at its bottom and sides, a coolant compartment whose inner walls are thermally conductive, which walls surround the central compartment used for food and beverage storage;
b. said cooler which has a main central compartment used for food and beverage storage whose side walls are thermally conductive, which main central compartment is surrounded by a narrow coolant compartment;
c. said cooler in which each compartment is separately accessible from the outside of the cooler without having to access the other compartment, because each compartment has a means to seal its top against the ambient temperature surrounding the cooler, which means can allow access to its respective compartment individually, when the means is not being used to seal its respective compartment;
d. said cooler which has an insulated floor.

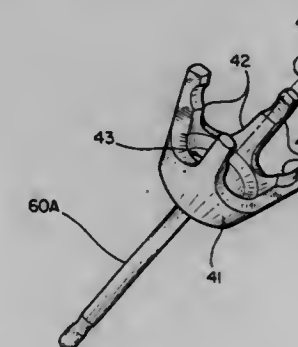
5,671,612
PROCESS AND APPARATUS FOR RECOVERING VAPOR
Edward Menzenski, Prospect, Ky., assignor to Jordan Holding Company, Fishersville, Ky.
PCT No. PCT/US95/00627, § 371 Date Dec. 11, 1995, § 102(e) Date Dec. 11, 1995, PCT Pub. No. WO95/21362, PCT Pub. Date Aug. 10, 1995
Continuation-in-part of Ser. No. 191,844, Feb. 4, 1994, Pat. No. 5,426,945. This PCT application Jan. 17, 1995, Ser. No. 564,332
Int. Cl.⁶ F25J 3/08

U.S. Cl. 62—611 5 Claims
1. An apparatus for recovering volatile liquid vapor from an air-volatile liquid vapor mixture, comprising:
a pair of reaction vessel, each vessel including a bed of adsorbent having an affinity for volatile liquid whereby volatile liquid is adsorbed on said bed and relatively volatile liquid vapor free air is produced;
first valve and conduit means for selectively directing the air-volatile liquid vapor mixture to one of said reaction vessels;
a pump;
second valve and conduit means for selectively connecting said pump to either of said reaction vessels for drawing a vacuum



on the bed in the connected reaction vessel so as to recover the previously adsorbed volatile liquid vapor now concentrated in air;
means for condensing the volatile liquid vapor; and
third valve and conduit means for selectively directing (a) air with a relatively low concentration of volatile liquid vapor from said reaction vessel connected to said pump to another of said reaction vessels not connected to said pump so as to recover the low concentration of volatile liquid vapor, and (b) air with a relatively high concentration of volatile liquid vapor from said reaction vessel connected to said pump to said means for condensing the volatile liquid vapor.

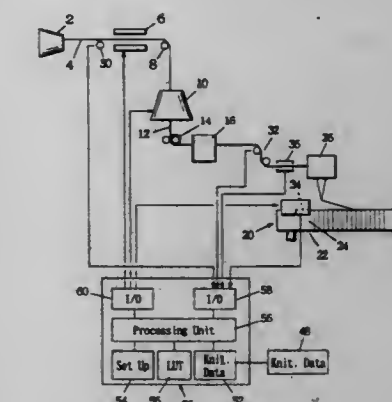
5,671,613
GEM SETTING HAVING NOTCHED PRONGS
Torrance D. Hoover; Frederick Walter Klotz, and Stephen D. Stickley, all of Midlothian, Va., assignors to Hoover & Strong, Incorporated, Richmond, Va.
Filed Oct. 10, 1995, Ser. No. 541,596
Int. Cl.⁶ A44C 17/02
U.S. Cl. 63—27 18 Claims



1. A ready-made gem setting for holding a gem having a crown, a pavilion, and a girdle, comprising:
a base; and
a plurality of resilient prongs extending upward from the base, each of the prongs defining concave notch means in a notch plane, each notch means facing toward a middle of the base and each notch means including a curved upper portion and a curved lower portion for holding a portion of the gem girdle therebetween, such that when a gem having a crown is set into the setting, the upper portion of each notch means extends

over the crown of the gem to produce an audible sound and to hold the gem in the setting such that, if the gem and setting together are placed in an upside down position, the gem will not fall out of the setting, the upper portion of the notch means having a different radius of curvature than the lower portion of the notch means such that the notch means is shaped to correspond to a shape of a girdle of a gem to be set into the setting,
each prong being divided into an upper part above the notch and a lower part below the notch, such that the upper part may be permanently bent over the crown of the gem to secure the gem in the setting.

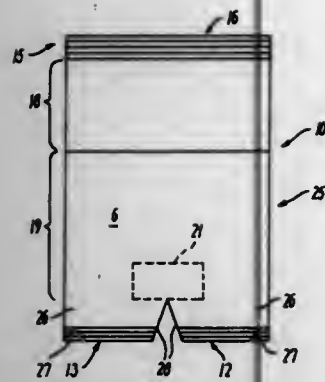
5,671,614
APPAREL SYSTEM AND A LILY YARN MACHINE
USABLE TO IT
Masahiro Shima, Wakayama, Japan, assignor to Shima Seiki Manufacturing Ltd., Wakayama, Japan
Filed May 14, 1996, Ser. No. 645,708
Claims priority, application Japan, May 19, 1995, 7-145255
Int. Cl.⁶ D04B 15/00
U.S. Cl. 66—13 9 Claims



1. An apparel system comprising:
a lily yarn machine for knitting lily yarns;
a flat knitting machine having at least two needle beds for knitting according to knitting data; and
a controller connected to said lily yarn machine and said flat knitting machine for controlling said lily yarn machine to produce lily yarn in a quantity required by said flat knitting machine according to said knitting data for said flat knitting machine.

5,671,615
FIXATION PANTY BRIEF
Finn Kjærgaard, Øgaardshøj 1B, DK-8800 Viborg, and Johannes Nyvang Kristensen, Læsegade 3, DK-7430 Ikast, both of Denmark
PCT No. PCT/DK94/00175, § 371 Date Nov. 2, 1995, § 102(e) Date Nov. 2, 1995, PCT Pub. No. WO94/24978, PCT Pub. Date Nov. 10, 1994
PCT Filed May 3, 1994, Ser. No. 545,620
Claims priority, application Denmark, May 3, 1993, 0499/93
Int. Cl.⁶ A41B 9/04

U.S. Cl. 66—177 11 Claims
1. A fixation panty brief comprising a tubular body portion having first and second ends, a crotch portion situated between two leg openings at said first end of the tubular body portion and a waistband portion at said second end, the body portion and the crotch portion being one singular circular knitted piece, at least one area of the brief being of a more loose knit, said at least one loose knit area comprising at least one containment and fixation pocket.



said at least one pocket having delimiting edge areas of an elastic and firm knit for providing a snug fit about said at least one pocket.

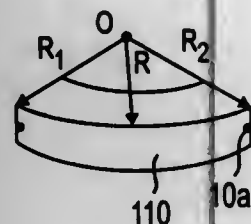
5,671,616 **RESONATOR OF A LOW FREQUENCY OSCILLATION WASHING MACHINE**

Gyu Sang Choe, Kyungki-do, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea
Filed Dec. 29, 1995, Ser. No. 580,597

Claims priority, application Rep. of Korea, Jul. 3, 1995, 19270/1995

Int. Cl.⁶ D06F 23/04; 7/12
U.S. Cl. 68—23 R

3 Claims



1. A resonator of a low frequency oscillation washing machine configured to be mounted to an outside surface of a washtub, comprising:

an outer peripheral surface, and
a discharging hole formed in the outer peripheral surface, wherein a distance from a rotational center of said washtub to the outer peripheral surface of said resonator varies gradually along the outer peripheral surface, and
wherein the discharging hole is located in a portion of the outer peripheral surface that is farthest from said rotational center of said washtub.

5,671,617 **CLOTHES WASHING MACHINE HAVING A WATER PASSAGE FOR DISCHARGING WATER DOWNWARDLY UPON LAUNDRY BEING WASHED**

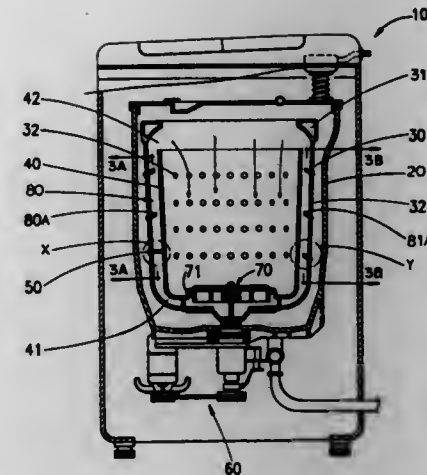
Joo Heum Park, Seoul, and Sang Hae Kim, Suwon, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Apr. 30, 1996, Ser. No. 640,020
Claims priority, application Rep. of Korea, May 16, 1995, 95-12097

Int. Cl.⁶ D06F 17/06
U.S. Cl. 68—53

10 Claims

1. A clothes washing machine comprising:
a main water tub;
a laundry tub assembly mounted in the main water tub, and including:



an outer tub having a bottom wall and a side wall, and
an inner tub disposed in the outer tub in radially spaced relationship therewith, the inner tub fixed to the outer tub and forming therewith a space having a lower water inlet and an upper water outlet;

an oscillatable pulsator mounted above the bottom wall of the outer tub for rotation in alternating clockwise and counter-clockwise directions about a vertical axis, the pulsator including vanes which generate radially outward streams of water during rotation of the pulsator, the water streams entering the water inlet of the space and exiting the water outlet thereof to fall onto clothes being washed within the inner tub; and
a water swirling structure disposed in the space for causing the water to be discharged from the water outlet in generally the same direction as the direction of rotation of the pulsator.

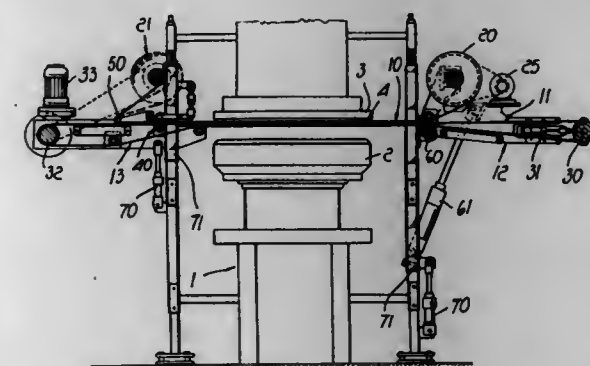
5,671,618 **PLATE PRESS FOR EMBOSSEING OR GLAZING, PARTICULARLY FOR HIDES AND THE LIKE**

Carlo Bianchini, Turbigo, Italy, assignor to VIPA S.r.l. Studio Progettazione Rappresentanze Condarie, Turbigo, Italy

Filed Sep. 8, 1995, Ser. No. 524,924
Claims priority, application Italy, Sep. 28, 1994, MI94A1977

Int. Cl.⁶ C14B 11/00
U.S. Cl. 69—48

20 Claims



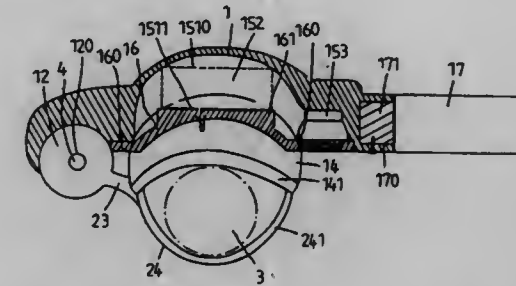
1. Plate press for embossing and glazing hides or imitation leather, comprising: a frame that supports a lower plate and an upper plate; an embossing plate for dressing a side of a hide, said embossing plate being associable with one of said plates; a film that is self-adapting, temperature-resistant, and is interposable between said embossing plate and said hide to prevent adhesion of said hide to said embossing plate; and an automatic loader for automatically feeding said hides to be dressed at said embossing plate, said film and said loader being jointly advanced without relative sliding and while retaining said hides therebetween.

5,671,619 **STEERING WHEEL LOCK**

Jui-Hua Hou, No. 17-2, Chung-Jung Tsun, An-Ting Hsiang, Tainan Hsien, Taiwan

Filed Oct. 9, 1996, Ser. No. 728,526
Int. Cl.⁶ B60R 25/02
U.S. Cl. 70—209

1 Claim



1. A steering wheel lock comprising a casing having a front side and a rear side and a lock cylinder at the rear side, a stop bar having a coupling rod at one end fastened to the front side of said casing and adapted for stopping at an instrument board of a motor vehicle, a clamping plate coupled to the casing and locked by said lock cylinder to secure said casing to a steering wheel, a partition plate mounted inside said casing, and an alarm circuit assembly mounted on said partition plate inside said casing, wherein:

said casing comprises two wheel-like circular coupling blocks bilaterally disposed at the rear side and spaced from each other by a space, two arched wing plates disposed at two opposite lateral sides and adapted for covering over the periphery of the steering wheel, and a mounting hole at the front side, which receives the coupling rod of said stop bar, said arched wing plates each having a sloping flange at an outer end for fitting over the periphery of the steering wheel; said partition plate comprises a top platform which holds said alarm circuit assembly, a flat front extension board and two rear tabs respectively fastened to said casing on the inside by respective screws, and a speaker mounting hole at said front extension board;

said alarm circuit assembly comprises a battery box fastened to the platform of said partition plate, a battery mounted in said battery box, an alarm control circuit fastened to said battery box at one side and having a switch lever inserted through said partition plate and adapted for pressing on the steering wheel to alert said alarm circuit assembly, and a speaker mounted in said speaker mounting hole and connected to said alarm control circuit by an electric wire;

said clamping plate comprises an elongated, smoothly curved clamping section adapted for covering over the periphery of the steering wheel at the bottom, a flat rib raised from one side of said clamping section in the middle, and a circular coupling block connected to said flat rib and inserted into the space of said casing and pivotally connected between the two circular coupling blocks of said casing by a pivot, the circular coupling block of said clamping plate having a plurality of transverse teeth raised around the periphery for the engagement of a lock bolt of said lock cylinder, the clamping section of said clamping plate having two sloping flanges at two opposite ends for fitting over the periphery of the steering wheel.

5,671,620 **AUTOMOTIVE ANTITHEFT DEVICE**

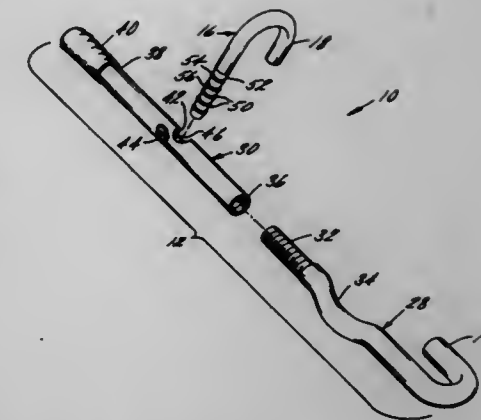
Donald F. Carvey, and Glen Carvey, both of 222 Colby Dr., East Hartford, Conn. 06108

Filed Apr. 19, 1995, Ser. No. 424,103
Int. Cl.⁶ B60R 25/00

U.S. Cl. 70—238

20 Claims

1. A removable antitheft device for use with an automobile having a steering wheel, a steering wheel column, a dash board



which intersects the steering wheel column and a shaft for a pedal, said antitheft device comprising:

a first member having upper and lower ends, said upper end of said first member extending through the inside of the steering wheel when said device is installed in the automobile, said lower end of said first member comprising a first hook, said first hook being disposed about the shaft of the pedal when said device is installed in the automobile, said first member having an opening therethrough;

a second member having opposing first and second ends, said first end of said second member comprising a second hook having a free end, said second hook being disposed about the steering wheel column near the intersection of the dash board and the steering wheel column when said device is installed in the automobile, said second end of said second member being disposed in said opening in said first member with said free end of said second hook extending away from said first member in a plane defined by first and second perpendicular axes, each of said first and second perpendicular axes being perpendicular to a third axis passing longitudinally through about a center of said first member when said device is installed in the automobile; and

a lock for securing said second end of said second member in said opening in said first member.

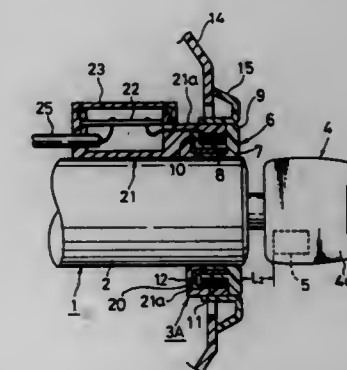
5,671,621 **KEY CYLINDER DEVICE FOR AN AUTOMOBILE**

Yoshio Watanuki, Ebina, and Harumi Okazaki, Hadano, both of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa-ken, Japan

Filed Aug. 22, 1995, Ser. No. 517,864
Claims priority, application Japan, Aug. 24, 1994, 6-199763

Int. Cl.⁶ E05B 49/00
U.S. Cl. 70—278

3 Claims



1. A key cylinder device of an automobile which drives a control device which is subject to control by a magnetic coupling between a circuit chip built in a key plate and a circular antenna coil fitted

and fixed to an outside of an end portion of a key cylinder for transmitting data from the chip to the coil, comprising:

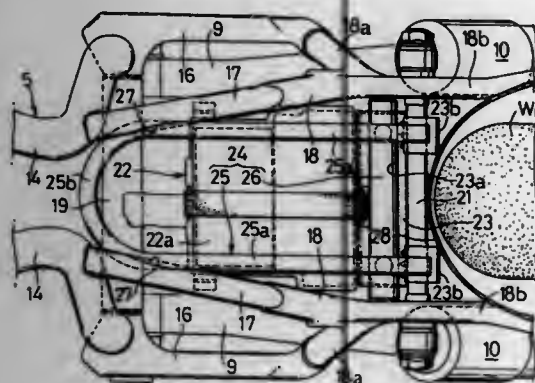
a core having an antenna wire wound to a circular groove on an outer periphery of a bobbin to form the circular antenna coil, and an antenna wire-wound portion on the outer periphery of said bobbin covered with a base material of an amplifier case which is attached to the key cylinder, wherein said core is integrally molded on one side portion of the amplifier case in such a state that one side end portion is exposed.

5,671,622
STRUCTURE FOR CONTAINING U-SHAPED BURGLARPROOF LOCK IN A MOTORCYCLE
Hajime Yamada, and Hiroo Takemura, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 27, 1996, Ser. No. 622,167
Claims priority, application Japan, Aug. 24, 1995, 7-215559
Int. Cl.⁶ B62H 5/00

U.S. Cl. 70—233

20 Claims



1. A U-shaped burglarproof lock for use with a motorcycle comprising:

a body frame including a head pipe for operably supporting a front fork, main frames extending rearwardly from said head pipe, and a pair of right and left seat frames spaced from each other and extending rearwardly from rear portions of said main frames;

a seat removably mounted on said seat frames; and

a U-shaped burglarproof lock including an approximately U-shaped hook having a pair of substantially parallel rod-like portions and a circular arc curved portion formed continuous to one end of said pair of substantially parallel rod-like portions, and a bar for releasably locking an opened end of said U-shaped hook;

said right and left seat frames including fitted recessed portions each formed in inner surfaces of said right and left seat frames to conform with and to removably retain and hold said U-shaped hook positioned at an attitude substantially along a longitudinal direction of said motorcycle under said seat.

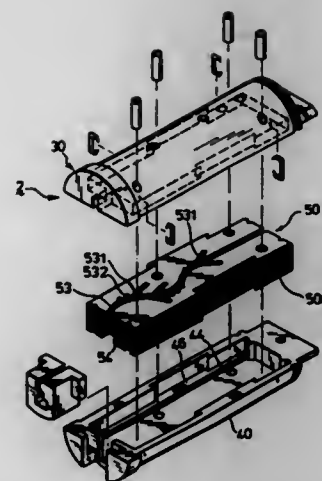
5,671,623
LOCK ASSEMBLY WITH A CURVED KEYWAY AND A FLEXIBLE KEY FOR ACTUATION THEREOF
Yun-Tung Hsu, SF, No. 32, Sec. 4, Cheng-Kung Rd., Taipei City, Taiwan

Filed Dec. 4, 1995, Ser. No. 566,874
Int. Cl.⁶ E05B 9/04

U.S. Cl. 70—375

9 Claims

1. A lock assembly including a lock and a flexible key for actuating said lock, said lock including an elongated plug unit that is mounted rotatably in said lock and that has a longitudinal curved keyway accessible by said key, said keyway having several turns,

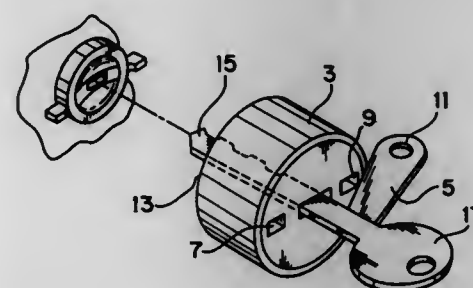


said plug unit further having several branch slots each of which extends from a respective one of the turns of said curved keyway in a direction different from that of a portion of said curved keyway succeeding the respective one of the turns so as to mislead an undesirable flexible stick into said slot, thereby preventing said lock from being picked by the flexible stick, said plug unit including a keyway member having said curved keyway and said slots formed therethrough, and two elongated lock pieces which are shaped in the form of two elongated cylinder halves and which cooperatively confine said keyway member therebetween, said keyway member having two planar opposite side surfaces, each of said cylinder halves having an abutting surface which abuts against one of said side surfaces of said keyway member and which is formed with a plurality of lengthwise extending grooves therein in communication with said keyway and said slots, said keyway member including two adjacent stacks of elongated metal sheets between which said keyway and said slots are defined.

5,671,624
IGNITION KEY EXTENSION
Homer C. Sivils, 1930 Constitution Ave., Navarre, Fla. 32566
Filed Apr. 30, 1996, Ser. No. 640,177
Int. Cl.⁶ E05B 19/04

U.S. Cl. 70—408

2 Claims



1. A key extension adapted to be used with an automobile ignition having a keyhole and thumb tabs and an ignition key, comprising a generally cylindrical cover adapted to fit over a portion of the key, said cover having a leverage handle extending from the cover, and three spaced apart openings for receiving the key and the thumb tabs such that the held key can be turned when inserted into an automobile's ignition keyhole by pulling on the handle.

5,671,625
SHAPING OF THIN METAL PRODUCTS BETWEEN TWO ROLLS

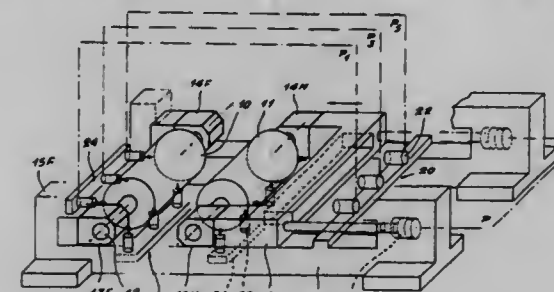
Jacques Barbe; François Mazodier, both of St-Etienne; Luc Vendeville; Pierre Delassus, both of Bethune; Elias Sarkis, Paris; Yves Grandgenevre, Lorrent Fontes, and Jean-Marie Pelletier, Bethune, all of France, assignors to Usinor-Sacilor (Société Anonyme), Puteaux, France, and Thyssen Stahl Aktiengesellschaft, Duisburg, Germany

Filed Oct. 27, 1995, Ser. No. 549,603

Claims priority, application France, Oct. 28, 1994, 94 13102
Int. Cl.⁶ B21B 37/00

U.S. Cl. 72—10.7

16 Claims



14. A device for shaping thin metal products; said device comprising:

a frame;

first and second rolls rotatably mounted on said frame, said first and second rolls having parallel axes lying in a common plane, each of said rolls having a neck located in said common plane, a gap being formed between the necks of said first and second rolls and lying in said common plane, each roll having a first generatrix located diametrically opposite the neck and a second generatrix lying at an angle of 90° from the neck;

for each of said first and second rolls:

a set of sensors which measure a position of the first generatrix of said roll, said first set of sensors including 1) a first sensor measuring a position of a first point of said first generatrix lying in a mid-plane extending perpendicularly to said axes of said rolls and located mid-way between opposed edges of said roll, and 2) second and third sensors measuring positions of second and third points of said first generatrix lying in first and second secondary planes, said first and second secondary planes being parallel to said mid-plane and being located near said opposed edges of said roll,

a fourth sensor which measures a position of a first point on said second generatrix lying in said mid-plane, and means, responsive to said first, second, third, and fourth sensors, for computing an instantaneous value of a thickness of the gap at a center of the roll, as well as a profile of the gap; and means, responsive to said means for computing, for driving said second roll to move translationally with respect to said first roll so as to vary a thickness of said gap.

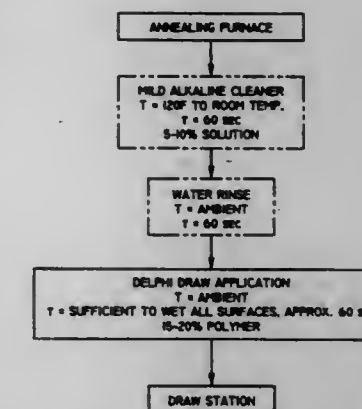
5,671,626
METHOD OF DRAWING A TUBE
Sohrab Sadri Loubani, Fairborn, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Jul. 31, 1995, Ser. No. 509,371
Int. Cl.⁶ B21B 45/02

U.S. Cl. 72—42

3 Claims

1. A method of drawing a metal tube to reduce its size comprising the steps of:

applying a drawing polymer solution to the outer and inner surfaces of a metal tube at temperatures ranging from 50°–100° F., said polymer drawing solution comprises a styrene acrylate copolymer and a stearate, said step of applying a



drawing polymer solution being conducted without prior pickling or phosphating of the metal tube;
drawing the coated metal tube through a die to reduce the size of the tube in the range of about 10% to about 40% reduction in area wherein said drawing polymer solution comprises 70–75 weight percent water, 4–9 weight percent styrene acrylate copolymer, and 5–10 weight percent of ammonium stearate.

5,671,627
WIRE-DRAWING MACHINE FOR DRY-LUBRICATED METAL WIRE

Giulio Lisciani, Grottammare, Italy, assignor to R. Lisciani Trafilieri e Divisione Dyn Automazione Industriale S.n.c., Grottammare, Italy

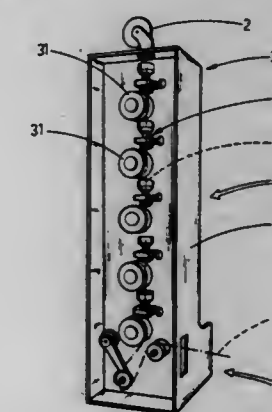
Filed Mar. 26, 1996, Ser. No. 622,020

Claims priority, application European Pat. Off., Mar. 28, 1995, 95830114

Int. Cl.⁶ B21B 45/02

U.S. Cl. 72—43

18 Claims



1. Wire-drawing machine for metal wire with dry lubrication, comprising at least one tool-carrying device provided with:

a tubular body having a cavity for containing and fixing at least one die, extending from an entry end to an exit end for the metal wire inside the tubular body;

a support for the tubular body, on which the tubular body is rotatably mounted so as to rotate upon operation of associated actuator means so as to cause rotation of the die, rendering uniform the wear thereof caused by the metal wire, said support for the tubular body being provided with a fluid cooling chamber for the die;

a container for powdery lubricant associated with the support for the tubular body so as to lubricate the metal wire before it enters the die, wherein said lubricating container is arranged above the support for the tubular body and is connected to the tubular body so as to rotate together therewith about the metal wire, imparting to the powdery lubricant contained therein a helical movement towards the die.

5,671,628

LASER SHOCK PEENED DIES

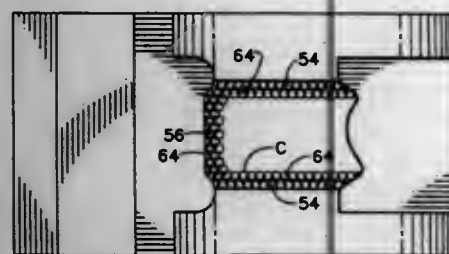
Herbert Halila, and Seetharamalah Mannava, both of Cincinnati, Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Dec. 18, 1995, Ser. No. 573,849

Int. Cl.⁶ C21D 7/06; C22C 14/00

U.S. Cl. 72—53

6 Claims



12

1. A die comprising:
a metallic block having a depression,
said depression having at least one cross-sectional transition zone,
at least one laser shock peened surface encompassing at least a portion of said zone,
a region having deep compressive residual stresses imparted by laser shock peening (LSP) extending into said metallic block from said laser shock peened surface.

5,671,629

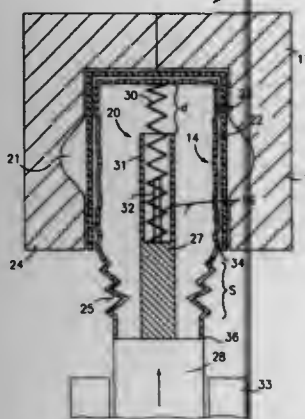
HYDROSTATIC FORMING DEVICE AND PROCESS

Emery L. Valyi, 102 Moseman Ave., Katonah, N.Y. 10536
Filed Feb. 15, 1996, Ser. No. 602,075

Int. Cl.⁶ B21D 26/02; 19/08

U.S. Cl. 72—58

19 Claims



1. A device for hydrostatically forming an article, comprising:
a means for shaping said article;
fluid means for expanding said means for shaping;
and means for moving said fluid means for expanding in said means for shaping for expanding said means for shaping,
wherein said means for expanding is heated prior to being moved in said means for shaping for raising the temperature and increasing the formability of said article, and wherein said fluid means for expanding comprises solely an incompressible fluid.

5,671,630

METHOD FOR ROLLING Z-SECTION SHEET PILES

Henri Grober, Esch sur Alzette, Luxembourg, assignor to ProfilARBED, S.A., Luxembourg

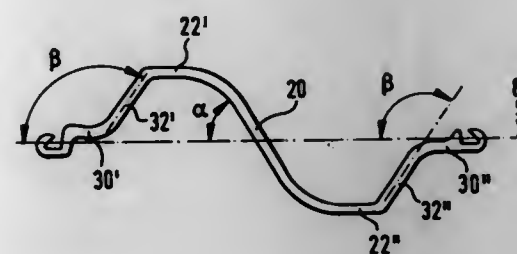
Filed Nov. 29, 1995, Ser. No. 564,025

Claims priority, application Luxembourg, Dec. 7, 1994, 88 566

Int. Cl.⁶ B21B 13/12; 1/12

U.S. Cl. 72—177

11 Claims



1. A method for hot rolling a Z-section sheet pile from a semi-finished H-section product, which H-section product has a rolling plane, a web, and four flange tips, the method including the steps of:

introducing said H-section product in a rolling mill train having a plurality of rotating rolls and a rolling plane parallel to the rotation axes of said rotating rolls, the web of said H-section product being parallel to said rolling planes;

performing a first plurality of rolling passes on said semi-finished H-section product to form a Z-section sheet pile preform having

- (a) first and second rough-rolled preforms of the lateral flanges and claws of the Z-section sheet pile to be formed,
- (b) a middle section oblique to said rolling plane, and
- (c) first and second flange/web transition sections connecting said middle section respectively to said first and second rough-rolled preforms of the lateral flanges and claws, said first and second flange/web transition sections being flattened so as to be substantially parallel to said rolling plane; and

performing a second plurality of rolling passes on said Z-section sheet pile preform to form a Z-section sheet pile having a plane web, two lateral flanges connected to said web, and a claw terminating each of said lateral flanges.

5,671,631

HOT PLASTIC WORKING METHOD

Yoshihisa Serizawa, and Yoshiharu Miyake, both of Susono, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Japan

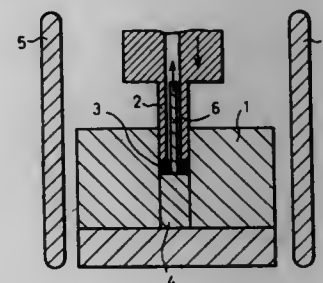
Filed Oct. 24, 1995, Ser. No. 547,663

Claims priority, application Japan, Dec. 15, 1994, 6-312032

Int. Cl.⁶ B21C 23/00

U.S. Cl. 72—256

7 Claims



1. A hot plastic working method comprising the steps of:
providing a working material with a structure having an average grain diameter of not more than 50 μ m and dispersed spheroidal grains ranging in size from 10 to 200 μ m;

forming a recess circumscribed with a die hole on a surface at an end portion of said working material;
setting said working material in a hot working die having a same inner configuration of said die hole from entry side to outlet side;
providing heating equipment to heat both said working material and said die;
hot plastic working said working material so that said recess faces to the site of a closed space formed by abutting said working material against said die at the time of hot plastic working.

5,671,632

METHOD FOR MANUFACTURING A VIBRATOR

Yuichiro Tokunaga, and Takeshi Inao, both of Nagakakyō, Japan, assignors to Murata Manufacturing Co., Ltd., Nagakakyō, Japan

Continuation of Ser. No. 372,913, Jan. 17, 1995, abandoned.

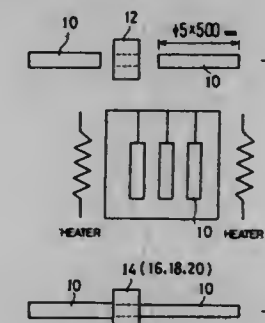
This application May 6, 1996, Ser. No. 643,533

Claims priority, application Japan, Jan. 20, 1994, 6-022003

Int. Cl.⁶ B21C 1/18; 9/00

U.S. Cl. 72—275

3 Claims



1. A method of producing a triangular cross sectioned wire comprising:

forming a straight wire of substantially circular cross section;
cutting said straight wire of substantially circular cross section into at least one substantially straight length;
treating said at least one substantially straight length by applying heat thereto;
washing said at least one substantially straight length with acid; and

drawing said at least one substantially straight length of said straight wire of substantially circular cross section through a plurality of substantially triangular shaped dies of successively reduced size without bending or winding said straight wire therebetween to form at least one substantially straight length of said straight wire having a triangular cross section.

5,671,633

PLATE ARRAY FOR MOISTURE SENSOR WITH REDUCED SENSITIVITY TO LOADING EFFECTS

Edward Duane Wagner, Rogue River, Oreg., assignor to Wagner Electronic Products, Inc., Rogue River, Oreg.

Filed Feb. 12, 1996, Ser. No. 600,303

Int. Cl.⁶ G01N 27/02

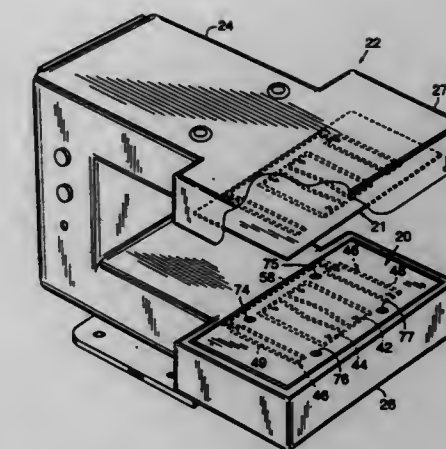
U.S. Cl. 73—73

10 Claims

4. A plate array for a moisture content sensor, comprising:
first and second opposed substrates having a space between for passing a material having a moisture content which is to be sensed;

first and second detector electrodes formed one on each of the substrates;

first and second transmitter electrodes formed one on each of the substrates;



first and second phase electrodes formed one on each of the substrates and each having first and second portions to either side of the detector electrode and the transmitter electrode on the substrates;

the transmitter electrodes on the substrates producing an electrical field in the space between the substrates when driven with an alternating current transmitter signal and causing a signal related to the moisture content of the material to be received at the detector electrodes; and

the phase electrodes limiting the electrical field to the space bounded at one end by the first portions of the phase electrodes and at another end by the second portions of the phase electrodes when the phase electrodes are driven with an alternating current phase signal which is approximately one hundred and eighty degrees out of phase with the transmitter signal.

5,671,634

MEASURING ADHESION OF CYLINDER BORE COATINGS

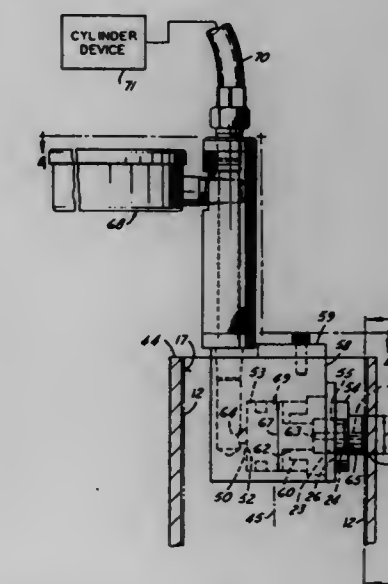
David Alvin Donovan, Chelsea, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Aug. 22, 1996, Ser. No. 703,923

Int. Cl.⁶ G01N 19/00

U.S. Cl. 73—150 A

13 Claims



1. A method of testing the adhesion of a coating to an internal cylindrical bore surface, comprising:

- (a) gluing an element to be pulled normal to a defined patch of the coating, said element carrying an annular neck surface parallel to said coating patch and a non-glued plug extending centrally through and out of the element for engagement with the coated surface;
- (b) placing a pulling head about the element by movement thereonto in a linear direction parallel to said patch of coating, said head having a relatively stationary piston engaged with said plug and a slidable piston housing circumferentially overlapping said neck surface to place substantially pure tension on said element when sliding on said piston;
- (c) applying a hydraulic force between the piston housing and piston to pull the piston housing and element away from the coated surface at a controlled rate; and
- (d) monitoring said hydraulic force to render an indication of the force used to destructively pull the coating attached to the element away from the coated surface.

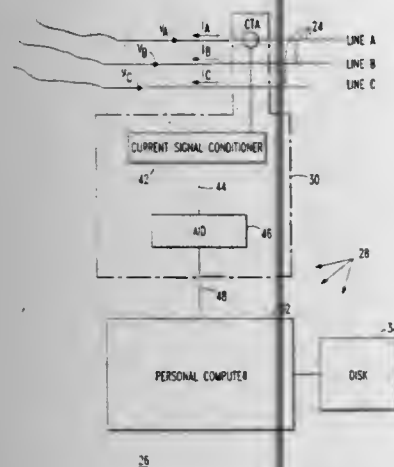
5,671,635
METHOD AND APPARATUS FOR MONITORING OF
SPRING PACK DISPLACEMENT OF A MOTOR-
OPERATED VALVE

Joseph N. Nadeau, Canton; John L. Lewis; Roger W. Carr, both of Acworth, and Bryan E. Prather, Kennesaw, all of Ga., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 14, 1994, Ser. No. 338,367
 Int. Cl.⁶ G01M 1/00

U.S. Cl. 73-168

22 Claims



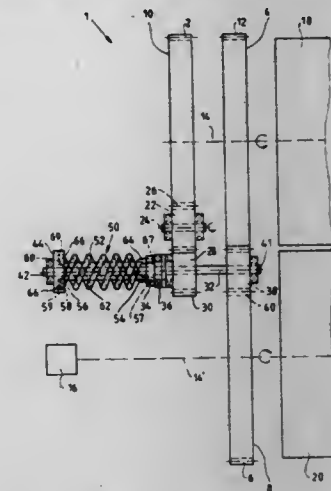
18. A method for measuring spring pack displacement of a motor-operated valve (MOV) including at least one power line having an electrical parameter, said method comprising:
- sensing the electrical parameter of said at least one power line and providing a plurality of electrical parameter values;
 - acquiring a plurality of frequency values of at least one frequency signature from the plurality of electrical parameter values; and
 - calculating a spring pack displacement parameter from the plurality of frequency values;
- wherein said electrical parameter comprises voltage or power.

5,671,636
METHOD AND APPARATUS FOR PREVENTING
CIRCUMFERENTIAL SEPARATION BETWEEN TWO
GEARS OF A GEAR TRAIN
 Daniel Paul Gagne, S. Berwick, Me., and Bryan Charles Dustin, Rochester, N.H., assignors to Heidelberg Harris Inc., Dover, N.H., and Heidelberger Druckmaschinen AG, Heidelberg, Germany
 Filed Jan. 24, 1996, Ser. No. 590,893
 Int. Cl.⁶ F16H 57/12

U.S. Cl. 74-409

17 Claims

1. Apparatus for preventing the circumferential separation



between meshing teeth of a first gear and a second gear of a gear train, comprising:

- a first torque transmitting gear coaxial to and drivingly connected with a first gear;
- a second torque transmitting gear in meshing engagement with the first torque transmitting gear;
- a third torque transmitting gear in meshing engagement with said second torque transmitting gear;
- a fourth torque transmitting gear coaxial to said third torque transmitting gear and in meshing engagement with a second gear;
- a shaft which is fixedly connected at a first end to the fourth torque transmitting gear and which axially extends through a center of said third torque transmitting gear; and
- a pre-loaded resilient element for biasing said third and fourth torque transmitting gears with respective torques of equal magnitude and opposite direction, the resilient element including a first torsion spring and a second torsion spring, each having a first end portion drivingly connected to the third torque transmitting gear and each having second end portion connected to a second end of the shaft, such that the second end portions of the first and second torsion springs are connected to the second end of the shaft at essentially diametrical positions with respect to a center of the shaft.

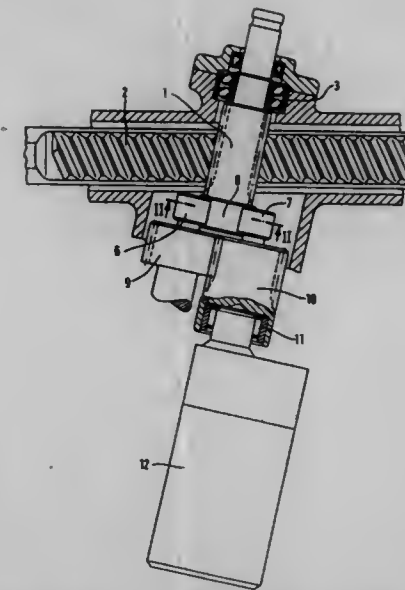
5,671,637
SERVO-ASSISTED RACK-AND-PINION SYSTEM
 Wolfgang Joerg, Stuttgart; Jaromir Bordovsky, Berglen; Aydogan Cakmaz, Stuttgart; Hubert Heck, Duesseldorf; Arno Roehringer, Ditzingen; Claus Gall, Fellbach; Reinhold Abt, Neuhausen; Rainer Strauss, Kaarst, and Karl-Hans Koehler, Wernau, all of Germany, assignors to Mercedes-Benz AG, Germany
 Filed Nov. 30, 1995, Ser. No. 564,978
 Claims priority, application Germany, Nov. 30, 1994, 44 42 546.5

Int. Cl.⁶ B62D 5/04

U.S. Cl. 74-422

16 Claims

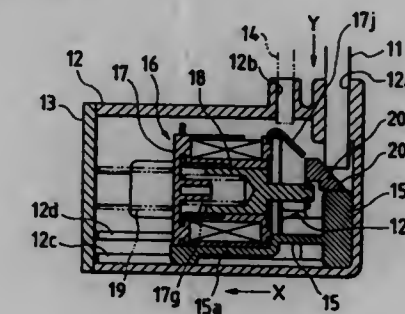
1. Rack and pinion system, comprising a longitudinally movably guided rack; a pinion arranged to mesh with the rack and be movable to an extent transversely with respect to an axis thereof in



a longitudinal direction of the rack; a first friction wheel non-rotatably arranged on the pinion so as to move together therewith; a servo motor; and second and third friction wheels arranged on opposite sides and in the same plane of the first friction wheel to serve as end stops for lateral movement of the first friction wheel and the pinion, said second and third friction wheels being driven by the servo motor in mutually opposite rotating directions so that, in an end position of the first friction wheel and of the pinion, the servo motor transmits a torque in one direction and, in another end position of the first friction wheel and of the pinion, the servo motor transmit a torque in the other direction to the first friction wheel as well as the pinion.

5,671,638
LOCK SYSTEM FOR MOTOR VEHICLE
 Masaichi Hattori, and Osamu Shoji, both of Aichi, Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan
 Filed Feb. 9, 1996, Ser. No. 598,970
 Claims priority, application Japan, Feb. 13, 1995, 7-024165
 Int. Cl.⁶ F16H 63/36; B60K 41/28
 U.S. Cl. 74-483 R

6 Claims



1. A lock system for motor vehicles selectively making an operation of an operating member ineffective, comprising:
- an interlock member for moving in a predetermined moving direction while interlocking with the operation of the operating member;
 - a stopper member capable of reciprocating between a lock position and an unlock position, the lock position being a position at which movement of the interlock member is prohibited by bringing the interlock member into contact with the stopper member when the interlock member is moved in the operating direction, the unlock position being a position at

which the interlock member is permitted to move by evacuating the stopper member from a locus of movement of the interlock member;

- an idle member applying a moving force allowing the stopper member to move toward the unlock position in response to the movement of the interlock member in the operating direction;
- a movable member to which the moving force of the idle member is transmitted;
- an electromagnet having a main body fixed to the stopper member and binding the movement of the movable member with respect to the main body while being energized;
- a first spring means for urging the idle member toward the lock position of the stopper member together with the movable member; and
- a second spring means for urging the stopper member toward the lock position together with the main body of the electromagnet,

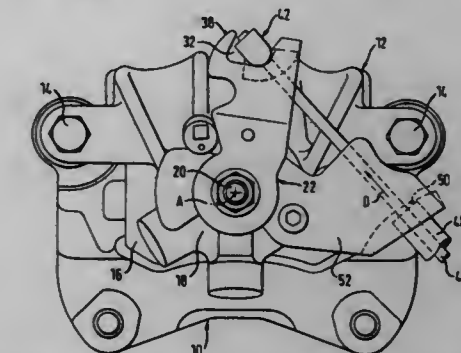
wherein a resiliency of the second spring means is set to a value larger than a resiliency of the first spring means and smaller than a resultant force of a movable member attracting force of the electromagnet and a resiliency of the first spring means.

5,671,639
MECHANICAL OPERATING MECHANISM, IN
PARTICULAR FOR MOTOR VEHICLE BRAKES
 Lothar Wagner, Steinfrenz, and Frank Madzgalla, Koblenz, both of Germany, assignors to Lucas Industries public limited company, West Midlands, United Kingdom
 PCT No. PCT/EP94/03073, § 371 Date Feb. 20, 1996, § 102(e)
 Date Feb. 20, 1996, PCT Pub. No. WO95/06719, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 14, 1994, Ser. No. 602,759
 Claims priority, application Germany, Sep. 22, 1993, 9314350 U

Int. Cl.⁶ F16C 1/12; F16D 65/22
 U.S. Cl. 74-502.6

4 Claims

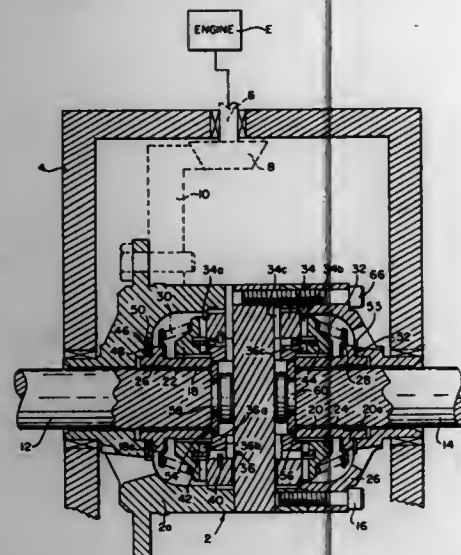


1. Mechanical operating mechanism for motor vehicle brakes, comprising
- a lever (22) which is mounted on a housing (18) to pivot about a pivot axis (A);
 - a first limb (24) which is formed on the lever (22) and extends approximately radially away from the pivot axis (A) and from which a second limb (26) is bent over;
 - a slot (28) left open between the first and second limbs (24, 26) which has a central plane (B) normal to the pivot axis (A);
 - an abutment (30) formed by edges of the first and second limbs (24, 26);
 - a projection (34) provided on the lever (22) and disposed opposite the abutment (3) such as to form an intermediate space (32);
 - the projection comprising a ramp (38) facing away from said intermediate space (32);
 - a cable (40) which is adapted to be placed in the slot (28) and has a butt end (42) which is adapted to be supported against the ramp (38) and which, when a pulling force (C) is exerted on the cable (40), is adapted to be moved across the ramp (38) to a position wherein the end (42) is received in the intermediate space (32), for transmitting the pulling force (C) to the interlock member.

abutment (30); whereby the projection (34) helps to retain the butt end (42) within the intermediate space (32) in the event of a cable (D) pushing force, characterized in that the projection (34) is bent in the direction of the central plane (B) of the slot (28) and has a free end (36) which is opposite the slot (28).

5,671,640
LOCKING DIFFERENTIAL WITH PRE-LOAD MEANS
AND C-CLIP RETAINERS
 Paul J. Valente, Berkley, Mich., assignor to Tractech Inc., Warren, Mich.
 Filed Apr. 30, 1996, Ser. No. 641,355
 Int. Cl.⁶ F16H 48/14
 U.S. Cl. 74—650

8 Claims



1. A differential apparatus of the automatic lock-out type for driving from an input shaft a pair of colinearly-arranged axially-spaced output shafts having adjacent ends which contain peripheral grooves, respectively, comprising:

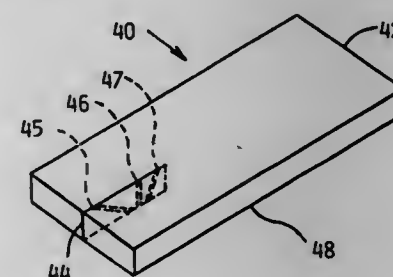
- (a) a housing having a longitudinal axis, said housing being adapted for rotation about said longitudinal axis by the input shaft, said housing containing an internal chamber, and a pair of opposed openings colinear with said longitudinal axis and in communication with said chamber for rotatably receiving the adjacent ends of the output shafts, respectively;
- (b) a pair of annular side gears arranged within said housing chamber adjacent and colinear with said openings, respectively, said side gears being adapted for non-rotatable splined connection with said output shafts, respectively;
- (c) a pair of annular clutch gear members arranged concentrically about, and splined for axial displacement relative to, said side gears, respectively;
- (d) annular center driver gear means colinearly arranged between said clutch gears, said center driver gear means being non-rotatably connected with said housing;
- (e) clutch spring means normally biasing said clutch gear members together toward engaged positions relative to said center driver gear means;
- (f) annular center cam means arranged concentrically within said center driver gear means for disengaging one of said clutch gears from said center driver gear means when the associated output shaft overruns the other output shaft by a predetermined amount, said center cam means having an internal central annular support shoulder that extends radially inwardly between, and in abutting engagement with, said side gears, respectively, thereby to limit the axial displacement of said side gears toward each other;
- (g) annular holdout ring means arranged concentrically relative to said center cam means for maintaining said one clutch gear

- in the disengaged condition relative to said center driver gear means as long as the overrunning condition exists;
- (h) spacer means removably connected with said housing for preventing axial displacement of said output shafts toward each other;
- (i) said housing, said center drive gear means and said center cam means containing aligned radially-extending access openings;
- (j) a pair of colinearly arranged C-clips arranged concentrically within said center cam support shoulder opposite said access openings, said C-clips being in abutting engagement with the adjacent side gears, respectively, said C-clips being adapted for insertion within the peripheral grooves contained in said output shafts, respectively, thereby to limit the extent of axial separation of the output shafts; and
- (k) resilient preload means for biasing said side gears into axial engagement with said center cam support shoulder, thereby to dampen the rotational play between said center cam means and said center driver gear means.

5,671,641
DEVICES AND METHODS FOR GUIDING NAILS
 Roger Emmett Stephenson, Jr., P.O. Box 36, Forest Falls, Calif. 92339-0036
 Filed Dec. 26, 1995, Ser. No. 578,737
 Int. Cl.⁶ B25L 3/00

U.S. Cl. 81—44

16 Claims



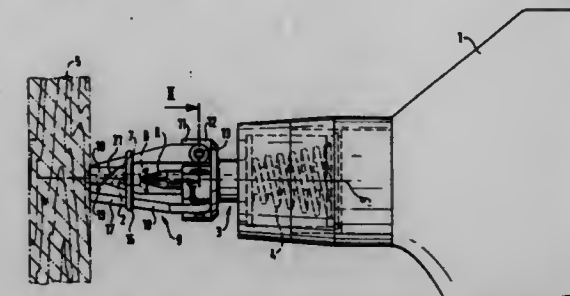
1. A nail guide comprising a flexible polymer foam body, wherein the foam body comprises:

- a) a first end;
- b) a second end opposing the first end;
- c) a first surface;
- d) a second surface opposing the first surface;
- e) a peripheral edge between the first surface and the second surface;
- f) a predetermined thickness between the first surface and the second surface, wherein the predetermined thickness ranges from about 1/4 inch to about 1 inch; and
- g) an area defining a slit adapted for receiving a nail, wherein the slit: (1) is positioned in the foam body first end, (2) extends through the foam body from the first surface to the second surface, (3) is provided along a plane which is substantially perpendicular to the first surface, (4) has a first side and a second side, (5) begins at a starting point which is positioned at the peripheral edge, (6) ends at a terminal point, (7) has a predetermined distance between the starting point and the terminal point which ranges from about 1/8 inch to about 1 inch, (8) has a first region along the first side defining a first groove such that the first groove extends from the first surface to the second surface, in which the first groove is positioned at an angle of about 90 degrees with respect to the first surface, wherein the first groove is adapted for receiving a nail and (9) has a second region along the first side defining a second groove such that the second groove extends from the first surface to the second surface, in which the second groove is positioned at an angle of about 30 degrees with respect to the first surface, wherein the second groove is adapted for receiving a nail.

5,671,642
CENTERING MECHANISM FOR A FASTENER DRIVING DEVICE
 Guenter Haas, Nuertingen, Germany, assignor to Karl M. Relch Maschinenfabrik GmbH, Nuertingen, Germany
 Filed Jun. 22, 1995, Ser. No. 493,671
 Claims priority, application Germany, Jun. 29, 1994, 44 22 725.6

Int. Cl.⁶ B25B 23/10
 U.S. Cl. 81—57.37

23 Claims



1. A driving device for centeringly holding and driving a fastener, comprising a housing, a mounting body connected to said housing, a plurality of centering elements that are adapted to centeringly hold said fastener during driving thereof, and that are connected to said mounting body to be respectively independently movable relative to said fastener in respective plural lateral directions and to be rotationally fixed relative to said mounting body and with said fastener rotatable relative to said centering elements, and at least one elastic element urging said centering elements toward respective positions to contact said fastener, wherein each respective one of said centering elements comprises a respective contact surface adapted to contact said fastener and arranged substantially parallel to said respective lateral direction of motion of said respective one of said centering elements, and wherein at least one of said centering elements further comprises a lead-in ramp surface adapted to lead said fastener laterally into a position between said contact surfaces.

5,671,643
EXTENSION WRENCH FOR WATER METER NUT
 John K. Henkhaus, 130 S. Church, Virden, Ill. 62690
 Filed Feb. 26, 1996, Ser. No. 605,470
 Int. Cl.⁶ B25B 13/46

U.S. Cl. 81—57.39

3 Claims



1. An extension wrench for tightening or loosening nuts, attachable to an underground water meter or the like, comprising:

a pair of upper handles connected to a main body, one of said handles pivotally connected to said body and also pivotally connected to a drive rod, such that pivoting said handle supplies force to said drive rod;

said drive rod having its upper end connected to said pivoting handle and its lower end connected to a ratchet gear, whereby said gear is driven by said handle and rod;

wherein said ratchet gear comprises a larger curved portion pivotally connected to a smaller curved latching piece portion at a latching piece pivot point such that said curved portions form a continuous circular gear when in closed position;

wherein said smaller latching piece portion has an inner shoulder such that said curved gear portions are kept in the closed position when said gear is placed around a nut;

whereby said smaller latching piece pivots to an open position when said gear is disengaged from a nut and said latching piece pivot point is located in a pre-determined position;

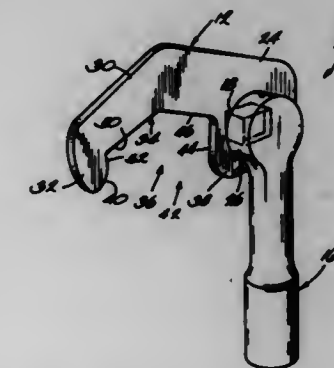
further comprising a stabilizing bracket detachably connected to the body of said extension wrench by wrench-bracket attaching means, wherein said bracket comprises an upper portion connected to an upper portion of said extension wrench by an upper portion of said wrench-bracket attaching means and a lower portion, wherein said lower portion is connected to a lower portion of said extension wrench by a lower portion of said wrench-bracket attaching means and also to said water meter by a meter-bracket attaching means;

whereby said extension wrench is prevented from movement relative to said water meter when said gear is rotated.

5,671,644
OPEN-ENDED RATCHETING WRENCH
 James R. Anderson, Menominee, Mich., assignor to Evergreen Tool Co., Inc., Menominee, Mich.
 Filed May 11, 1995, Ser. No. 439,815
 Int. Cl.⁶ B25B 13/02

U.S. Cl. 81—119

12 Claims



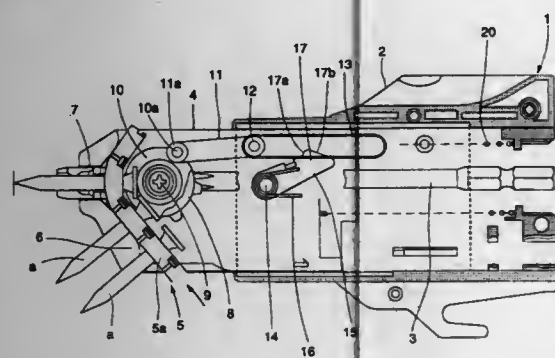
1. An open-ended ratcheting wrench for a fastener having a plurality of flat side surfaces, the open-ended ratcheting wrench comprising:

- a jaw including an inner surface adapted to engage a fastener having a plurality of flat side surfaces, the inner surface defining an opening in the jaw for receiving the fastener, and the inner surface including an arcuate heel surface, an arcuate nose surface opposing the arcuate heel surface, the arcuate nose and heel surfaces defining therebetween a mouth for the opening, a lower relief face extending from the arcuate heel surface and away from the mouth of the opening, a lower back face extending transversely from the lower relief face and away from the mouth of the opening, an upper back face extending transversely from the lower back face toward the mouth of the opening, and an upper drive face extending transversely from the upper back face to the arcuate nose surface,
- wherein the lower and upper back faces are oriented in complementary relation to a pair of adjacent side surfaces on the

fastener so that the adjacent side surfaces are seatable in linear contact with the lower and upper back faces, the lower and upper back faces forming an angle, wherein the lower relief face and the lower back face form a lower relief angle that is less than the angle formed between the lower and upper back faces so that when adjacent side surfaces of the fastener are seated in complementary relation against the upper and lower back faces the lower relief surface and an opposing side surface of the fastener define therebetween a lower clearance space; and

a handle extending from the jaw, the handle being operable to rotate the jaw in a first direction wherein the arcuate nose surface leads and the jaw is adapted to ratchet over a fastener, and in a second direction opposite the first direction wherein the arcuate heel surface leads and the upper drive face is adapted to grip a fastener so that the fastener and the jaw rotate in unison.

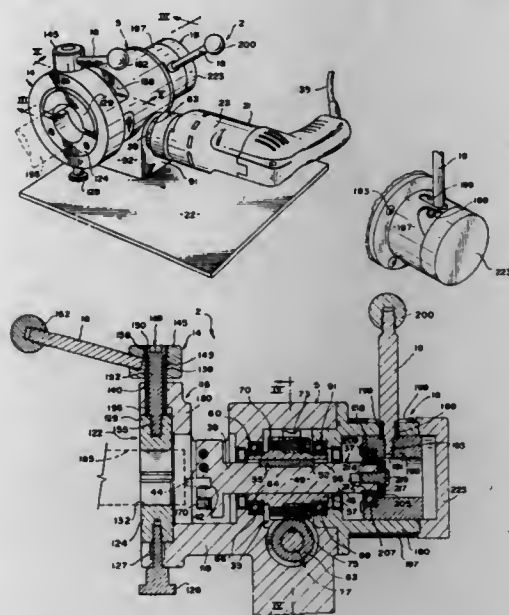
5,671,645
SCREW SUPPLY DEVICE FOR COUPLED SCREW TIGHTENING MACHINE
Keishiro Murayama, and Osamu Ehsawa, both of Tokyo, Japan, assignors to Max Co., Ltd., Tokyo, Japan
Filed Oct. 6, 1995, Ser. No. 540,043
Claims priority, application Japan, Oct. 6, 1994, 6-268247
Int. Cl.⁶ B25B 23/06
U.S. Cl. 81—434 8 Claims



1. A screw supply device for a coupled screw tightening machine which tightens one of coupled screws fed to a nose portion slidably accommodated into a nose holder arranged in a front portion of a main body, said screw supply device comprising:
a pair of feed wheels rotatably supported within the nose portion, each engageable with at least one of coupled screws;
a pair of ratchet wheels supported concentrically with said feed wheels, rotatable in a forward/backward direction, and engageable with said respective feed wheels only when said ratchet wheels rotate in a single direction;
a pair of guide holes formed in respective side walls of the nose holder, said guide holes extending axially;
a pair of drive links coupled at one end thereof to a portion close to an outer edge of said respective ratchet wheels, and the other end thereof being arranged slidably along said respective guide holes;
a pair of control plates pivotally provided in the nose holder, said control plates being engageable with the other end of said respective drive links; and
a pair of springs urging said control plates respectively, wherein a strength of said springs is enough to temporarily stop only the retreating of said drive links when said the other end of said drive links engages with said control plates, wherein the other end of said drive links is in contact with a front end of said guide holes when the nose portion is on the way of advancing from a retreat end, and wherein said feed wheels are rotated intermittently in a coupled screw feed direction by causing said ratchet wheels to make a forward/backward rotation based on stoppage of said drive

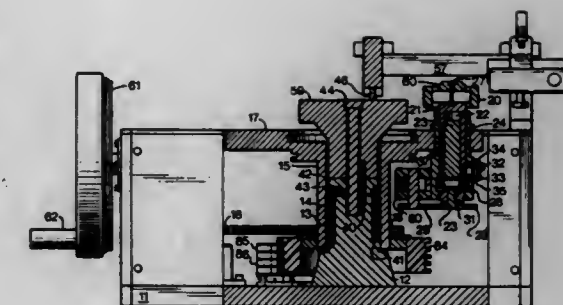
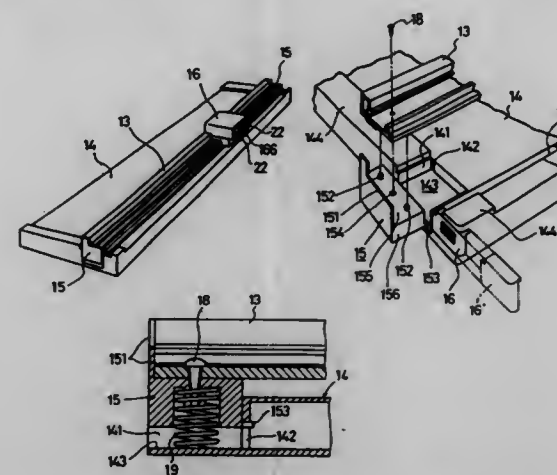
links while the nose portion is on the way of retreating and while the nose portion is in the course of advancing.

5,671,646
TUBE END SQUARING TOOL
William E. Sandford, Camino, and Henry Astle, Rancho Cordova, both of Calif., assignors to TRI Tool Inc., Rancho Cordova, Calif.
Filed Jul. 10, 1995, Ser. No. 500,148
Int. Cl.⁶ B23B 5/16
U.S. Cl. 82—113 17 Claims



1. A portable tool for performing a cutting operation on an end of a tube comprising:
a main tool body defining an internal cavity extending between first and second opposing, open sides thereof;
a tool shaft extending within said internal cavity, said tool shaft including a first longitudinal end portion defining a tool carrier adapted to support a tube end cutter tool, a second longitudinal end portion and an intermediate portion;
means for rotatably supporting said tool shaft within said internal cavity;
a drive unit drivably connected to said tool shaft for selectively rotating said tool shaft relative to said main tool body;
a tube receiving and clamping unit carried by the first side of said main tool body, said tube receiving and clamping unit including a tube receiving aperture that opens into said internal cavity, said tube receiving aperture being defined by a least first and second clamping members that are selectively movable relative to one another to adjust the side of said tube receiving aperture such that an end of a tube to be cut can be inserted within said tube receiving aperture and said clamping members can be shifted in order to clamp an end portion of the tube within said tube receiving aperture; and
a mechanism for shifting said tool shaft within said internal cavity, said shifting mechanism including an outer member fixed to the second side of said main tool body and an inner member slidably mounted within said outer member, said inner member being connected to the second longitudinal end portion of said tool shaft for relative rotation with respect to said tool shaft, wherein sliding movement of said inner member causes said tool shaft to be longitudinally shifted so as to enable a cutter tool supported by said tool carrier and rotated by said drive unit to progressively engage and cut an end of a tube secured within said tube receiving aperture; said shifting mechanism including cam means, acting between said inner and outer members, for rotating and sliding said inner member relative to said outer member.

5,671,647
PAPER CUTTER
Chuzo Mori, Tokyo, Japan, assignor to Carl Manufacturing Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 204,657, Mar. 2, 1994, abandoned.
This application Jul. 10, 1995, Ser. No. 500,232
Claims priority, application Japan, Mar. 16, 1993, 5-081352
Int. Cl.⁶ B26D 1/18; 7/02
U.S. Cl. 83—56 2 Claims



holder on the platform so that the specimen holder is slideable in a direction generally parallel to the shaft.

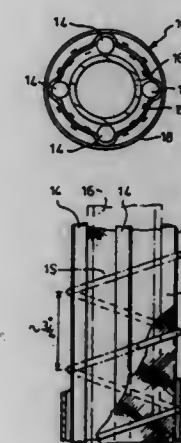
5,671,649
METHOD OF MAKING PROTECTIVE SLEEVE WITH WARP SPACERS

Michael J. Piotrowski, Norristown; Robert Brushafer, West Chester; Janice R. Maiden, Oreland, and Joan Bitwinski, Philadelphia, all of Pa., assignors to Bentley-Harris Inc., Exton, Pa.

Division of Ser. No. 388,032, Feb. 14, 1995, Pat. No. 5,538,045. This application Mar. 28, 1996, Ser. No. 623,932
Int. Cl.⁶ D04C 1/00

U.S. Cl. 87—9

4 Claims



1. A method for cutting paper in a paper cutter having: a bed with an upper face for supporting at least one sheet of paper; a rail having opposite ends each supported by a corresponding support member on the bed, the rail defining a central axis extending in an axial direction of the rail and a transverse axis extending in a first direction perpendicular to the axial direction of the rail and parallel to the bed and having a bottom face parallel in the first direction to the upper face of the bed, the bottom face defining a positioning edge extending along the axial direction of the rail, and a slider slidably supported for movement in the axial direction of the rail and having a rotary cutter, the method comprising:

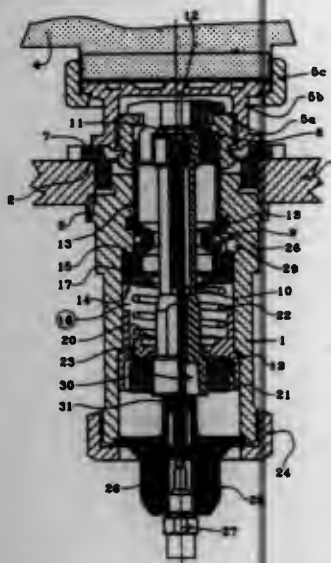
- urging the support members away from the bed with compression springs to define a gap between the bottom and upper faces;
- sliding guide faces of the support members against opposing guide faces of the bed so that the bottom face of the rail moves relative to the upper face of the bed but remains parallel in the first direction thereto without twisting about the axial direction of the rail;
- depressing the slider and moving the slider along the axial direction of the rail with a face of the rotary cutter in sliding contact with the positioning edge thereby cutting the paper; and
- providing a rigidity of the rail in relation to an elastic force of the compression springs so that depression of the slider bends the rail along the axial direction of the rail to clamp the at least one sheet of paper between the bottom and upper faces only in a cutting range in a vicinity of the slider, thereby maintaining a gap between the bottom and upper faces along the axial direction of the rail except within the cutting range.

5,671,648
ROTARY MICROTOME WITH HORIZONTAL SWEEP
Klaus Dern, 4645 Dunwoody Dr., Dunwoody, Ga. 30350
Filed Jan. 16, 1996, Ser. No. 586,181
Int. Cl.⁶ G01N 1/06; B26D 7/06
U.S. Cl. 83—411.1 5 Claims

5. A rotary microtome comprising a base, a shaft connected to the base, a platform rotatable about the shaft, a knife holder, means rigidly attached to both the shaft and the base for supporting the knife holder, a blade removably fitted into the knife holder, a specimen holder, and means for slideably mounting the specimen

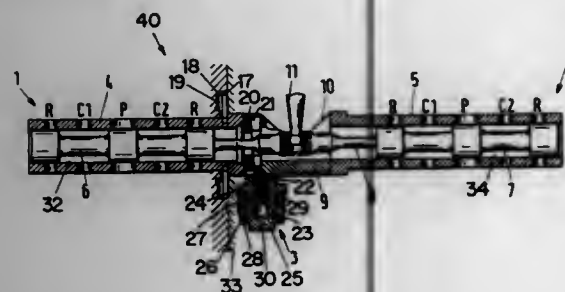
1. A method of braiding an insulating sleeve on a circular braider comprising:
interbraiding first and second heat resistant yarns;
delivering relatively incompressible warp cords into the braider, said warp cord having a diameter which is greater than the diameter of said first and second yarns, and feeding the warp cords between the first and second yarns as the first and second yarns are interbraided;
interbraiding at least one third yarn with the first and second yarns, setting up the braider for the third yarn to pass the third yarn on the same side of all of the warp cords; and
maintaining a tension on the third yarn sufficient to offset the warp cords from the centerline of the sleeve wall.

5,671,650
SLOTTED NUT TYPE RELEASING DEVICE FOR A MICROSATELLITE, WITH FULL MECHANICAL AND PYROTECHNICAL REDUNDANCY
 Jean-Pierre Aubret, Saint Medard en Jalles, France, assignor to Aerospatiale Societe Nationale Industrielle, Paris, France
 Filed Jul. 2, 1996, Ser. No. 677,431
 Claims priority, application France, Jul. 13, 1995, 95 08502
 Int. Cl.⁶ F42B 15/35
 U.S. Cl. 89—1.14 12 Claims



1. A slotted nut releasing device for a microsatellite, with full mechanical and pyrotechnical redundancy, wherein a head of a slotted nut ensures connection between a satellite base and a rocket platform, this connection being maintained by sliding pieces capable of being displaced and of thus releasing the connection upon implementation of a releasing energy provided by a pyrotechnical initiator, wherein the sliding pieces are formed by an inner piston housed inside a petalled pin, and by a releasing piston (13) in the form of a sleeve, placed outside the said petalled pin, in that the petalled pin is connected by a thread to slotted nut and in that a body of the releasing device is provided with two generators of releasing energy, each acting on one of the other of the sliding pieces, to detach the slotted nut and its connecting pieces at the base of the satellite.

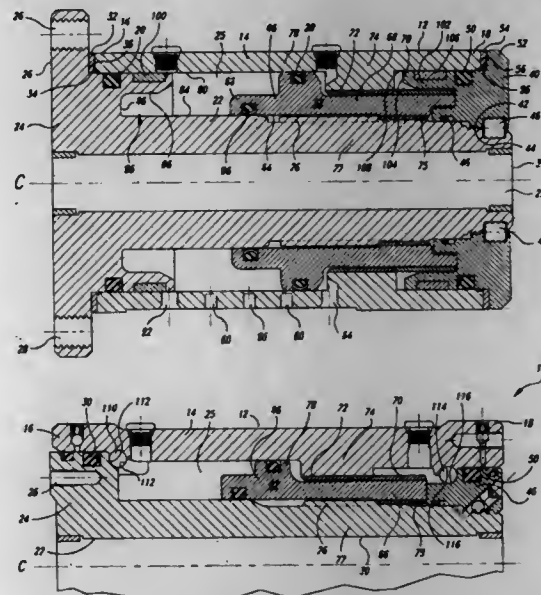
5,671,651
SERVOHYDRAULIC ACTUATOR
 Roland Pfaff, Hafenlohr, Germany, assignor to Mannesmann Aktiengesellschaft, Dusseldorf, Germany
 Filed Jul. 20, 1995, Ser. No. 504,702
 Claims priority, application Germany, Jul. 20, 1994, 44 26 706.1
 Int. Cl.⁶ F15B 11/00
 U.S. Cl. 91—523 7 Claims



1. A servohydraulic actuator, comprising:
 a valve housing having an intermediate region;

first and second servo valves operating synchronously, in axial alignment and separated by said intermediate region from one another within said valve housing for use with a tandem cylinder through a hydraulic connection, each of said first and second servo valves including an outer sleeve provided with inlet and outlet ducts, and a control slide, said outer sleeve of said first servo valve being displaceable and said outer sleeve of said second servo valve being stationary;
 means for applying a resetting force to said displaceable outer sleeve;
 a coupling rod including an enlarged portion with a transverse opening for connection with an actuating element, said coupling rod extending through said intermediate region for connecting said control slides of said first and second servo valves; and
 adjusting means for applying an externally controlled axial force acting against said resetting force to displace said displaceable outer sleeve, said adjustment means comprising first and second wedge plates each including a recess therein and positioned between said first servo valve and said intermediate region, said coupling rod being positioned to extend through said recess in both said first and second wedge plates.

5,671,652
ROTARY ACTUATOR
 Dean R. Weyer, Enumclaw, Wash., assignor to 1994 Weyer Family Limited Partnership, Enumclaw, Wash.
 Filed Aug. 20, 1996, Ser. No. 700,072
 Int. Cl.⁶ F01B 3/00
 U.S. Cl. 92—33 14 Claims



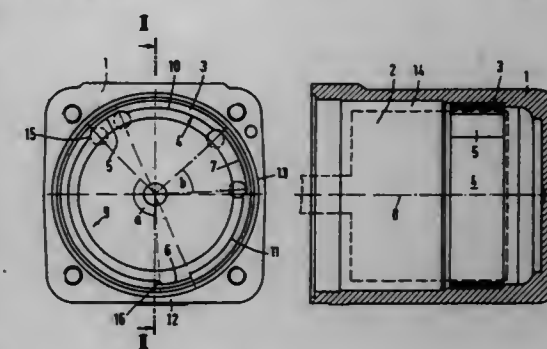
1. A fluid-powered rotary actuator for providing rotational movement between first and second external members, comprising:
 a body having a longitudinal axis, and first and second ends, said body having a generally cylindrical interior sidewall portion with a grooved, inwardly facing circumferential portion, said body being adapted for coupling to the first external member;
 a drive member extending generally coaxially within said body and supported for rotation relative thereto, said drive member being adapted for coupling to the second external member to provide the rotational movement between the first and second external members, said drive member having an end flange positioned toward said body first end and a shaft rigidly connected thereto, said shaft having a grooved, outwardly facing circumferential sidewall portion positioned within said body toward said body second end and a smooth, outwardly facing circumferential sidewall portion positioned within said body between said end flange and said shaft grooved sidewall

portion, said end flange extending laterally outward beyond said shaft smooth sidewall portion and said shaft grooved sidewall portion having an outer diameter equal to or less than an outer diameter of said shaft smooth sidewall portion, said drive member and said body defining an annular space therebetween, said shaft grooved sidewall portion being formed as an integral portion of said shaft; and
 an annular piston sleeve having a piston portion and a sleeve portion positioned generally coaxially within said body in said annular space, said piston sleeve having a central aperture receiving said shaft therethrough, said piston sleeve being mounted for reciprocal axial movement within said body in said annular space in response to selective application of pressurized fluid to said piston portion, said piston portion being in sliding sealed engagement with said shaft smooth sidewall portion and said body interior sidewall portion to define fluid compartments to each side thereof for the selective application of pressurized fluid thereto to move said piston sleeve toward said body first end or to move said piston sleeve toward said body second end, said sleeve portion having a grooved, inwardly facing circumferential sidewall portion engaging said shaft grooved sidewall portion as said piston sleeve reciprocally moves within said body, and a grooved, outwardly facing circumferential sidewall portion engaging said body grooved sidewall portion as said piston sleeve reciprocally moves within said body to translate said axial movement of said piston sleeve toward said body first end into one of clockwise or counterclockwise relative rotational movement between said drive member and said body and said axial movement of said piston sleeve toward said body second end into the other of clockwise or counterclockwise relative rotational movement between said drive member and said body.

7. A fluid-powered rotary actuator for providing rotational movement between first and second external members, comprising:
 a body having a longitudinal axis, and first and second ends, said body having a generally cylindrical interior sidewall portion with a grooved, inwardly facing circumferential portion, said body being adapted for coupling to the first external member;
 a drive member extending generally coaxially within said body and supported for rotation relative thereto, said drive member having an end flange positioned toward said body first end adapted for coupling to the second external member to provide the rotational movement between the first and second external members, and a shaft rigidly connected thereto, said end flange and said shaft being formed as an integral unit, said shaft having a grooved, outwardly facing circumferential sidewall portion positioned within said body toward said body second end and a smooth, outwardly facing circumferential sidewall portion positioned within said body between said end flange and said shaft grooved sidewall portion, said end flange extending laterally outward beyond said shaft smooth sidewall portion, said drive member and said body defining an annular space therebetween, said shaft grooved sidewall portion being formed as an integral portion of said shaft; and
 an annular piston sleeve having a piston portion and a sleeve portion positioned generally coaxially within said body in said annular space, said piston sleeve having a central aperture receiving said shaft therethrough, said piston sleeve being mounted for reciprocal axial movement within said body in said annular space in response to selective application of pressurized fluid to said piston portion, said piston portion being in sliding sealed engagement with said shaft smooth sidewall portion and said body interior sidewall portion to define fluid compartments to each side thereof for the selective application of pressurized fluid thereto to move said piston sleeve toward said body first end or to move said piston sleeve toward said body second end, said sleeve portion having a grooved, inwardly facing circumferential sidewall portion engaging said shaft grooved sidewall portion as said piston sleeve reciprocally moves within said body, and a grooved, outwardly facing circumferential sidewall portion engaging said body grooved sidewall portion as said piston sleeve reciprocally moves within said body to translate said axial movement of said piston sleeve toward said body first

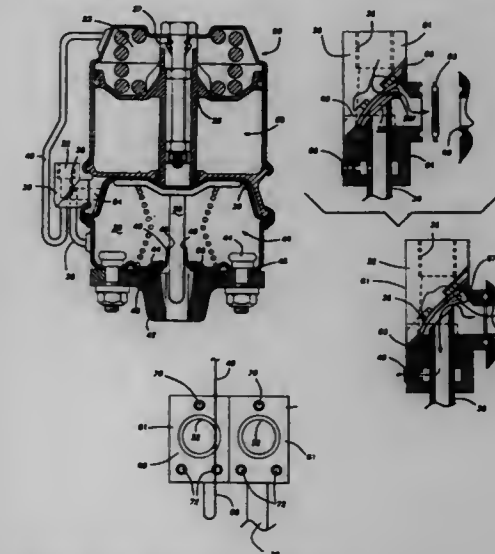
end into one of clockwise or counterclockwise relative rotational movement between said drive member and said body and said axial movement of said piston sleeve toward said body second end into the other of clockwise or counterclockwise relative rotational movement between said drive member and said body.

5,671,653
HYDRAULIC AXIAL PISTON MACHINE
 Lars Martensen, and Henry Madsen Møller, both of Sønderborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark
 Filed Jun. 26, 1996, Ser. No. 673,735
 Claims priority, application Germany, Jun. 30, 1995, 195 23 828.1
 Int. Cl.⁶ F01B 13/04
 U.S. Cl. 92—57 9 Claims



1. Hydraulic axial piston machine having a cylinder drum which is mounted for rotation relative to a housing, and including cylindrical having a slide face located between an outer circumference of the cylinder drum and the housing, the slide face being formed by a friction-reducing plastics material and having at least one recess communicating with at least one end edge of the slide face.

5,671,654
SEALED SPRING BRAKE ACTUATOR
 Ronald S. Plantan, Charlotte, N.C., assignor to Indian Head Industries, Charlotte, N.C.
 Filed Dec. 5, 1995, Ser. No. 567,598
 Int. Cl.⁶ F01B 7/00
 U.S. Cl. 92—63 15 Claims



1. A spring brake actuator comprising:

a central housing defining a spring chamber on one side and a service chamber on an opposed side;
 a spring chamber housing attached to said central housing to define said spring chamber and a service chamber housing attached to said central housing on an opposed side to define said service chamber;
 actuation members received in both said spring and service chambers;
 pressurized air ports for selectively providing pressurized air to one side of said actuation members in both said spring and service chambers, an opposed side of each said actuation member being maintained at a lower pressure;
 a breather tube selectively connecting said pressurized side of said service chamber to said lower pressure side of said service chamber, and a separate breather tube selectively connecting said pressurized side of said spring chamber to said lower pressure side of said spring chamber;
 said breather tubes each extending into an associated valve chamber communicating with a source of pressurized air, each said breather tube having an end angled at 45° relative to a central axis of said breather tube and received within said valve chamber, a flexible valve received within each said valve chamber, said flexible valve sealing said end of said breather tube when pressurized air is directed through an associated one of said ports and said valve allowing flow of air from said valve chamber into said breather tube when said pressurized air is not being directed into said associated port, said valve chambers each formed of two parts having a fluid passage centered on a part axis, said two parts having mating surfaces angled at 45° relative to said port axis, parallel to said end of said breather tube.

5,671,655

TWO-PIECE CONNECTING ROD FOR A RECIPROCATING HERMETIC COMPRESSOR

Ingwald Vollrath, Joinville SC, Brazil, assignor to Empresa Brasileira De Compressores S/A - Embraco, Joinville - SC, Brazil

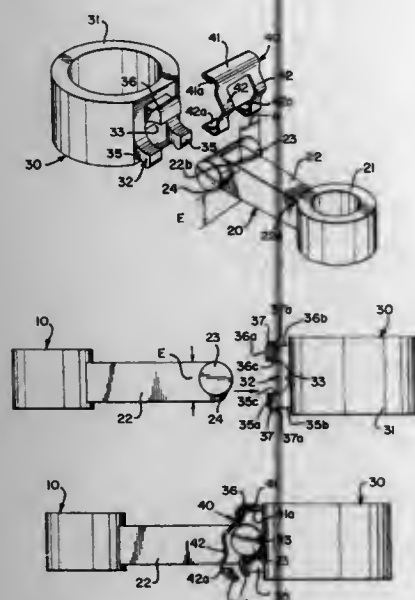
PCT No. PCT/BR94/00031, § 371 Date Aug. 31, 1995, § 102(e) Date Aug. 31, 1995, PCT Pub. No. WO95/11382, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 18, 1994, Ser. No. 481,449

Claims priority, application Brazil, Oct. 19, 1993, 9304034 Int. Cl.° F01B 29/00

U.S. Cl. 92—128

6 Claims



1. A two-piece connecting rod for a reciprocating hermetic compressor comprising:

a first connecting rod portion, including a smaller eye and at least part of a rod of the connecting rod;
 a second connecting rod portion, including a larger eye;
 an engaging element at one of the first and second connecting rod portions;
 a receiving housing at the other of said first and second connecting rod portions and shaped to articulately receive during the assembly of the connecting rod said engaging element to permit articulation between said first and second rod connecting portions on a diametral plane common to both the eyes and the geometrical axis of the rod, said receiving housing including at least a pair of opposite lateral walls defined by lower and upper radial projections that are axially spaced one from the other and disposed to prevent relative movements between said first and second connecting rod portions in a plane orthogonal to said diametral plane; and
 mounting means, having engaging portions carried by one of said first and second connecting rod portions, and acting on the other of said portions to prevent said portions from moving away from each other by involuntary mutual axial spacing at said common diametral plane;
 said engaging element having a lateral guide element that guides said engaging element during the mounting thereof to said receiving housing through lateral walls of a through axial slot provided on one of the lateral walls of the receiving housing.

5,671,656

PAINT PUMP FLUID SECTION

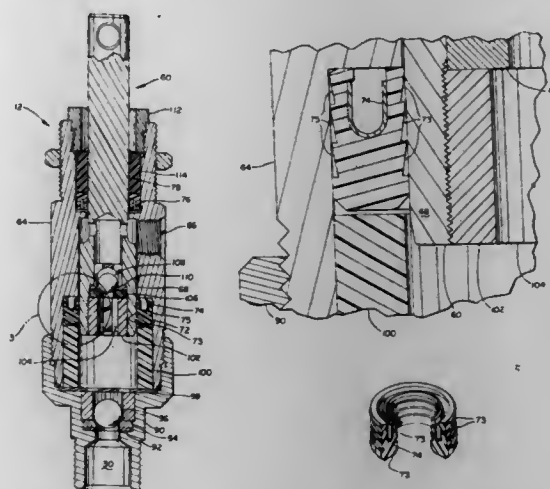
Norman A. Cyphers, Rogers, and Frank G. Mirazita, Coon Rapids, both of Minn., assignors to Wagner Spray Tech Corporation, Minneapolis, Minn.

Filed Feb. 20, 1996, Ser. No. 594,025

Int. Cl.° F16J 1/00

U.S. Cl. 92—172

9 Claims



1. In a piston paint pump fluid section of the type having a piston carried in a housing and secured against leakage from an inlet chamber to an outlet chamber by an inlet seal located between the piston and the housing, the improvement in combination therewith comprising the piston being formed of unplated stainless steel and the inlet seal being a first multiple lip seal formed of a resilient elastomer material.

5,671,657

MULTIPLE HOPPER GRINDER

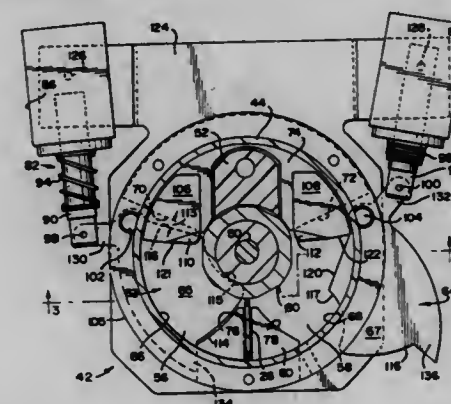
David F. Ford, Springfield, and Daniel R. Ephraim, Glencoe, both of Ill., assignors to Bunn-O-Matic Corporation, Springfield, Ill.

Filed Dec. 5, 1996, Ser. No. 759,474

Int. Cl.° A47J 31/42; 42/16; 42/50; B02C 19/00

U.S. Cl. 99—286

15 Claims



1. A dispensing control assembly for use with a grinding apparatus to controllably dispense substances therethrough; said grinding apparatus including a hopper in gravity feed relationship with said dispensing control assembly and a grinder positioned below said dispensing control assembly for grinding material dispensed therethrough; said dispensing control assembly comprising:
 a plate movably retained between said hopper and said grinder for selective movement between an open position and a closed position;
 a moving mechanism coupled to said plate for moving said plate between said open position and said closed position;
 a baffle extending over a portion of said plate facing said hopper, said baffle to facilitate movement of said plate into said closed position and avoid trapping coffee beans.

5,671,658

COOKING DEVICE

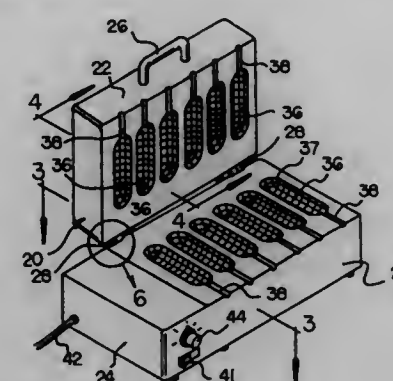
Jorge Macasaet, 79 Duval Dr., So San Francisco, Calif. 94080

Filed Aug. 12, 1996, Ser. No. 689,593

Int. Cl.° A47J 37/00

U.S. Cl. 99—384

2 Claims



1. A cooking device comprising:

a housing structure including:
 a bottom housing substantially rectangular shaped:
 at least one hinge secured to the rear edge of the bottom housing;
 a top housing substantially rectangular shaped with a handle secured to the exterior surface of the top housing where the top housing is pivotally mounted to the bottom housing and the top housing juxtaposed to the bottom housing in the closed position;

a molding means positioned within the housing structure which retains a waffle batter, a fill and a waffle stick centrally positioned within the waffle batter and the fill;
 a heating means positioned within the housing structure near the molding means; and the molding means includes:
 the top housing including a plurality of batter mold cavities in the side engaging the bottom housing and a stick passage projecting from the front edge into the batter mold cavity for receiving a waffle stick;
 the bottom housing including a plurality of batter mold cavities in the side engaging the top housing that correspond to the plurality of batter mold cavities in the top housing; and another stick passage projecting from the front edge into the batter mold cavity and aligned within said stick passage projecting into said top housing for receiving said waffle stick; and
 the batter mold cavities of the top housing and the bottom housing when juxtaposed form a prolate shape and the batter mold cavities include a plurality of raised ribs forming a reticulated surface.

5,671,659

FOOD SKEWER TOOL

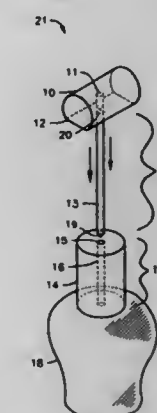
Martin Van Buren Swindle, 651 Parkway, Suite 11, Gatlinburg, Tenn. 37738

Filed Jul. 5, 1995, Ser. No. 498,422

Int. Cl.° A47J 43/00; A22C 11/00; A23P 1/00

U.S. Cl. 99—419

12 Claims



1. A skewering apparatus for penetrating a food item with an elongated skewer having a length, a cross-sectional dimension, a penetrating end, and a driving end, the apparatus comprising:
 a barrel having an axial bore of cross-sectional dimension larger than the cross-sectional dimension of the skewer, said bore having an inner surface for guiding the skewer;
 wherein the skewer is positioned within said bore and guided by said inner surface during skewering of the food item so that the penetration end only contacts the food item; and
 a striker for inserting the penetration end of the skewer into the food item when said striker is in driving contact with the driving end of the skewer.

5,671,660

HEATED AIR-CIRCULATING OVEN

Georges Moshonas, 12240 Camille, Montréal Québec, Canada, H4K 2H7

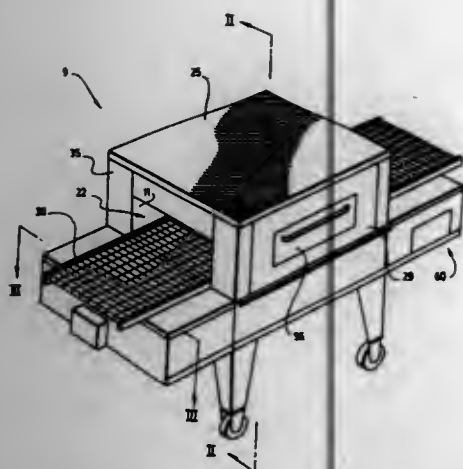
Division of Ser. No. 354,256, Dec. 12, 1994, Pat. No. 5,584,237. This application Jul. 9, 1996, Ser. No. 680,527

Int. Cl.° A23L 3/00; A21B 1/00; F27B 9/04; 9/28

U.S. Cl. 99—443 C

5 Claims

1. A heated air-circulating oven comprising:
 a baking chamber in which food can be inserted for baking, said baking chamber having two opposite sidewalls, an end wall, a top wall and a bottom wall;



two air suction chambers in open communication with said baking chamber, one of said two air suction chambers is adjacent to the bottom wall of the baking chamber, the other one of said two air suction chambers is adjacent to the top wall of the baking chamber, both of said air suction chambers are in open communication with each other via at least one intermediate chamber adjacent to one of said opposite side walls, both of said air suction chambers being also in open communication with the baking chamber via a plurality of apertures operatively positioned onto said top and bottom wall;

at least one blower mounted outside the baking chamber for drawing air from said baking chamber through the suction chambers;

a blowing chamber at least in part adjacent to said end wall and in open communication with said two air suction chambers via said at least one blower and in which the air drawn by said at least one blower passes;

a plurality of blown air distributors extending within the baking chamber on the top and bottom walls thereof and being positioned so as to not face said plurality of apertures of the air suction chambers, said blown air distributors being in open communication with the blowing chamber and the baking chamber so as to reinject the air drawn and blown by said at least one blower back into the baking chamber; and heating means external to said baking chamber for heating the air which is drawn from the baking chamber before it is blown back into said baking chamber, said heating means comprising a heating chamber operatively connected to one of said two air suction chambers so as to heat the air drawn through said one air suction chamber.

5,671,661 EQUIPMENT FOR THE METERED SUPPLY OF ARRAYS OF PRODUCTS

Bruno Glamello, Alba, Italy, assignor to Soremartec S.A., Schoppach-Arion, Belgium

Filed Sep. 27, 1996, Ser. No. 722,318

Claims priority, application Switzerland, Sep. 29, 1995, 2755/95

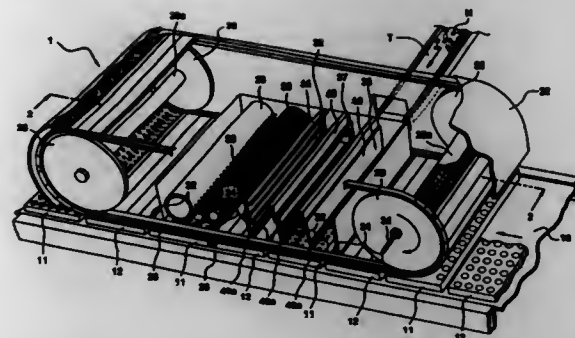
Int. Cl.⁶ A21C 9/00; 9/08; 11/16; A21D 6/00
U.S. Cl. 99—450.7 13 Claims

1. An apparatus for the metered provision of product arranged in an array, said apparatus comprising:

a generally flat abutment structure having an upstream portion and a downstream portion;

partitions disposed above and extending generally transverse to said abutment structure and, in cooperation with said abutment structure, defining a plurality of compartments arranged along at least a portion of said abutment structure for receiving said product, said partitions having resiliently flexible lips extending generally adjacent to an upper surface of said abutment structure; and

at least one apertured plate having apertures extending there-through for receiving a supply of said product, said apertures



being arranged in a manner corresponding to said array, said apertured plate being movable relative to said upper surface of said abutment structure, from said upstream portion to said downstream portion, so as to pass from one compartment to another through bottom portions of said compartments, said apertured plate and said abutment structure disengaging from each other at or near said downstream portion;

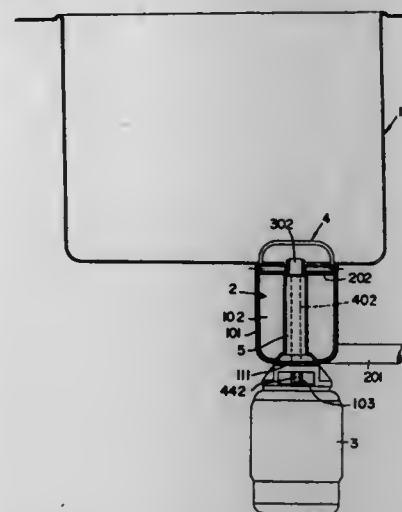
whereby, in operation, product received in at least one of said compartments is introduced into said apertures by means of gravity and by means of force exerted on said product by said resiliently flexible lips as said apertured plate moves from one compartment to another such that, when said apertured plate reaches said downstream portion and disengages from said abutment structure, substantially all of said apertures contain said product.

5,671,662 PASTEURIZER

Gino Cocchi, and Romano Verardi, both of Bologna, Italy, assignors to ALI S.p.A. - Carpi Group, Italy

Filed Oct. 17, 1996, Ser. No. 733,173

Claims priority, application Italy, Oct. 20, 1995, GE95A0111
Int. Cl.⁶ A23L 1/20; A23C 9/00; A61L 2/04; B01F 5/00
U.S. Cl. 99—453 11 Claims



1. A pasteurizer for food products comprising a tank having a side wall and a bottom wall; a chamber cavity on the bottom wall of said tank; said chamber cavity being in communication with said tank; said chamber cavity being provided at its bottom with a hole; a cylindrical sleeve tightly secured by its lower end to the bottom of said cavity; said sleeve surrounding said hole and extending from the bottom of said cavity up to in proximity of the upper end of said cavity; said cylindrical sleeve being provided at its upper end with sealing elements; a shaft rotatably extending from said hole in the bottom of said cavity through said sleeve and through said sealing elements up to the upper end of said cavity;

actuating means coupled to the lower end of said shaft projecting from said hole for rotating said shaft; agitator means secured to the upper end of said sleeve projecting outwardly through said sealing elements; said agitator means extending into said cavity chamber.

5,671,663 SELF-CONTAINED AUTOMATIC CITRIC JUICE EXTRACTING AND DISPENSING

Jose Angel Alvarez Fernandez, Oviedo, Spain, assignor to Contractfin, A.G., Vaduz, Liechtenstein

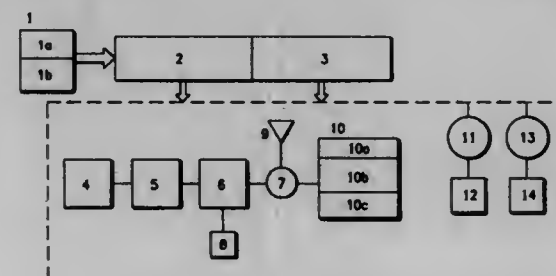
PCT No. PCT/ES94/00083, § 371 Date May 28, 1996, § 102(e)
Date May 28, 1996, PCT Pub. No. WO96/06541, PCT Pub.
Date Mar. 7, 1996

PCT Filed Sep. 1, 1994, Ser. No. 605,220

Int. Cl.⁶ A23N 1/00

U.S. Cl. 99—489

6 Claims



1. A self-contained automatic citric juice extracting and dispensing machine for producing freshly squeezed citrus juice, said citric juice extracting and dispensing machine comprising:

a citric fruit store for storing citric fruits;

a dispenser for dispensing a certain number of fruits per selection from the citric fruit store;

a citric juice extracting device, said dispenser feeding citric fruits to said citric juice extracting device;

a fluid pump, fitted into an outlet of the juice extracting device, for pumping juice produced by the citric juice extracting device through the outlet and into a cup placed to receive said juice;

a discharge hopper for waste collection, said fluid pump disposing remains of the citric fruits from the juice extracting device into said discharge hopper, so that it is possible to clean chambers and piping dirtied by a juice extracting operation, during inactivity of said juice extracting operation; and

an electronic control comprising a microprocessor system using software, for controlling operation of the citric fruit store, the dispenser, the citric juice extracting device, and the fluid pump, and issuing signals to execute a cleaning cycle during said inactivity of said juice extracting operation.

5,671,664 COMBINATION BLENDER AND FOOD WASHING APPARATUS

Glenn R. Jacobson, 1950 N. Andrews Ave., Apt. No. 203D, Wilton Manors, Fla. 33311

Continuation-in-part of Ser. No. 330,320, Oct. 27, 1994, Pat. No. 5,501,241. This application Jan. 3, 1996, Ser. No. 582,449

Int. Cl.⁶ A47J 3/00; B08B 3/02; F26B 9/06

U.S. Cl. 99—536

11 Claims

1. A food processing apparatus for aerating, washing, and blending food items comprising:

a container having a floor and a vertically extending wall terminating in a container rim, said container floor having rotatable blending means;



fluid spray nozzle means within said container for creating a fluid spray;

a mesh basket for holding food items, said basket sized for insertion within said container such that said basket is demountably supported above said container floor;

a container lid, said lid sized for mounting on said container rim; means for selectively allowing fluid to flow through said spray nozzle means thereby creating a fluid spray within said container; and

a base housing a motor and having a top surface incorporating a rotational drive section for transmitting rotational power to said blending means.

5,671,665 CALENDER FOR THE TREATMENT OF A PAPER WEB AND PROCESS FOR ITS OPERATION

Franz Kayser, Geldern; Ulrich Rothfuss, Grefrath; Rolf van Haag, Kerken; Reinhard Wenzel, Krefeld, and Dieter Junk, Kreuztal, all of Germany, assignors to Voith Sulzer Finishing GmbH, Krefeld, Germany

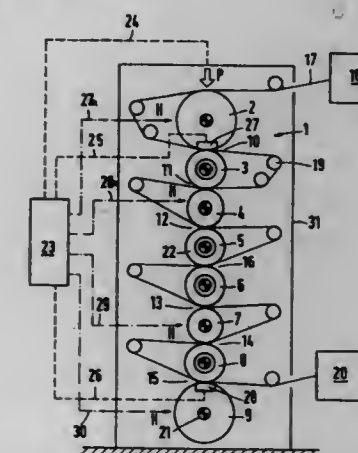
Filed Mar. 7, 1996, Ser. No. 612,171

Claims priority, application Germany, Mar. 9, 1995, 195 08 349.0

Int. Cl.⁶ D21G 1/00; B30B 3/04

U.S. Cl. 100—38

12 Claims



12. A process for operation of a calender for treating a paper web having at least one roller stack, said roller stack being loaded

on one end, said calender including at least two hard rollers having a substantially smooth outer surface; and at least two soft rollers, wherein each of said at least two soft rollers is disposed adjacent to at least one of said at least two hard rollers to form a working nip therebetween, whereby a portion of the rollers is heatable and at least one end roller is deflection-controllable, said process comprising the steps of:

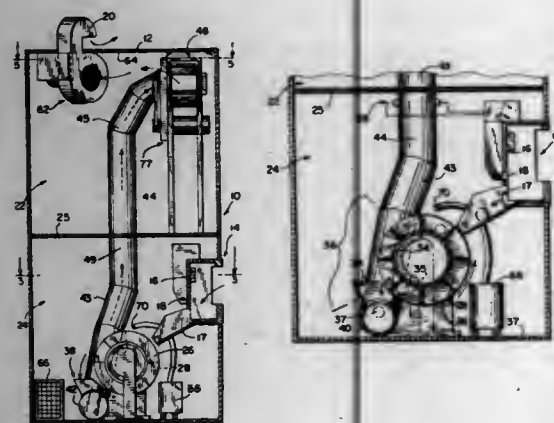
selecting the numerical values of the surface temperature T [in °C], the average compressive stress p [in N/mm²], and the dwell time t [in ms] of all working nips such that the following relationship applies to a target value Z_g :

$$Z_g = 1.378 - 0.00356T - (0.00825 - 5.12 \cdot 10^{-5}T)p - [0.039 + (0.188 - 0.00112T)p \cdot e^{-0.093p}] \cdot e^{-0.42t} = 0.8 \text{ to } 0.9.$$

5,671,666
CAN RECYCLING APPARATUS
Doug Wenglar, P.O. Box 1085, El Campo, Tex. 77437
Filed May 31, 1996, Ser. No. 657,738
Int. Cl.⁶ B30B 9/32

U.S. Cl. 100—91

11 Claims



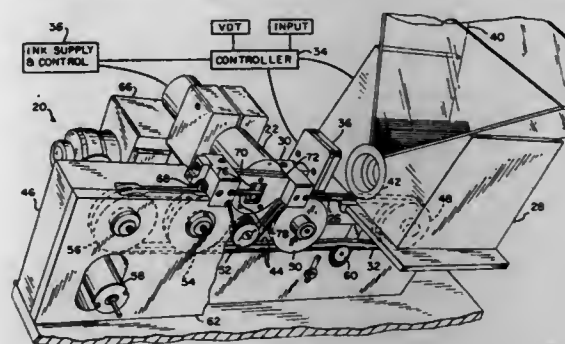
1. An apparatus for receiving cans, separating recyclable cans from non-recyclable cans, and crushing and storing the recyclable cans, the apparatus comprising:

- a housing having a deposit port for receiving the cans;
- a rotatable drum inside the housing and adapted for receiving the cans;
- a conduit having a first opening in association with the drum and adapted for receiving recyclable cans as they drop off the rotating drum and a second opening remote from the first opening;
- a magnet associated with a specific zone of the drum for assuring that non-recyclable, ferrous cans do not drop off of the drum and into the conduit;
- a can crusher in communication with the second opening of the conduit and adapted for receiving recyclable cans exiting from the second opening for crushing and discharging the recyclable cans;
- a storage chamber in the housing for storing the separated, crushed recyclable cans; and
- an exhaust blower in the housing for drawing air through the first opening and out of the second opening of the conduit and through the crusher for drawing the recyclable cans received from the drum through the conduit and crusher and into the storage chamber.

5,671,667
MULTI-LINE STRAW PRINTER
Ludwig O. Simmet, Madison, Wis., assignor to Minitube of America, Inc., Verona, Wis.
Filed Apr. 10, 1996, Ser. No. 630,496
Int. Cl.⁶ B41F 17/20

U.S. Cl. 101—35

25 Claims



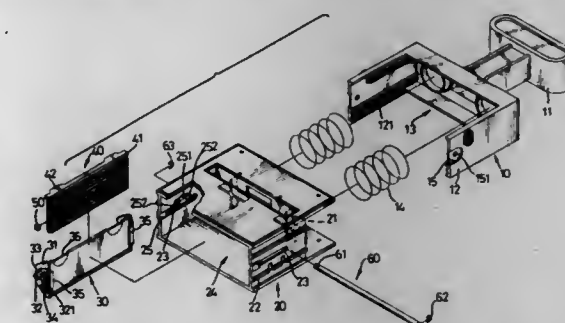
16. A printer for printing multiple lines of markings on a straw for containing products therein, the printer comprising:

- a housing;
- a first noncontact print head mounted to the housing;
- a second noncontact print head mounted to the housing facing toward the first noncontact print head;
- a drive system having means for supporting and advancing a straw;
- a straw support bridge mounted to the housing and which receives a straw from the drive system means for supporting and advancing, the drive system advancing said straw through the support bridge without contacting said straw within the support bridge;
- portions of the support bridge defining an unobstructed window positioned between the first print head and the second print head, such that a first line of markings may be imprinted on one side of said straw by the first print head and a second line of markings may be simultaneously imprinted on said straw by the second print head while the straw is advanced by the drive system through the support bridge window; and
- portions of the support bridge supporting said straw to align it for passage through the straw window and to deliver it into engagement with the drive system supporting and advancing means after the straw has been imprinted by the first print head and the second print head.

5,671,668
HAND STAMP
Shiny Shih, No. 31, Lane 349, Chungcheng S. Rd., Yungkang City, Tainan Hsien, Taiwan
Filed May 21, 1996, Ser. No. 651,861
Int. Cl.⁶ B41J 27/02; B41K 1/40

U.S. Cl. 101—104

5 Claims



1. A hand stamp comprising:
a first member having an n-shaped structure and a handle integrally formed on the n-shaped structure, said n-shaped struc-

ture having a first pair of side walls defining a first internal space and a plurality of guides respectively on an inside of the first pair of sidewalls of the n-shaped structure;

- a second member movably received within the space of the first member, said second member having a front wall, a rear wall and a second pair of sidewalls, said four walls defining a second internal space, each of said second pair of sidewalls respectively defining a plurality of flanges spaced on an outside thereof engaged with the guides of the first member, a slotted hole parallel to and spaced between said flanges, a channel guide parallel to the flanges on an inside of each of said second pair of sidewalls, said channel guide communicating with the slotted hole and defining a hog portion at a midway portion thereof, said hog portion having lugs respectively disposed at an upper end and a lower end thereof;
- a substantially rectangular plate with a smaller area than the cross-sectional area of the second member received within the second internal space, said substantially rectangular plate having wings extending from two opposed short sides thereof perpendicular to the substantially rectangular plate, each of said wings having a boss formed thereon to rotatably move within each hog portion and each channel guide of the second member, and a block stop with two parallel notches adjacent to the boss at a side of the substantially rectangular plate, parallel notches being provided for retaining the lugs of the hog portion of the second member; and
- a matrix plate with an approximate dimension the same as that of the substantially rectangular plate replaceably attached to the substantially rectangular plate in order to rotate with the substantially rectangular plate.

5,671,669
STENCIL CONVEYING MEANS ADAPTED TO CONVEY A STENCIL SHEET PARALLEL TO THE AXIS OF A PRINTING DRUM

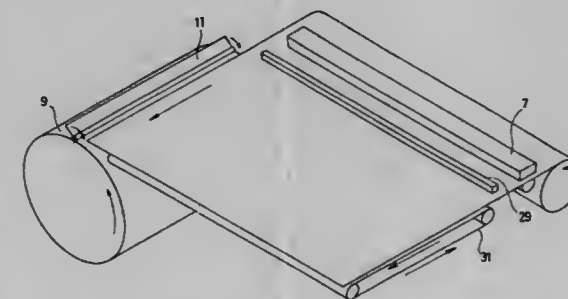
Sadanao Okuda; Makoto Ishikawa; Takao Kawabe, and Masakazu Kawano, all of Tokyo, Japan, assignors to Riso Kagaku Corporation, Tokyo, Japan

Filed Oct. 17, 1995, Ser. No. 543,937

Claims priority, application Japan, Oct. 24, 1994, 6-258249
Int. Cl.⁶ B41L 13/06

U.S. Cl. 101—116

4 Claims



1. A stencil printing machine for printing by means of a stencil sheet, said stencil printing machine comprising:
a perforating section for perforating said stencil sheet;
a printing drum adapted to receive said stencil sheet wrapped there around, said printing drum being rotated about an axis thereof;
conveying means adapted to convey said stencil sheet to said printing drum in such a manner that a longitudinal edge of said stencil sheet perforated at said perforating section is substantially parallel to the axis of said printing drum;
clamp means for clamping said edge of said stencil sheet conveyed by said conveying means to said printing drum; and
a stencil sheet discharge section for removing said stencil sheet from said printing drum after printing.

174-444 O.G.-97-4: QL3

5,671,670
STENCIL PRINTER HAVING A CONSTRUCTION FOR PREVENTING INK LEAKAGE

Yasuhiro Takahashi, and Nagon Takita, both of Tokyo, Japan, assignors to Riso Kagaku Corporation, Tokyo, Japan
Continuation of Ser. No. 332,033, Oct. 1, 1994, abandoned.

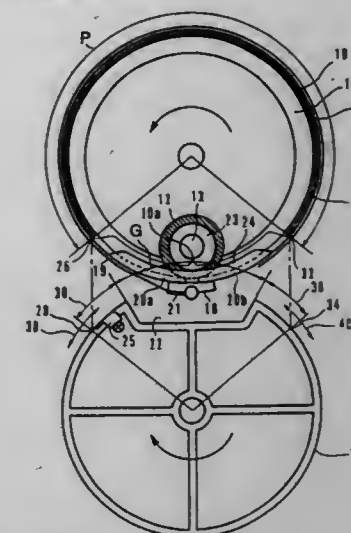
This application Dec. 14, 1995, Ser. No. 574,575

Claims priority, application Japan, Nov. 12, 1993, 5-306038;
Mar. 10, 1994, 6-066708

Int. Cl.⁶ B41L 13/04

U.S. Cl. 101—116

10 Claims



1. A stencil printer comprising:

- a printing drum having two axially opposite annular edge portions, a circumferential wall portion extending between said two annular edge portions to define a cylindrical configuration and including a perforated portion and a strip-like stencil sheet leading end mounting portion extending between said two annular edge portions along a generatrix of said cylindrical configuration;
- a back press roller having a transverse groove at an outer circumferential portion extending along a generation thereof, said printing drum and said back press roller being rotatably supported and arranged to be close to and in parallel with one another for rotating in mutually opposite rotational directions in synchronization with one another such that said stencil sheet leading end mounting portion is aligned with said transverse groove when the stencil printer is operated with a stencil sheet wrapped around said printing drum and a print sheet fed between said printing drum and said back press roller so as to apply a stencil print to said print sheet with ink supplied through said perforated portion of said printing drum from the inside thereof and said stencil sheet;
- means for selectively shifting said printing drum and said back press roller from a standard relative position to a second relative position in a first direction and to a third relative position in a second direction opposite to said first direction, wherein a first midpoint of an arc defined by said stencil sheet leading end mounting portion of said printing drum and a second midpoint of an arc defined as a circumferential length of said transverse groove of said back press roller are just aligned with one another in said standard relative position, said first and second midpoints being selectively misalignable over a circumferential length of a biasing range, said biasing range corresponding to a chance in a relative rotational phase between said printing drum and said back press roller for the shifting from said standard relative position to said second and third relative position adjusting the position of the stencil print relative to the print sheet,
- wherein the back press roller is selected from the group consisting of:
(a) a back press roller having a same diameter as a diameter of said printing drum, the total length of the circumferential length of said perforated portion of said printing drum and

the circumferential length of the biasing range being smaller than the circumferential length of a part of said back press roller excluding said transverse groove and (b) a back press roller having a diameter which is two or higher integer times of the diameter of said printing drum, said back press roller having said integer number of said transverse grooves, the total of the outer circumferential length of said perforated portion of said printing drum plus the circumferential length of the biasing range being smaller than the outer circumferential length between two adjacent ones of said transverse grooves of said grooves of said back press roller,

whereby said perforated portion is not exposed to said transverse groove in spite of said relative rotational shifting between said printing drum and said back press roller within said biasing range for adjusting the position of the stencil print relative to the print sheet.

5,671,671
ROTARY SCREEN PRINTING MACHINE FOR SHEET PRINTING

Hans Wyssmann, Zurich, Switzerland, and Johannes Georg Schaefer, Wuerzburg, Germany, assignors to De La Rue Glori S.A., Switzerland

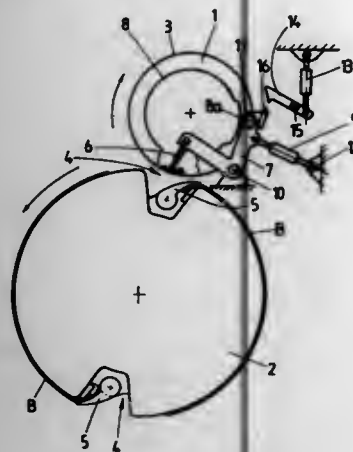
Filed Jan. 18, 1996, Ser. No. 588,131

Claims priority, application Switzerland, Jan. 24, 1995, 192/95

Int. Cl.⁶ B41L 15/18

U.S. Cl. 101—120

6 Claims



1. A rotary screen printing machine for sheet printing, comprising a form cylinder (1) which carries a screen printing stencil (3), an impression cylinder (2) which has a cylindrical circumferential surface and at least one cylinder pit (4) and which forms a printing nip with the form cylinder (1), and a doctor (6) which can be adjusted radially inside the form cylinder (1) and which is installed in the region of the printing nip, wherein the impression cylinder (2) is provided, in each cylinder pit (4), with sheet grippers (5) which, in their closing position, do not project above the printing surface of the impression cylinder, and wherein the adjustable doctor (6) and an actuating mechanism (7, 8, 9) controlling said doctor being so constructed and arranged for pressing the doctor (6) against the inside of the screen printing stencil (3) during a printing operation, and for adjusting said doctor into a position of rest lifted off from the inside of the screen printing stencil (3) when the open region of the cylinder pit (4) of the impression cylinder (2) passes the region of the printing nip,

wherein a control cam (8, 8') is provided, the actuating mechanism having a pivotally mounted lever (7) having at least one end of which the doctor (6) being mounted and guided by the control cam (8, 8') rotating simultaneously with the form cylinder (1), and wherein the doctor (6) being pressed mechanically in the direction of the screen printing stencil (3),

the form cylinder having a casing, and an axis, said casing consisting solely of the screen printing stencil (3), which is elastic and cylindrical and lies concentrically relative to the cylinder axis;

the control cam (8') being connected to the impression cylinder (2) fixedly in terms of relative rotation.

5,671,672
IMAGE PRINTER

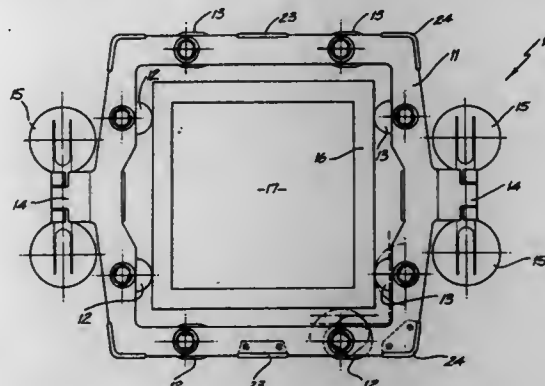
Konstantine George Savva, 15/28-30 Trafalgar Street, Brighton-Le-Sands, NSW, Australia, 2216

Filed Oct. 10, 1995, Ser. No. 541,454

Int. Cl.⁶ B41F 15/04; B05C 17/06

U.S. Cl. 101—127.1

15 Claims



1. An image printing apparatus comprising: a frame defining a hollow space within which a printing screen having side edges, top and bottom edges, can be received, a fastening device fixed to the frame and including a surface engagable element for selectively holding the frame stationary relative to a surface, adjustable positioners mounted to the frame, said positioners including printing screen-cooperating elements cooperating with the respective side edges of the screen so as to adjust the position of the screen in a first direction with respect to the frame and others of the positioners being adapted to cooperate with the respective top or bottom edges of the screen so as to adjust the position of the screen in a second direction normal to said first direction relative to said frame so as to position the screen to be ready for application of an image to said surface, and said adjustable positioners comprising a series of cam devices rotatably mounted to the frame and having a printing screen edge-camming surface.

5,671,673
CHAMBERED DOCTOR BLADE DEVICE FOR PRINTING UNIT

Ake Bööse, Laxvägen 3 S-181 30, Lidköping, and Jan Stenqvist, Mossbult 3580 S-260 60, Kvidinge, both of Sweden

Continuation of Ser. No. 343,572, Nov. 22, 1994, abandoned.

This application Mar. 19, 1996, Ser. No. 618,398

Claims priority, application Sweden, May 22, 1992, 9201610

Int. Cl.⁶ B41F 31/04; 31/06

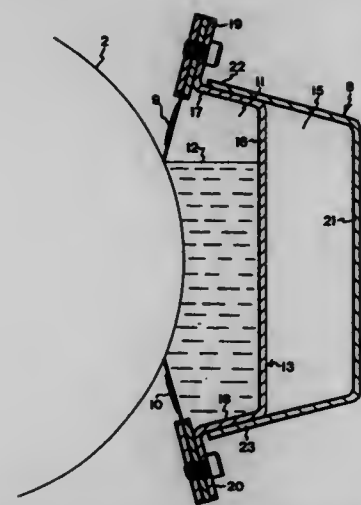
U.S. Cl. 101—363

14 Claims

1. A chambered doctor blade device for a printing apparatus having a rotatable cylinder, which is adapted to apply a printing material to, the rotatable cylinder, the device comprising:

an elongate frame being disposed parallel to and outside the cylinder;

an elongate and spaced-apart doctor blade being mounted on each side of the elongated frame, said blades being disposed parallel to the cylinder and arranged, in an operative position,



to be resiliently and wipingly applied against the cylinder, the blades, when in said operative position, defining, together with a surface of the elongate frame facing the cylinder and a circumferential surface of the cylinder, an elongate chamber which holds the printing material to be applied to the rotating cylinder; and

the elongate frame including at least two elongate, interconnected metal sections, the two blades being mounted on two ends of a first metal section, respectively, and a second metal section being disposed between mounting positions of the blades, the elongate metal sections of the elongate frame forming an elongate stiffening or reinforcing portion to constitute a flexurally and torsionally rigid unit which in operation ensures a set constant distance between the elongate frame and the cylinder and, consequently, constant application of the blades against the circumferential surface of the cylinder.

5,671,674
PRINTING PLATE SUPPORT DEVICE AND PRINTING PLATE REMOVAL MOUNTING APPARATUS AS WELL AS METHODS OF OPERATING THE SAME

Yohsuke Nobuta, Kanagawa-ken; Yasuo Shibuya, Tokyo; Tohru Higuchi, and Daisuke Nakamura, both of Kanagawa-ken, all of Japan, assignors to Kabushiki Kaisha Tokyo Kikai Seisakusho, Japan

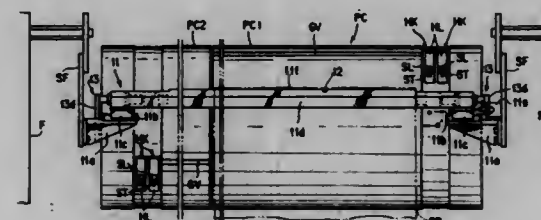
Division of Ser. No. 506,570, Jul. 25, 1995. This application Oct. 21, 1996, Ser. No. 734,262

Claims priority, application Japan, Nov. 16, 1994, 6-281794

Int. Cl.⁶ B41F 21/00

U.S. Cl. 101—415.1

6 Claims



1. In an apparatus for locking up a printing plate in a rotary press having a rotating plate cylinder which is capable of being displaced in its axial direction and being stopped in a predetermined phase of rotation, said plate cylinder is provided on its periphery and along its axis with a printing plate lock-up means, said printing plate is provided at one of its edges with a lock-up hook portion capable of being hooked on and off the printing plate lock-up means, a positioning engagement portion is provided at a predetermined

position on said lock-up hook portion of the printing plate, a device for supporting the printing plate comprising:

a printing plate receiving means located at a position spaced from said periphery of said plate cylinder by a predetermined distance and having a reference site along the axis of the plate cylinder for engaging said lock-up portion of the printing plate and for defining said lock-up portion of the printing plate in parallel to the axis of the plate cylinder, and means for displacing said printing plate receiving means in parallel to said axis of the plate cylinder;

a receiving position determining means mounted on said printing plate receiving means for engaging said positioning engagement portion of the printing plate and for positioning said printing plate at a predetermined position on said printing plate receiving means; and

a stopping position determining means which is mounted on a side portion of said printing plate receiving means and is displaceable with said printing plate receiving means between a position opposed to a side end surface of the plate cylinder and a position away from the side end surface of the plate cylinder, said displacing means moves said printing plate receiving means along the axis of the plate cylinder until said stopping position determining means abuts said end surface of the plate cylinder for stopping the printing plate receiving means at a preselected position relative to the plate cylinder.

5,671,675

PRINT IMAGE TREATMENT DEVICE

Sadanao Okuda; Takashi Isozaki; Ryuji Higa, and Takahito Tojima, all of Ibaraki-Ken, Japan, assignors to Riso Kagaku Corporation, Tokyo, Japan

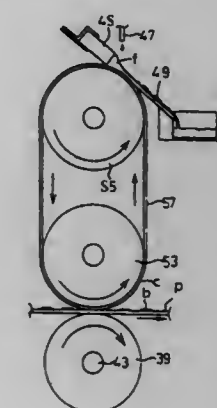
Filed Apr. 5, 1996, Ser. No. 627,354

Claims priority, application Japan, Apr. 13, 1995, 7-088379; Feb. 28, 1996, 8-041631

Int. Cl.⁶ B41F 35/00

U.S. Cl. 101—424.2

10 Claims



1. A print image treatment device comprising: a contact member being driven to rotate with having an excessive ink removing liquid applied to a surface thereof, which does not dissolve in a printing ink forming a print image and has a lower surface tension than that of the printing ink; a facing member for bringing a printed surface of a printed body into contact with the excessive ink removing liquid on the contact member by nipping and carrying the printed body having been printed between the contact member and the facing member; a supply means for supplying the excessive ink removing liquid to the contact member; and a cleaning means for removing the excessive ink removing liquid with the printing ink, sliding in contact with the contact member; characterized in that, in a mixture of the excessive ink removing liquid and the printing ink at an upstream position in the rotating direction to the contact part formed by the contact member and cleaning means on the contact member, the quantity of the excessive ink removing liquid is larger than one third of that of the printing ink.

5,671,676

FLEXOGRAPHIC PRINTER

Yasuyuki Baba; Arifumi Okamoto, and Kunio Nuchi, all of Mihara, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

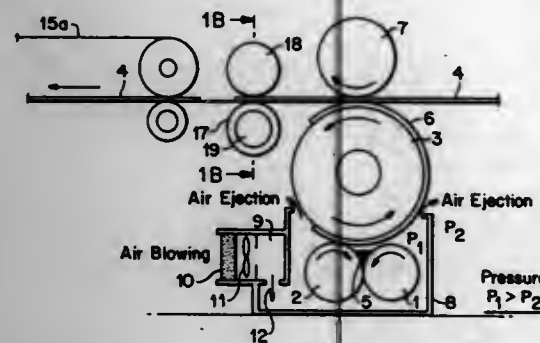
Filed Apr. 26, 1996, Ser. No. 638,434

Claims priority, application Japan, Apr. 27, 1995, 7-104078

Int. Cl. B41F 15/00

U.S. Cl. 101—425

9 Claims



1. A flexographic printer in which ink supplied into a nip portion of inking rolls including a rubber roll and an anilox roll is transferred via the anilox roll onto a printing die fitted around the outer circumferential face of a printing cylinder and is further transferred onto the surface of a sheet running between the printing cylinder and an impression roll, thereby a printing is made, comprising an inking roll cover surrounding said inking rolls and forming a gap between itself and said printing cylinder and a static pressure forming means for supplying air into said inking roll cover while printing and forming a slightly higher static pressure within said inking roll cover than that of the peripheral area such that air is ejected through said gap and dust and scraps are prevented from entering the inking roll cover through said gap, wherein said static pressure forming means includes a pressure tank provided at said inking roll cover and connected to the inside of said ink roll cover, a filter provided at an air intake of said ink roll cover, a filter provided at an air intake of said pressure tank and a pressurized air supply means provided within said pressure tank on the inner side of said filter, wherein said pressurized air supply means is a fan, a blower or a compressor, and wherein said pressure tank has an interior space that is connected to the interior of said ink roll cover through an air vent, the air vent being a slit which extends generally parallel to an axial direction of the printing cylinder.

5,671,677

Patent Not Issued For This Number

5,671,678

LETTERPRESS PRINTING METHOD AND APPLICATOR DEVICE FOR ITS IMPLEMENTATION

George Bolte, Halle/Westf.; Lutz Nolle, Thannenbergrasse 5, 7912 Weissenhorn, and Franz-Josef Driller, Beerengrund 5, 4799 Borchon-Dörenhagen, all of Germany, assignors to Georg Bolte, Lutz Nolle, and Franz-Josef Driller, all of Germany

Continuation of Ser. No. 976,497, Nov. 13, 1992, abandoned.

This application Oct. 11, 1995, Ser. No. 541,090

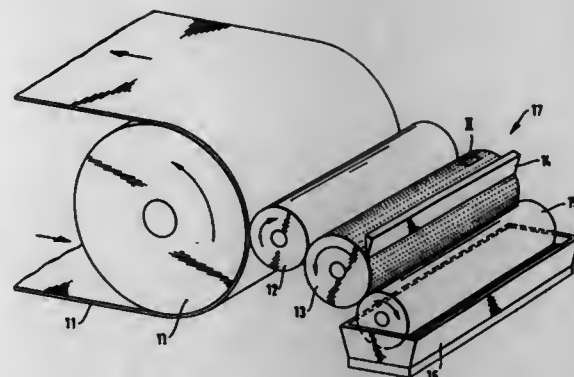
Claims priority, application Germany, Nov. 13, 1991, 41 37 337.5

Int. Cl. B41F 11/00

U.S. Cl. 101—491

19 Claims

1. A method for applying a binder system to web material using a letterpress printing process which comprises applying the binder



system to the letterpress form of an application roller by means of a pattern roller applying a solvent-free binder system by means of a pattern roller having a cell pattern with a cell depth ≤ 15 μm, wherein the improvement comprises:

- a radiation-curable printing ink being used as the solvent-free binder system; or
- a radiation-curable laminating adhesive being used as the solvent-free binder system a second web of material being laminated onto the web material coated with the adhesive and the adhesive being radiation-cured before and/or after the lamination.

5,671,679

FULLY AUTOMATIC, MULTIPLE OPERATION RAIL MAINTENANCE APPARATUS

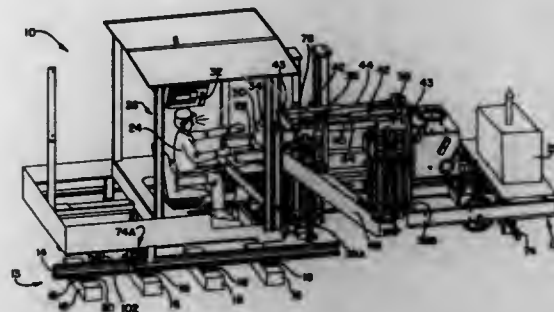
William D. Straub, Milwaukee; Bruce M. Boczkiewicz, Mukwonago, and David S. Johnsen, Milwaukee, all of Wis., assignors to Nordco Inc., Milwaukee, Wis.

Filed Apr. 24, 1996, Ser. No. 642,244

Int. Cl. E01B 29/24

U.S. Cl. 104—2

36 Claims



34. A system for detecting targets and for positioning at least one work module over a particular target to perform a task thereon, said system comprising:

- a movable machine having a main frame;
- sensing means being associated with said machine for detecting locations of at least one target positioned on said base surface;
- encoding means associated with said machine for obtaining data reflecting at least one of the displacement and velocity of said machine relative to said base surface; and
- a control unit for receiving said target locations from said sensing means, for receiving said data from said encoding means, for determining a target distance for said machine such that said work module is placed in general alignment with the particular target in a target area.

5,671,680

GUIDANCE DEVICE FOR A TRACK-FOLLOWING VEHICLE AND METHOD OF GUIDING A TRACK-FOLLOWING VEHICLE

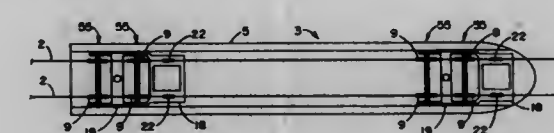
Anthony Armand DelGreco, 160 Cabrini Blvd., Apt. 78, New York, N.Y. 10033

Filed Jun. 3, 1996, Ser. No. 657,421

Int. Cl. E01B 25/00

U.S. Cl. 104—130.07

22 Claims



1. A guidance device for a track-following vehicle intended for use with a track comprising a first main rail, a second main rail parallel to the first main rail, and a first guide rail, the first guide rail being substantially circular in cross-section, having a center point, and being substantially parallel to the first main rail and the second main rail, said guidance device comprising:

- a first guide wheel, having a circumference comprising a guide portion which is complementary with the first guide rail; and
- a first pivoting member, said first guide wheel being mounted to said first pivoting member for rotation about an axis such that said guide portion of said first guide wheel is aligned with the first guide rail, said first pivoting member being capable of pivoting said first guide wheel from rotation about a substantially horizontal axis to rotation about a non-horizontal axis while maintaining a substantially radial orientation relative to the centerpoint of the first guide rail.

5,671,681

TRANSPORTATION METHOD FOR RIDER PROPELLED VEHICLES

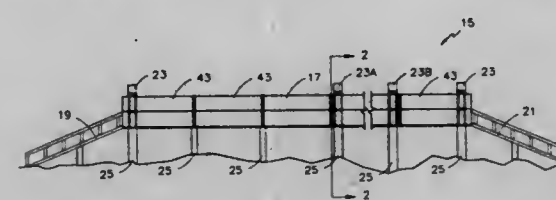
Milnor H. Senior, III, 3377 S. Willow Ct., Denver, Colo. 80231

Continuation of Ser. No. 462,134, Jun. 5, 1995, Pat. No. 5,558,023, which is a continuation of Ser. No. 174,253, Dec. 28, 1993, abandoned. This application Aug. 30, 1996, Ser. No. 704,886

Int. Cl. B61B 13/10

U.S. Cl. 104—138.1

19 Claims



1. A method for assisting movement of a rider propelled non-motorized vehicle comprising:

- dedicating a pathway connecting first and second selected locations to primarily provide for movement therealong of rider propelled non-motorized vehicles; and
- assisting riders moving along said pathway in propelling the vehicles without replacing rider directional and speed control and primary rider propulsion of the vehicles by moving air along said pathway in a direction of travel and at a selected velocity.

5,671,682

SWAY BRACE WITH SPRUNG SUPPORT AND SUPPLEMENTARY AND EMERGENCY SPRING

Stefan Hölzl, Munich; Roland Philipp, Berlin; Peter Reichert, Berlin, and Klaus-Henning Babnik, Berlin, all of Germany, assignors to Knorr Bremse AG, Munich, Germany

PCT No. PCT/DE93/01226, § 371 Date Sep. 29, 1995, § 102(e)

Date Sep. 29, 1995, PCT Pub. No. WO94/22702, PCT Pub. Date Oct. 13, 1994

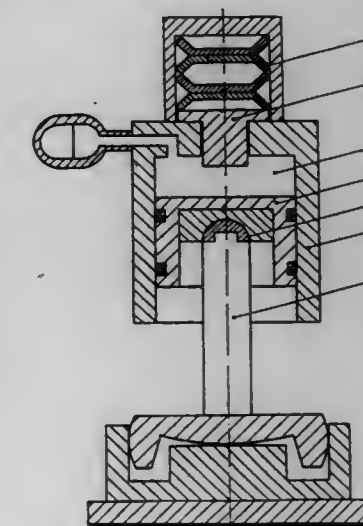
PCT Filed Dec. 17, 1993, Ser. No. 537,099

Claims priority, application Germany, Mar. 30, 1993, 93 04 837 U

Int. Cl. B61F 3/00

U.S. Cl. 105—199.2

3 Claims



1. Sway brace with a sprung support and a supplementary spring, arranged on rail vehicles between first and second components, the sprung support being formed of a cylinder with a piston, whose piston space is connected with a pressure accumulator, and of a brace wherein

- a lower end of the brace is supported on a surface of the first component, at least one of the end face of the lower end of the brace and the surface being designed as a spherical surface, while an upper end of the brace is fastened by a joint to the piston, and
- a lateral surface of the lower end of the brace or an opposite surface on the first component is a rotation surface with two or more circular curves as a generatrix, while the respective other lateral surface or the opposite surface is constructed as a straight circular-cylindrical surface.

5,671,683

RAILWAY VEHICLE WITH VARIABLE TRIM BODY

Bruno Parussatti, Candiolo, and Mauro Plombo, Savona, both of Italy, assignors to Fiat Ferroviaria S.p.A., Turin, Italy

Filed Mar. 8, 1996, Ser. No. 611,846

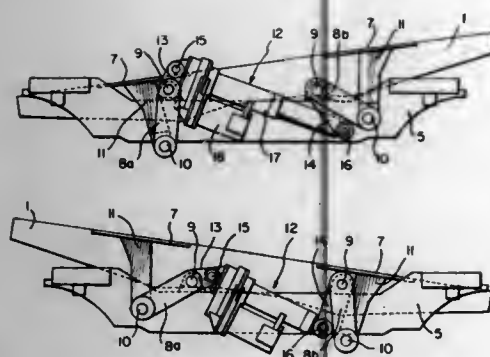
Claims priority, application Italy, Sep. 22, 1995, TO95A0752

Int. Cl. B61F 3/00

U.S. Cl. 105—199.2

5 Claims

1. A railway vehicle comprising a variable trim body having a longitudinal axis, two bogies having respective frameworks and swinging transverse members, articulated connection levers between each of said swinging transverse members and said body, and a body roll control system including actuator means operable to perform, while the vehicle is running along a curve, rotations of said body about said longitudinal axis tending to limit non-compensated centrifugal acceleration acting on said body, wherein



said actuator means direct act on said articulated connection levers, whereby said body rotations are operated by virtue of rotations of said levers.

5,671,684
RAILWAY CAR OUTLET GATE ASSEMBLY WITH AUTOMATIC LOCK

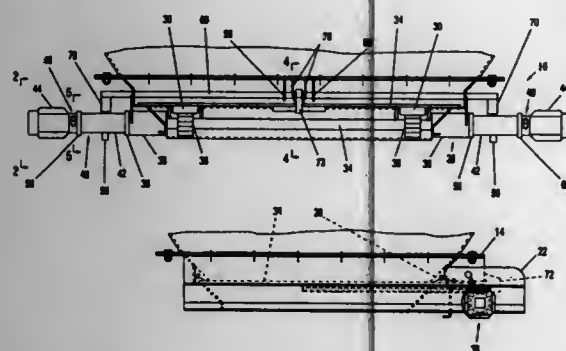
Anthony L. Lucas, McPherson, Kans., assignor to Keystone Industries, Inc., Camp Hill, Pa.

Continuation of Ser. No. 499,930, Jul. 10, 1995, Pat. No. 5,584,251. This application Aug. 29, 1996, Ser. No. 705,322

Int. Cl.⁶ B61D 7/24

U.S. Cl. 105—305

7 Claims



1. An outlet gate assembly for a hopper-type rail car, the assembly including a frame defining a generally rectangular opening and including a pair of parallel and opposed side member extensions; a generally rectangular plate mounted on the frame for movement between opened and closed positions; a drive shaft; bearings mounting the drive shaft on the frame side member extensions, said drive shaft including a pair of ends extending outwardly from the side member extensions; a pair of sleeves mounted on the ends of the shaft outboard of the side member extensions; a pair of capstans on the sleeves; a pair of racks on the plate; a pair of pinion gears on the drive shaft with said pinion gears engaging said racks so that rotation of a capstan moves the gate between opened and closed positions; a rotary lost motion drive element arranged between each capstan and the plate; a plate latch member on the frame located adjacent to the drive shaft and adjacent to one side member extension, a lift member movable by one of said capstans, an operative connection between the lift member and the latch member whereby movement of said one capstan in a direction to open the plate moves the lift member during collapse of the rotary lost motion drive element to unlatch the plate prior to opening movement of the plate.

5,671,685
ACOUSTIC BARRIER, PARTICULARLY FOR RAILWAY SUPERSTRUCTURES

Stefano Ughi, Via Cosimo del Fante 8, 20122 Milano, Italy

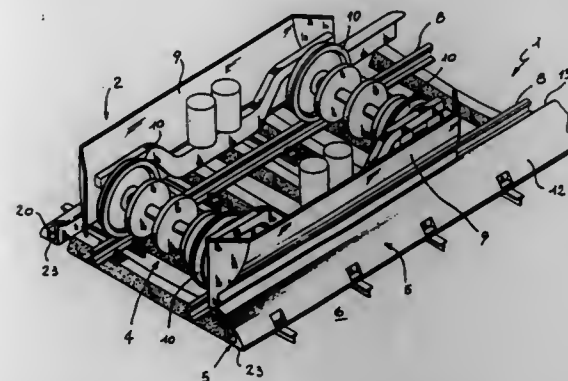
Filed Feb. 26, 1996, Ser. No. 607,084

Claims priority, application Italy, Feb. 28, 1995, MI95A0374

Int. Cl.⁶ B61D 17/00

U.S. Cl. 105—452

11 Claims



1. A noise-abating railway assembly, comprising:
a railway track comprising means for forming a support plane, and a pair of railway rails mounted on said means and said support plane;
a railway car traveling along said track and comprising at least one bogie having wheels riding respectively on said rails and a car body resiliently supported on said bogie; and
noise-abatement means for abating noise produced by said wheels riding on said rails, said noise-abatement means including:
a pair of downwardly extending aprons secured to said bogie on opposite sides of said bogie and having lower ends below axes of said wheels, and
respective sound-proofing members mounted on said plane, extending along said track, flanking said track, and juxtaposed with a respective one of said aprons, said sound-proofing members extending upwardly above said lower ends to overlap said aprons, said lower ends of said aprons and upper ends of said sound-proofing members being inclined to said support plane to define between each lower end of an apron and a respective upper end of a sound-proofing member juxtaposed therewith a respective slot inclined to said support plane.

5,671,686
AUTOMOTIVE CONSOLE WRITING TABLE
Gregory M. Hurley, Jackson, and Kevin Whalen, Ann Arbor, Mich., assignors to Manchester Plastics, Inc., Troy, Mich.

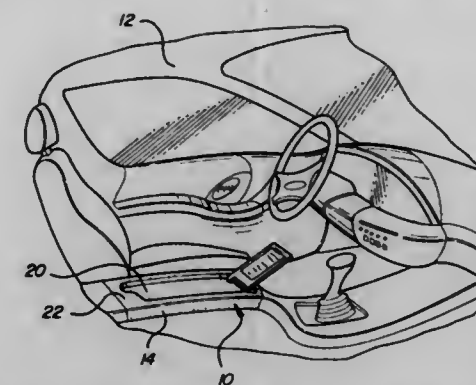
Filed Feb. 12, 1996, Ser. No. 599,683

Int. Cl.⁶ A47B 23/00

U.S. Cl. 108—45

29 Claims

1. A table assembly supported by a trim member of a vehicle, said assembly comprising:
a hinge fixedly secured to the trim member;
a support table having a first end pivotally secured to said hinge, said support table including a first surface providing a writing table in an open position and a second surface opposing said first surface and providing a surface extending with the trim member in a closed position, and having a second free end spaced from said trim member in said open position and adjacent the trim member in said closed position, said hinge connected to said support table so that said support table extends along a centerline perpendicular to one of said ends and establishing a centerline plane perpendicular to said first



surface in said closed position and said support table is skewed from perpendicular to said centerline plane in said open position.

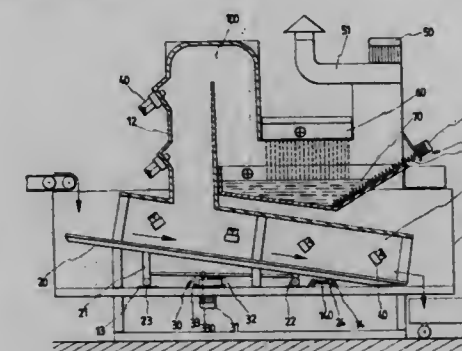
5,671,687
INCINERATOR HAVING A FULLY AUTOMATIC FEEDER
Chwan Yuh Chen, No. 65-2, Chinguang Road, Uryh Shiang, Taichung County, Taiwan

Filed Jun. 16, 1995, Ser. No. 491,445

Int. Cl.⁶ F23B 5/00; F23H 7/10

U.S. Cl. 110—212

3 Claims



1. An incinerator comprising:
a first combustion chamber provided therein with a plurality of ignition devices and at a bottom side thereof with a feeding plate having a downward inclination toward an exit end of said feeding plate, said feeding plate provided on an underside thereof with a vibrating device for vibrating said feeding plate such that trash deposited on an inlet end of said feeding plate can be moved downward gradually along an inclined surface of said feeding plate into said first combustion chamber in which combustible trash is incinerated to produce ash and exhaust fumes;
a curved duct communicating with said first combustion chamber and having an inlet end and an outlet end which is provided with an air pump and an air exhausting pipe;
a second combustion chamber located between said first combustion chamber and said inlet end of said curved duct and provided therein with a plurality of ignition devices for burning completely said exhaust fumes produced in said first combustion chamber; a water screen device that forms a water screen located in a mid-segment of said curved duct for washing away ash contained in said exhaust fumes before said exhaust fumes from said second combustion chamber is exhausted via said air exhausting pipe; and
a water tank for collecting said ash that is washed away from said exhaust fumes by said water screen, said water tank is provided therein with an ash removing means; wherein said vibrating device comprises an electrically-operated actuating means which is linked with an action rod, said action rod is provided at both ends thereof with a leg which is fastened at

an upper end thereof to said action rod and at a lower end thereof to a pulley slidable on a rail located under said feeding plate, said feeding plate is provided on the underside thereof with a protruded body which causes said feeding plate to vibrate along said rail by pressing against a compression spring located under said feeding plate when said action rod is actuated by said actuating means of said vibrating device.

5,671,688
PROCESS FOR TREATING SLAG FROM REFUSE INCINERATION PLANTS
Markus Bärger, Rieden; Bruno Carcer, Aarau; Alfred Edlinger, Zürich, and Jean-Marc Martelli, Dübendorf, all of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

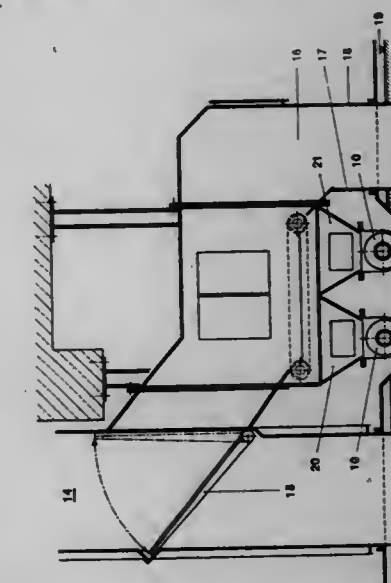
Filed Dec. 7, 1995, Ser. No. 568,837

Claims priority, application Germany, Jan. 21, 1995, 195 01 830.3; Mar. 9, 1995, 195 08 293.1

Int. Cl.⁶ F23J 3/00

U.S. Cl. 110—344

24 Claims



1. A process for treating slag from refuse incineration plants in which the crude slag, after passing through a firing grate, is separated into at least two fractions directly and without previous quenching in a water bath and these two fractions are further processed separately, and first fraction, having a particle size up to 80 mm, is separated off in a first screening stage and a screen oversize of the first screening stage is fed to a location for wet deslagging, and wherein a screen undersize is fed to a second screening stage for separating off fine fraction having a particle size up to 2 mm, and further herein a screen oversize of the second screening stage is mechanically comminuted, and a screen undersize of the second screening stage is fed to for further treatment.

5,671,689
APPARATUS AND METHOD FOR MONITORING PREDETERMINED SEAM CHARACTERISTICS
Timothy G. Clapp, New Hill; Kimberly J. Titus, Raleigh, and Adam B. Davis, Shelby, all of N.C., assignors to North Carolina State University, Raleigh, N.C.

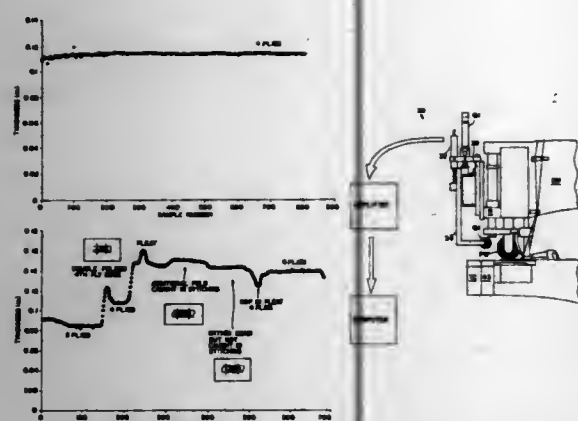
Filed Mar. 5, 1996, Ser. No. 611,077

Int. Cl.⁶ D05B 19/00

U.S. Cl. 112—278

29 Claims

9. In combination with a sewing machine of the type adapted to stitch together seams, a seam quality monitoring system comprising:

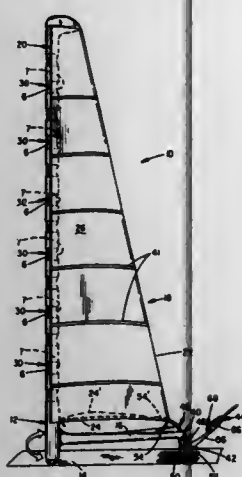


- (a) quality sensing means for continuously compressing and monitoring the quality of a seam being sewn, said quality sensing means being positioned so that a seam moving in the direction of its longitudinal axis passes continuously beneath said quality sensing means, said quality sensing means comprising a vertically movable wheel adapted to move from an inoperative mode above the sewn seam to an operative mode in contact with the sewn seam therebeneath, a transducer operatively connected to said wheel to measure vertical movement of said wheel, and means for urging said wheel against the sewn seam passing therebeneath; and
- (b) computer means electrically connected to said quality sensing means for analyzing the seam being sewn to detect predetermined characteristics thereof sensed by said wheel when in its operative mode in contact with the sewn seam passing therebeneath.

5,671,690
VARIABLE CAMBER INFLATABLE AIRFOIL
 Michael D. Trost, Rte. 2, P.O. Box 21779 Main St., Wabasso, Minn. 56293
 Filed Dec. 8, 1995, Ser. No. 569,880
 Int. Cl.⁶ B63H 9/04

U.S. Cl. 114-103

29 Claims



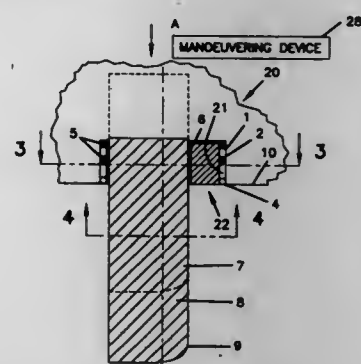
1. An airfoil assembly for use with a sailing vessel, comprising: mast means having an upper end and a lower end, said lower end being coupled to said sailing vessel and said upper end extending generally vertically away therefrom; boom means having a first end coupled to said mast means and a second end extending distally therefrom; inflatable airfoil means having an internally disposed inflation cavity, said inflation cavity being bounded by leading edge means positioned adjacent to said mast means, foot edge means extending from said second end of said boom means toward said mast means, and trailing edge means extending

between said second end of said boom means and said upper end of said mast means, said leading edge means including a first leading edge and a second leading edge disposed in spaced relation proximate said mast means, said airfoil means further including first tension point means disposed a predetermined distance away from said first leading edge, second tension point means disposed a predetermined distance away from said second leading edge, and air injection means for introducing a volume of air into said inflation cavity to force said airfoil means into an airfoil shape; and adjustment means attached to said first and second tension point means for selectively forming said trailing edge means at one of said first and second tension point means to thereby selectively adjust the camber of said airfoil means.

5,671,691
RUDDER DEVICE
 Kullmann Birger, Oslo, Norway, assignor to Kvaerner A.S., Oslo, Norway
 Continuation of Ser. No. 347,431, Mar. 31, 1995, abandoned.
 This application Aug. 12, 1996, Ser. No. 689,559
 Claims priority, application Norway, May 26, 1992, 922096
 Int. Cl.⁶ B63H 25/06

U.S. Cl. 114-162

4 Claims



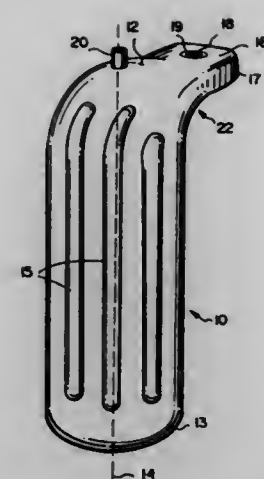
1. A rudder device and a craft having a craft's skin, comprising: a cavity having an opening through the craft's skin; a body being mounted in the cavity in such a manner that the body rotates about an axis which extends from an inner section of the cavity and through the opening and is rotated by a maneuvering device; a rudder blade extending substantially in a rudder blade plane the rudder blade having an upper end and a lower end; a through-going slot in the body having an upper opening end and a lower opening end, the through-going slot being adapted to receive the rudder blade in such a way that the rudder blade is moveable between a first position whereby the upper end of the rudder blade extends out of the upper opening end of the through-going slot and a second position whereby the upper end of the rudder blade is substantially aligned with the upper opening end of the through-going slot; and wherein the rudder blade is translationally movable in the slot.

5,671,692
BOAT FENDER
 William C. Kimball, Gloversville, N.Y., assignor to N.A. Taylor Co., Inc., Gloversville, N.Y.
 Filed Apr. 5, 1994, Ser. No. 222,861
 Int. Cl.⁶ B63B 59/02

U.S. Cl. 114-219

19 Claims

1. A buoyant boat fender comprising a body portion and an ear portion integral with said body portion, and both of resilient material;

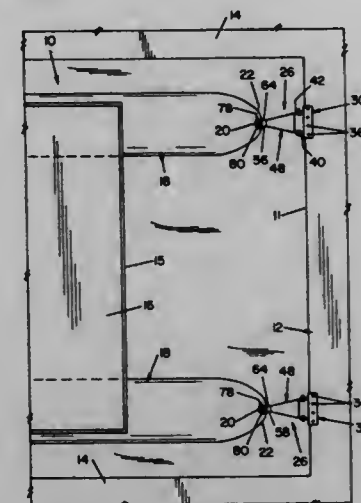


said body portion being substantially cylindrical and having first and second ends, and an axis of elongation; said ear portion being provided at said first end of said body, and making a substantially fixed angle of about 45-100 degrees with respect to said axis of elongation; an opening provided in said ear portion large enough to receive a line therein for tying said fender to a cleat or support on a boat or dock, said opening extending substantially perpendicular to said ear portion; and wherein said second end of said body portion is rounded and earless.

5,671,693
PONTOON BOAT MOORING SYSTEM
 Mark D. Robinson, Wheeling, W. Va., assignor to The Louis Berkman Company, Steubenville, Ohio
 Filed Jun. 4, 1996, Ser. No. 658,164
 Int. Cl.⁶ B63B 21/00

U.S. Cl. 114-230

45 Claims



1. A pontoon boat mooring system for mooring a pontoon boat having first and second pontoons to a dock wherein each of said pontoons includes a top surface and mooring means mounted on said top surface, said system comprising: first and second rigid spacing means for spacing the first and second pontoons of the pontoon boat from the dock, mounting means for mounting said first and second spacing means on said dock, and securement means extending from said spacing means and pivotal therewith in a vertical plane to contact said top surface proximate said mooring means for securing said first and second spacing means to said mooring means on the first and second pontoons of the pontoon boat.

5,671,694
EMERGENCY AIR SYSTEM FOR KAYAKERS
 Fred Schoettle, 1655 Twining Rd., Willow Grove, Pa. 19090
 Filed Apr. 5, 1996, Ser. No. 630,942
 Int. Cl.⁶ B63B 35/71

U.S. Cl. 114-347

1 Claim

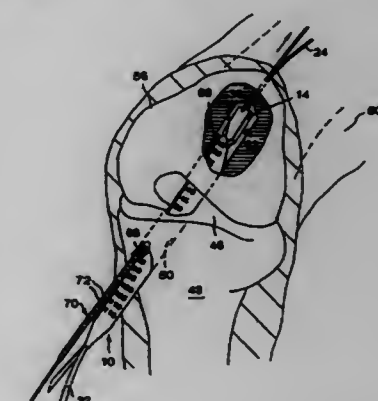


1. A new and improved emergency air system for enabling kayakers to use air from air bags during emergency situations comprising, in combination: a kayak having a front end and a rear end with an interior surface and an exterior surface and with an opening for receiving a kayaker, the interior surface having an upper region with a space behind the user; a pair of airbags of a similar configuration, each airbag having an input valve for filling the bags with pressurized air and each airbag having an air outlet orifice for providing air to the kayaker during an emergency situation; a container having a top wall with a parallel bottom wall and with parallel side walls therebetween, the container having a closed rear wall coupled to the top, bottom and side walls, the container also having a flap at the front with a pile-type fastener for selectively opening and closing the front of the container, the container adapted to receive and support the airbags, the container being secured to the kayak at the upper region of the space behind the kayaker; a mouthpiece having an associated valve movable between an open position to allow the flow of air therethrough during an emergency situation and a closed position to preclude the flow of air therethrough when not in use; tubing coupling the air output orifices to each other and to the mouthpiece; and a hook secured to the kayak at the upper region of the space behind the kayak to one side of the container for receiving and supporting the tubing when the system is not in use.

5,671,695
REPLACEMENT LIGAMENT GRAFT PASSER AND METHOD
 Frederick J. Schroeder, Winter Park, Fla., assignor to DePuy Inc., Warsaw, Ind.
 Filed Jul. 28, 1994, Ser. No. 281,742
 Int. Cl.⁶ A61B 19/00

U.S. Cl. 128-897

23 Claims



1. A method for installing a bone-tendon-bone graft in substantially coaxial tibial and femoral tunnels formed in a knee joint by

drilling and reaming upwardly from the anterior surface of the tibia below its plateau, through the plateau, and into the distal end of the femur, the bone-tendon-bone graft including a tibial bone plug, a femoral bone plug, and a tendon portion extending therebetween, the method comprising the steps of:

- providing an elongated sheath having a leading open end, and an opposite end, the sheath having an outer diameter smaller than an internal diameter of the tibial and femoral tunnels and an inner diameter larger than a maximum thickness of the graft;
- loading the graft into the leading open end of the sheath to place the entire graft fully into the sheath with the femoral bone plug of the graft located generally adjacent the leading open end of the sheath;
- inserting the sheath with the graft therein upwardly through the tibial tunnel to position the leading edge of the sheath and the femoral bone plug generally adjacent a mouth of the femoral tunnel;
- moving the graft partially out of the sheath so that femoral bone plug moves upwardly into the femoral tunnel;
- installing an elongated guide pin upwardly through the tibial and femoral tunnels outside the sheath;
- installing a first cannulated interference screw into the femoral tunnel by inserting the first interference screw over the guide pin, threading the first interference screw upwardly through the tibial tunnel, and threading the first interference screw into the femoral tunnel so that a longitudinal axis of the first interference screw is substantially parallel to and spaced apart from a longitudinal axis of the femoral tunnel, the first interference screw engaging the femoral bone plug to force it against a wall of the femoral tunnel for bone fixation;
- removing the sheath axially out of the tibial tunnel leaving the tibial bone plug in the tibial tunnel; and
- inserting a second interference screw into the tibial tunnel to force the tibial bone plug against a wall of the tibial tunnel for bone fixation.

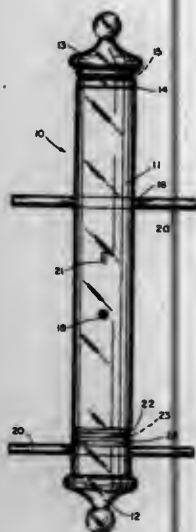
5,671,696

MOLDED BIRD FEEDER ASSEMBLY

Frederic J. Liethen, P.O. Box 296, Appleton, Wis. 54912
Continuation-in-part of Ser. No. 277,214, Jul. 19, 1994, Pat. No. 5,435,268. This application Jul. 24, 1995, Ser. No. 505,864
Int. Cl. A01K 5/00

U.S. Cl. 119—57.8

20 Claims



1. A molded plastic bird feeder comprising: a unitary molded enclosure including a hollow tubular body and an integral end cap; cooperating attachment means formed with the molded enclosure and adapted to be separated after molding to separate the end cap from the body; and,

said attachment means adapted to be demountably joined after separation to allow the end cap to be attached to and removed from the body.

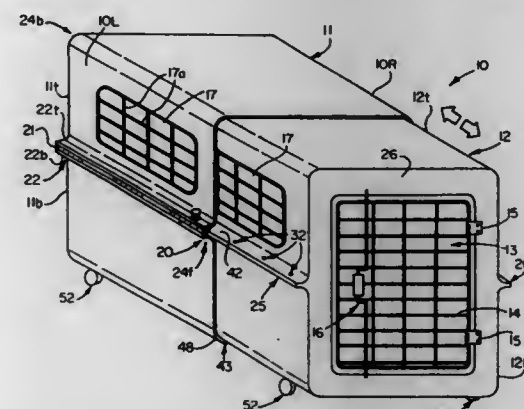
5,671,697

EXPANDABLE PET CAGE AND METHOD

Mark A. Rutman, 26240 Hendon, Beachwood, Ohio 44122
Filed Jul. 21, 1995, Ser. No. 505,775
Int. Cl. A01K 1/03

U.S. Cl. 119—473

24 Claims



1. An expandable pet cage, comprising: first and second movable compartments; each of said compartments having an open end and a closed or closeable end; said compartments always being positioned in telescoping relation with one another providing a composite volume including both of said open ends; and a separate substantially liquid-tight sealing member located between said compartments at the bottom thereof.

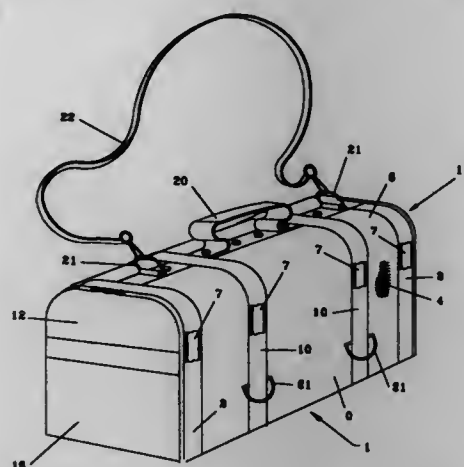
5,671,698

PET CARRIER

Dorothy Jeanine Farrugia, 225 N. Euclid Way, Anaheim, Calif. 92801
Filed Oct. 10, 1995, Ser. No. 541,610
Int. Cl. A01K 29/00

U.S. Cl. 119—497

13 Claims



1. A device for transporting small animals comprising: a pet carrier generally rectangular in shape having a bottom panel contained in a bottom cover which bottom cover is attached to a plastic mesh which forms two sides and a top;

- a frame member contained in a cover strap wherein the frame member is an inverted U shape and the frame member with the cover strap is attached to the plastic mesh to form a door frame member, a rear end frame member and two intermediate frame members;
- a rear end plastic mesh member attached at the rear end frame member and a door attached to the bottom cover of the pet carrier having a front access opening defined therein and the door to the door frame member with a slidable fastener; and a carry handle attached to the top.

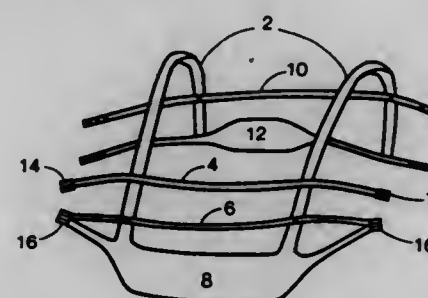
5,671,699

TORSO-SETTLING HARNESS FOR TRUCK DRIVERS

Daniel A. Forbes, 3911 NW 165th St., Opa Locka, Fla. 33050
Filed Jul. 1, 1996, Ser. No. 674,162
Int. Cl. A62B 35/06

U.S. Cl. 119—857

2 Claims



1. A harness device consisting of a plurality of straps fabricated from a flexible and durable material, which is capable of reducing vibration-induced soreness of muscle and fat masses of the human torso, consisting of:

- a) a main section which drapes across the human torso, comprising a pair of vertically-oriented shoulder strap members which are positioned in parallel relationship to each other, and are traversed at their anterior ends by a horizontally disposed abdominal strap member and traversed at their posterior end by a horizontally disposed lumbar strap member;
- b) a pair of strap members mounted onto and in transverse relationship to the aforementioned shoulder straps, whereby one of said strap members forms a chest strap which is adjacent and parallel to the aforementioned abdominal strap and the other of said strap members forms an upper back strap which is positioned adjacent and parallel to the aforementioned lumbar strap member;
- c) a horizontally disposed upper abdominal strap member, mounted onto the anterior side of shoulder straps and positioned between the chest and lower abdominal strap members so as to coincide with the upper abdominal region of the torso, said strap having terminal ends of sufficient length to extend around to the sides of the torso.

5,671,700

HIGH EFFICIENCY WATER BOILER HAVING FINNED HEAT EXCHANGER

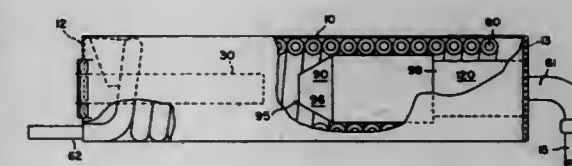
David Lackstrom, Medina, Ohio, assignor to Glowcore Acquisition Company, Chicago, Ill.
Continuation of Ser. No. 260,335, Jun. 15, 1994, abandoned.

This application Sep. 8, 1995, Ser. No. 525,223

Int. Cl. F22B 7/04
U.S. Cl. 122—169

36 Claims

1. In a water boiler having a burner and coiled heat exchanger tube contained within an enclosed shell, the burner generating products of combustion including unburned residue, the center of the coiled tube being plugged by a core extending therein, the core having a top directed towards the burner,



the improvement of the top of the core having a reducing diameter facing the burner, means for said reducing diameter top to concentrate the products of combustion flowing longitudinally away from the burner between the core and the coiled heat exchanger tube at the intersection between the top of the core and the surrounding coiled heat exchanger tube so as to develop a relatively high temperature thereat so as to destroy any unburned residue at this location.

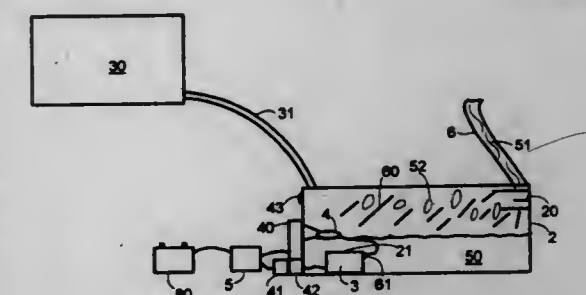
5,671,701

APPARATUS AND METHOD FOR ENHANCING THE EFFICIENCY OF LIQUID-FUEL-BURNING SYSTEMS

Thomas F. O'Donnell, P.O. Box 1411, Windham, Me. 04062
Filed Feb. 16, 1996, Ser. No. 601,335
Int. Cl. F02B 47/02

U.S. Cl. 123—25 A

14 Claims



1. An apparatus for producing a mist to be combined with a combustible fluid to enhance combustion of the combustible fluid within a combustion chamber, the apparatus comprising:

- a. an ultrasonic transducer for producing a mist from a liquid by agitating said liquid without spraying said liquid;
- b. a container for housing said ultrasonic transducer within said liquid, wherein said ultrasonic transducer is designed to remain completely immersed within said liquid; and
- c. a baffle means coupled at a first end thereof to said container and couplable at a second end thereof to an air inlet means of said combustion chamber, wherein said baffle means allows said mist to enter said air inlet means with said combustible fluid while preventing droplets of said liquid from entering said air inlet means.

5,671,702

VALVE SYSTEM IN A ROTARY RADIAL-PISTON ENGINE

Karl-Erik Lindblad, Alingsås, Sweden, assignor to Keso Production AB, Alingsås, Sweden
PCT No. PCT/SE95/00149, § 371 Date Aug. 16, 1996, § 102(e)

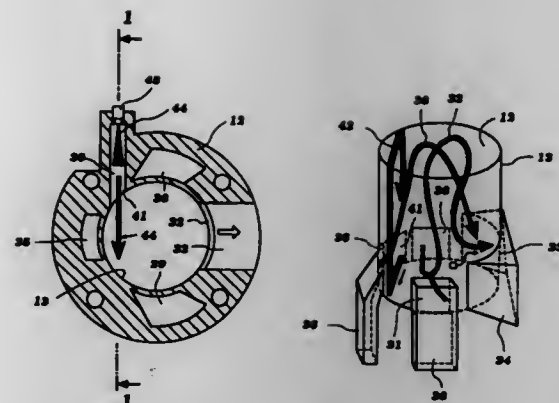
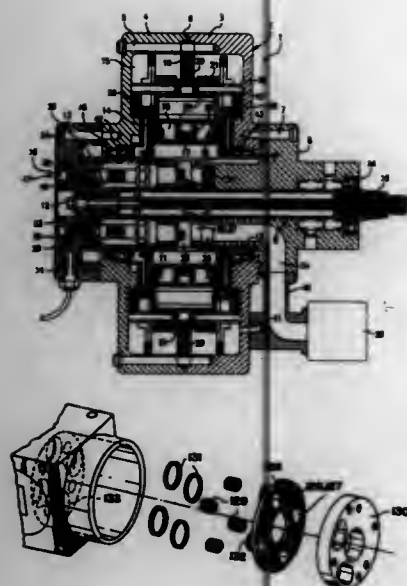
Date Aug. 16, 1996, PCT Pub. No. WO95/22689, PCT Pub. Date Aug. 24, 1995
PCT Filed Feb. 14, 1995, Ser. No. 693,066

Claims priority, application Sweden, Feb. 17, 1994, 9400536

Int. Cl. F02B 57/00
U.S. Cl. 123—44 D

7 Claims

1. A valve system for a radial-piston engine, comprising a stationary housing (2), a drive shaft (10) which is rotationally mounted essentially centrally inside said housing and which supports a hub (11) co-rotating therewith, at least two radially projecting cylinders (14) which are mounted on the hub to rotate there-



combustion chamber that flows into said cylinder bore and diametrically across said cylinder bore, axially along said cylinder bore toward said cylinder head, and transversely back across said cylinder bore.

with, said cylinders forming, together with the hub (11) and the drive shaft (10), a rotary unit arranged to rotate relative to the stationary housing (2), a combustion chamber (25) being formed in said hub (11) and having valve-operated inlets and outlets (26, 27) for intake and exhaust, respectively, of a combustion fuel-air mixture and combusted exhaust gases, said inlets and outlets (26, 27) to and from, respectively, each combustion chamber (25) being formed axially in a valve ring (28) which co-rotates with the hub (11) and which is essentially concentric therewith, said valve ring (28) sealingly abutting against a stationary port ring (30) which is essentially concentric with the valve ring and which is connected to the housing (2), said port ring (30) being formed with axial intake and exhaust ports (36, 37) communicating with inlet and outlet ducts (34, 35), said axial intake and exhaust ports (36, 37) assuming, upon rotation of said rotary unit (10, 11, 14, 16) relative to the housing (2) a position in alignment with that inlet and outlet (26, 27) in the valve ring (28) that is associated with the respective combustion chamber (25) whereby the valve ring (28) is yieldingly pressed into abutment against said port ring (30), characterized in that at least one of the two faces in sliding contact with each other on respectively the valve ring (128) and the port ring (130) is provided with recesses (128a) distributed across said face.

5,671,703

TWO-CYCLE ENGINE

Kimitake Otome, and Osamu Tamura, both of Iwata, Japan, assignors to Yamaha Matsudoki Kabushiki Kaisha, Iwata, Japan

Filed Sep. 18, 1996, Ser. No. 715,456

Claims priority, application Japan, Sep. 18, 1995, 7-238427

Int. Cl.⁶ F02B 75/40

U.S. Cl. 123—65 P

15 Claims

1. A two-cycle internal combustion engine having a cylinder block defining a cylinder bore, a piston reciprocating in said cylinder bore, an exhaust port formed in one side of said cylinder bore and opened and closed by the reciprocation of said piston, at least one scavenge passage formed in said cylinder bore and configured so as to create a scavenging air flow that moves axially along said cylinder bore toward said cylinder head, across said cylinder bore, and down said cylinder bore toward said exhaust port, and means for introducing a tumbling air flow into said

5,671,704

CYLINDER HEAD WITH COLANDER VALVE

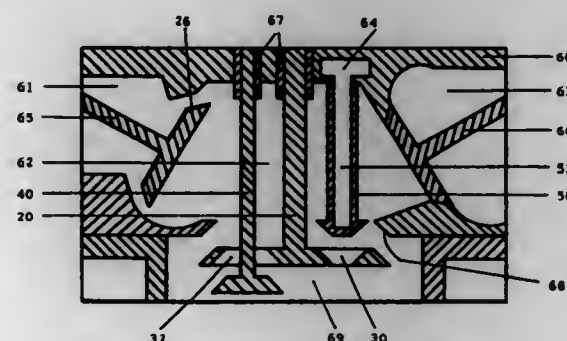
Huei Peng, 1288 Gingerwood, Milpitas, Calif. 95035

Filed Mar. 18, 1996, Ser. No. 618,245

Int. Cl.⁶ F01L 1/28; 3/00

U.S. Cl. 123—79 R

17 Claims



1. A cylinder head with a single colander valve per cylinder having an intake port and an exhaust port for internal combustion engines (IC engine) and the like and said IC engines defining a combustion chamber, comprising in combination:

- the single colander valve per cylinder alternately controlling the fuel-air mixture or air flowing into said combustion chamber and the exhaust gases flowing out of said combustion chamber and wherein said colander valve including a stem, a head, and a face disposed around the perimeter of said head and wherein said head including at least one aperture disposed through it;
- primary timing means for timing said colander valve;
- sealing means for accordingly sealing and opening said aperture(s) without adding weight to the valve train of said colander valve;
- a prior-to-combustion chamber alternately communicating with said combustion chamber, said intake port, and said exhaust port and wherein said prior-to-combustion chamber is positioned between said combustion chamber, said intake port, and said exhaust port; and
- secondary intake/exhaust means for alternately controlling fuel-air mixture or air flowing into said prior-to-combustion chamber and exhaust gases flowing out said prior-to-combustion chamber.

5,671,705

CONTROL SYSTEM FOR TWO OPPOSED SOLENOID-TYPE ELECTROMAGNETIC VALVE

Yasushi Matsumoto, Takashi Sugai, and Shigeru Yanagisawa, all of Wako, Japan, assignors to Honda Giken Kogyo K.K. (Honda Motor Co., Ltd. in English), Tokyo, Japan

Continuation of Ser. No. 448,676, May 24, 1995, abandoned.

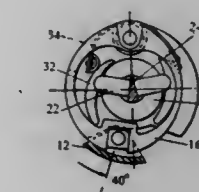
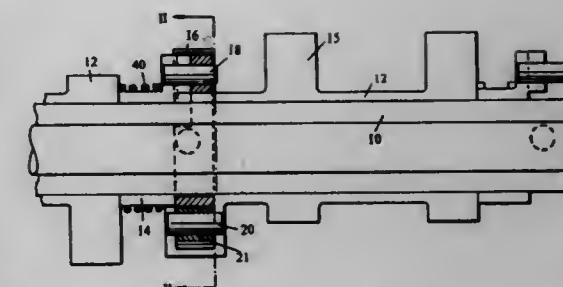
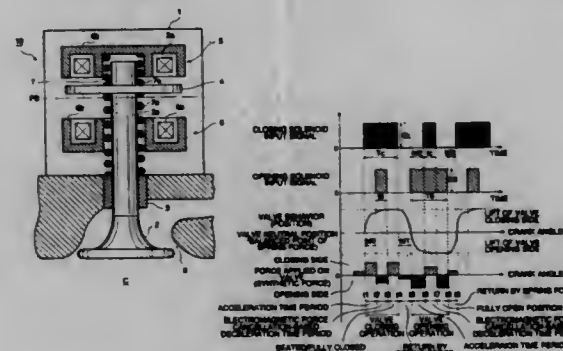
This application Oct. 16, 1996, Ser. No. 733,091

Claims priority, application Japan, Nov. 4, 1994, 6-295895

Int. Cl.⁶ F01L 9/04

U.S. Cl. 123—90.11

14 Claims



5,671,707

ROCKER LEVEL OIL SHROUD

John Jerl Purcell, Cynthia I. Mandt, and Francis M. Hager, all of Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Feb. 28, 1996, Ser. No. 608,498

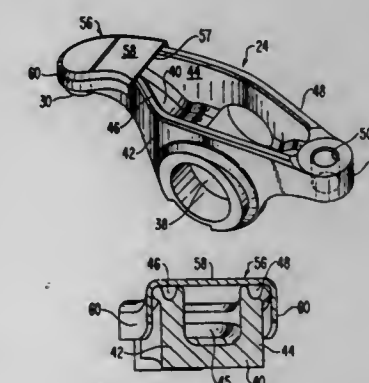
Int. Cl.⁶ F01L 9/10

U.S. Cl. 123—90.37

10 Claims

1. A control system for an electromagnetic valve having a valve element, a pair of solenoids opposed to each other and disposed to drive said valve element in respective directions opposite to each other and between a first extreme position and a second extreme position, and spring means interposed between said solenoids, for biasing said valve element toward a neutral position intermediate between said first and second extreme positions, the control system comprising:

control means for controlling said solenoids in a manner such that when said valve element is to start moving from one of said first and second extreme positions toward the other extreme position, energization of a corresponding one of said solenoids is terminated, and energization of the other solenoid for a first predetermined time period is started when a predetermined delay time period elapses from said termination of said corresponding one solenoid, wherein said control means carries out energization of said corresponding one solenoid over a second time period shorter than said first predetermined time period and within said first predetermined time period.



5,671,706

VARIABLE VALVE TIMING

Derek Frost, Leigh-on-Sea, and Timothy Mark Lancefield, Bicester, both of United Kingdom, assignors to Mechadyne Limited, Kirtlington, United Kingdom

PCT No. PCT/GB94/02669, § 371 Date Jun. 5, 1996, § 102(e)

Date Jun. 5, 1996, PCT Pub. No. WO95/16108, PCT Pub.

Date Jun. 15, 1995

PCT Filed Dec. 6, 1994, Ser. No. 656,178

Claims priority, application United Kingdom, Dec. 8, 1993, 9325168

Int. Cl.⁶ F01L 13/00; 1/344

U.S. Cl. 123—90.17

9 Claims

1. A valve operating mechanism comprising a hollow shaft, a sleeve journaled on the hollow shaft and having a cam, a coupling yoke connected by a first pivot pin to the hollow shaft and by a second pivot pin to the sleeve and means for pivoting the yoke to effect a phase change between the hollow shaft and the sleeve, wherein the means for pivoting the yoke comprise an actuating rod slidably received in the hollow shaft, a cam surface on the actuating rod and a plunger passing through a generally radial bore in the hollow shaft and being in operative contact with said cam surface and the yoke to cause the yoke to pivot in response to axial movement of the actuating rod.

1. A rocker lever assembly for an internal combustion engine drive train designed to maximize lubricant flow to a drive train joint at a contact end of a rocker lever and to minimize airborne lubricant, wherein the rocker lever assembly includes:

- a rocker lever mounted on a shaft in said drive train for reciprocal movement between contact with a camshaft-actuated push rod and contact with at least one of an actuating element of a fuel injector or valve, said rocker lever body having an open boat-shaped configuration including open lubricant channels formed on upper surfaces of said rocker lever to direct lubricant toward the actuating element contact end of said rocker lever;
- a lubricant supply in fluid communication with the rocker lever to provide a supply of lubricant to the rocker lever mounting and contact structures during engine operation; and
- a lubricant deflecting shield configured to conform to the shape of and to cover the actuating element-contacting end of the rocker lever to direct lubricant from the lubricant channels at said actuating element-contacting end toward said actuating element.

5,671,708 ENGINE

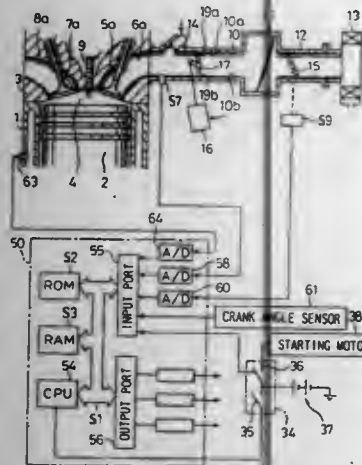
Hiroki Ichinose, Fujinomiya; Keiso Takeda, Mishima; Susumu Kojima, and Shinji Sadakane, both of Susono, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan Division of Ser. No. 515,883, Aug. 16, 1995. This application Oct. 21, 1996, Ser. No. 729,663

Claims priority, application Japan, Aug. 17, 1994, 6-193121; Apr. 7, 1995, 7-82857

Int. Cl.⁶ F02M 35/10

U.S. Cl. 123—184.54

12 Claims



1. An engine having an intake passage, a throttle valve arranged in the intake passage, and a fuel injector arranged in the intake passage downstream of the throttle valve for injecting fuel into the intake passage, the engine comprising:

an air-flow control valve arranged in the intake passage between the fuel injector and the throttle valve;

valve control means for controlling a valve position of the air-flow control valve;

increasing means for increasing an amount of a gas flowing backwardly in the intake passage,

wherein the valve control means controls the air-flow control valve to an intermediate open position which is between a closed position and a full open position thereof when an engine load is lower than a first reference load depending on an engine speed, and to the full open position when the engine load is higher than the first reference load, and

wherein the increasing means carries out the increasing operation of the amount of the backwardly-flowing gas when an engine load is lower than a second reference load depending on an engine speed, and stops the increasing operation when the engine load is higher than the second reference load.

5,671,709

INTAKE PORT

Rodney Sokoloski, Los Angeles, Calif., assignor to Edelbrock Corporation, Torrance, Calif.

Division of Ser. No. 437,376, May 9, 1995. This application May 30, 1996, Ser. No. 655,466

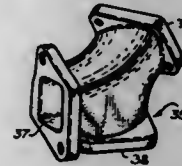
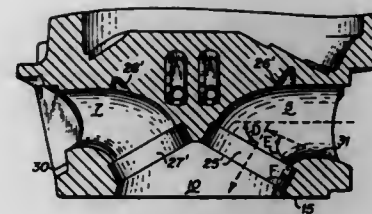
Int. Cl.⁶ F02B 23/08

U.S. Cl. 123—193.5

1 Claim

1. In a cylinder head, an air-fuel intake conduit for conveying air-fuel mixture from a carburetor to a combustion chamber located within said cylinder head, said cylinder head including a bottom flat surface bordering said combustion chamber for abutting a cylinder block, an intake valve stem guide, located in said combustion chamber, for guiding an intake valve, and an exhaust valve stem guide, located in said combustion chamber, for guiding an exhaust valve; comprising:

an entrance to said conduit located on the exterior of said cylinder head, said entrance being of a rectangular geometry containing four corners;



an intake port opening to said conduit, said intake port opening being located in said combustion chamber, said intake port opening being of a circular geometry;

said entrance defining a first plane, with said first plane being oriented upstanding relative to said bottom flat surface, and said intake port opening defining a second plane with said second plane oriented at an angle to said first plane;

said intake and exhaust valve stem guides defining a third plane through the centers thereof; said first plane defined by said entrance being oriented at a predetermined angle from the perpendicular to said third plane;

a conduit extending through said cylinder head between said entrance and said intake port opening, said conduit including: a transition between a rectangular geometry to a circular geometry and

a bend for defining a curved path through the center of said conduit, said curved path encompassing a predetermined change in angular direction between said entrance and said intake port opening of less than ninety degrees, whereby air-fuel mixture flowing through the center of said conduit undergoes a change of direction of greater than ninety degrees; and

a crown in the floor of said conduit proximate said entrance, said crown extending into said conduit for reducing the internal cross section of said conduit and for defining a path along said floor that provides a smooth transition of ninety degrees between said entrance and said intake port opening, whereby air-fuel mixture flowing along said floor undergoes a change in direction of ninety degrees;

said entrance being oriented with one of said four corners oriented lower in position, relative to said bottom flat surface, than the remaining three corners, and a second one of said four corners being next lower in position; said one and said second one of said four corners defining two ends of a floor to said entrance; and

said air-fuel intake valve guide being oriented perpendicular to said floor.

5,671,710

PISTONS FOR INTERNAL COMBUSTION ENGINES AND METHOD OF MANUFACTURING SAME

Masato Sasaki, Atsugi, Japan, assignor to Unisia Jecs Corporation, Atsugi, Japan

Filed Sep. 26, 1995, Ser. No. 534,117

Claims priority, application Japan, Sep. 26, 1994, 6-228548

Int. Cl.⁶ F02F 3/00

U.S. Cl. 123—193.6

19 Claims

1. A piston for an internal combustion engine, comprising: a main body made of aluminum alloy; groove means for defining a plurality of piston ring grooves on an outer periphery of said main body; wear resisting means for resisting wear of said groove means, said wear resisting means being made of aluminum alloy containing predetermined particulates; and

5,671,712

INDUCTION SYSTEM FOR ENGINE

Masahiro Uchida, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

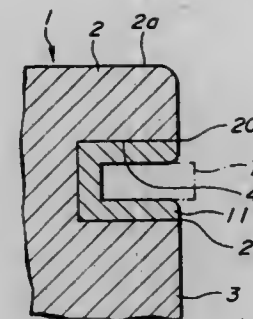
Continuation-in-part of Ser. No. 378,532, Jan. 24, 1995, Pat. No. 5,477,823. This application May 31, 1995, Ser. No. 454,822

Claims priority, application Japan, Jan. 25, 1994, 6-006671; Jan. 25, 1994, 6-006672; May 31, 1994, 6-118566; May 31, 1994, 6-118609

Int. Cl.⁶ F02B 29/00; F02D 9/08

U.S. Cl. 123—308

59 Claims



interface means for interconnecting said groove means and said wear resisting means, said interface means including surfaces of said groove means and said wear resisting means, said surfaces being remelted by a heat source and solidified.

5,671,711

LOW PRESSURE LPG VAPOR FUEL INJECTION

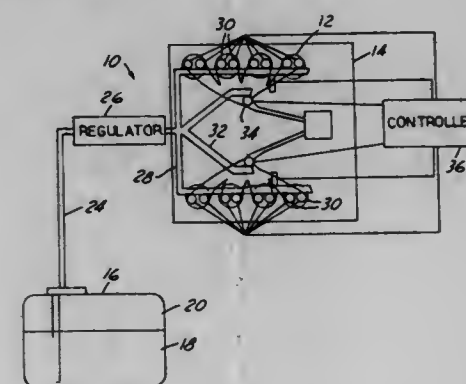
Curtis Bevan Collic, Dearborn Heights, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Dec. 7, 1995, Ser. No. 568,726

Int. Cl.⁶ F02B 3/00

U.S. Cl. 123—299

6 Claims



1. An engine for use in a vehicle comprising:

a plurality of cylinders;

an air intake system for delivering air to each of the cylinders; a propane fuel tank adapted to contain propane fuel in both the liquid state and the vapor state;

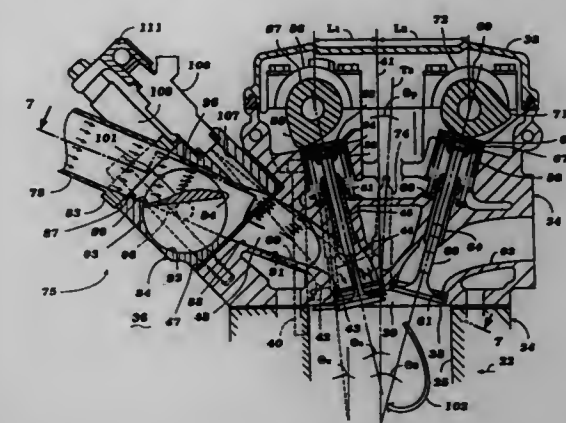
a plurality of first fuel injectors, one each operatively engaging a different one of the cylinders;

a plurality of second fuel injectors, one each operatively engaging a different one of the cylinders;

a secondary fuel injector operatively engaging the air intake system upstream of the first fuel injectors;

transferring means for removing propane vapor from the fuel tank and transferring it to the plurality of first fuel injectors, the plurality of second fuel injectors and the secondary fuel injector; and

control means for selectively activating the plurality of first fuel injectors, the plurality of second fuel injectors and the secondary fuel injector.



1. An induction system for an internal combustion engine having a combustion chamber served by at least three intake valve seats, an intake passage arrangement comprised of at least a common section serving each of said intake valve seats, a control valve supported in said common section for controlling the flow there-through and movable between a first position wherein the flow through each of said valve seats is substantially unrestricted and without significantly affecting the flow direction issuing from said intake valve seats into said combustion chamber and a second position wherein the flow through at least two of said valve seats is substantially restricted and the flow through the other of the valve seats is directed into the combustion chamber in a different direction than when said control valve is in its first position.

5,671,713

CONTROL DEVICE AND APPARATUS FOR GENERATING SWIRLS IN INTERNAL COMBUSTION ENGINE

Junichi Yamaguchi, Hitachi; Minoru Ohsuga, and Ryoichi Komuro, both of Katsuta, all of Japan, assignors to Hitachi, Ltd., Japan

Continuation of Ser. No. 397,183, Mar. 9, 1995, abandoned.

This application May 21, 1996, Ser. No. 646,815

Int. Cl.⁶ F02B 31/00

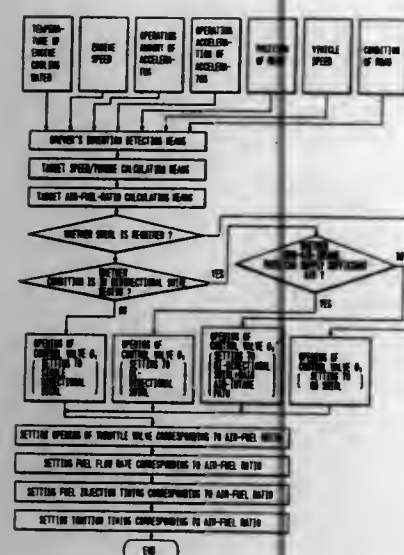
U.S. Cl. 123—308

26 Claims

1. A control device in an internal combustion engine, wherein a swirl generating device operatively associated with the control device is configured to generate swirls in a combustion chamber of the internal combustion engine and includes bypass passages which allow air to bypass a throttle valve for regulating intake air flow rate of the internal combustion engine to control output power of the internal combustion engine and to allow the air to flow in from atmosphere to communicate with air intake ports of the internal combustion engine for respective cylinders on a downstream side of the throttle valve, wherein the control device comprises

sensors configured to detect vehicle parameters including a vehicle speed, a gear position, an accelerator opening, and an intake air flow rate; and

a processor operatively associated with the sensors and configured to determine internal combustion engine operating state parameters including a rotating speed and a torque based on



signals from the sensors, to calculate an operating condition of the internal combustion engine according to the strength of swirl to be generated based on the operating state parameters, and to output the calculated values as control signals to the swirl generating device.

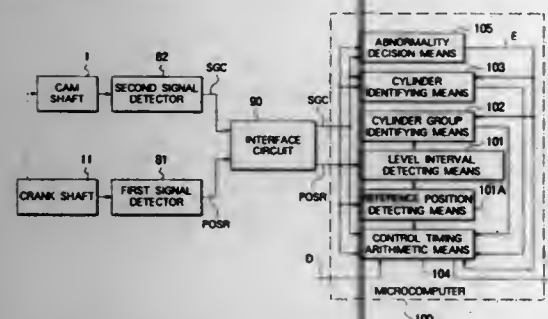
5,671,714 APPARATUS FOR CONTROLLING OPERATION TIMING OF INTERNAL COMBUSTION ENGINE

Wataru Fukui, and Yasukazu Koezuka, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 21, 1996, Ser. No. 604,457
Claims priority, application Japan, Apr. 21, 1995, 7-096806
Int. Cl.⁶ F02P 5/157, 7/067

U.S. Cl. 123-414

12 Claims



1. An apparatus for controlling operation of an internal combustion engine, comprising:
first signal detecting means for generating a first signal series in synchronism with rotation of a crank shaft of said internal combustion engine;
second signal detecting means for generating a second signal series in synchronism with rotation of a cam shaft driven at a half speed relative to said crank shaft; and
control means for controlling at least one parameter involved in operation of said internal combustion engine on the basis of at least one of said first and second signal series;
said first signal series including an angular position signal generated at every predetermined angular position of said crank shaft, a first level interval corresponding to a reference position of a specific cylinder group of said engine and a second level interval corresponding to a reference position of another cylinder group and having a polarity differing from that of said first level interval;
said second signal series containing pulses corresponding to said cylinders, respectively, and a cylinder identifying signal for

identifying at least a given one of said cylinders, wherein a pulse form of said cylinder identifying signal for said given one cylinder differs from those for the other engine cylinders; said control means including:
level interval detecting means for detecting said first and second level intervals on the basis of said first signal series;
reference position detecting means for detecting reference positions of said engine cylinders, respectively, on the basis of said angular position signal and said first and second level intervals;
cylinder group identifying means for identifying said cylinder groups on the basis of said first and second level intervals;
cylinder identifying means for discriminatively identifying each of said engine cylinders on the basis of at least said second signal series; and
control timing arithmetic means for arithmetically determining control timings for controlling said at least one parameter on the basis of the results of the cylinder identification performed by said cylinder identifying means and said second signal series;
wherein said cylinder identifying signal contains an additional pulse generated within a predetermined angle in the vicinity of said cylinder identifying signal pulse for identifying said given one engine cylinder.

5,671,715

FUEL INJECTION DEVICE

Yoshihiro Tsuzuki, Handa, Japan, assignor to Nippon Soken, Inc., Nishio, Japan

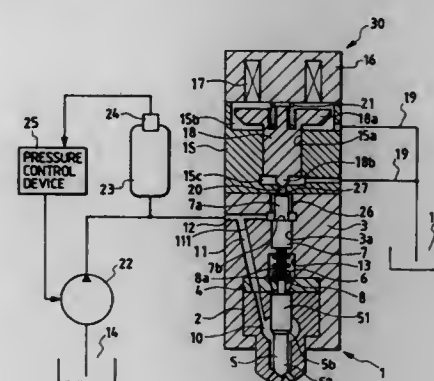
Filed Apr. 26, 1996, Ser. No. 638,154

Claims priority, application Japan, Apr. 27, 1995, 7-104152; May 25, 1995, 7-126566

Int. Cl.⁶ F02M 41/00

U.S. Cl. 123-467

36 Claims



1. A fuel injection device comprising:
a needle movable between a first position for injecting fuel and a second position for blocking injection of fuel;
a back-pressure chamber for receiving high-pressure fuel, said back-pressure chamber being positioned such that pressure from the high-pressure fuel within said back-pressure chamber is applied to an upper end side of said needle for urging said needle toward the second position;
a two-way valve for opening and closing a flow passage between said back-pressure chamber and a drain side to release high-pressure fuel from said back-pressure chamber and to change pressure within said back-pressure chamber so as to move the needle between said first and second positions for controlling injection of the fuel; and
flow restricting means, provided in a flow passage for introducing the high-pressure fuel into said back-pressure chamber, for restricting a flow of the high-pressure fuel passing through the flow passage based on a position of said needle, said flow restricting means reducing a flow-passage area of the flow passage when said needle moves to said first position.

5,671,716

FUEL INJECTION SYSTEM AND STRATEGY

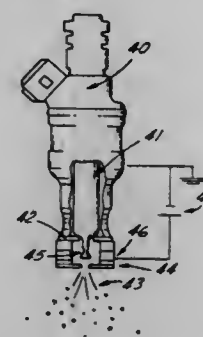
Robert Eugene Hetrick, Dearborn Heights; Harold Sean Hilbert, Canton; Michael Howard Parsons, Ann Arbor, and William Francis Stockhausen, Northville, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Oct. 3, 1996, Ser. No. 725,045

Int. Cl.⁶ F02M 51/00

U.S. Cl. 23-491

16 Claims



1. A fuel injection system for an internal combustion engine comprising:

fuel injection means capable of a first off-on transition, a second on-off transition, and a third transition for temporally varying the spatial distribution and degree of atomization of fuel discharged into an intake air passageway of said engine; and control means for regulating said injection means so that the resulting fuel discharge spray pattern produces a fuel distribution, both on the walls and within the air volume of said intake air passageway, thereby regulating evaporation of fuel in said passageway, both spatially and temporally during varied conditions of engine operation.

5,671,717

FUEL AND AUXILIARY FLUID INJECTION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Helmut Rembold, Stuttgart, and Walter Teegen, Waiblingen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

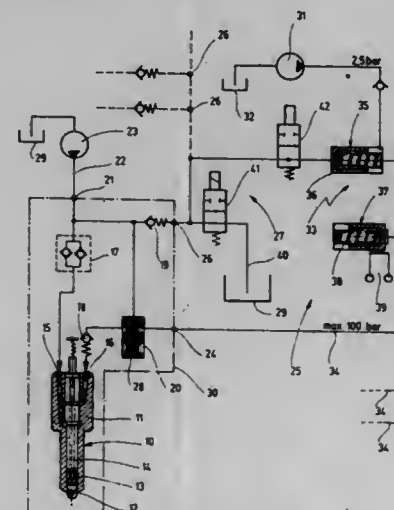
Filed Aug. 26, 1996, Ser. No. 702,876

Claims priority, application Germany, Aug. 30, 1995, 195 31 812.9; May 15, 1996, 196 19 522.5

Int. Cl.⁶ F02B 47/02

U.S. Cl. 123-495

21 Claims



1. An injection system for combined injection of a combustible fuel, especially Diesel fuel, and an auxiliary fluid, especially water,

into at least one combustion chamber of an internal combustion engine, especially a Diesel engine, comprising at least one injection nozzle (10), associated with the at least one combustion chamber, for fuel injection, said nozzle has a nozzle body (11) with an injection opening (12) and a nozzle chamber (13) preceding said injection opening that communicates with first and second separate nozzle connections (15, 16), and a nozzle needle (14) that closes the injection opening (12) and opens under injection pressure; a fuel injection pump with at least one pump piston for pumping fuel that is at an injection pressure to at least one supply outlet that communicates via an equal-pressure valve (17) with said first nozzle connection (15) of the injection nozzle (10); a metering device (25), that communicates via a downstream check valve (18) with said second nozzle connection (16) of the injection nozzle (10), for introducing a quantity of auxiliary fluid into the nozzle chamber (13) of the injection nozzle (10), said metering device has a prefeed pump (31) and a pressure generator (33) that by imposition of fuel from the fuel injection pump (23) generates a fluid pressure in a metering line (34) that is above a standing pressure maintained by the equal-pressure valve (17) in the nozzle chamber (13) of the injection nozzle (10) when fuel injection is not occurring; and having a magnet valve assembly (27), disposed between the fuel injection pump (23) and the pressure generator (33), for acting upon the pressure generator (33) with fuel, said magnet valve assembly is capable of opening a relief line (40), the connection of the magnet valve assembly, toward the fuel injection pump, is affected at the at least one supply outlet preceding the equal-pressure valve (17), and that the magnet valve assembly (27) is controlled such that during the supply stroke of the pump piston of the fuel injection pump (23), the magnet valve closes at the onset of fuel supply, and opens at the end of injection, and for a predetermined duration of the remaining supply stroke of the pump piston, connects the supply outlet of the fuel injection pump (23) to the pressure generator (33) of the metering device (25).

5,671,718

METHOD AND SYSTEM FOR CONTROLLING A FLOW OF VAPOR IN AN EVAPORATIVE SYSTEM

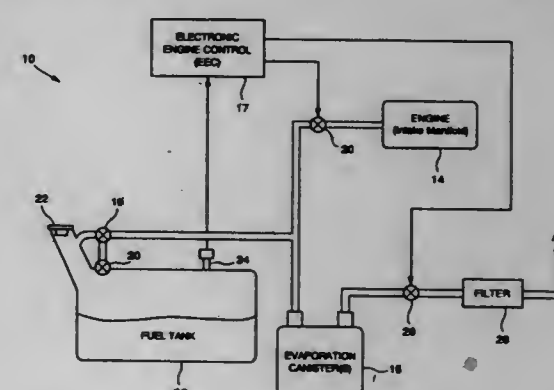
Patrick Joseph Curran, Farmington Hills; Robert Joseph Pace, Wyandotte; Edward George Rychlick, Dearborn, and David Chester Waskiewicz, Novi, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Oct. 23, 1995, Ser. No. 546,626

Int. Cl.⁶ F02M 37/04

U.S. Cl. 123-520

20 Claims



1. For use with an evaporative system including a fluid filled tank and a vapor management valve in fluid communication with the tank, the vapor management valve having an operating range and a ramp rate, a method for controlling a flow of vapor in the evaporative system, the method comprising:
(a) closing the evaporative system to atmosphere;
(b) sensing an initial pressure in the tank and generating a corresponding signal;
(c) after a predetermined amount of time, sensing a second pressure in the tank and generating a corresponding signal;

- (d) determining a pressure difference based on the sensed initial pressure and the sensed second pressure;
 (e) determining a level of vapor generated by the evaporative system based on the pressure difference; and
 (f) controlling the operating range and the ramp rate of the vapor management valve based on the level of vapor generated by the evaporative system so as to control the flow of vapor.

5,671,719

FUEL ACTIVATION APPARATUS USING MAGNETIC BODY

Tae Young Jeong, 508, Mabuk-ri, Kusung-myon, Yongin-gun, Kyunggi-do, Rep. of Korea

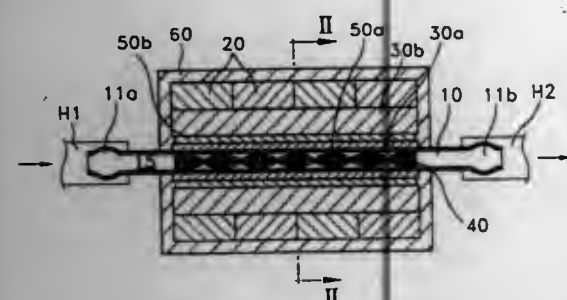
Filed Sep. 15, 1995, Ser. No. 528,695

Claims priority, application Rep. of Korea, Sep. 16, 1994, 94-23625

Int. Cl.⁶ B01D 35/06

U.S. Cl. 123—538

19 Claims



1. A fuel activation apparatus which is disposed between a fuel supply end and a fuel consumer end and which enhances combustion efficiency of fuels that are supplied from the fuel supply end to the fuel consumer end, the fuel activation apparatus comprising:
 a fuel activation duct having a shape of a hollow pipe, connected between said fuel supply end and said fuel consumer end and provided as a fuel supply path;
 a helical net having a magnetic property, installed at the inside of said fuel activation duct, for enabling the fuel passing through said fuel activation duct to rotatably flow and making a magnetic force uniformly effective on the fuel therethrough; and
 further comprising a magnetic body enclosing said fuel activation duct, which is positioned externally thereof.

5,671,720

APPARATUS AND METHOD FOR CONTROLLING AIR-FUEL RATIO OF AN INTERNAL COMBUSTION ENGINE

Akira Uchikawa, Atsugi, Japan, assignor to Unisla Jecs Corporation, Kanagawa-Ken, Japan

Filed Aug. 21, 1996, Ser. No. 700,971

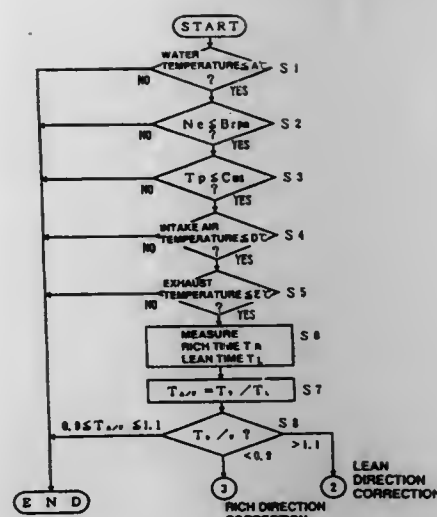
Claims priority, application Japan, Aug. 30, 1995, 7-221506

Int. Cl.⁶ F02D 41/00

U.S. Cl. 123—676

20 Claims

1. An apparatus for controlling an air-fuel ratio of an internal combustion engine, said apparatus comprising:
 an air-fuel ratio sensor provided in an engine exhaust passage, being responsive to the concentration of specific constituents of the exhaust gas which change with an air-fuel ratio of the engine intake mixture, thus causing a change in the output value;
 air-fuel ratio feedback control means for feedback controlling a fuel supply quantity to the engine so that the air-fuel ratio of the engine intake mixture approaches a target air-fuel ratio, based on an output value from said air-fuel ratio sensor;
 inactive condition detection means for detecting an inactive condition of said air-fuel ratio sensor;



air-fuel ratio deviation detection means for detecting deviation from the target air-fuel ratio of an air-fuel ratio control point in said air-fuel ratio feedback control means, when the inactive condition of said air-fuel ratio sensor is detected by said inactive condition detection means; and
 control characteristics correction means for correcting the characteristics of said air-fuel ratio feedback control means in a direction to reduce the deviation of the air-fuel ratio control point detected by said air-fuel ratio deviation detection means.

5,671,721

APPARATUS FOR DETERMINING THE CONDITION OF AN AIR-FUEL RATIO SENSOR

Keiichi Aoki, Susono, Japan, assignor to Toyota Jidosha Kaisha, Aichi, Japan

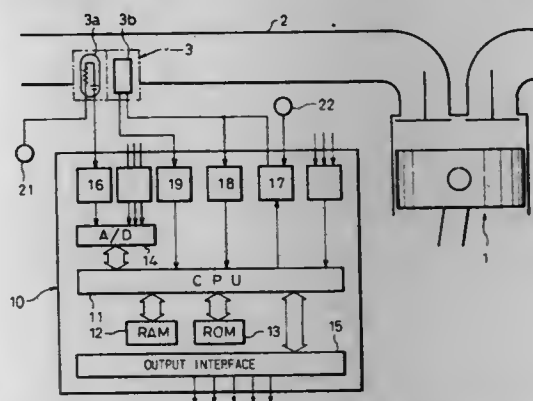
Filed May 24, 1996, Ser. No. 653,506

Claims priority, application Japan, Jun. 1, 1995, 7-135084

Int. Cl.⁶ F02D 41/14

U.S. Cl. 123—688

4 Claims



1. An apparatus for determining fully activated state of an air-fuel ratio sensor disposed in an exhaust passage of an internal combustion engine for detecting air-fuel ratio of exhaust gas comprising:
 a heater for heating said air-fuel ratio sensor;
 means for detecting a resistance of said heater;
 means for detecting a starting point of fluctuation of an output of said air-fuel ratio sensor;
 means for accumulating a difference between the resistance detected by said means for detecting a resistance of said heater and predetermined standard resistance of said heater; and
 means for determining a fully activated state of said air-fuel ratio sensor when said accumulated difference between the

resistance detected by said means for detecting a resistance of said heater and standard resistance of said heater exceeds a predetermined threshold.

5,671,722

PROJECTILE LAUNCHER

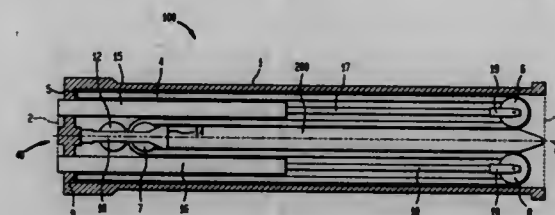
Paul E. Moody, Barrington, R.I., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 29, 1996, Ser. No. 655,103

Int. Cl.⁶ F41B 7/04

U.S. Cl. 124—22

13 Claims



1. A projectile launching apparatus, comprising:
 a barrel for supporting a projectile prior to and during launch thereof, said barrel having a breech end, a muzzle end and a longitudinal launch axis along which said projectile is launched;
 a length of elastomeric material fixed at a first end and at a second end on opposing sides of said barrel aft of said muzzle end;
 a plurality of guides for guiding said length of elastomeric material between said first end and said second end, said plurality of guides including a first guide positioned in said barrel closer to said muzzle end than said first end of said length of elastomeric material, a second guide positioned in said barrel closer to said muzzle end than said second end of said length of elastomeric material, a third guide positioned along said longitudinal launch axis, and a fourth guide positioned aft of said third guide along said longitudinal launch axis in a fixed mirror image fashion relative to said third guide, wherein said third guide and said fourth guide are capable of coincidental movement within said barrel along said longitudinal launch axis; and
 said length of elastomeric material extending from said first end to said second end along a path about said first guide, between said third guide and said fourth guide, and about said second guide, whereby said third guide and said fourth guide can be drawn towards said breech end to stretch said length of elastomeric material to create a potential for accelerating said projectile towards said muzzle end when said projectile is placed forward of said third guide.

5,671,723

ARCHERY DRAWLOCK

Jerry Alan Goff, and Sherwood Lunsford Goff, both of Saucier, Miss., assignors to Jerry A. Goff, and Sherwood L. Goff, both of Saucier, Miss.

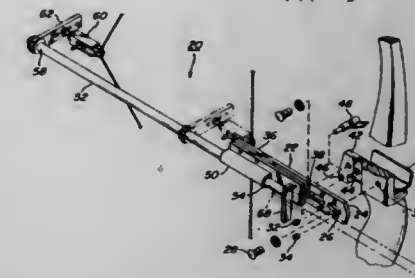
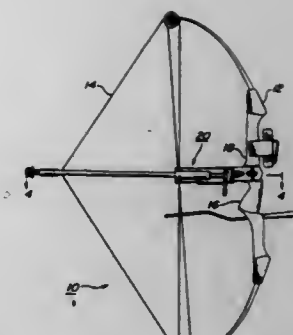
Filed Jan. 3, 1997, Ser. No. 778,659

Int. Cl.⁶ F41B 5/18; 5/22

U.S. Cl. 124—35.2

19 Claims

1. An archery drawlock device adapted for use with an overdraw arrow rest, comprising:
 (a) an elongated mounting bracket having a forward end and a rearward end;
 (b) the mounting bracket having near its forward end a means for attaching the bracket to an archery bow's handle, and having intermediate its forward and rearward ends a means for supporting an overdraw arrow rest at a selectable distance to the rear of the bow's handle;



- (c) a draw tube attached to the rearward end of the mounting bracket;
 (d) a draw rod having a first end for insertion through the mounting tube and a second end supporting a bow string mechanical release; and
 (e) a latching device for locking and holding the draw rod a full draw position when the bow string is drawn beyond the full draw position.

5,671,724

BOW SIGHT

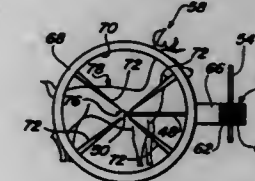
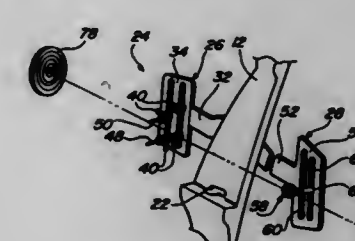
Donald F. Priebe, P.O. Box 482, Pinckney, Mich. 48169

Filed Dec. 9, 1994, Ser. No. 352,499

Int. Cl.⁶ F41G 1/467

U.S. Cl. 124—87

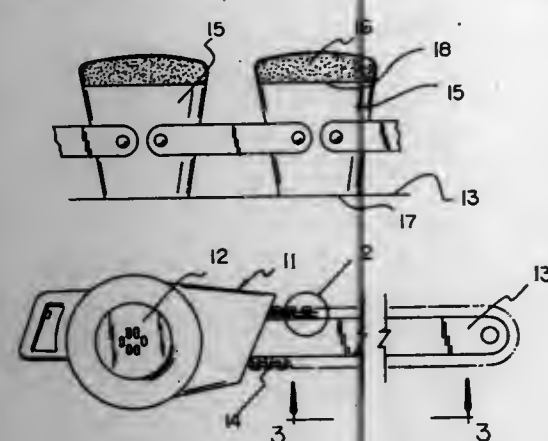
9 Claims



1. A bow sight assembly adapted for mounting to a bow for aiding in the aiming and accurately projecting an arrow from the bow toward a target, the bow including a frame having a bow string extended between ends of the frame, said bow sight assembly comprising:
 a front sight including a support bracket mounted to the frame and having an extension portion extending to a location forward of the frame, said extension portion terminating in a front mounting plate having at least one front sight pin mounted thereto, said front sight pin including mounting means for adjustably mounting said front sight pin to said front mounting plate and also including a shaft extending

generally laterally away from said mounting bracket and terminating in a distal end; and
a rear sight including a support bracket mounted to the frame for axial adjustability with respect thereto and having an extension portion terminating in a mounting plate, said extension portion extending rearward from the frame and positioning said mounting plate in a location between the frame and the bow string, a rear sighting ring secured to said mounting plate and extending generally laterally therefrom, said rear sighting ring including a ring defining a sighting window with portions defining an aperture therethrough, at least one cross hair extending radially inward from said ring and including means for defining an open area generally centrally within said aperture, said open area being alignable with said distal end of said front sight pin and the target to provide for an accurate shot of the arrow from the bow, said cross hair providing substantially unobstructed viewing of the target, said front sight pin and said distal end.

5,671,725
BRICK AND BLOCK WALL REPAIR DEVICE
Robert J. Dishaw, P.O. Box 398, South Colton, N.Y. 13687
Filed Sep. 29, 1995, Ser. No. 536,389
Int. Cl.⁶ B28D 1/08
U.S. Cl. 125—21

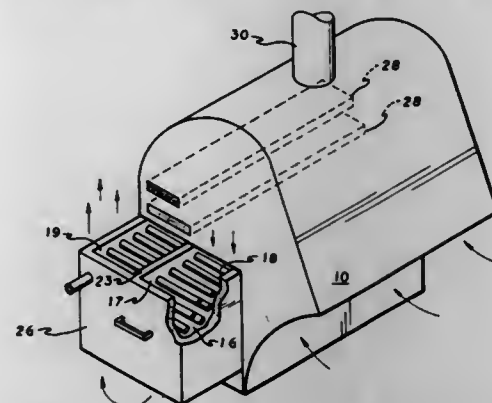


1. A new and improved brick and block wall repair device comprising, in combination:

- a chain saw including a housing formed as a generally rectangular shaped box with an essentially hollow interior, the housing including an aperture extending therein, the housing including an upper handle and a rear handle, an electrically powered drive motor being positioned within the interior of the housing the drive motor having rotation means;
- a chain saw blade formed in a planar generally oval shaped configuration with a continuous outer edge, the blade being about eight and one half inches in length and about two and one half inches in height, a guide bar formed in a thin planar rectangular configuration and being slidably coupled around the outer edge of the blade, the blade being operatively coupled to the drive motor through the aperture in the housing, the rotation means of the drive motor causing the guide bar to revolve around the outer edge of the blade in an operative orientation; and
- a cutter chain consisting of parallel rows of cutter teeth, the teeth of each parallel row being offset with respect to each other, each of the teeth being formed in a generally trapezoidal configuration with a linear first end and a tooth second end, the linear first end of each of the teeth being coupled to the guide bar of the chain saw blade, a plurality of connecting shafts being formed in a planar configuration with coupling means at each end, the connecting shafts coupling adjacent teeth to each other, the tooth second end including a cap having a diamond grid surface and front and rear edges which

are beveled outwardly and upwardly to define a continuation of front and rear edges of the teeth, the diamond grid surface facilitating the cutting of mortar in an operative orientation, the width of each of the teeth being approximately one-eighth of an inch, the cutter blade being approximately one-quarter of an inch wide to permit users to easily cut through mortar positioned between bricks, the offset teeth preventing the blade from binding while in use.

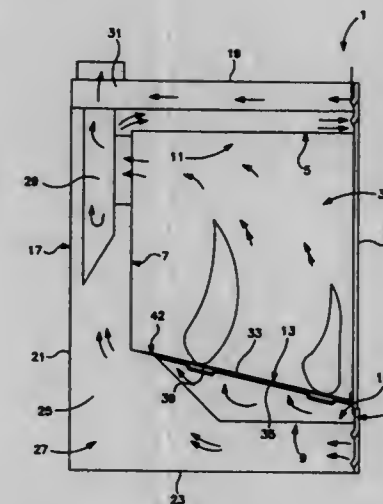
5,671,726
COOKING FUME PURIFIER
Robert Y. Hsu, 4415 Prince Pine Trail, Houston, Tex. 75509
Filed Jun. 20, 1995, Ser. No. 492,915
Int. Cl.⁶ F24C 15/20
U.S. Cl. 126—299 D



1. An apparatus for purifying and cooling cooking fumes comprising:
 - a housing having a top and an opposing bottom;
 - a drawer slidably mounted within said housing, said drawer having a first chamber and an opposing second chamber, said first chamber being in fluid communication with said second chamber;
 - a heat exchanger contained in each said first and second chamber, said heat exchanger being removable with said drawer; and
 - a fan fixed to said housing proximate said first chamber for drawing the cooking fumes into said first chamber and subsequently into said second chamber.

5,671,727
CONFIGURABLE LOW PROFILE GAS FIREPLACE BURNER
David G. Squires, Barrie; John D. Salt, Orillia, and Andrew C. G. Wilkes, Midhurst, all of Canada, assignors to Hunter Energy Technologies Inc., Midhurst, Canada
Filed Apr. 5, 1995, Ser. No. 416,629
Claims priority, application Canada, Dec. 23, 1994, 2139096
Int. Cl.⁶ F24C 3/00

1. A gas burner for use in a gas fireplace with a log set which has a predetermined shape, the gas burner comprising:
 - a substantially flat top sheet for supporting the log set, the top sheet having a bottom surface;
 - a bottom sheet having a top surface abutting the bottom surface of the top sheet, the bottom sheet having a depression formed therein which, in combination with the top sheet, forms a channel for carrying combustible gas between the top and bottom sheets, the depression following a path which corresponds to the predetermined shape of the log set; and
 - a plurality of gas ports through the top sheet into the channel and being disposed in a predetermined pattern which corresponds to the path of the depression to cause ignited gas flowing from



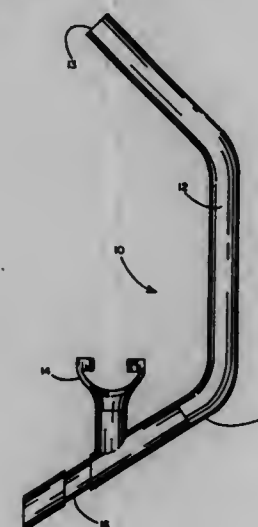
whereby compression and expansion of said spring removes water from said mouthpiece.

5,671,729
ANESTHETIC EVAPORATOR
Stefan Moll; Uwe Bausch; Stefan Linke; Dirk-Stefan Reichert; Karl-Ludwig Gippert, all of Lübeck, and Wolfgang Falb, Krummesse, all of Germany, assignors to Drägerwerk Aktiengesellschaft, Lübeck, Germany
Filed Oct. 16, 1996, Ser. No. 730,967
Claims priority, application Germany, Apr. 6, 1996, 196 13 754.3
Int. Cl.⁶ A61M 16/00
U.S. Cl. 128—203.14

1 Claim

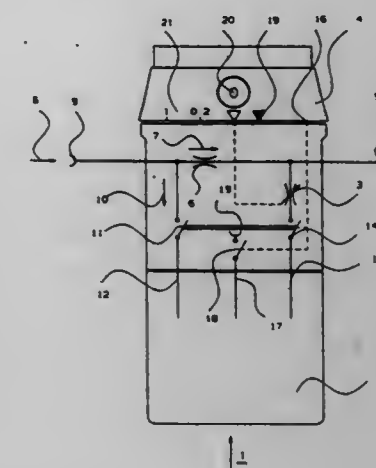
5,671,728
SNORKEL PUMP APPARATUS
Carl Winefordner, and Frank Hermansen, both of Costa Mesa, Calif., assignors to Shelco USA, Carlsbad, Calif.
Filed Jun. 10, 1996, Ser. No. 660,852
Int. Cl.⁶ A62B 7/62
U.S. Cl. 128—201.11

9 Claims



1. In a snorkel of the type having an elongated tube having an open end for entry of air and exit of expelled water and having a mouthpiece; a pump in fluid communication with the mouthpiece for removing water therefrom and comprising:

- a fixed tubular member extending coaxially from said tube adjacent said mouthpiece;
- a moveable tubular member in coaxial slidable engagement with said fixed member;
- a first valve located in said fixed tubular member for permitting water flow in only a unitary direction away from said mouthpiece;
- a second valve located in said moveable tubular member for permitting water flow in only a unitary direction away from said mouthpiece; and
- a compression spring positioned in said moveable tubular member for compression upon movement of said moveable tubular member toward said mouthpiece and extension upon movement of said moveable tubular member away from said mouthpiece;

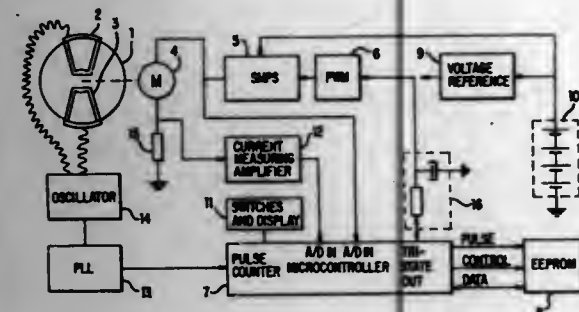


1. A device for mixing anesthetic vapor with a gas according to the bypass principle, comprising:

- an evaporator chamber generating the anesthetic vapor, said evaporator chamber having an evaporator chamber inlet and an evaporator chamber outlet;
- a device outlet opening
- a bypass channel, gas to be enriched with the anesthetic vapor reaching said outlet opening via both said bypass channel and said evaporator chamber;
- a valve at said evaporator chamber inlet and a valve at said evaporator chamber outlet;
- a ventilating valve;
- a ventilating line leading from the said evaporator chamber into the environment via said ventilating valve;
- a metering unit for mixing the anesthetic vapor with the gas; and
- a setting member actuating said metering unit and switchable to a switch-off position and a transport position, said valve at said evaporator chamber inlet and said valve at said evaporator chamber outlet being switched into a switch-off position in said switch-off position of said setting member and said ventilating valve being switched by the said setting member into a switch-off position in said transport position of said setting member.

5,671,730
GAS MASK WITH ELECTRONIC BLOWER CONTROL
 Rauno Ollila, Vaasa, Finland, assignor to Kemira Safety Oy, Vaasa, Finland

Filed Feb. 24, 1995, Ser. No. 393,749
 Claims priority, application Finland, Feb. 25, 1994, 940894
 Int. Cl.⁶ A61M 16/00
 U.S. Cl. 128—204.21 16 Claims



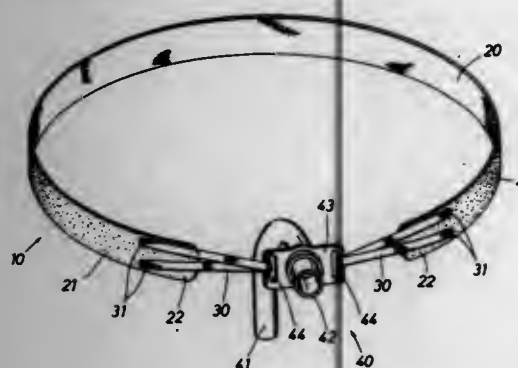
1. A gas mask, comprising:
 - a filter;
 - a blower having means for feeding air through said filter, said blower including a rotatable blower rotor and an electric motor for driving said blower;
 - an electronic control circuit having means for controlling the voltage effective across said motor;
 - first means for providing a first signal dependent on the electric current of the motor; and
 - second means for providing a second signal dependent on the rotational speed of the blower;
 - said means for controlling being adapted to receive said first and second signals so as to control the power fed to the motor on the basis of the motor current and blower speed.

5,671,731

Patent Not Issued For This Number

5,671,732
TRACHEOSTOMY TUBE HOLDER
 Michael L. Bowen, Arlington, Tex., assignor to Tecnol Medical Products, Inc., Fort Worth, Tex.

Filed Sep. 27, 1995, Ser. No. 535,327
 Int. Cl.⁶ A61M 25/02
 U.S. Cl. 128—207.17 27 Claims

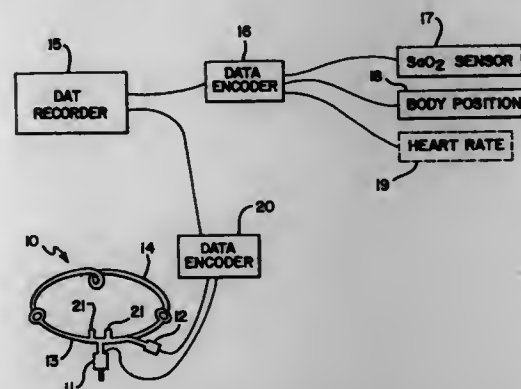


1. A device for encircling a patient's neck and holding a tracheostomy tube which has been inserted into the patient's neck, a tracheostomy tube having first and second lateral slots formed as a part thereof, comprising:

a strap for encircling the patient's neck having an exterior first attachment surface and two opposite ends; at least two tabs, each tab having opposed first and second tab ends, each tab end having a second attachment surface releasably attachable to the first attachment surface on the strap; the second attachment surface on each tab end of each tab cooperating with the first attachment surface on the strap to allow attaching and removing each respective tab from the strap; each tab having a top surface and a bottom surface with the respective second attachment surface on the top tab end disposed on the top surface and the respective second attachment surface on the second tab end disposed on the bottom surface; and wherein the tabs are designed to pass respectively through the first and second lateral slots and attach near the respective ends of the strap such that the strap and tabs cooperate with each other to encircle the patient's neck to hold a tracheostomy tube which has been inserted into the patient's neck.

5,671,733
METHOD OF ANALYZING SLEEP DISORDERS
 Gil Raviv, Northbrook, and Charles Z. Weingarten, Wilmette, both of Ill., assignors to SNAP Laboratories, L.L.C., Glenview, Ill.

Filed Apr. 21, 1994, Ser. No. 231,025
 Int. Cl.⁶ A61B 5/00
 U.S. Cl. 128—630 25 Claims

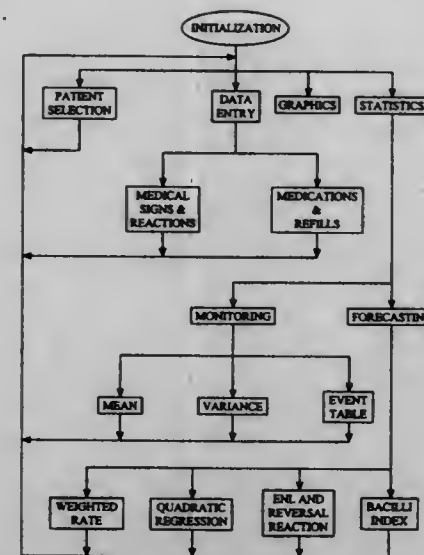


1. A method of detecting and analyzing sleep disorders comprising the steps of:
 - monitoring sound produced by a sleeping subject through a sensor proximate the sleeping subject;
 - continuously recording the monitored sound;
 - identifying snoring within the recorded sound;
 - analyzing the identified snoring to locate upper airway structural sources generating the snoring; and
 - identifying a soft palate of the sleeping subject as the source of the snoring and as a velum snore when the snoring is substantially of a fundamental frequency between a lower and upper threshold and harmonics of the fundamental frequency.

5,671,734
AUTOMATIC MEDICAL SIGN MONITOR
 Jamie K. Pugh, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 3, 1995, Ser. No. 552,818
 Int. Cl.⁶ A61B 5/00
 U.S. Cl. 128—630 14 Claims

1. An automatic medical sign monitor comprising:
 - a medical sign sensor for collecting a time ordered set of medical sign data;

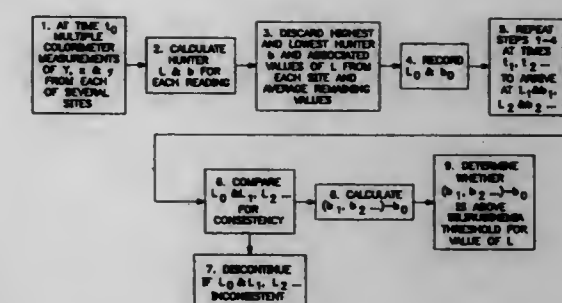


- a medical sign data processor coupled to said medical sign sensor for detecting a change in health state by forming statistics from said medical sign data comprising:
 - a fast initial response (FIR) Shewhart cumulative sum modified to include:
 - a Shewhart statistic having a first upper threshold and a first lower threshold selected to result in a probability of false alarm substantially equal to a reciprocal of an average run length;
 - a fast initial response cumulative sum having a second upper threshold and a second lower threshold selected to result in a probability of false alarm substantially equal to said reciprocal of said average run length for detecting a shift in mean value;
 - and a second cumulative sum for estimating a current mean value and an elapsed time of said shift in mean value;
 - and a variance cumulative sum modified to detect a shift in variance and to estimate a current variance value and an elapsed time of said shift in variance, and to include a third upper threshold and a third lower threshold selected to result in a probability of false alarm substantially equal to said reciprocal of said average run length;
 - and an output device coupled to said data processor for outputting at least one of said medical sign data and said statistics.

5,671,735
METHOD AND APPARATUS FOR DETECTING AND MEASURING CONDITIONS AFFECTING COLOR
 Darby Simpson MacFarlane; David Kenneth MacFarlane, both of Hastings-on-Hudson, and Fred W. Billmeyer, Jr., Schenectady, all of N.Y., assignors to Chromatics Color Sciences International, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 21,657, Feb. 22, 1993, Pat. No. 5,313,267, which is a continuation of Ser. No. 818,488, Dec. 30, 1991, abandoned, which is a continuation of Ser. No. 402,815, Aug. 24, 1989, abandoned, which is a continuation-in-part of Ser. No. 306,286, Feb. 2, 1989, abandoned, which is a continuation of Ser. No. 204,938, Jun. 6, 1988, abandoned, which is a continuation of Ser. No. 904,369, Sep. 8, 1986, abandoned, which is a continuation-in-part of Ser. No. 833,661, Feb. 21, 1986, abandoned, which is a continuation of Ser. No. 514,618, Jul. 18, 1983, abandoned. This application May 9, 1994, Ser. No. 239,733
 Int. Cl.⁶ A61B 5/00 74 Claims

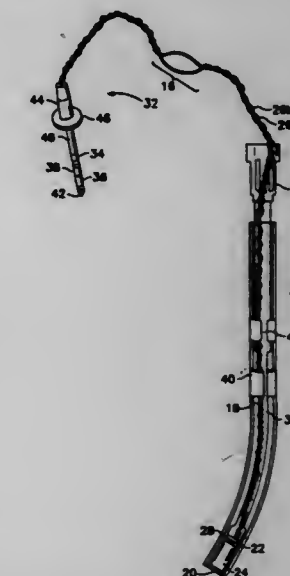
11. A process of detecting a condition in a test subject, which condition includes a symptomatic, detectable change in the test subject's coloration; the process comprising the steps of:
 - (a) at a first point in time, measuring with a color measuring instrument a value of at least one color factor in the test



- subject's coloration, said color factor being dependent, at least in part, on relative content of one or more colors in said coloration;
- (b) waiting an interval;
- (c) measuring with the color measuring instrument, at least at one further point in time, a value of said color factor in the test subject's coloration;
- (d) comparing the values of said color factor measured at said first and said further point in time to arrive at a value of change in color factor; and
- (e) comparing the value of change in color factor with a pre-established measure of color factor value change that is known to evidence said condition and that is correlatable, in test subjects having colorations of substantially varying degrees of lightness or darkness, to a measure of the condition that has clinical utility.

5,671,736
FETAL ELECTRODE PRODUCT WITH EASY-TO-HANDLE CONNECTOR
 James Pettit, Landsdowne; Edward Dowd, Mallorytown, both of Canada; Richard A. Clement, Stratford, N.J.; Cleatis A. Elchberger, Delran, N.J.; and Kenard E. Urion, Woodbury, N.J., assignors to Graphic Controls Corporation, Buffalo, N.Y.

Filed Oct. 17, 1995, Ser. No. 543,417
 Int. Cl.⁶ A61B 5/0448
 U.S. Cl. 128—642 24 Claims



1. A fetal electrode product for transmitting signals indicative of fetal heart rate from a fetus inside a mother to a monitor external to the mother, said product comprising:
 - a bolder having a fetal spiral electrode on one end and a maternal reference electrode on its opposite end;

a twisted wire strand including a pair of wires each having a first end and a second end, said first ends of said wires respectively connected to said fetal spiral electrode and said maternal reference electrode;

a solid drive mechanism disposed along a longitudinal axis and having:

- a drive rod including a circumference with an outside diameter, a forward end, and a rearward end,
- a handle on said rearward end of said drive rod imparting translation and rotation to said drive rod,
- a clutch on said forward end of said drive rod imparting translation and rotation to said holder to secure attachment of said fetal spiral electrode to the fetus, and
- a channel longitudinally disposed in said drive mechanism and transporting said twisted wire strand from said fetal spiral electrode and said maternal reference electrode through said handle;

an introducer disposed arm rod at least a portion of said drive mechanism and adapted to be comfortably inserted through the cervix of the mother and having:

- an open forward end,
- an open rearward end,
- an inner diameter, within which said holder is slidably and rotatably disposed, only slightly greater than said outside diameter of said drive rod, and
- a longitudinal slot disposed along the entire length of said introducer; and

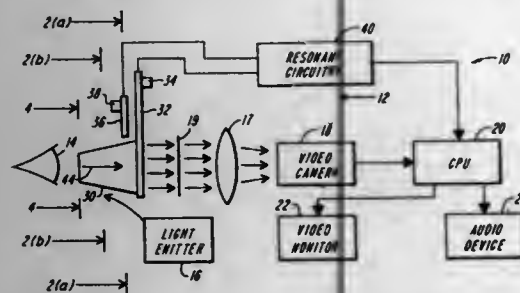
a connector engaging said second ends of said wires of said twisted wire strand and having an outside dimension at least greater than said inner diameter of said introducer so that said introducer cannot be pulled over said connector after said fetal spiral electrode is attached to the fetus, said connector adapted to engage the monitor.

5,671,737
SELF-OPERABLE TONOMETER FOR MEASURING INTRAOCULAR PRESSURE OF A PATIENT'S EYE
Ferenc I. Harosi, Falmouth, Mass., assignor to Marine Biological Laboratory, Woods Hole, Mass.

Filed Dec. 8, 1995, Ser. No. 569,666
Int. Cl.⁶ A61B 3/016

U.S. Cl. 128—645

19 Claims

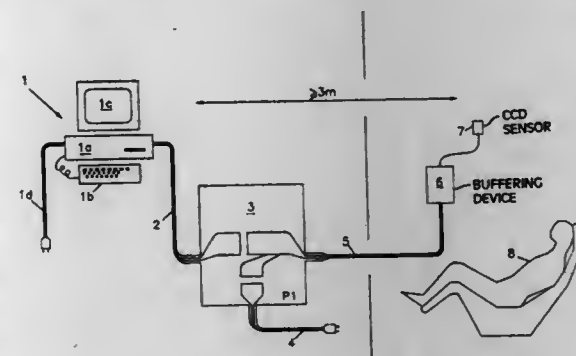


1. A tonometer for measuring intraocular pressure (IOP) of a patient's eye, the tonometer comprising:
 - a probe for contacting the eye, the probe being movable relative to the eye while in contact with the eye;
 - a transducer coupled to the probe and including circuitry for providing a digital force signal indicating a force with which the probe contacts the eye, the transducer including a first movable plate coupled to the probe, and a second stationary plate separated from the first by a narrow gap and substantially parallel to the first movable plate, the first and second plates forming a variable capacitor;
 - a light emitter for emitting light toward the eye;
 - a camera for receiving light reflected from the eye and for providing a digital video image data indicating an area of applanation; and
 - a processor for receiving digital force signals and digital video image data and for determining IOP in response thereto.

5,671,738
MEDICAL ENVIRONMENT INTERFACE
Benny Thörnberg, Sundsvall, Sweden, assignor to Regam Medical Systems International AB, Sundsvall, Sweden
PCT No. PCT/SE92/00812, § 371 Date May 24, 1994, § 102(e) Date May 24, 1994, PCT Pub. No. WO93/10709, PCT Pub. Date Jun. 10, 1993
PCT Filed Nov. 25, 1992, Ser. No. 244,240
Claims priority, application European Pat. Off., Nov. 29, 1991, 91850298

Int. Cl.⁶ A61B 5/05
U.S. Cl. 128—653.1

14 Claims



1. A method for floating an encapsulated X-ray sensing device, used in a room for dental or medical care, from auxiliary electric equipment, not approved for use within a medical electric environment, for creating an image which is displayed by a display device of said auxiliary electric equipment, said image visualizing data from a CCD sensor in the encapsulated X-ray sensing device, comprising the steps of:

defining a first area of medical electric environment having therein a CCD sensor, and defining a second area of non-medical electric environment having therein auxiliary electric equipment not approved for use within said first area of medical electric environment, said second area of non-medical electric environment being spaced from said first area of medical electric environment at least by a distance which makes it impossible for a first person within said first area of medical electric environment to simultaneously touch said auxiliary electric equipment of said second area of non-medical electric environment and a second person subject to medical or dental care within said first area of medical electric environment,

providing an isolation means enclosed in a separate box for electrically floating said CCD sensor, said isolation means being powered from standard mains by a transformer which together with additional electronic components forms a separate protected power supply which is approved for said first area of medical electric environment,

providing a first cable for connection of said CCD sensor to said auxiliary electric equipment, a buffering device being connected to said first cable between said CCD sensor and said isolation means,

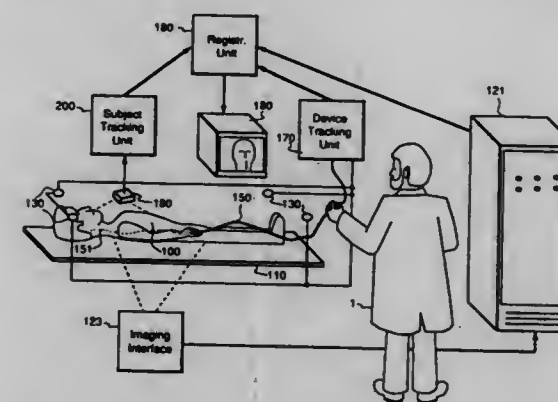
providing a second cable for connection of said isolation means to said auxiliary electric equipment,

providing protected supply voltages from said power supply to said buffering device and said CCD sensor, and

providing non-ohmic contact interfacing within said isolation means between said first cable and said second cable utilizing electromagnetic and/or optoelectric components for transmission of electrical signals carried by said first cable and said second cable, respectively.

5,671,739
IMAGING OF INTERVENTIONAL DEVICES DURING MEDICAL PROCEDURES
Robert David Darrow, Scotia; Charles Lucian Dumoulin, Ballston Lake, both of N.Y., and Steven Peter Souza, Williamstown, Mass., assignors to General Electric Company, Schenectady, N.Y.
Division of Ser. No. 415,409, Apr. 3, 1995, Pat. No. 5,577,502.
This application Aug. 16, 1996, Ser. No. 698,700
Int. Cl.⁶ A61B 5/055
U.S. Cl. 128—653.1

11 Claims



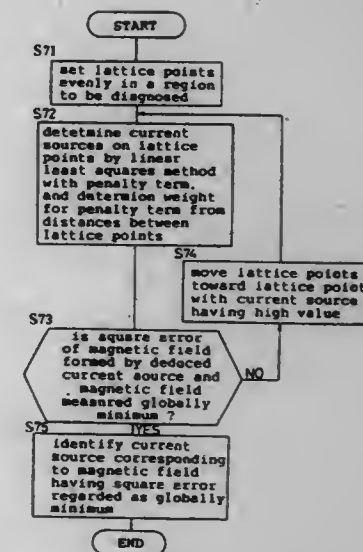
1. A tracking system for monitoring the location of an interventional device within a subject, comprising:
 - a) imaging means for obtaining at a time t_1 , a reference image of a subject at a first position and orientation;
 - b) device tracking means for tracking said device to measure, at time t_2 , a location of said device and for producing a device image;
 - c) motion detection means for measuring a net translation and orientation of said subject between time t_1 , when the reference image was obtained, and time t_2 , when the device tracking means determines the device location;
 - d) registration means coupled to the imaging means, the device tracking means, and the motion detection means for translating and rotating the device image relative to the reference image by the net translation and orientation of the subject to enhance registration of the reference image with the tracked device location; and
 - e) display means for displaying the adjusted images.

5,671,740
METHOD AND APPARATUS FOR DEDUCING BIOELECTRIC CURRENT SOURCES
Sadamu Tomita, Kyoto; Shigeki Kajihara, Uji; Yoshikazu Yoshida, Kyoto, and Naokazu Yamaki, Fujisawa, all of Japan, assignors to Shimadzu Corporation, Kyoto, Japan
Division of Ser. No. 252,788, Jun. 2, 1994, Pat. No. 5,601,081.
This application Oct. 29, 1996, Ser. No. 739,452
Claims priority, application Japan, Jun. 4, 1993, 5-160450; Jun. 4, 1993, 5-160451; Sep. 30, 1993, 5-245615; Nov. 26, 1993, 5-320956; Nov. 26, 1993, 5-320958; Mar. 17, 1994, 6-47220
Int. Cl.⁶ A61B 5/05

U.S. Cl. 128—653.1

2 Claims

1. A method of deducing physical quantities including positions, sizes and orientations of bioelectric current sources, said method comprising:
 - a magnetic field measuring step for measuring minute magnetic fields formed by said bioelectric current sources in a region under examination of an examinee, with a plurality of magnetic sensors arranged adjacent said region under examination;
 - a lattice point setting step for setting a plurality of lattice points in said region under examination, said lattice points being smaller in number than said magnetic sensors;



- a first current source computing step for deriving unknown current sources by adding a condition to minimize a square error of a magnetic field formed by an unknown current source at each of said lattice points and a magnetic field measured by each of said magnetic sensors;
 - a checking step for checking whether the square error of the magnetic field computed from said derived unknown current source and the magnetic field actually measured by each of said magnetic sensors is a global minimum;
 - a lattice point rearranging step for moving said lattice points toward a lattice point having a large current value among the current sources computed at said first current source computing step, when said square error is determined to differ from said global minimum;
 - a current source identifying step for repeating said first current source computing step to said lattice point rearranging step, and regarding as a true current source the current source corresponding to a magnetic field occurring when said square error is determined to be said global minimum at said checking step,
- wherein said first current source computing step is executed to derive current sources at said lattice points by adding a condition to minimize a sum of the square error of the magnetic field formed by the unknown current source at each lattice point and the magnetic field measured by each of said magnetic sensors, and a weighted sum of squares of said current source, a weight for said current source having the smaller value the smaller a distance is between said lattice points; and
- wherein said lattice point rearranging step is executed, when said square error is determined to differ from said global minimum, to move said lattice points toward a lattice point having a large current value among the current sources computed at said first current source computing step.

5,671,741
MAGNETIC RESONANCE IMAGING TECHNIQUE FOR TISSUE CHARACTERIZATION
Philipp Lang, San Francisco; Michael Wendland, Benicia; Maythem Saeed, Novato, and Alexander Gindele, San Francisco, all of Calif., assignors to The Regents of the University of California, Oakland, Calif.

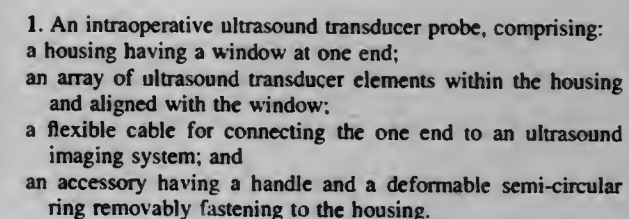
Filed Aug. 4, 1995, Ser. No. 511,286

Int. Cl.⁶ A61B 5/05

U.S. Cl. 128—653.2

25 Claims

1. A diagnostic method for differentiating necrotic from viable tissue in vivo, comprising the steps of:
 - a. providing a patient having a region of diseased tissue;
 - b. placing said region within a constant external magnetic field;



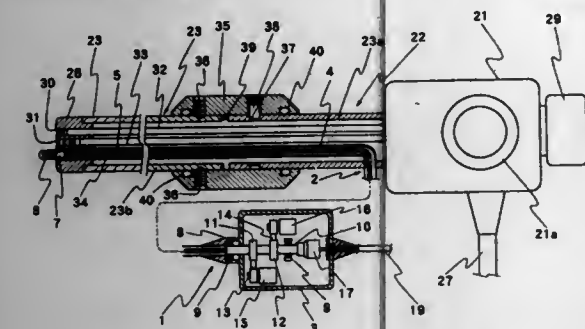
5,671,748
ULTRASOUND ENDOSCOPE HAVING ULTRASOUND
PROBE IN COMBINATION WITH ENDOSCOPIC
OBSERVATION SYSTEM

Hiroshi Ito, Omiya, Japan, assignor to Fujitsu Photo Optical Co., Ltd., Omiya, Japan

Filed Apr. 24, 1996, Ser. No. 636,966
 Claims priority, application Japan, Apr. 28, 1995, 7-127424
 Int. Cl.⁶ A61B 8/12

U.S. Cl. 128—662.06

3 Claims



1. An ultrasound endoscope system, comprising: an endoscope having a rotatable fore end section forward of a rigid non-rotatable section of an endoscopic insertion rod, said rotatable fore end section having an observation window and being rotatable about a longitudinal axis of said insertion rod to turn said endoscopic observation window at the distal end thereof;

an ultrasound probe to be introduced into a body cavity through said endoscopic insertion rod and into said fore end section, and having an ultrasound transducer at the distal end thereof for making radial scans independently of rotational movements of said movable fore end section of said endoscopic insertion rod;

an angle detection means for detecting a rotational angle of said rotatable fore end section of said endoscopic insertion rod with respect to said non-rotatable section when the rotatable fore end section is operated to turn view field of said endoscopic observation window and generating a signal representative of said angle; and

an ultrasound image rotating means for turning a view field of a radial scan ultrasound image provided by said transducer on a monitor screen through an angle commensurate with a rotational angle of said rotatable fore end section of said endoscopic insertion rod on the basis of said signal from said angle detection means.

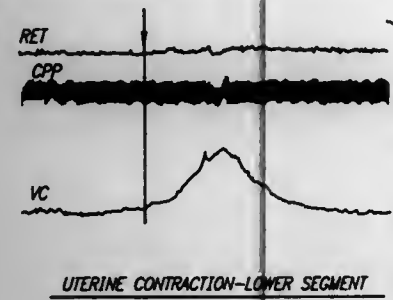
5,671,749
METHOD FOR THE DIAGNOSIS OF PRETERM BIRTH
 Edward H. Hon, 11 Bradbury Hills Rd., Bradbury, Calif. 91010

Continuation-in-part of Ser. No. 85,547, Jun. 30, 1993, Pat. No. 5,497,778. This application May 8, 1995, Ser. No. 436,632
 Int. Cl.⁶ A61B 5/0205

U.S. Cl. 128—670

18 Claims

1. A method for distinguishing false preterm labor from true



labor (prelabor or active labor), comprising the steps of:

- obtaining a rapid ejection time (RET) pattern of a patient;
- determining the onset of a maternal contraction and the peak of the contraction of the patient;
- determining whether the rapid ejection time (RET) pattern from the onset of the contraction towards the peak of the contraction is remaining the same, increasing or decreasing; and
- diagnosing the type of labor of the patient.

5,671,750

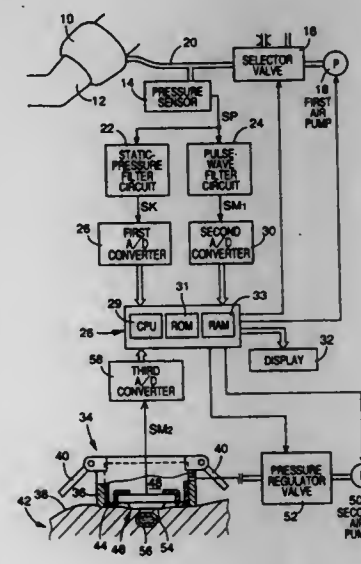
PERIPHERAL BLOOD-FLOW CONDITION MONITOR
 Masayuki Shinoda, Tajimi, Japan, assignor to Colin Corporation, Komaki, Japan

Filed Aug. 12, 1996, Ser. No. 695,635

Claims priority, application Japan, Feb. 17, 1995, 7-29235
 Int. Cl.⁶ A61B 5/00

U.S. Cl. 128—672

12 Claims



1. An apparatus for monitoring a peripheral blood-flow condition of a living subject by detecting a peripheral blood-flow resistance of the subject, comprising:

a first and a second pulse-wave sensor which are adapted to be worn on a first and a second portion of the subject, respectively, to detect a first and a second pulse wave, respectively, each of which is produced in synchronism with a heartbeat of the subject;

phase-difference determining means for determining a difference of respective phases of said first and second pulse waves detected by said first and second pulse-wave sensors;

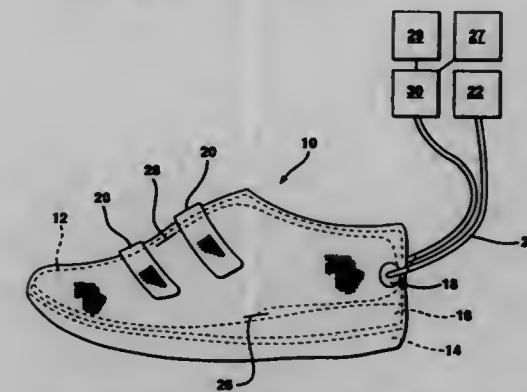
peripheral blood-flow resistance determining means for determining said peripheral blood-flow resistance of the subject, based on the phase difference determined by said phase-difference determining means, according to a predetermined relationship between peripheral blood-flow resistance and phase difference; and

a blood pressure measuring device which measures a blood pressure of the subject, and wherein said peripheral blood-flow resistance determining means determines said peripheral blood-flow resistance of the subject, based on the phase difference determined by said phase-difference determining means and the blood pressure measured by said blood pressure measuring device, according to said predetermined relationship defined by a function of phase difference and blood pressure as variables.

5,671,751
MEDICAL PUMPING APPARATUS
 David M. Tunney; Abdou F. Aboujaoude, both of Dayton; Jonathon W. Reeves, Yellow Springs; David B. McQuain, Dayton, and William H. Reeves, Spring Valley, all of Ohio, assignors to LRC Holding Company, Inc., Dayton, Ohio
 Continuation of Ser. No. 979,829, Nov. 20, 1992, abandoned, which is a continuation of Ser. No. 700,500, May 15, 1991, Pat. No. 5,396,896. This application Mar. 21, 1995, Ser. No. 409,891

Int. Cl.⁶ A61B 5/02; A61H 7/00
 U.S. Cl. 128—680

21 Claims



1. A medical pumping apparatus for improving circulation in a body part, comprising:

means for applying pressure to said body part;

means positioned adjacent to said body part for sensing blood fill status in the body part and generating a blood fill status signal in response thereto;

means for receiving and manipulating said blood fill status signal to produce an output signal, wherein said receiving and manipulating means includes neural network means for producing a generalization about said blood fill status signal, said generalization being used to form said output signal, wherein said neural network means includes a predetermined solution space memory indicative of needing to increase pressure, a predetermined solution space memory indicative of needing to decrease pressure, and a predetermined solution space memory indicative of needing to maintain pressure, and wherein said neural network means performs said generalization by projecting said status signal into one of said solution space memory; and

means operatively associated with said receiving and manipulating means for controlling said pressure means in accordance with said output signal, such that said pressure means applies pressure to said body part to improve circulation in said body part.

5,671,752
DIAPHRAGM ELECTROMYOGRAPHY ANALYSIS
METHOD AND SYSTEM

Christer Sinderby, Montréal; Alejandro Grassino, Westmount, both of Canada; Sven Friberg, and Lars Lindström, both of Mölndal, Sweden, assignors to Université de Montréal/The Royal Institution for the advancement of Learning (McGill University), Montréal, Canada

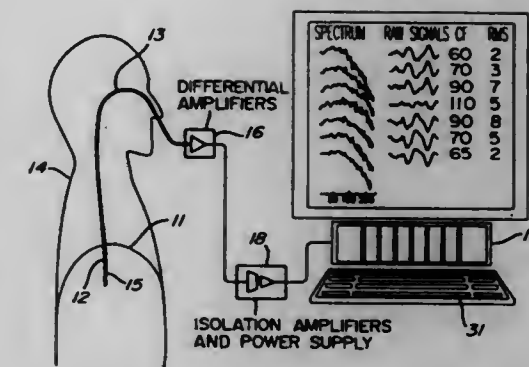
Filed Mar. 31, 1995, Ser. No. 414,494
 Int. Cl.⁶ A61B 5/04

U.S. Cl. 128—733

11 Claims

1. A method for producing an electromyographic signal having an improved signal-to-noise ratio and related to a striated muscle defining a muscle depolarizing region with a center, comprising the steps of:

detecting electromyographic signals produced by the muscle by means of an array of electrodes passing through the center of the muscle depolarizing region, each electrode-detected elec-



tromyographic signal comprising an electromyographic component and a noise component; detecting the position of the center of the muscle depolarizing region by detecting a reversal of polarity of the electromyographic component of the electrode-detected electromyographic signals; and

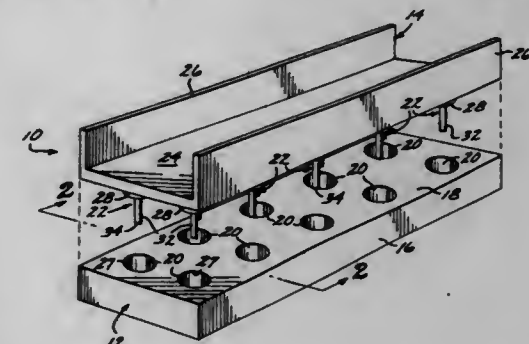
subtracting a first electromyographic signal detected by the electrodes of the array on a first side of the center of the muscle depolarization region, from a second electromyographic signal detected by the electrodes of the array on a second side, opposite to said first side, of the center of the muscle depolarization region, wherein (a) the first electromyographic signal has an electromyographic component of a first polarity, (b) the second electromyographic signal has an electromyographic component of a second polarity opposite to said first polarity, (c) the subtraction subtracts the noise components of the first and second electromyographic signals from each other but adds the respective electromyographic components of said first and second electromyographic signals together to produce said electromyographic signal of improved signal-to-noise ratio.

5,671,753
DISPOSABLE MULTIPLE ALLERGEN TESTING
APPARATUS

Isadore Pitesky, 4001 Linden Ave., Long Beach, Calif. 90807
 Filed Jun. 27, 1995, Ser. No. 495,310
 Int. Cl.⁶ A61B 10/00

U.S. Cl. 128—743

25 Claims



1. Disposable allergy testing apparatus for abrading and applying a plurality of allergens to a cutaneous site on a patient and comprising:

a base tray of formed thermoplastic sheet material formed with an upstanding peripheral wall terminating in a bottom support edge and further configured with a horizontal top web formed with a plurality of open top, vertically recessed wells arranged in predetermined spaced relation and configured in their respective bottom extremities with bottom walls and for receipt and storage of respective said plurality of allergens therein; and

an applicator device including a horizontal plate formed with a plurality of integrally formed downwardly projecting applicator picks arranged in said predetermined spaced relation and formed on their respective lower ends with respective multiple puncture points for puncturing said patient's skin, said applicator device configured to be positioned on said web for receipt of the respective said picks within the respective said wells to project downwardly and dispose the respective said lower ends in close spaced relationship relative to the respective said bottom walls.

5,671,754

VIRAL-PROOFING A PROTECTIVE BARRIER

Robert Schmukler, Rockville, and C. David Lytle, Laytonville, both of Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

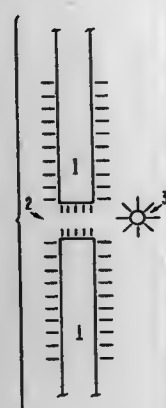
Continuation of Ser. No. 906,716, Jun. 30, 1992, abandoned.

This application Dec. 9, 1994, Ser. No. 353,164

Int. Cl.⁶ A61F 6/04

U.S. Cl. 128—844

14 Claims



1. A viral barrier comprising an ionic surfactant treated barrier material having a surface charge, wherein said ionic surfactant treated barrier material consists essentially of a layer of said barrier material and an ionic surfactant which is bonded directly to said layer of said barrier material, and said ionic surfactant provides said viral barrier with a surface charge which repels viruses so as to prevent ingress of viruses through said viral barrier.

5,671,755

ASSEMBLY AND METHOD FOR CONTROLLING URINARY INCONTINENCE IN HUMANS

John Simon, Boston; Paul McLaughlin, Scituate, both of Mass.; Leo Felice, Pascoag, R.I.; Michelle Maxfield-Bahr, Somerville, and Sharad Joshi, Woburn, both of Mass., assignors to UroMed Corporation, Needham, Mass.

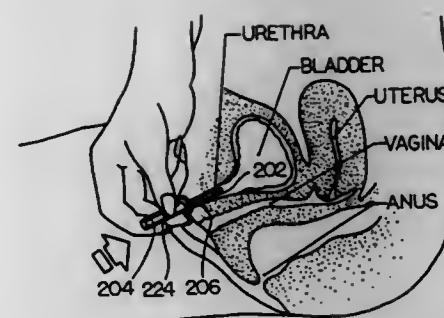
Filed Jun. 29, 1994, Ser. No. 267,487

Int. Cl.⁶ A61F 5/48

U.S. Cl. 128—885

13 Claims

1. A method for controlling unwanted discharge of urine, comprising the steps of: providing an applicator including an expandable body fixed thereto in a non-expanded condition; manipulating said applicator to insert said body into a urethra and to separate said applicator from said body, to permit said body to expand in the urethra; and withdrawing said body in its expanded condition from the urethra by pulling an appendage extending from said body and exteriorly of the urethra when discharge of urine is desired.



5,671,756

ALKYL SCLAREOL DIOL CARBONATES IN TOBACCO

Philip Alan Christenson, Midland Park, N.J., assignor to Givaudan-Roure (International) SA, Venier-Geneve, Switzerland

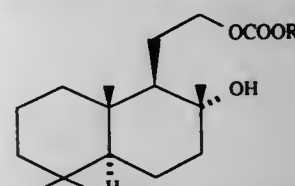
Division of Ser. No. 173,309, Dec. 22, 1993, Pat. No. 5,501,862. This application Dec. 11, 1995, Ser. No. 571,515

Int. Cl.⁶ A24B 3/12; 15/00

U.S. Cl. 131—276

9 Claims

1. A smoking composition which comprises natural tobacco or a tobacco substitute in combination with an organoleptically effective amount of a compound represented by formula (1):



wherein R is selected from the group consisting of branched and unbranched lower-alkyl and lower-cycloalkyl groups having from 1 to 10 carbon atoms.

5,671,757

CIGARETTE FILTERS

Calvin Roger Woodings, Nuneaton, United Kingdom, assignor to Courtaulds Fibres (Holdings) Limited, London, England PCT No. PCT/GB94/02581, § 371 Date May 28, 1996, § 102(e) Date May 28, 1996, PCT Pub. No. WO95/14398, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 24, 1994, Ser. No. 648,088

Claims priority, application United Kingdom, Nov. 29, 1993, 9324464; May 19, 1994, 9410028; Sep. 15, 1994, 9418544

Int. Cl.⁶ A24D 1/04; 3/00

U.S. Cl. 131—331

9 Claims

1. A cigarette filter, wherein the body of the filter comprises paper which contains lyocell fibres.

5,671,758

CATALYTIC CIGARETTE SMOKE CLEANING DEVICE AND PROCESS

Paul I. Rongved, 5701 Blvd. East Apt. 12 H, West NY, N.J. 07093

Filed Dec. 13, 1994, Ser. No. 355,002

Int. Cl.⁶ A24B 15/18

U.S. Cl. 131—334

1 Claim

1. A tobacco filled smoking article, comprising cigarettes, cigars or tobacco filled pipes, being adapted to catalytically remove carbon monoxide (CO) from gaseous products of combustion, comprising distributed, in or near combusting material tiny pieces

5,671,760

APPARATUS FOR CONTROLLING RESIST STRIPPING SOLUTION

Toshimoto Nakagawa, Kawasaki; Kouzo Tsukada, Yokohama; Shu Ogawa, Nagareyama; Yoshitaka Sato, Yokohama; and Shinichiro Shiotzu, Hyogoken, all of Japan, assignors to HIRAMA RIKKA Kenkyujo Ltd., Kawasaki, and Nagase & Co., Ltd., Osaka, both of Japan

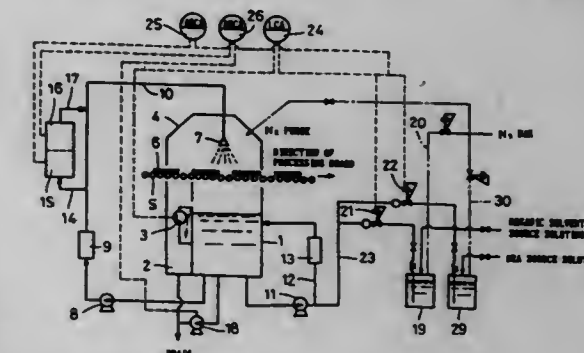
Filed Dec. 2, 1994, Ser. No. 352,739

Claims priority, application Japan, Dec. 29, 1993, 5-350797

Int. Cl.⁶ B08B 3/04

U.S. Cl. 134—56 R

4 Claims



of stable and non poisonous, solid metal oxide catalysts, which instantly will be heated by combustion and the combustion gases and will transform catalytically molecules of carbon monoxide, on its free tiny surfaces, to harmless carbon dioxide, and in the process will not be changing or consuming itself, but will remain in the ash, stuck in the rest of the unburned parts or filters.

5,671,759

DEVICE FOR WRAPPING HAIR WITH CORD

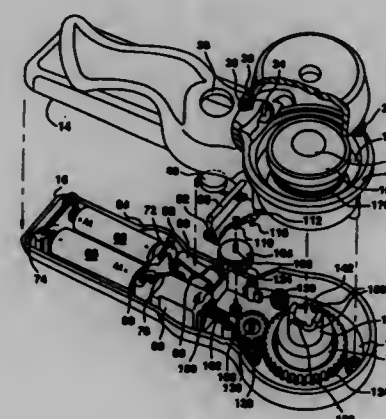
Caleb Chung, 3460 Plantation River Dr., Boise, Id. 83703; David M. Snively, and Joseph C. Beck, both of Cincinnati, Ohio, assignors to Caleb Chung, Boise, Id.

Filed Mar. 29, 1996, Ser. No. 625,723

Int. Cl.⁶ A45D 20/08

U.S. Cl. 132—271

16 Claims



1. Apparatus for wrapping hair with a cord, comprising: a housing; a spindle operatively joined to the housing, and defining a spindle bore for receiving cord and hair, and having an end defining a detent for receiving cord; means for retaining the cord in the detent; a spool defining a spool bore through which the spindle is disposed, and the spool is for receiving and dispensing cord; and means for rotating the spindle relative to the housing; whereby cord is dispensed from the spool through the detent and spindle bore, hair is disposed through the spindle bore, and the spindle is rotated to wrap the hair with cord.

5,671,761

VEHICLE WASH SYSTEM WITH SHUT-OFF SWITCH ACTIVATED BY THE WASH MEDIUM

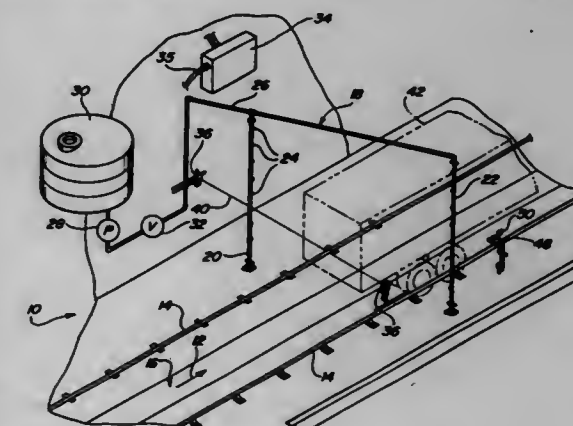
Pasi Kaipainen, Ann Arbor, Mich., assignor to InterClean Equipment, Inc., Ann Arbor, Mich.

Filed Jun. 13, 1996, Ser. No. 663,353

Int. Cl.⁶ B08B 3/02

U.S. Cl. 134—57 R

8 Claims



8. In a vehicle wash system defining a path of travel for a vehicle to be washed and having a spray nozzle for directing a wash medium along a spray path, pump means for selectively supplying the wash medium to the nozzle and control means for

actuating the pump means, the improvement comprising a switch in said control means having on and off modes and the switch being located along the spray path such that the impact of the spray of wash medium from the nozzle contacting the switch to changes the switch from one mode to the other.

5,671,762
DECONTAMINATION SYSTEM FOR PARTICULATE
MATTER

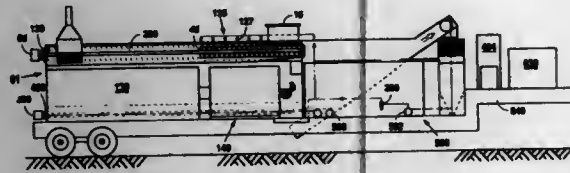
Albert G. Hancock, Jr., Midland, and Ignacio L. Cisneros,
Odessa, both of Tex., assignors to EnRem, Reno, Nev.

Filed Jul. 25, 1995, Ser. No. 507,137

Int. Cl.⁶ B08B 3/04

U.S. Cl. 134—65

20 Claims



1. A decontamination system for particulate matter, said system comprising:

- a fluid treatment chamber, said fluid treatment chamber comprising:
 - a inlet port through which contaminated particulate matter is deposited into said fluid treatment chamber;
 - a continuous receiving conveyance for receiving deposited contaminated particulate matter and for transporting the particulate matter at least partially through said fluid treatment chamber;
 - a fluid applicator for wetting the contaminated particulate matter being carried by said receiving conveyance with a treating fluid that facilitates the separation of contamination from particulate matter;
 - an agitating conveyance into which wetted contaminated particulate matter is deposited from said continuous receiving conveyance, said agitating conveyance being at least partially submersed in treating fluid so that a slurry is formed from the combination of contaminated particulate matter and treating fluid;
 - a continuous final conveyance located in a lower portion of said fluid treatment chamber, said final conveyance being completely submersed in the treating fluid;
 - an exit port through which decontaminated particulate matter passes for removal from the treating fluid; and
 - a fluid heater system for heat in a treating fluid supplied to said fluid treatment chamber said heater system comprising a direct fluid heater in which treating fluid is exposed directly to heated and an indirect fluid heater said indirect fluid heater having an inner chamber containing heated gas and an outer chamber through which treating fluid is circulated and heated indirectly by the heated gas.

5,671,763

Patent Not Issued For This Number

5,671,764
WASHING APPARATUS, AND WASHING METHOD
Shinya Murakami, Kumamoto-ken; Yuuji Kamikawa, Uto;
Sinichiro Izumi, Kumamoto; Noriyuki Anal; Takami Satoh,
both of Kumamoto-ken; Hirofumi Shiraiishi, Kurume; Koji
Harada; Takayuki Tomoeda, both of Kumamoto-ken, and
Hiroshi Tanaka, Kurume, all of Japan, assignors to Tokyo
Electron Limited, Tokyo, and Tokyo Electron Saga Limited,
Tosu, both of Japan

Division of Ser. No. 880,068, May 7, 1992, Pat. No. 5,488,964.

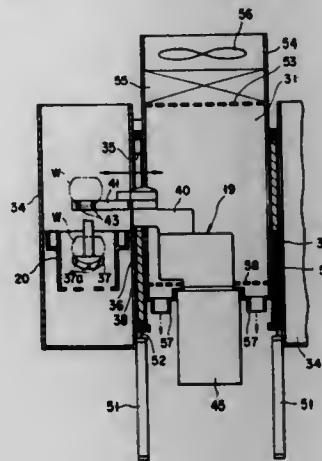
This application Nov. 20, 1995, Ser. No. 560,708

Claims priority, application Japan, May 8, 1991, 3-131673;
May 13, 1991, 3-135301; May 13, 1991, 3-135303

Int. Cl.⁶ B08B 15/00

U.S. Cl. 134—200

15 Claims



1. A washing apparatus comprising:
- a washing chamber having an opening and designed for washing substrates transported from outside through the opening;
 - opening/closing means for opening and closing the opening of said washing chamber, wherein said opening/closing means comprises a casing aligned with the opening of said washing chamber, and a shutter slidably inserted in said casing, for opening and closing the opening of said washing chamber, and drive means for driving said shutter between a first position where said shutter opens the opening and a second position wherein said shutter closes the opening; and
 - washing means for washing a portion of said opening/closing means.

5,671,765
FOREARM CRUTCH

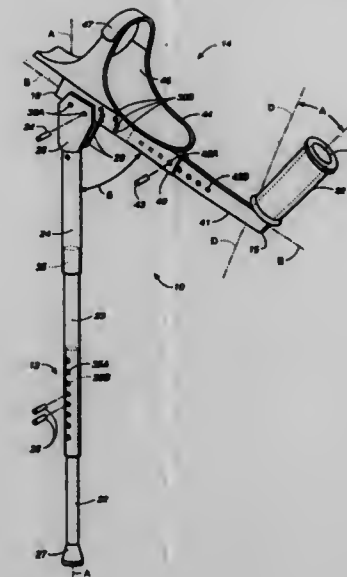
Nils G. Hagberg, Jr., 4219 Maple Ave., Oakland, Calif. 94602
Continuation-in-part of Ser. No. 391,533, Feb. 21, 1995, Pat.
No. 5,564,451. This application Jul. 24, 1996, Ser. No. 685,541

Int. Cl.⁶ A61H 3/02

U.S. Cl. 135—68

20 Claims

1. A walking aid comprising
- a vertical elongate support, having a lower end adapted for contact with a walking surface, and an upper end in mechanical communication with a forearm support;
 - a forearm support having a first end and a second end, the first end including a handle, the forearm support having a forearm cuff attached thereto between said first and second ends, the handle and forearm cuff being linearly disposed about a longitudinal axis and being inclined relative to the vertical elongate support by an angle of between about 25 and 89 degrees, and the forearm support being attached to the vertical elongate support at a point intermediate to said first and second ends; and wherein
 - the at least about 30 percent of the user's body weight is substantially transferred to said walking surface through the forearm support.

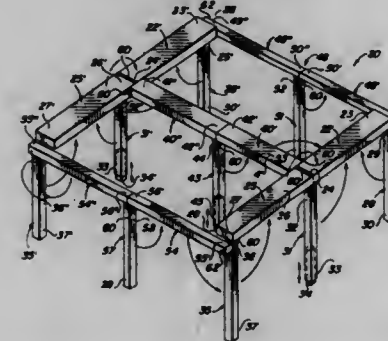
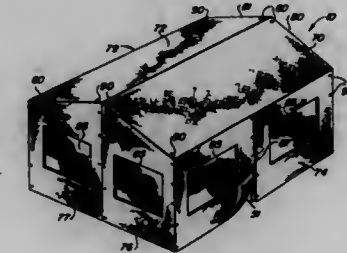


5,671,766
PORTABLE, ADJUSTABLE TENT ASSEMBLY
Johnny R. Williams, 2931 NW, 158th St., Opaloca, Fla. 33054
Filed Apr. 8, 1996, Ser. No. 629,010

Int. Cl.⁶ A45F 1/16

U.S. Cl. 135—121

28 Claims



1. A portable, adjustable tent assembly comprising:
- (a) a frame including a first and a second opposite side sections, each of said opposite side sections comprising:
 - a primary horizontal support member, said primary horizontal support member including a forward end and a rear end,
 - a forward support member, said forward support member including a bottom end and a top end,
 - said top end of said forward support member being hingedly secured at generally said forward end of said primary horizontal support member such that said forward support member is able to pivot between an extended orientation, wherein said forward support member is generally vertically disposed relative to an underlying support surface, and a collapsed orientation, wherein said forward support member is folded into generally collapsed, parallel, relation with said primary horizontal support member,

- a central support member, said central support member including a bottom end and a top end,
- said top end of said central support member being hingedly secured at generally said rear end of said primary horizontal support member such that said central support member is able to pivot between an extended orientation, wherein said central support member is generally vertically disposed relative to the underlying support surface, and a collapsed orientation, wherein said central support member is folded into generally collapsed, parallel, relation with said primary horizontal support member,
- a secondary horizontal support member, said secondary horizontal support member including a front end and a rear end,
- said front end of said secondary horizontal support member being hingedly secured to said rear end of said primary horizontal support member such that said secondary horizontal support member is able to pivot between an extended orientation, wherein said secondary horizontal support member is disposed in a generally horizontal orientation extending away from said rear end of said primary horizontal support member, and a collapsed orientation, wherein said secondary horizontal support member is folded into generally collapsed, parallel, relation with said primary horizontal support member,
- a rear support member, said rear support member including a bottom end and a top end,
- said top end of said rear support member being hingedly secured at generally said rear end of said secondary horizontal support member such that said rear support member is able to pivot between an extended orientation, wherein said rear support member is generally vertically disposed relative to the underlying support surface upon said secondary horizontal support member being disposed in its extended orientation, and a collapsed orientation, wherein said rear support member is folded into generally collapsed, parallel, relation with said secondary horizontal support member,
- (b) a primary roof panel, said primary roof panel being constructed of at least one flexible material sheet and being disposed in spanning relation from said primary horizontal support member of said first opposite side section to said primary horizontal support member of said second opposite side section,
- said primary roof panel defining a primary roof portion upon said first and said second opposite side sections being disposed a spaced apart distance from one another, while still permitting said primary horizontal support members of said first and said second opposite side sections to be collapsible into adjacent, generally abutting relation with one another,
- (c) a secondary roof panel, said secondary roof panel being constructed of at least one flexible material sheet and being disposed in spanning relation from said secondary horizontal support member of said first opposite side section to said secondary horizontal support member of said second opposite side section,
- said secondary roof panel defining a secondary roof portion upon said first and said second opposite side sections being disposed said spaced apart distance from one another and said secondary horizontal support members of said first and said second opposite side sections being disposed in said extended orientation, while still permitting said secondary horizontal support members of said first and said second opposite side sections to be collapsible into adjacent, generally abutting relation with one another,
- (d) a front wall panel, said front wall panel being constructed of at least one flexible material sheet and being disposed to extend between said forward support member of said first opposite side section and said forward support member of said second opposite side section,
- said front wall panel defining a front wall portion upon said first and said second opposite side sections being disposed said spaced apart distance from one another and said forward support members of said first and said second opposite side sections being disposed in said extended orientation, while still permitting said first and said second

- opposite side sections to be collapsible into adjacent, generally abutting relation with one another,
- (e) a rear wall panel, said rear wall panel being constructed of at least one flexible material sheet and being disposed to extend between said rear support member of said first opposite side section and said rear support member of said second opposite side section,
- said rear wall panel defining a rear wall portion upon said first and said second opposite side sections being disposed said spaced apart distance from one another and said rear support members of said first and said second opposite side sections being disposed in said extended orientation, while still permitting said first and said second opposite side sections to be collapsible into adjacent, generally abutting relation with one another,
- (f) a first and a second primary side wall panel, said first and said second primary side wall panels being constructed of at least one flexible material sheet and being structured to be disposed between said primary horizontal support member, said forward support member and said central support member of said first and said second opposite side sections so as to define a pair of opposite primary side walls,
- (g) a first and a second secondary side wall panel, said first and said second secondary side wall panels being constructed of at least one flexible material sheet and being structured to be disposed between said secondary horizontal support member, said central support member and said rear support member of said first and said second opposite side sections so as to define a pair of opposite secondary side walls, and
- (h) said frame being selectively adjustable between a storage orientation, a partially raised orientation, and a fully raised orientation,
- said fully raised orientation including said first and said second opposite side sections disposed in said spaced apart distance from one another, said forward and said central support members disposed in said respective extended orientations, wherein said bottom ends of said forward and said central portions supportingly engage the underlying support surface, and said secondary horizontal support member and said rear support member disposed in said respective extended orientations, such that said bottom end of said rear support member supportingly engages the underlying support surface, thereby defining a complete tent enclosure,
- said partially raised orientation including said first and said second opposite side sections disposed said spaced apart distance from one another, said forward and said central support members disposed in said respective extended orientations, wherein said bottom ends of said forward and said central portions supportingly engage the underlying support surface, and said secondary horizontal support member and said rear support member disposed in said respective collapsed orientations, thereby defining a half tent enclosure, and
- said storage orientation including said secondary horizontal support members and said forward, said central, and said rear support members disposed in said respective collapsed orientations, and said first and said second opposite side sections disposed in said adjacent, generally abutting relation with one another, thereby defining a substantially compact, transportable unit.

5,671,767

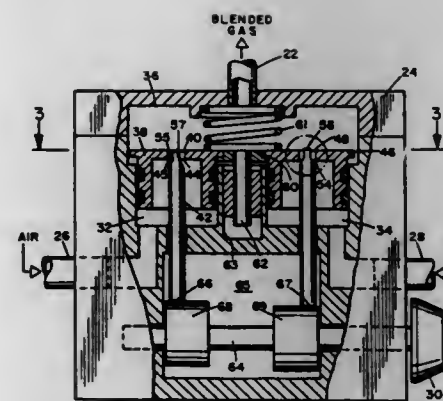
GAS MIXING APPARATUS FOR RESPIRATOR

Edmund F. Kelly, Murrieta, Calif., assignor to Infrasonics, Inc., San Diego, Calif.
Division of Ser. No. 502,629, Jul. 14, 1995, Pat. No. 5,544,674.
This application Jun. 26, 1996, Ser. No. 670,286
Int. Cl.⁶ F16K 1/10

U.S. Cl. 137—7

3 Claims

1. A method of mixing two gases together in controlled proportions, comprising the steps of:



- controlling the supply of a first gas to a mixing chamber by providing a first orifice of a first variable area for supplying the first gas to the mixing chamber, the first variable area comprising a series of orifice areas corresponding to a geometrical progression having a predetermined progression ratio;
- controlling the supply of a second gas to a mixing chamber by providing a second orifice of a second variable area for supplying the second gas to the mixing chamber, the second variable area comprising a series of orifice areas corresponding to the same geometrical progression as the first orifice area;
- controlling the ratio between the areas of the first and second orifices according to a selected mixing ratio; and
- varying the sizes of the two orifices during mixing in response to change in pressure drop across the two orifices while maintaining the same preset mixing ratio.

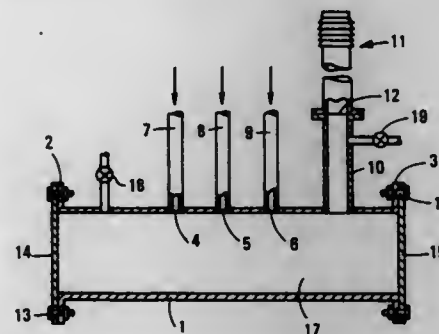
5,671,768

EMERGENCY DUMP TANK FOR CONGEALABLE MATERIALS

Katharine Anne Wykes, Wellesbourne, and Michael Colin Quigley, Meriden, both of United Kingdom, assignors to Courtaulds Fibres (Holdings) Limited, London, England
Division of Ser. No. 66,999, May 24, 1993, Pat. No. 5,526,840.
This application Mar. 13, 1996, Ser. No. 614,621
Int. Cl.⁶ F17D 1/16

U.S. Cl. 137—14

4 Claims



1. A process for safely venting a solution of cellulose in an aqueous N-methylmorpholine N-oxide solvent from pipeline following an exotherm of said solution, which process includes the steps of:

- (1) transporting said solution via a dump line to a dump tank defining a chamber; said chamber communicating with an entry port for said dump line and having a vapour exit port communication to atmosphere and an access port having an openable access door;
- (2) permitting at least partial cooling and congealing of said solution in said chamber;

- (3) opening said access door to permit access to said chamber; and
- (4) removing at least partially congealed solution from said chamber.

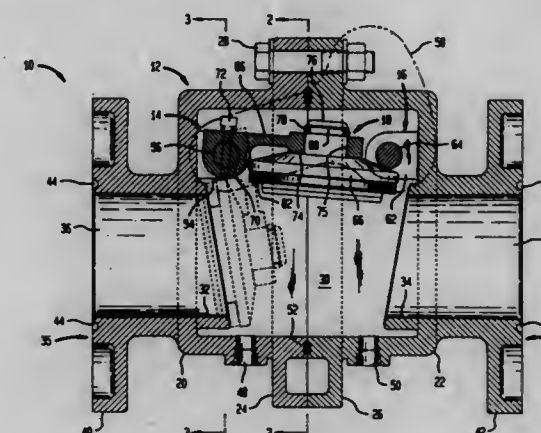
5,671,769

SWING CHECK VALVE AND METHOD FOR REPAIRING SAME

Walter Booth, East Hanover, and Alan R. Levin, Somerville, both of N.J., assignors to H-Tech, Inc., Wilmington, Del.
Filed Oct. 27, 1995, Ser. No. 548,977
Int. Cl.⁶ F16K 15/03

U.S. Cl. 137—15

23 Claims



22. A method for repairing a swing check valve, comprising the steps of forming a valve housing from a pair of identical and interchangeable valve bodies; each being provided with its own valve seat; installing said valve housing in a piping system such that said valve bodies are arranged in an end-to-end fashion with one of said valve bodies being located adjacent to an inlet of said swing check valve and the other of said valve bodies being located adjacent to an outlet of said swing check valve; removably mounting a valve member from said one valve body such that said valve member is movable into and out of sealing engagement with said valve seat of said one valve body; interchanging said one valve body with said other valve body when said one valve body becomes worn or damaged; removing said valve member from said one valve body; and removably mounting said valve member or another valve member to said other valve body such that said valve member or said another valve member is movable into and out of sealing engagement with said valve seat of said other valve body.

5,671,770

ASSEMBLY FOR PROVIDING A PASSAGE FOR LIQUID BETWEEN A FIRST MEMBER AND A SECOND MEMBER

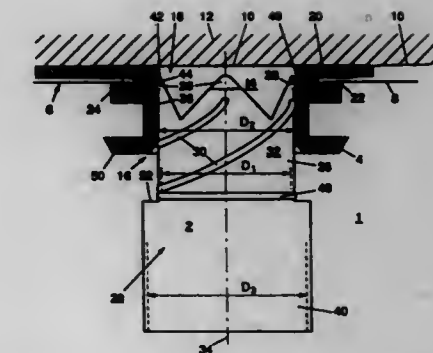
Emil Herman Rusche, Nieuwegein; Jan Cornelis Van Hattem, Amerongen, and Christoffel Anthonius Johannes Vroonland, Soesterberg, all of Netherlands, assignors to Sara Lee/De N.V., Utrecht, Netherlands
Filed Aug. 28, 1995, Ser. No. 520,264
Claims priority, application Netherlands, Aug. 30, 1994, 9401399

Int. Cl.⁶ F16K 51/00

U.S. Cl. 137—318

10 Claims

1. An assembly for providing a passage for liquid between a first member comprising a liquid reservoir and a second member comprising a liquid outlet, the assembly comprising:
- a first connector which is mounted on the second member and comprises piercing means by means of which an opening is



- provided in the first member, and a liquid passageway from the first member to the second member being defined in the first connector;
- a second connector which is undetachably connected to the first member, while in use the first and second connectors are connected to each other and the first connector is moved relative to the second connector in such a manner that the piercing means force an opening in the first member, whereby said passage is effected;
- the second connector comprising a passageway extending to the first member, in which passageway in use at least a connecting portion of the first connector is received, the connecting portion of the first connector being of tubular design;
- the first connector comprising on an outer wall a self-tapping multiple screw thread, which in use cooperates with an inner wall of the second connector, wherein the screw thread is configured such that forcing an opening in the first member is effected by turning the first connector relative to the second connector through an angle of less than 360 degrees, so that no round hole is cut out from the first member resulting in a partly cut-out wall portion that remains attached to remainder of the first member; and
- wherein a free end of the connecting portion comprises a plurality of teeth forming the piercing means and laying on a circle with points of at least two of the plurality of teeth being staggered relative to each other in the axial direction of the connecting portion.

5,671,771

HOT WATER SYSTEM

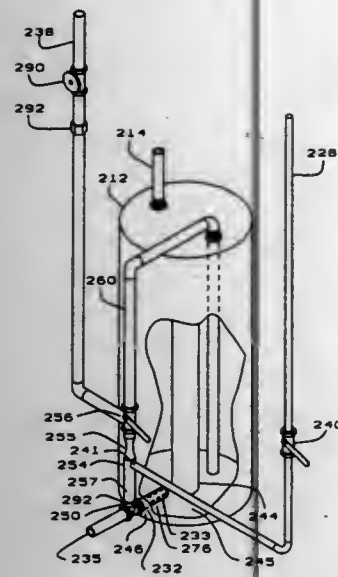
Charles F. Brandel, 2046 W. Avenue M-8, Palmdale, Calif. 93551

Continuation-in-part of Ser. No. 394,967, Feb. 27, 1995, abandoned. This application Aug. 31, 1995, Ser. No. 521,625
Int. Cl.⁶ F16K 49/00

U.S. Cl. 137—337

25 Claims

8. A hot water plumbing system comprising:
- a hot water heater;
- a delivery line having one end connected to said heater;
- a riser having an upper end and having a lower end connected adjacent its lower end to said delivery line;
- a return line connected adjacent the upper end of said riser and inclined so as to extend gradually downward at an angle sufficient to cause continuous water circulation through said



system due to gravity to an input connected adjacent the bottom end of said heater; and means for utilizing hot water from said plumbing system.

5,671,772
ADJUSTABLE VALVE BOX
William Charles Bliss, Tyler, Tex., assignor to Tyler Pipe Company, a div. of Ransom Industries, Inc., Birmingham, Ala.
Filed Nov. 12, 1996, Ser. No. 747,266
Int. Cl.⁶ F16L 5/00

U.S. Cl. 137—370

3 Claims



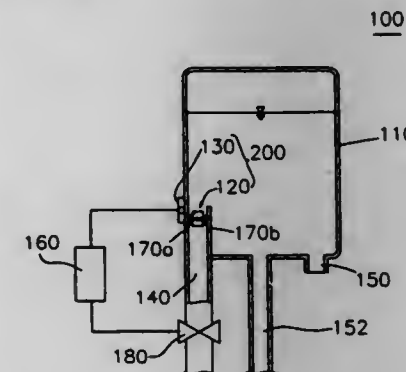
1. An adjustable valve box comprising:
a first member having a central longitudinal axis, said member including:
a tubular section having an inside, an outside, a lower end, an upper end, and a predetermined external diameter,
a bell connected to the lower end of the tubular section, and
a peripheral flange connected to the bell, a second member having a central longitudinal axis, said member including:
a tubular section having an inside, an outside, a lower end and an upper end, said tubular section including a predetermined interior diameter sized for slidably receiving the upper end of the tubular section of the first member, a bell connected to the upper end of the tubular section, a peripheral flange connected to the bell, said tubular section of the second member being telescoped over the tubular section of the first member, the inside of the tubular section of the first member being slidably in

contact with the outside of the tubular section of the second member, wherein the respective bells and flanges are disposed on opposite ends of the valve box, and the central longitudinal axis of each being substantially in alignment; and
an O-ring gasket positioned around the outside of the tubular section of the first tubular member and contacting the lower end of the tubular section of the second member.

5,671,773
AUTOMATIC FLUID-SUPPLY APPARATUS FOR A BOILER SYSTEM
Jae-Gyeong Park, Incheon, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea
Filed Nov. 9, 1995, Ser. No. 555,431
Int. Cl.⁶ F16K 21/18

U.S. Cl. 137—386

6 Claims



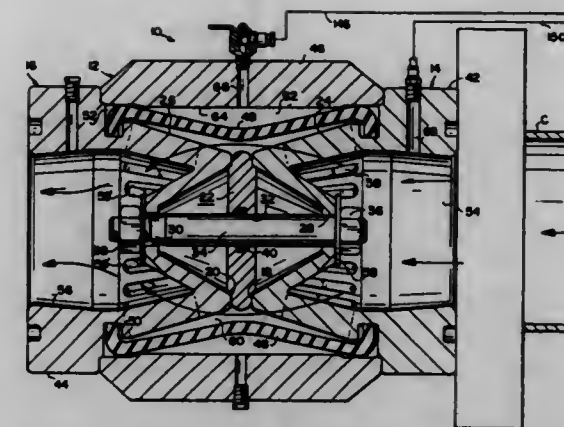
1. An automatic fluid-supply apparatus for a boiler system comprising:
a fluid-supply pipe connected to a fluid-supply source and providing a passage for fluid flowing from the fluid-supply source line;
a fluid tank connected to the fluid-supply pipe and receiving the fluid being supplied through the fluid-supply pipe;
a fluid discharging pipe connected to the fluid tank and discharging the fluid in the fluid tank to a heating system;
a fluid-return pipe for returning the fluid from the fluid discharging pipe to the fluid tank;
means disposed in the fluid tank and for detecting flux of the fluid flowing in the fluid tank;
a valve disposed between the fluid-supply source line and the fluid-supply pipe and controlling flow of the fluid therebetween; and
a controller magnetically connected to the flux detecting means and electrically connected to the valve so as to detect ON-OFF frequency, and for comparing whether the detected ON-OFF frequency is in an ON-OFF frequency range to thereby open or close the valve, the ON-OFF frequency range being preset in the controller.

5,671,774
RATE-OF-FLOW CONTROL VALVE
Robert D. Klein, Milton-Freewater, Oreg., and Jeffrey P. Kretzberg, Walla Walla, Wash., assignors to Nelson Irrigation Corporation, Walla Walla, Wash.
Filed Jun. 18, 1996, Ser. No. 665,695
Int. Cl.⁶ F16K 31/12

U.S. Cl. 137—486

8 Claims

1. A rate-of-flow control valve assembly actuable as a function of velocity of fluid in a conduit comprising:
a) a sensing plate projecting into the conduit, substantially perpendicular to a direction of flow in said conduit;



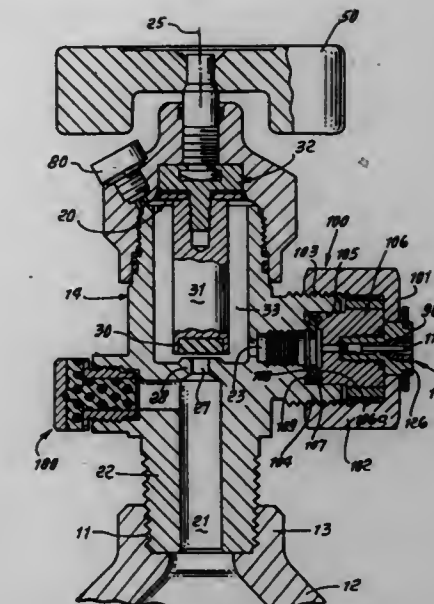
b) a sleeve valve located downstream of said sensing plate, said sleeve valve including a substantially cylindrical, flexible rubber sleeve surrounded by a control chamber and an outer rigid sleeve, said flexible sleeve configured to vary the flow rate of the fluid through said sleeve valve; a first sleeve valve port through said outer rigid sleeve and opening into said control chamber; and a second sleeve valve port opening to an inlet end of said sleeve valve; and
c) a spool valve controller operatively connected to said sensing plate and in communication with said control chamber, said spool valve controller having a spool shaft engageable by said sensing plate and operable to control the flow of fluid into and out of said control chamber as a function of movement of said sensing plate in said conduit wherein said spool valve controller is formed with a bore in which said spool shaft is slidably received, said spool shaft having means cooperating with said bore to define at least first and second spool valve chambers; said spool valve controller having a first spool valve port in fluid communication with said first sleeve valve port and either of said first and second spool valve chambers depending on axial location of said spool shaft; said spool valve controller having a second spool valve port in communication with said second sleeve valve port and said first spool valve chamber and communicable with said first sleeve valve port via said spool valve port depending on axial location of said spool shaft; said spool valve controller also having a third spool valve port in fluid communication with said second spool valve chamber and communicable with said first sleeve valve port via said first spool valve port depending on axial location of said spool shaft.

5,671,775
VALVE FLUID PRESSURE LEAKAGE SIGNALING
Robert F. Miller, Arcadia, Calif., assignor to Vemco Corporation, San Dimas, Calif.
Continuation-in-part of Ser. No. 583,786, Jan. 11, 1996. This application Apr. 29, 1996, Ser. No. 639,546
Int. Cl.⁶ F16K 1/34; 37/00

U.S. Cl. 137—557

16 Claims

1. In a valve unit to control the flow of high-pressure fluid, the combination comprising
a) a housing having a fluid inlet and a fluid outlet,
b) a flow port in the housing communicating between the inlet and outlet, and a seat about said flow port,
c) stem structure in the housing and a stopper carried by the stem structure to be moved longitudinally axially toward and away from said seat,
d) a flow chamber in the housing to which high-pressure fluid flows when the stopper has been moved from the seat, for flow to the outlet, the stopper closing off said flow when the stopper engages the seat,
e) a cap carried by the housing at said outlet,
f) and first signal means associated with said outlet to signal presence or absence of pressurized fluid leakage into the flow chamber before the stopper has been moved from the seat,

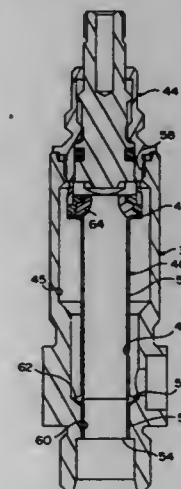


g) a stack of metallic diaphragms connected to the stem structure and clamped to the housing, to flex and seal off therebetween as the stem structure moves, said flow chamber located in the housing at one said of the diaphragms, and a control chamber in the housing at the opposite side of the diaphragms,
h) deformable cushion structure in said control chamber to cushion movement of the diaphragms in one direction, and to conform to diaphragm flexing,
i) said diaphragms having outer portions thereof concave toward one of said chambers, said concave outer portions projecting generally radially outwardly of said cushion structure and also longitudinally,
said diaphragms having annular inner portions thereof retained between portions of said cushion structure and said stem structure.

5,671,776
VALVE MOUNT ASSEMBLY
Alfred Minassian, Simi Valley; Donald J. Segien, Jr., Chatsworth, and Paul F. Wilson, Palmdale, all of Calif., assignors to Emhart Inc., Newark, Del.
Filed Sep. 28, 1995, Ser. No. 535,691
Int. Cl.⁶ F16K 27/00

U.S. Cl. 137—606

18 Claims



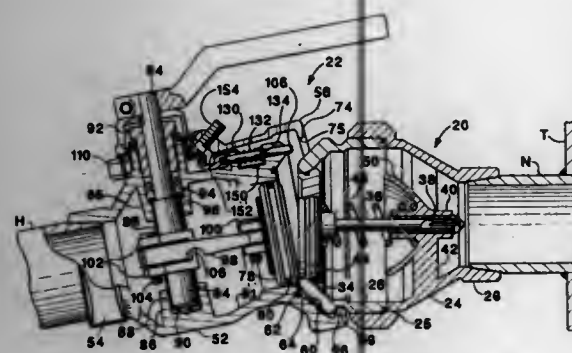
1. A valve mount assembly, which comprises:
a valve mount having a passage formed therein;

structure formed on the valve mount at an end of the passage thereof for supporting a valve;
 a sleeve located within the passage of the mount and having spaced first and second ends;
 the first end of the sleeve being positioned within the passage and supported by the mount at a location spaced from the structure formed at the end of the mount;
 the second end of the sleeve being positioned adjacent the structure for engagement with at least a portion of the valve when the valve is supported by the structure;
 the sleeve being formed with an outward extending continuous bead about an intermediate portion thereof located closer to the first end than to the second end thereof;
 the valve mount being formed with a bevelled surface in the passage thereof at a location spaced from the end of the passage;
 a section of the sleeve between the first end and the bead thereof being assembled within a section of the passage adjacent the bevelled surface; and
 the bead of the sleeve being in engagement with the bevelled surface of the valve mount.

5,671,777
COUPLINGS FOR JOINING FLUID CONDUITS
 Daniel M. Allen, Middletown, and Richard L. Fahl, Fairfield, both of Ohio, assignors to Dover Corporation, New York, N.Y.

Filed Jul. 17, 1995, Ser. No. 502,746
 Int. Cl.⁶ F16L 37/28
 U.S. Cl. 137—614.06

16 Claims



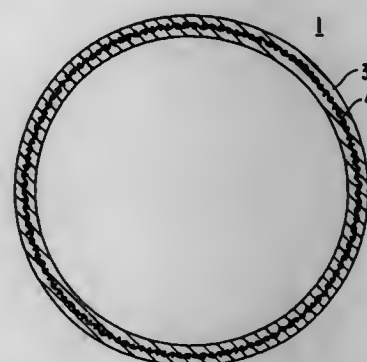
6. A coupling for joining fluid conduits, comprising:
 an adapter having a first end connectable to a first fluid conduit, a second end, an adapter housing extending between the first and second ends and defining a central passageway, and a clamping surface spaced axially inwardly of the second end;
 a coupler having a first end connectable to a second fluid conduit, a second end, a coupler housing extending between the first and second ends and defining a central passageway, a pivoted jaw projecting longitudinally beyond the second end, said pivoted jaw being selectively engageable with the clamping surface of the adapter, and a fixed jaw projecting longitudinally beyond the second end, said fixed jaw being engageable with the clamping surface of the adapter; and
 a locking mechanism for selectively securing the pivoted jaw against the clamping surface of the adapter.

7. A coupling as recited in claim 6 wherein the coupling further comprises a first normally closed valve seated within the central passageway of the adapter, a second normally closed valve seated within the central passageway of the coupler, and a displacement mechanism for displacing the coupler and adapter valves between an open and closed position when the pivoted jaw is secured by the locking mechanism.

5,671,778
REPAIRING TUBE, METHOD FOR REPAIRING PIPE LINES THEREWITH AND METHOD FOR REMOVING THE REPAIRING TUBE
 Hiroyuki Sakuragi, Kobe; Masahiro Seshimo, Nishinomiya; Futoshi Makimoto, Otsu; Shinichi Takebe, Suita; Takuji Sokawa, Shiga-ken, and Hitoshi Saito, Toyonaka, all of Japan, assignors to Ashimori Kogyo Kabushiki Kaisha, Osaka-ku, Japan
 PCT No. PCT/JP94/00704, § 371 Date Jan. 20, 1995, § 102(e) Date Jan. 20, 1995, PCT Pub. No. WO94/27808, PCT Pub. Date Dec. 8, 1994
 PCT Filed Apr. 27, 1994, Ser. No. 367,359
 Claims priority, application Japan, May 24, 1993, 5-145493; Mar. 14, 1994, 6-069955

Int. Cl.⁶ B29C 63/34
 U.S. Cl. 138—97

32 Claims



1. A repairing tube used in a pipeline repairing process in which the tube is deformed under heating, pulled into a pipeline and expanded into a cylindrical configuration using a heated and pressurized fluid so that the tube conforms to the internal wall surface contours of the pipeline, characterized in that the tube comprises a rigid pipe including a thermoplastic resin having a Vicat softening point higher than the temperature of the heating and a tubular woven fabric, the tubular woven fabric being integrated with the rigid pipe either by being brought into intimate contact with an interior wall surface or an exterior wall surface of the rigid pipe or by being embedded in the thermoplastic resin of the rigid pipe, the strength of the tube per unit width in the longitudinal direction in kgf/cm, when heated, being not less than 1.3 times DP, DP being defined as the product of the diameter D of the pipeline and the pressure P of the fluid.

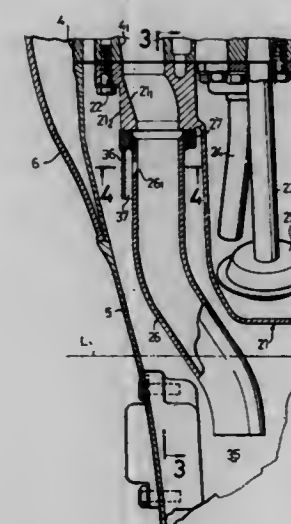
5,671,779
EXHAUST PIPE STRUCTURE IN OUTBOARD ENGINE SYSTEM

Kouji Koishikawa; Hiroyuki Murata; Hiroshi Kawamura, and Hiroyuki Yoshida, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
 Filed Dec. 26, 1995, Ser. No. 578,848
 Claims priority, application Japan, Dec. 26, 1994, 6-323072
 Int. Cl.⁶ F16L 9/00; B63H 21/32

U.S. Cl. 138—109

9 Claims

1. An exhaust pipe structure in an outboard engine system, including an exhaust pipe extending downwardly from an engine disposed above an extension case, in which a lower end of said exhaust pipe opens into an exhaust gas expansion chamber formed within said extension case, and an upper portion of said exhaust pipe is formed with a breathing bore, an outside of said breathing bore being covered with a shield member which extends along a

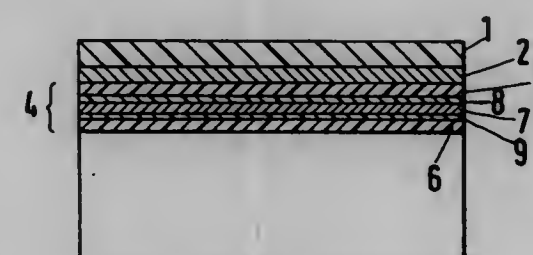


longitudinal direction of said exhaust pipe and has a lower end thereof terminated at a location upwardly of said lower end of the exhaust pipe.

5,671,780
MULTILAYER FLEXIBLE CONDUIT
 Janos Kertesz, Hofheim, Germany, assignor to Rasmussen GmbH, Maintal, Germany
 Continuation of Ser. No. 152,591, Nov. 15, 1993, abandoned.
 This application Jan. 16, 1996, Ser. No. 591,164
 Claims priority, application Germany, Nov. 17, 1992, 42 38 606.3

Int. Cl.⁶ F16L 11/10
 U.S. Cl. 138—127

3 Claims

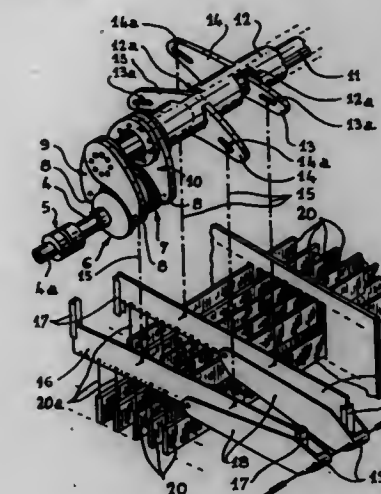


1. A multilayer flexible conduit for combustible fluids, comprising an outer layer, an inner pipe and an intermediate layer between the outer layer and the inner pipe; the outer layer comprising a halogen-free and phosphorus-free thermoplastic material including magnesium hydroxide as a flame retardant; the intermediate layer comprising a material selected from the group consisting of a) synthetic fibers that are resistant to high temperatures and selected from the group consisting of polyamide fibers and 1,4-phenyleneterephthalamide fibers, b) a fire-resistant textile yarn and c) metal wires; and the inner pipe being a multilayer pipe comprising an outer and an inner thermoplastic layer, a middle layer of aluminum and an adhesion promoting layer between the middle layer and the outer layer, and between the middle layer and the inner layer; the thermoplastic material in said outer layer being cross linked by radiation selected from the group consisting of γ radiation and β radiation.

5,671,781
CONCENTRIC DRIVE MECHANISM FOR CONTROLLING RECIPROCAL MOVEMENT OF GRIFFE FRAME BLADES
 Joseph Palau, Duingt, France, assignor to Staubli Faverges, Faverges, France
 Filed Jul. 10, 1996, Ser. No. 678,080
 Claims priority, application France, Jul. 18, 1995, 95 08910
 Int. Cl.⁶ D03C 5/06

U.S. Cl. 139—59

10 Claims



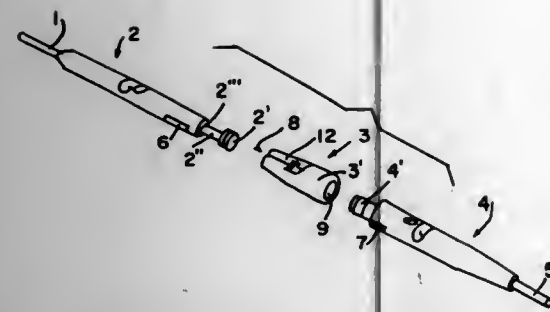
1. In a Jacquard system for forming a shed in a weaving machine which includes two sets of blades for controlling the vertical movement of a plurality of rows of hooks, and wherein the system includes a drive shaft, the improvement comprising:
 an input shaft connected to the drive shaft,
 a single cam mechanism drivingly connected to said input shaft, a pair of concentric shafts, each having opposite ends,
 a first means for drivingly connecting an inner of said concentric shafts to said cam mechanism so as to be rotated in a reciprocal motion and a second means for drivingly connecting an outer of said concentric shafts to said cam mechanism so as to be rotated in a reciprocal motion,
 first pairs of radially extending levers carried by and extending from adjacent said opposite ends of said inner of said concentric shafts and second pairs of radially extending levers carried by and extending from adjacent said opposite ends of said outer of said concentric shafts, and
 means for connecting each of said first radially extending levers to a first set of blades and means for connecting each of said second radially extending levers to a second set of blades so that said first and second blades are vertically reciprocated as said first and second pairs of radially extending levers are vertically reciprocated by said concentric shafts.

5,671,782
HARNESSTO LIFTING CORD THREE PART CONNECTOR FOR A JACQUARD WEAVING MACHINE
 Thierry Lemaire, Marq-en-Baroeul, France, and Carlos Derudder, Heule/Kortrijk, Belgium, assignors to N.V. Michel Van de Wiele, Marke/Kortrijk, Belgium
 Filed Jul. 17, 1995, Ser. No. 502,892
 Claims priority, application Belgium, Jul. 18, 1994, 09400673
 Int. Cl.⁶ D03C 3/40

U.S. Cl. 139—85

10 Claims

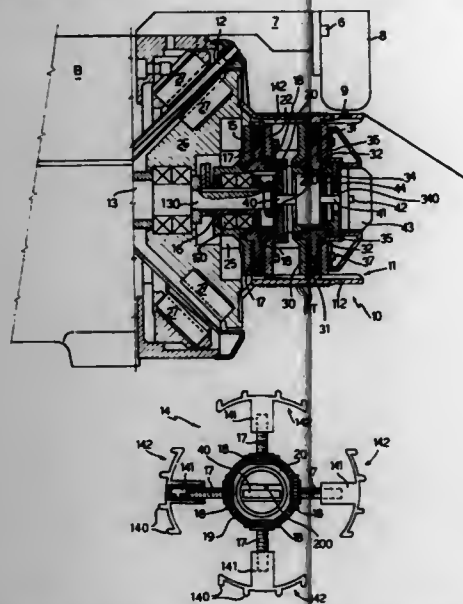
1. Connection apparatus for weaving machines comprising plural lifting cords, plural harness cords, plural first and second coupling elements, wherein the first coupling elements are connectable to the lifting cords for lifting warp threads on weaving machines, and the second coupling elements are connectable to the harness cords for lifting the warp threads, said connection apparatus further comprising intermediate elements including means for



removably connecting to the first and second coupling elements, wherein said means provide for the connections of the intermediate elements with at least one of the first and second coupling elements to be breakable when pulling forces are exerted thereon for preventing damage through overloading.

5,671,783
WEFT FEEDER WITH TURN SEPARATOR INCLUDING MULTIPLE DIAMETER SWIFT
 Pietro Zenoni; Giovanni Pedrini, both of Leffe, and Rosario Castelli, Gandino, all of Italy, assignors to L.G.L. Electronics S.p.A., Bergamo, Italy
 PCT No. PCT/EP95/00746, § 371 Date Oct. 30, 1995, § 102(e) Date Oct. 30, 1995, PCT Pub. No. WO95/24521, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 1, 1995, Ser. No. 535,257
 Claims priority, application Italy, Mar. 7, 1994, T094A0154
 Int. Cl.⁶ D03D 47/36; B65H 51/22
 U.S. Cl. 139—452 25 Claims

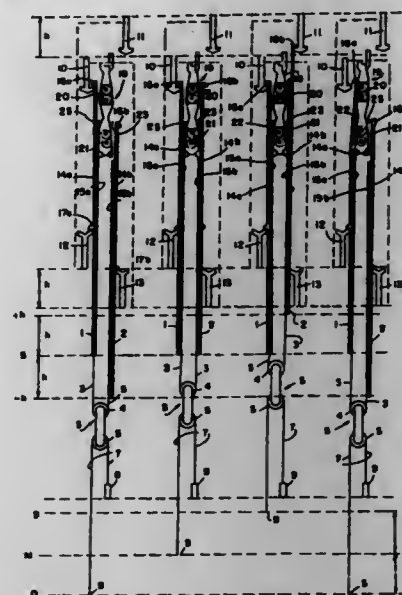


1. A weft feeder with turn separator, for air jet looms, the weft feeder comprising: a variable-diameter drum for supporting multiple turns of thread deposited on the drum by a windmilling arm, said turns forming a weft reserve; and a variable-diameter swift which includes multiple rods having an undulatory motion and protruding, in a cyclic manner, from corresponding slots of the drum to transport the turns of thread from the base of the drum to its head, and wherein the extent of the protrusion of the rods from the slots of the drum determines the mutual distance between the turns of the thread reserve; wherein said swift and said drum are formed by corresponding sectors that are independently radially movable and controlled by respective radial shifting mechanisms, each of which comprises at least one actuation gear that meshes with individual shifting gears for shifting the respective drum and

swift sectors; wherein the actuation gears of said radial shifting mechanism are turned by a single transmission element which is controlled by an actuation knob and which couples in sequence to both actuation gears, through respective slots defined in said actuation gears, after said knob moves through respective idle angular motions having different values; the difference between said idle angular motions of the transmission element being used to vary the extent of the protrusion of the turn transporting rods, with respect to said sectors of the drum, to correspondingly adjust the distance between said turns.

5,671,784
THREE-POSITION OPEN-SHED JACQUARD MACHINE
 Andre Dewispelaere, Kortrijk/Marke, Belgium, assignor to N.V. Michael Van de Wiele, Kortrijk/Marke, Belgium
 Filed Jan. 16, 1996, Ser. No. 585,930
 Claims priority, application Belgium, Jan. 17, 1995, 09500038

Int. Cl.⁶ D03C 3/12; 3/20; 3/06
 U.S. Cl. 139—455 15 Claims

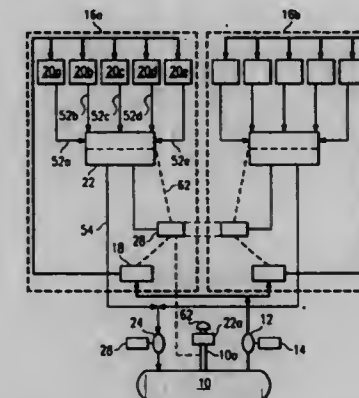


1. Three-position open-shed jacquard machine, comprising a system with two interacting hooks for lifting at least one warp thread on a weaving loom, a first control element for controlling selection of each hook from a selection height, first and second knives movable up and down in counterphase between respective top and bottom positions, the first and second knives picking a respective hook selected by the first control element from a selection height in the bottom position, a second control element for controlling selection of each hook from the selection height, third and fourth knives movable up and down in counterphase between respective top and bottom positions, the third and fourth knives picking a respective hook from the two hooks not selected by the first and second control elements from the selection height in the top position, wherein each hook selected by the second control element is retained at the selection height, and wherein the first and second knives and the third and fourth knives are adapted to move in counterphase.

5,671,785
GASOLINE DISPENSING AND VAPOR RECOVERY SYSTEM AND METHOD
 Bo Göran Andersson, Salisbury, Md., assignor to Dresser Industries, Inc., Dallas, Tex.
 Continuation-in-part of Ser. No. 515,484, Aug. 15, 1995. This application May 13, 1996, Ser. No. 645,777
 Int. Cl.⁶ B65B 31/00

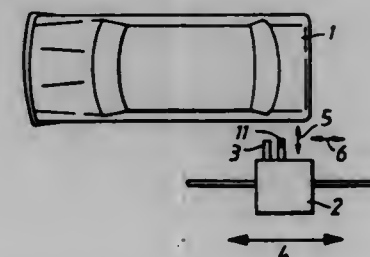
U.S. Cl. 141—59

27 Claims



1. A vapor recovery system for recovering vapors from a vehicle tank, the system comprising a storage tank, a vapor flow system connecting the vehicle tank to the storage tank for passing a mixture of air and gasoline vapors in the vehicle tank to the storage tank, a device for varying the flow of the mixture from the vehicle tank to the storage tank, a vent pipe extending from the storage tank for venting a mixture of air and gasoline vapors from the storage tank, a flowmeter for measuring the flow of the mixture from the vent pipe, and a control unit operatively connected to the flowmeter and to the flow-varying device for responding to the amount of the mixture flow from the vent pipe and for adjusting the flow-varying device, and therefore the flow of the mixture from the vehicle tank, accordingly.

5,671,786
APPARATUS FOR AUTOMATIC REFUELING OF VEHICLES
 Sten Corfsten, Rödursvägen 1, S-181 43, Lidings, Sweden
 PCT No. PCT/SE93/00718, § 371 Date Mar. 3, 1995, § 102(e) Date Mar. 3, 1995, PCT Pub. No. WO94/06031, PCT Pub. Date Mar. 17, 1994
 PCT Filed Sep. 3, 1993, Ser. No. 392,917
 Claims priority, application Sweden, Sep. 4, 1992, 9202550
 Int. Cl.⁶ G01S 13/74; B67D 5/08; B60S 5/02
 U.S. Cl. 141—94 5 Claims



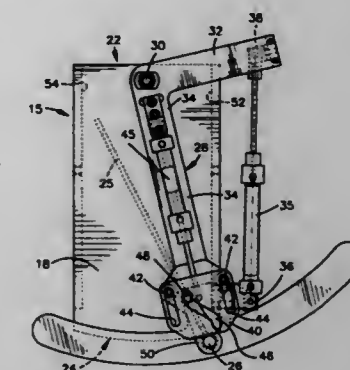
1. Apparatus for the automatic fuelling of vehicles, primarily cars, comprising: a robot which includes a robot head that is movable relative to the robot so as to enable the robot head to be brought to a predetermined position in relation to a vehicle fuel-tank pipe carried by a vehicle and including a cover flap, a positioning system which includes a transceiver unit that is mounted adjacent the robot head and operable at microwave frequency,

a passive transponder positioned at a predetermined position on the vehicle, wherein the robot head includes an outer tube and an inner tube which is housed within said outer tube and movable out of said outer tube, wherein the outer tube is adapted to be docked with an adapter attached to the fuel-tank pipe, and wherein subsequent to docking said outer tube, a free forward end of the inner tube is projected to a position down in the fuel-tank pipe, whereafter fuel is delivered through the inner tube, and wherein the robot head carries a flap opening device which functions to open the cover flap in response to movements of the robot head, wherein the transponder is one of a plurality of different transponders of which only one is carried by a vehicle, wherein each transponder is provided with an individual code which the transponder is adapted to modulate on a signal transmitted by the transceiver unit and reflected by the transponder when the robot head is positioned in a predetermined position relative to the transponder, and a decoder for decoding the code from the signal received by the transceiver unit from the transponder and for delivering the decoded code to a computer connected to the robot, wherein the computer includes a memory in which a specific movement plan is stored for each of a plurality of codes, and wherein the computer is adapted to steer the robot head in the movement plan defined by the received and decoded code upon the receipt of said code in order to open the fuel-tank flap and in order to position the robot head relative to the fuel-tank pipe of the vehicle to permit the vehicle to be fuelled.

5,671,787
ACCUMULATION SYSTEM AND METHOD
 Rick Steven Wehrmann, Hudson, Ohio, assignor to Automated Packaging Systems, Inc., Streetsboro, Ohio
 Filed Jul. 26, 1995, Ser. No. 507,596
 Int. Cl.⁶ B65B 19/00

U.S. Cl. 141—134

27 Claims

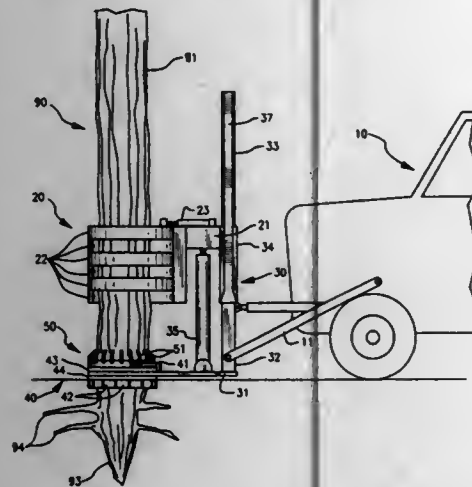


1. An accumulator for substantially continuously receiving serially dispensed items and separating the items into batches each containing a predetermined measure of items comprising:
 a) an open ended tubular housing having a through opening defined in part by a spaced pair of side walls;
 b) a diverter having at least a section positioned within the opening;
 c) the section having:
 i) a first position adjacent one of the side walls;
 ii) a second position adjacent the other of the side walls;
 iii) a third position extending across the opening from a location near a first end of the one side wall to a location near a second end of the other side wall; and,
 iv) a fourth position extending across the opening from a location near the first end of the other side wall to a location near the second end of the one side wall; and,
 d) prime mover means for shifting the section sequentially:
 i) from the first position to the third position;
 ii) from the third position to the second position; and,
 iii) from the second position to the fourth position.

- iii) from the second position to the fourth position;
iv) from the fourth position back to the first position; and
v) thereafter repeating the sequence.

5,671,788
TREE AND STUMP EXTRACTOR
Rudy Lewis, Rte. 2, Box 412, Hortons, Ga. 31543
Filed Feb. 21, 1996, Ser. No. 604,574
Int. Cl.⁶ A01G 23/06 23/08
U.S. Cl. 144—34.1

14 Claims

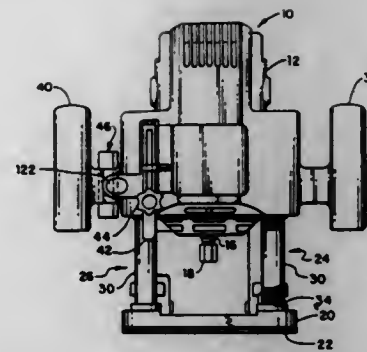


1. An apparatus for simultaneously extracting a tree trunk, stump and main root from the ground and removing lateral roots, said apparatus comprising a mobile power source vehicle to provide power to tree extraction operating means comprising a ground plate connected to said mobile power source means such that said ground plate can be raised from and lowered onto the ground, gripping means movably mounted on said ground plate to securely grasp a tree trunk, adjustable root shearing means connected to said ground plate to encircle said tree trunk at its base and shear any lateral roots, where said root shearing means are connected to said ground plate such that there is no relative vertical movement between said root shearing means and said ground plate, and raising means mounted on said ground plate and connected to said gripping means to vertically move said gripping means relative to said ground plate and said root shearing means such that said tree trunk, stump and main root are pulled through said ground plate and said root shearing means and said ground plate and said root shearing means remain stationary on the ground.

5,671,789
DEPTH OF CUT LOCKING MECHANISM FOR A PLUNGE-TYPE ROUTER
J. Timothy Stotzer, Pickens; Ronald C. McCurry, West Union, and Charles D. Winchester, Easley, all of S.C., assignors to Ryobi North America, Easley, S.C.
Continuation-in-part of Ser. No. 122,390, Sep. 16, 1993, Pat. No. 5,353,852. This application Oct. 11, 1994, Ser. No. 321,149
Int. Cl.⁶ B27C 5/10
U.S. Cl. 144—154.5

16 Claims

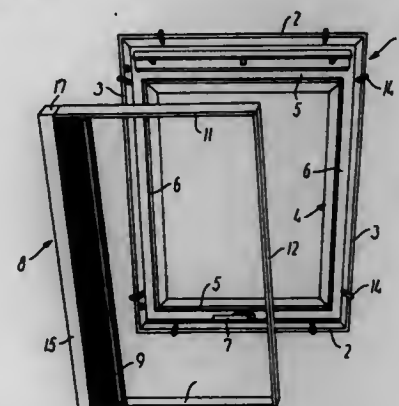
1. A depth of cut locking mechanism for a plunge-type router which locks the position of a router relative to a base plate, the router having a motor housing provided with a pair of spaced apart handles to be grasped by a user, said housing being connected to the base plate by a pair of spatially separated telescoping guides, each of the telescoping guides having a guide sleeve fixedly disposed in the motor housing and a guide tube attached to the base plate, the guide tube is slidably received in the guide sleeve, said locking mechanism comprising:



a lever pivotably connected to the motor housing, said lever having a free end positioned adjacent one of the handles, said free end being displaceable by the user between a lock position and a release position while grasping said adjacent handle;
a mounting bracket securing said guide sleeve and having a threaded aperture extending therethrough;
a lock member having a threaded boss threadably received in said threaded aperture, said lock member rotatable about an axis concentric with said threaded boss between a lock position and a release position, said lock member being axially displaced toward said guide tube when rotated from said release position toward said lock position and axially displaced away from said guide tube when said lock member is rotated from said lock position toward said release position;
an actuator rod pivotably connecting said lock member to said release lever to rotate said lock member between said locked position and said release position;
a friction member cooperating with the lock member to lock said motor housing to said guide sleeve in response to lock member being rotated to said locked position; and
wherein said actuator rod has one end pivotably connected to said lever and an opposite end pivotably connected to said lock member at a location offset from said lock member axis.

5,671,790
SCREENING DEVICE FOR A WALL OPENING
Hans Gram Andersen, Sønder Felding, and Per Stagsted Jacobsen, Horsens, both of Denmark, assignors to V. Kann Rasmussen Industri A/S, Søborg, Denmark
Filed Jan. 24, 1996, Ser. No. 590,946
Int. Cl.⁶ A47H 1/00
U.S. Cl. 160—24

15 Claims

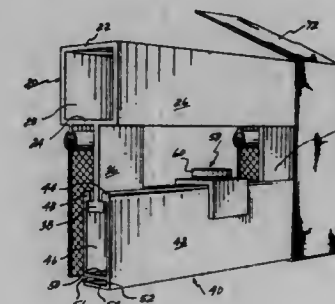


1. A screening device for covering an opening of substantially rectangular configuration in a wall of a building, comprising a frame structure composed of an elongate base member accommodating a screening member in a first position in which it assumes a stored condition, two side members each having one end pivotally connected with one of two opposite ends of said base member, and

a bar member of a length substantially equal to the length of said base member forming a fourth side of said frame structure, the frame structure having an erected condition in which the side members project at substantially right angles from the base members, said bar member in said erected condition being spaced from a free edge of said screening member when said screening member is in said stored condition, the connections between said base member, side members and bar member forming at least one pair of pivotal links, whereby to make the frame structure collapsible from said erected condition into a collapsed condition in which the side members are folded into overlying relationship with the base member, said screening member and each of said side members being provided with cooperating guide means for guiding said screening device in said erected condition during movement thereof from said first position towards a second extracted position in which it screens said opening.

5,671,791
AWNING TENSIONING STRUCTURE
Serge Lapointe, 221 des Pins, St. Amable, Quebec, Canada, J0L 1N0
Filed Oct. 3, 1995, Ser. No. 538,395
Claims priority, application Canada, Aug. 14, 1995, 2156033
Int. Cl.⁶ E04F 10/00
U.S. Cl. 160—46

6 Claims



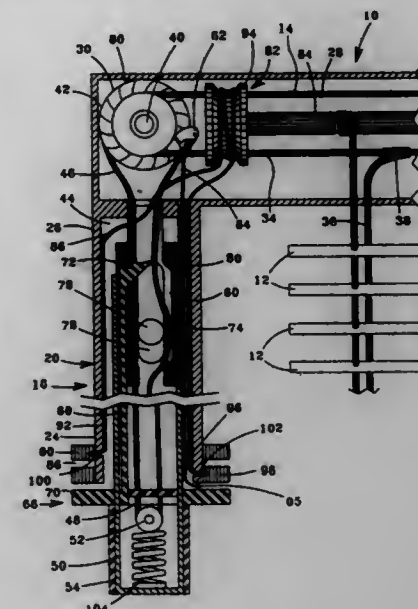
1. An awning system including a plurality of vertical support posts, at least one horizontal member extending between a pair of the support posts, an awning of a flexible sheet material secured at one end thereof and having a free marginal edge at an opposed end thereof, and a tensioning assembly, said horizontal member having a flange segment extending downwardly therefrom, each of said flange segments having a plurality of vertical portions and a horizontal portion at a distal end of said vertical portions, said tensioning assembly comprising a tensioning member having a pair of side walls, an upper wall and a bottom wall, said tensioning member having an internal cavity, a slot in said upper wall communicating with said internal cavity, said tensioning member being mounted on said flange segments such that said tensioning member is vertically moveable thereon while being retained by said horizontal flange segments, said bottom wall having a channel formed therein to receive said free marginal edge of said sheet material, said channel opening towards the area covered by said awning, and a plurality of adjustment screws, each adjustment screw being threadably engaged with said flange segments, each adjustment screw being located intermediate said horizontal portions of said flange segments, the arrangement being such that when said free marginal edge of said flexible sheet material is inserted in said channel in said bottom wall of said tensioning member, said sheet material covers said bottom wall and the portions of said tensioning member opposite said area covered by said awning and said horizontal member.

5,671,792

Patent Not Issued For This Number

5,671,793
COMBINATION BLIND CONTROLLER
Paul Lee, Houston, Tex., assignor to Enwig Corp., Houston, Tex.
Filed May 15, 1996, Ser. No. 648,326
Int. Cl.⁶ E06B 9/30
U.S. Cl. 160—168.1 R

20 Claims

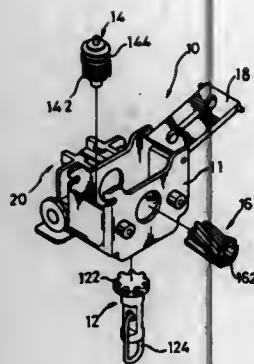


1. An apparatus for moving horizontal vanes in a blind to shield an opening, comprising:
a header having a housing with an upper end attached to said header and a lower end distal from said header;
a continuous pull cord proximate to said header, wherein said pull cord is engaged with said vanes and is operable to selectively transport the vanes across the opening;
a rotatable pulley engaged with said pull cord for moving said pull cord to transport the vanes;
a continuous loop cord having an upper looped end engaged with said rotatable pulley and having a lower looped end;
a handle engaged with the lower looped end of said continuous loop cord, wherein said handle is moveable relative to said housing;
a cord lock for selective engagement with said loop cord and vertically moveable with said handle, wherein said cord lock is operable to grip said loop cord so that downward vertical movement of said handle pulls said loop cord, thereby moving said rotatable pulley to move said pull cord; and
a rotatable switch attached to said cord lock for selectively engaging and disengaging said cord lock from said loop cord.

5,671,794
APPARATUS FOR ADJUSTING THE ORIENTATION OF SLATS OF A VERTICAL BLIND
Ming Nien, No. 11, Kungchu Rd., Fangyuan Industrial Dist., Houliiao Village, Fangyuan Hsiang, Changhua Hsien, Taiwan
Filed Aug. 15, 1996, Ser. No. 698,330
Int. Cl.⁶ E06B 9/36
U.S. Cl. 160—176.1 V

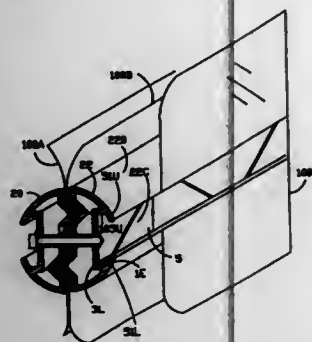
6 Claims

1. An apparatus for adjusting the orientation of slats of a vertical blind, comprising:
a master slide and a plurality of carrier slides adapted to be slideably mounted on a headrail of the vertical blind, said master slide comprising:
a housing;
a driving member adapted to be connected with a control rod, rotatably mounted on the housing and defining a first gear,



a worm member rotatably mounted in the housing and defining a second gear engaging with the first gear and a worm; and
 a helical gear rotatably mounted in the housing and engaging with the worm;
 a force transmission member engaging with the helical gear and extending from the master carrier to each of the carrier slides to transmit a rotating force from the driving member to the carrier slides;
 said carrier slides respectively comprising driven means each having an attaching member adapted to attach with a slat, the driven means being used to receive the rotating force from the force transmission member to cause a pivoting movement of the attaching members, the carrier slides having a first carrier slide fixedly attached with the master slide; and
 a plurality of strips respectively slideably engaging with the carrier slides, each strip having a first end defining a stop for blocking the movement of a respective carrier slide along the strip and a second end fixedly attached with a carrier slide neighboring the respective carrier slide slideably engaging with the strip.

5,671,795
ROLL-UP CURTAIN BAR ATTACHMENT DEVICE FOR FLEXIBLE SHEETING
 Kurt A. Kell, Pottsville, Pa., assignor to Advancing Alternatives, Inc., Pottsville, Pa.
 Filed Sep. 10, 1996, Ser. No. 709,863
 Int. Cl.⁶ A47H 13/00
 U.S. Cl. 160—384 10 Claims

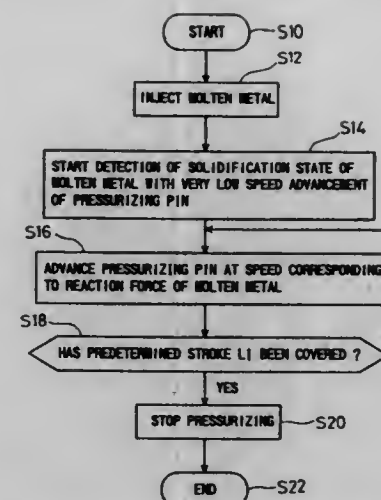


1. A separable two member, gripping and weighting device each member having confronting, planar surfaces adapted for securely, but interruptibly, gripping any flexible sheeting material interposed therebetween, comprising:
 (a) a first member of a substantially rigid, material having at least one substantially planar surface presenting a generally rectangular elongate configuration serving as its contacting surface, and having a generally arcuate outer surface serving as a rolled sheeting support surface; further comprising:

- (i) a linear, channel disposed lengthwise of the one planar surface and aligned parallel and proximal to one longer dimensional edge of the rectangular configuration;
- (ii) a linear, raised ridge disposed lengthwise of the same one planar surface, but aligned parallel and proximal to the other longitudinal dimension of said rectangular configuration, with the linear channel and ridge features essentially straddling the longitudinal center line of the planar surface;
- (iii) a second linear channel disposed lengthwise of the arcuate outer surface and similarly aligned substantially centrally along said outer surface;
- (b) a second elongate member substantially in length, dimensions and cross-sectional configuration to the first member, also having opposing planar and arcuate surfaces like the first member, and spatially oriented to make a complementary mating with the cross-sectional features of said first member, further comprising:
 - (i) a linear channel located lengthwise of the one planar surface and aligned parallel and proximal to one longer dimensional edge of the rectangular configuration;
 - (ii) a second linear raised ridge disposed lengthwise of the same one planar surface but aligned parallel and proximal to the other longitudinal dimension of said rectangular configuration, with the linear channel and ridge features being essentially straddling the longitudinal center line of the planar surface;
 - (iii) A second linear channel disposed lengthwise of the arcuate surface of said second member and similarly aligned, substantially centrally along the outer surface thereof; and,
 - (c) for each finite length of the opposing and normally contacting planar surfaces of the paired first and second members, there is provided at least one transverse borehole connecting between the outside linear channel in the first arcuate surface and the outside linear channel in the second arcuate surface, such channels being adapted to receive a fastening bolt therebetween; and,
 - (d) the spaced-apart, linear channel and linear ridge in the first member and the spaced-apart, linear channel and linear ridge in the second member being oriented for complementary engagement throughout the longitudinal direction, serving to engage and grip firmly any flexible sheeting material disposed therebetween, so to provide a downward weighting in the sheeting while same is draped over a supporting rigid structure.

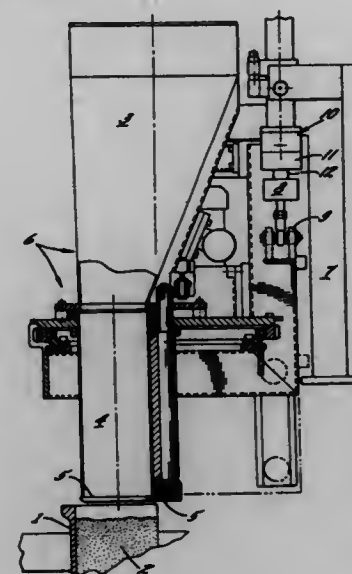
5,671,796
PATENT NOT ISSUED FOR THIS NUMBER
5,671,797
PRESSURE CASTING METHOD THROUGH PRESSURIZING PIN ADVANCEMENT SPEED CONTROL
 Mikiya Nozaki, Toyota; Mitsuhiro Karaki, Okazaki; Mitsuru Inui, Gifu-ken; Takehito Futamura, and Akira Saitoh, both of Gifu, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, and Gifu Selki Kogyo Kabushiki Kaisha, Tokyo, both of Japan
 Filed Aug. 17, 1995, Ser. No. 516,363
 Claims priority, application Japan, Aug. 18, 1994, 6-194208; Jun. 12, 1995, 7-144857
 Int. Cl.⁶ B22D 27/11; 47/00
 U.S. Cl. 164—120 9 Claims

1. A pressure casting method comprising the steps of:
 charging molten metal into a cavity;
 pressurizing the molten metal by advancing a pressurizing pin into the charged molten metal during solidification of the charged molten metal;
 measuring a reaction force received by the pressurizing pin from the molten metal during the advancement of the pressurizing pin;



controlling a speed of advancement of the pressurizing pin in response to the measured reaction force by increasing the speed as the reaction force measured in the reaction force measuring step increases and reducing the speed as the measured reaction force decreases; and
 repeatedly executing the reaction force measurement step and the advancement speed control step.

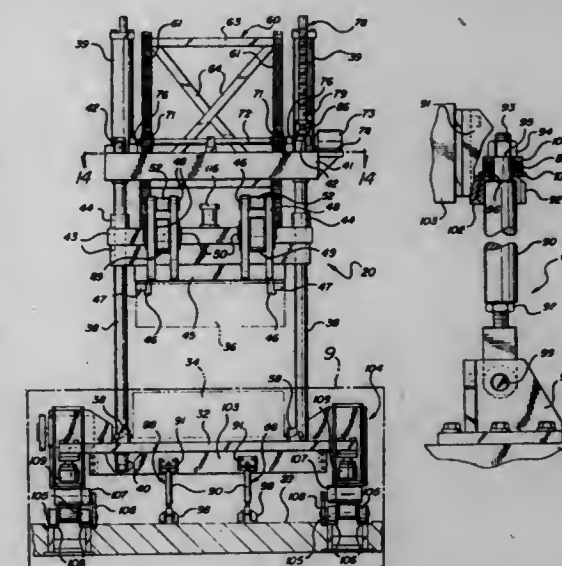
5,671,798
SHOOTING HEAD FILLING DEVICE
 Werner Landua, Mannheim, and Werner Pichler, Brühl, both of Germany, assignors to Adolf Hottinger Maschinenbau GmbH, Mannheim, Germany
 PCT No. PCT/DE94/01169, § 371 Date Apr. 5, 1996, § 102(e) Date Apr. 5, 1996, PCT Pub. No. WO95/10375, PCT Pub. Date Apr. 20, 1995
 PCT Filed Oct. 6, 1994, Ser. No. 624,446
 Claims priority, application Germany, Oct. 7, 1993, 43 34 118.7
 Int. Cl.⁶ B22C 15/26; 19/04
 U.S. Cl. 164—150.1 2 Claims



1. A device for filling shooting heads with molding material comprising
 a filling assembly comprising a shortage hopper for molding material, an outlet member connected to the storage hopper for discharging the molding material into a shooting head, and a gate for selectively closing the outlet member,

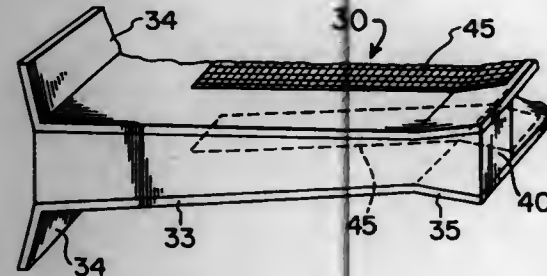
means mounting the filling assembly for vertical movement on a machine frame for the purpose of immersing the outlet member into the shooting head, said mounting means including a lifting mechanism fixed between the filling assembly and the machine frame and which comprises a cylinder-piston arrangement, and
 a weighing device connected between the filling assembly and the machine frame for determining the weight of the filling assembly, said weighing device comprising a weighing cell connected to the cylinder-piston arrangement.

5,671,799
LOW-PRESSURE CASTING MACHINE HOLD-DOWN SYSTEM
 Daniel L. Merrill, Montague, Mich., assignor to CMI International, Southfield, Mich.
 Filed Jan. 30, 1996, Ser. No. 593,823
 Int. Cl.⁶ B22D 18/04
 U.S. Cl. 164—151 25 Claims



1. A low-pressure casting apparatus for conveying molten metal upwardly from a molten metal bath to a mold thereabove, said apparatus comprising:
 a crucible structure (22) presenting a crucible (28) for containing the molten metal bath and opening upwardly; and
 a casting assembly (20) comprising:
 a base plate (32) for supporting the drag of a mold above said crucible (28),
 a plurality of guide posts (38) extending upwardly from said base plate (32) and defining an operating area therebetween,
 a fixed platen (41) supported by said posts (38) in fixed vertical spacing above said base,
 a movable platen (43) guided for vertical movement in said operating area within said guide posts (38),
 a ram actuator (39) interconnecting said fixed platen (41) and said movable platen (43) for moving said movable platen (43) vertically on said guide posts (38),
 said apparatus characterized by a hold-down mechanism (88) for holding said base plate (32) in engagement with said crucible (28).

5,671,800
INJECTOR FOR CASTING METAL STRIP
 John Sulzer, Olivo Giuseppe Silvotti, and Ronald Roger Desrosiers, all of Kingston, Canada, assignors to Alcan International Ltd., Kingston, Canada
 Continuation of Ser. No. 278,849, Jul. 22, 1994, Pat. No. 5,636,681. This application Jun. 1, 1995, Ser. No. 456,780
 Int. Cl.⁶ B22D 11/10
 U.S. Cl. 164—434 3 Claims

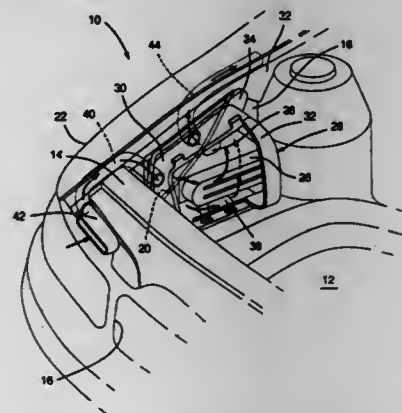


1. A molten metal injector for use in a continuous casting machine having at least one moving casting surface of varying surface shape onto which surface molten metal is injected by said injector, the injector comprising:
 a pair of spaced refractory members and a pair of side members, said members having inner faces forming an injector channel with an upstream metal entry portion and a tip containing a downstream metal outlet;
 said channel tapering inwardly from said metal entry portion towards said metal outlet to form a throat adjacent said tip and said refractory members flaring outwardly from said throat to said metal outlet to an angle in the range of 1° to 8°;
 said refractory members and side members being at least in part flexible such that the tip in the outlet region, in use, conforms under a metalostatic load to a surface shape of said at least one moving casting surface.

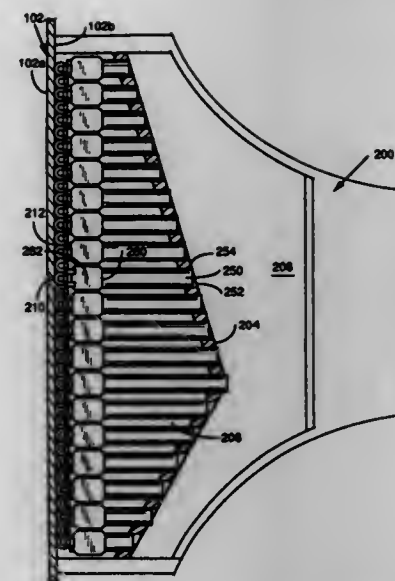
5,671,801
COOLING SYSTEM FOR A BELT CASTER AND ASSOCIATED METHODS
 Wilhelm F. Lanener, Gerlafingen/SO, Switzerland, assignor to Larex A.G., Solothurn, Switzerland
 Filed Jan. 11, 1996, Ser. No. 567,178
 Int. Cl.⁶ B22D 11/06; 11/124
 U.S. Cl. 164—481 41 Claims

1. A belt caster including at least one movable belt having a cooling surface and a casting surface, said belt caster having a cooling system including a cooling box having (i) a first chamber for receiving said coolant from a coolant supply; (ii) means for delivering said coolant from said first chamber to a second chamber defined by a cooling face of said cooling box and said cooling surface of said belt; and (iii) a third chamber for receiving said coolant from said second chamber; and
 said means for delivering said coolant from said first chamber to said second chamber includes:
 a plurality of supply tubes each having one end that receives said coolant from said first chamber and an opposite end;
 a manifold communicating with said opposite end of said supply tube to receive coolant from said supply tube; and
 a plurality of nozzles, each including a nozzle opening, communicating with said manifold and disposed on said cooling face to deliver said coolant from said manifold into said second chamber.
 33. A method of casting molten metal into a metal product, said method comprising:
 providing a belt caster that defines a mold for casting said molten metal into said metal product, said caster including (i) a movable belt having a cooling surface and a casting surface and (ii) a cooling box having a first chamber, means for

5,671,802
ELECTRONIC CONTROL MODULE COOLING DEVICE
 Daryl Jay Rogers, Linden, Mich., assignor to General Motors Corporation, Detroit, Mich.
 Filed Oct. 5, 1995, Ser. No. 539,575
 Int. Cl.⁶ B60K 11/00
 U.S. Cl. 165—41 2 Claims

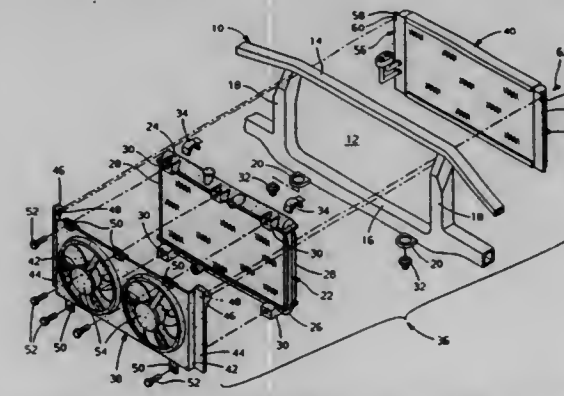


1. In a vehicle having a high temperature underhood space in which an electronic control module is located, said underhood space being defined in part by a fender liner that is spaced from an outer fender, said structure, comprising,
 an enclosed box located within said underhood space and having one wall mounted to said fender liner, said module being enclosed and shielded within said box.



an outside air inlet mounted to the front of said vehicle and running between said fender liner and fender so as to scoop in outside air as said vehicle moves and feed said outside air into said box, and,
 an air outlet directed oppositely to said air inlet and also running between said fender liner and fender so as to exhaust air from said box back to the outside,
 whereby said module is both shielded from said high temperature space as well as actively cooled by outside air, while said air inlet and outlet occupy volume located outside of said underhood space.

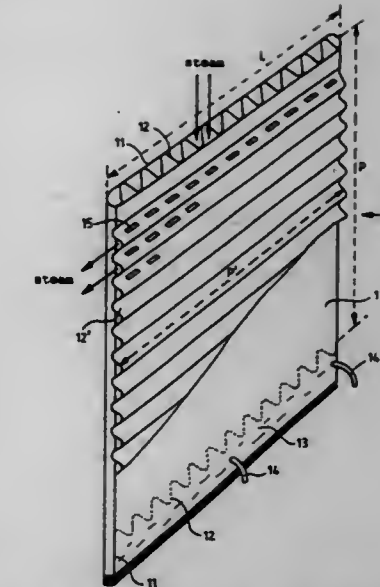
5,671,803
MODULAR CONDENSER AND FAN SHROUD ASSEMBLY
 John Milton Tepas, East Amherst, and Robert Michael Mowell, Wilson, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.
 Filed Oct. 23, 1995, Ser. No. 547,006
 Int. Cl.⁶ B60K 11/04; F28F 3/00; 9/00
 U.S. Cl. 165—41 3 Claims



1. In a vehicle having a forward vehicle body structure defining a generally rectangular cooling air inlet opening and a radiator located within said air inlet opening having generally horizontal top and bottom tanks attachment to said vehicle body structure and generally vertical side edges, a modular fan shroud and condenser assembly, comprising
 a fan shroud attached to said radiator top and bottom tanks independently of said radiator to vehicle body attachment, said fan shroud having generally vertical side walls extending around and past said radiator side edges, and,
 a condenser having generally vertical side flanges sized to fit through said inlet opening and into engagement with said shroud side walls,
 whereby, said condenser may be attached to said vehicle body indirectly by joining said condenser side flanges to said shroud side walls, while air passing through said inlet opening and condenser is confined by said shroud side walls and directed through said radiator.

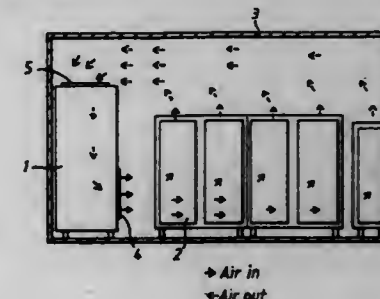
5,671,804
HEAT EXCHANGER ELEMENT
 Tapio Kordelin, Turku, Finland, assignor to Oy Shippax Ltd., Turku, Finland
 PCT No. PCT/FI95/00051, § 371 Date Aug. 16, 1996, § 102(e)
 Date Aug. 16, 1996, PCT Pub. No. WO95/24251, PCT Pub. Date Sep. 14, 1995
 PCT Filed Feb. 6, 1995, Ser. No. 693,299
 Claims priority, application Finland, Mar. 9, 1994, 941100
 Int. Cl.⁶ F28D 5/02; 3/00
 U.S. Cl. 165—46 12 Claims

1. Heat exchanger element comprising
 a bag having an outer surface and formed from a compliant material with its lower part ending in a condensate receiver,



which is provided with a drain pipe for condensate, and its upper part having means for introducing vapour into the bag and distributing the liquid to be evaporated onto the outer surface of the bag,
 a corrugated plate with perforations oriented in a substantially vertical direction inside the bag with its width chosen so that the bag tightens suitably around the corrugated plate and its length corresponds to a major portion of the length of the bag, and
 a perforated corrugated plate oriented in a substantially horizontal direction against the outer surface of the bag with its length substantially corresponding to the width of the bag.

5,671,805
METHOD AND DEVICE FOR COOLING IN CLOSED SPACES
 Lennart Ståhl, Stallarholmen, and Anders Karström, Bandhagen, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
 PCT No. PCT/SE94/01223, § 371 Date Jun. 13, 1996, § 102(e)
 Date Jun. 13, 1996, PCT Pub. No. WO95/17805, PCT Pub. Date Jun. 29, 1995
 PCT Filed Dec. 19, 1994, Ser. No. 656,294
 Claims priority, application Sweden, Dec. 22, 1993, 9304264
 Int. Cl.⁶ F28F 7/00
 U.S. Cl. 165—80.3 8 Claims

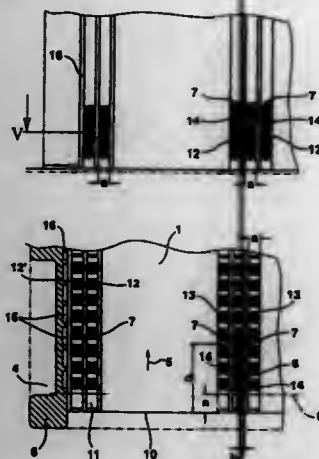


1. A method for cooling heat-generating components of telecommunications equipment located in a closed space, comprising the steps of:
 placing in the closed space a cooling unit;
 generating a displacing flow of cool air at a low speed along a floor of the closed space to distribute the flow of cool air for contact with said components to be cooled,
 drawing by suction warmer air from the ceiling of the closed space,

wherein as the warmer air is drawn from the ceiling the cooling air displaces warmer air from beneath the components in an upward flow for heat transfer contact with the components, and cooling air heated by the components exits the components from above.

5,671,806
CHARGE AIR COOLER
Günther Schmalzried, Korb, Germany, assignor to Behr Industrie GmbH & Co., Stuttgart, Germany
Filed May 17, 1996, Ser. No. 649,236
Claims priority, application Germany, May 30, 1995, 195 19 633.3

Int. Cl.⁶ F28F 7/00
U.S. Cl. 165—81 13 Claims

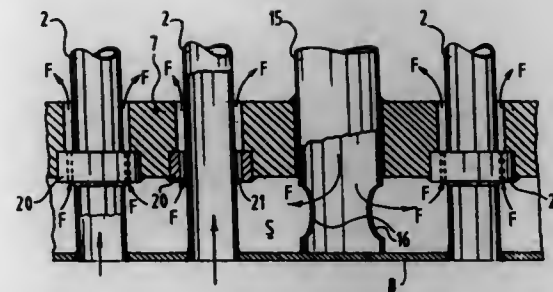


1. A charge air cooler comprising:
a substantially rigid frame composed of two opposed water boxes and two lateral frame parts connecting the water boxes, and
a finned tube block inserted in said frame and disposed to accommodate air flow from an air inlet side to an air outlet side of the finned tube block,
said finned tube block including flat tubes and lamella-type corrugated fins arranged between the flat tubes,
wherein at least one gap in the form of an expansion joint is provided in at least two fins which are disposed between adjacent flat tubes and extends in parallel to the tubes along only a predetermined portion of the finned tube block in a flow direction of the air to thereby compensate for thermal expansion of the corrugated fins and consequent overstraining of the material during operation of the air cooler.

5,671,807
COOLING APPARATUS
Herman Johannes Lameris, Hollandsche Rading, Netherlands, assignor to Standard Fasel-Lentjes B.V., Netherlands
Filed Nov. 18, 1994, Ser. No. 342,413
Claims priority, application Netherlands, Nov. 24, 1993, 9302034

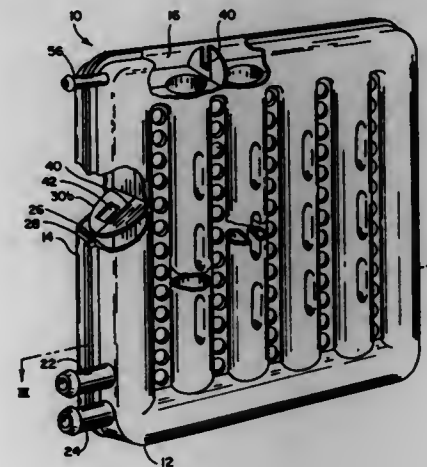
Int. Cl.⁶ F28F 1/00
U.S. Cl. 165—134.1 16 Claims

1. An apparatus for cooling a warm medium, comprising:
a vessel wherein a bundle of a number of pipes is disposed and wherein coolant medium flows around the pipe bundle;
a pipe plate through which the pipes of the bundle debouch into a reservoir for supply of the warm medium;
a support plate mounted at a distance from the pipe plate whereby the pipes are supported and wherethrough the pipes extend, wherein one side of the support plate faces the pipe plate; and



one or more rings which are each mounted between one of said pipes and the support plate on the side of the support plate facing the pipe plate and terminate at a distance between the support plate and the pipe plate and which are provided with longitudinal holes therethrough for allowing passage of the coolant, such that thermal tension on a portion of said one side of the support plate is minimized.

5,671,808
POLYMERIC RADIATORS
Hendrik Kleyn, 5522 Kenowa, SW., Grandville, Mich. 49418
Filed Jul. 26, 1995, Ser. No. 507,802
Int. Cl.⁶ F28D 1/03; F28F 3/14
U.S. Cl. 165—148 5 Claims



1. A polymeric radiator comprising:
a polymeric front radiator half;
a polymeric back radiator half mating with said front radiator half to define a plurality of coolant flow passages, said flow passages include a primary flow passage and a secondary flow passage, said secondary passage including an air flow channel and being in fluid communication with said primary flow passage;
said front and back radiator halves each integrally formed with internal baffle walls dividing said primary passage into cells, said internal baffle walls defining undercut openings allowing coolant to pass through said internal baffle walls;
an inlet pipe in fluid communication with said flow passages; and
an outlet pipe in fluid communication with said flow passage.

5,671,809
METHOD TO ACHIEVE LOW COST ZONAL ISOLATION IN AN OPEN HOLE COMPLETION
Howard Lee McKinzie, Sugar Land, Tex., assignor to Texaco Inc., White Plains, N.Y.
Filed Jan. 25, 1996, Ser. No. 591,816
Int. Cl.⁶ E21B 33/124; 33/13
U.S. Cl. 166—285 5 Claims



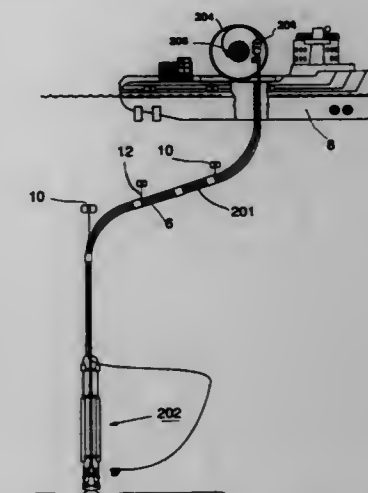
1. A method for achieving zonal isolation across a production interval in an open hole completed well, comprising the steps of:
a) providing a production liner having a generally cylindrical shape with a wall defining a bore therein and having a length capable of spanning the production interval and having at least one shorter length isolation zone defined therein by a pair of temporary sealing means disposed longitudinally apart on the exterior surface of said liner, said liner also having separate centralizer means to centralize it in a well borehole and being adapted to be run into a production interval on the end of a production tubing string;
b) providing at least one hole in the wall of said production liner from the bore thereof to the exterior thereof and located in the longitudinal interval between said temporary sealing means;
c) running said production liner into the borehole on the end of a production tubing string and placing it over the entire length of said production interval;
d) pumping a fluid sealing means down said production tubing string and into said liner and forcing it out of said at least one hole in said wall of said liner to fill the annular interval between said temporary sealing means with said fluid sealing means;
e) allowing said fluid sealing means to cure or harden in place;
f) drilling out said bore in said liner to remove all excess fluid sealing means remaining therein and to clear said bore for production fluids; and
g) completing the well for production across the production interval.

5,671,810
COMPOSITION AND METHOD FOR RELIEF OF DIFFERENTIAL STICKING DURING DRILLING
Richard Hodge, Ponca City, Okla.; William S. Halliday; Thomas Daves, both of Houston, Tex., and Thomas Carter, Ponca City, Okla., assignors to Baker Hughes Incorporated, Houston, Tex.
Filed Nov. 13, 1995, Ser. No. 558,271
Int. Cl.⁶ E21B 21/00; 31/03
U.S. Cl. 166—301 11 Claims

1. A spotting fluid composition suitable for use in downhole drilling operations in a pill for releasing periodically stuck drill string or casing comprising:

(a) a hydrocarbon; and
(b) an acid in an amount effective to release periodically stuck drillstring or casing by dissolution of the filter cake, said acid being selected from the group comprising monocarboxylic acids having up to nine carbon atoms, and polycarboxylic acids having up to 20 carbon atoms.

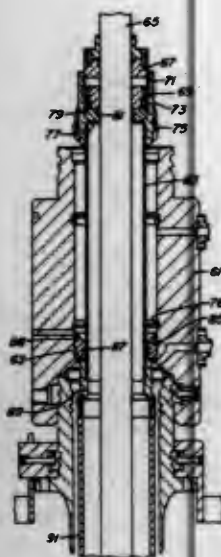
5,671,811
TUBE ASSEMBLY FOR SERVICING A WELL HEAD AND HAVING AN INNER COIL TUBING INJECTED INTO AN OUTER COILED TUBING
Philip Head, 6 Leith Mansions, Grantully Road, London W9 1LQ, Great Britain
Filed Jan. 18, 1996, Ser. No. 588,200
Claims priority, application United Kingdom, Jan. 18, 1995, 9500954
Int. Cl.⁶ E21B 19/09; 19/22
U.S. Cl. 166—346 11 Claims



1. A tube assembly for servicing a well head, comprising:
a length of continuous first coiled tubing provided with means for fixed connection of one end of said first coiled tubing to a well head of oil or gas reservoir;
a first reel receiving said first coiled tubing;
a second reel of a continuous second coiled tubing on said first reel; and
an injector for the injection of the second continuous coiled tubing into the continuous first coiled tubing.

5,671,812
HYDRAULIC PRESSURE ASSISTED CASING TENSIONING SYSTEM
Charles D. Bridges, Cypress, Tex., assignor to ABB Vetco Gray Inc., Houston, Tex.
Continuation-in-part of Ser. No. 450,241, May 25, 1995, abandoned. This application Apr. 4, 1996, Ser. No. 626,896
Int. Cl.⁶ E21B 33/043
U.S. Cl. 166—348 19 Claims

1. A method for connecting a string of casing between a subsea wellhead and a surface wellhead located on a platform, comprising:
providing an internal load shoulder within the surface wellhead; attaching a lower end of a mandrel to the string, and engaging an upper end of the mandrel with an upward extending conduit; providing a casing hanger which has an external shoulder and providing the casing hanger with a lower extension which has an internal gripping member which engages the mandrel to allow upward movement of the mandrel relative to the casing



hanger but prevent downward movement of the mandrel relative to the casing hanger;
connecting a riser and a blowout preventer to the surface wellhead and lowering the string through the riser, blowout preventer, and surface wellhead;
sealing between the lower extension and the surface wellhead and sealing between the casing hanger and the conduit in a manner which allows downward sliding movement of the casing hanger and the lower extension relative to the surface wellhead and the conduit;
securing a lower end of the string to the subsea wellhead while the external shoulder of the casing hanger is spaced above the load shoulder; then
closing the blowout preventer around the conduit to provide a sealed annulus in the riser below the blowout preventer around the conduit, and applying hydraulic pressure to the annulus which forces the casing hanger and the lower extension downward relative to the mandrel until the external shoulder lands on the load shoulder; then
pulling upward on the conduit and the mandrel while maintaining the external shoulder of the casing hanger on the load shoulder to apply tension to the string, and once a desired amount of tension is reached, relaxing the pull, causing the gripping member to grip the mandrel to support the string in tension.

5,671,813
METHOD AND APPARATUS FOR INTERMITTENT PRODUCTION OF OIL WITH A MECHANICAL INTERFACE

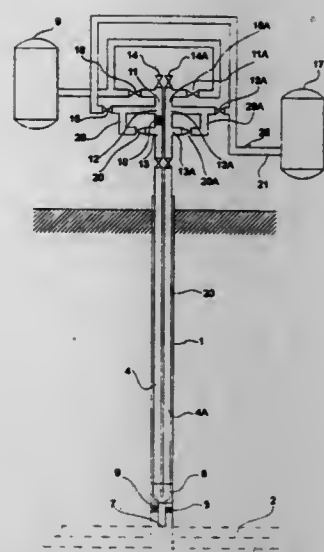
Paulo César Ribeiro Lima, Rio de Janeiro, Brazil, assignor to Petróleo Brasileiro S.A. - Petrobras, Rio de Janeiro, Brazil
Filed Oct. 12, 1995, Ser. No. 542,324

Claims priority, application Brazil, Oct. 14, 1994, 9404096-6
Int. Cl.⁶ E21B 43/16

U.S. Cl. 166—372

8 Claims

1. An apparatus for intermittent oil production using a mechanical interface, said apparatus comprising:
at least two production strings extending from a well head to a coupling disposed down a well adjacent a producing region, said coupling interconnecting said two production strings and a short production string which extends further down the well and which is provided with a check valve at a lower end thereof;
a gas source for supplying high pressure gas and a surge tank for receiving oil disposed adjacent said well head;



gas feeding valves connected between said gas source and said production string for selectively providing high pressure gas to either production string;
valve means for allowing introduction of at least one mechanical interface into launching/receiving devices connected to upper ends of said production strings, respectively;
bypass means connected between each production string at a point downstream of each launching/receiving device for equalizing upstream and downstream pressure when said mechanical interface passes said point;
check valves connected in said bypass means for permitting flow of gas through each bypass means only in one direction;
production valves disposed in production lines connected between said production strings and said surge tank for allowing flow of oil from said production strings to said surge tank; and
a gas/liquid interface sensor means mounted on said production line leading to said surge tank for detecting when outflow to said surge tank is composed essentially of injected gas and for commanding closing of said gas feeding valves and opening of said production valves.

5,671,814
FLAG INSERT TOOL

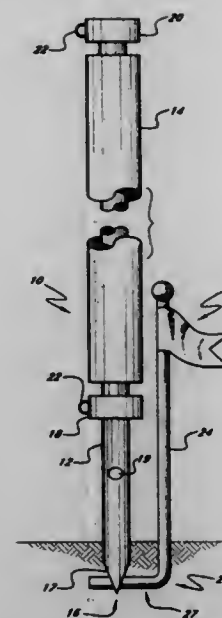
Eric C. Smith, 307 E. Van Buren St., Columbia City, Ind. 46725-6771

Filed Dec. 1, 1995, Ser. No. 566,034
Int. Cl.⁶ B25D 1/16

U.S. Cl. 173—91

4 Claims

1. A flag insert tool for inserting a flag having a stem into ground, the tool comprising:
an inner rod having an upper end and a lower end, said lower end terminating in a tapered ground-penetrating edge having an notch therein, said inner rod having an aperture passing there-through proximate said lower end;
a first collar attached to said inner rod proximate said lower end;
a second collar attached to said inner rod proximate said upper end; and
an outer pipe slidably disposed around said inner rod between said first collar and said second collar; whereby
a flag stem is driven into ground by inserting the flag stem through said aperture, bending the flag stem to form a horizontal section, placing the horizontal section within said



5,671,816
SWIVEL/TILTING BIT CROWN FOR EARTH-BORING DRILLS

Gordon A. Tibbitts, Salt Lake City, Utah, assignor to Baker Hughes Incorporated, Houston, Tex.

Continuation of Ser. No. 462,780, Jun. 5, 1995, Pat. No. 5,595,254, which is a division of Ser. No. 117,214, Sep. 3, 1993, Pat. No. 5,503,236. This application Sep. 13, 1996, Ser. No. 713,951

Int. Cl.⁶ E21B 10/62; 17/05

U.S. Cl. 175—101

15 Claims

notch, placing said lower end on the ground and impinging said outer pipe against said first collar to drive the flag stem into the ground.

5,671,815
HAND MACHINE TOOL WITH BATTERY OPERATED DRIVE MOTOR

Wilfried Kabatnik, Leinfelden-Echterdingen, and Rainer Glauning, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

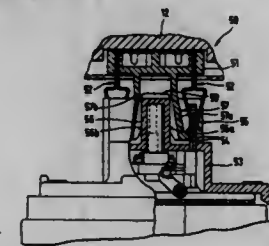
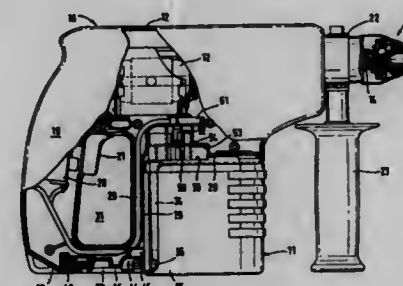
Filed Apr. 30, 1996, Ser. No. 641,198

Claims priority, application Germany, Jun. 14, 1995, 195 21 426.9

Int. Cl.⁶ B23B 45/02

U.S. Cl. 173—217

6 Claims



1. A drill bit assembly for drilling a borehole in subterranean formations, comprising:
a shank for attaching said drillbit assembly to a drill string;
a crown having an exterior including a face extending radially outwardly from a center to a gage, said gage defining the diameter of said borehole;
a plurality of cutting elements carried on said face of said crown, said cutting elements being disposed over said face to said gage; and
a tilting assembly between said shank and said crown, said tilting assembly permitting tilting of said crown with respect to said shank while transmitting torque and axial loads from said drill string through said shank and to said crown.

5,671,817
DRILL BIT WITH DUAL REAMING ROWS
Roger C. Smith, Houston, and Charles W. Stafford, Spring, both of Tex., assignors to Camco International Inc., Houston, Tex.

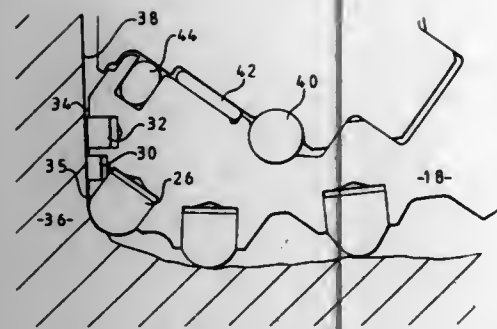
Filed Oct. 2, 1995, Ser. No. 540,685
Int. Cl.⁶ E21B 10/16

U.S. Cl. 175—374

16 Claims

1. A hand machine tool, comprising a machine housing; a drive motor; a releasably mountable battery unit for current supply of said drive motor and having contact surfaces; a coupling connection for electrical contacting of said drive motor with said battery unit, said coupling connection including a base received in said machine housing and carrying at least two contact springs arranged at a distance from one another and also contacting with said contact surfaces of said battery unit, said base being movable relative to said machine housing within a limit; and centering

1. A rolling cutter drill bit for forming bore holes in earthen formations having a plurality of rolling cone cutters, at least one of said cutters having a gage face adapted to engage the sidewall of the bore hole, said one of said cutters having multiple rows of inserts retained in receiving sockets on the outer surfaces of the cutter, including: a gage row of inserts positioned adjacent to said gage face to engage the outer periphery of the hole bottom; a fast reaming row of inserts positioned entirely on said gage face of said cutter in an interlocking relationship with said gage row of inserts; and a second reaming row of inserts positioned on said gage face of the cutter further from said gage row than said first reaming



row; said second reaming row being in a non-interlocking relationship with said gage row and said first reaming row, the inserts of the first reaming row having exposed gage-reaming, wear-resistant surfaces, the whole of which surfaces are exposed only at the gage face of the cutter.

5,671,818

ROTARY DRILL BITS

Alex Newton, Houston, Tex.; Malcolm R. Taylor, Gloucester, England; Andrew Murdock, Stonehouse, England, and John M. Clegg, Redland, England, assignors to Camco Drilling Group Limited, Stonehouse, England

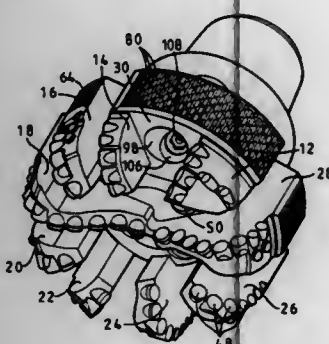
Filed Oct. 10, 1995, Ser. No. 541,774

Claims priority, application United Kingdom, Oct. 15, 1994, 9420838; Sep. 8, 1995, 9518267

Int. Cl.⁶ E21B 10/60

U.S. Cl. 175—393

15 Claims



1. A rotary drill bit for connection to a drill string and for drilling boreholes in subsurface formations comprising a bit body having a leading face and a gauge region, a plurality of blades formed on the leading face of the bit and extending outwardly away from the axis of the bit towards the gauge region so as to define between the blades a plurality of fluid channels leading towards the gauge region, a plurality of cutting elements mounted along each blade, and a plurality of nozzles in the bit body for supplying drilling fluid to the channels for cleaning and cooling the cutting elements, wherein there is provided in at least one of said channels, adjacent the gauge region, an opening into an enclosed passage which passes internally through the bit body to an outlet which, in use, communicates with the annulus between the drill string and the wall of the borehole being drilled, the portion of the gauge region outwardly of said opening comprising a bearing surface which, in use bears against the wall of the bore hole and extends across the width of said one channel, thereby to inhibit flow of drilling fluid from said one channel across the gauge region of the drill bit.

5,671,819

AXLE TENSIONER FOR BANDED TIRES

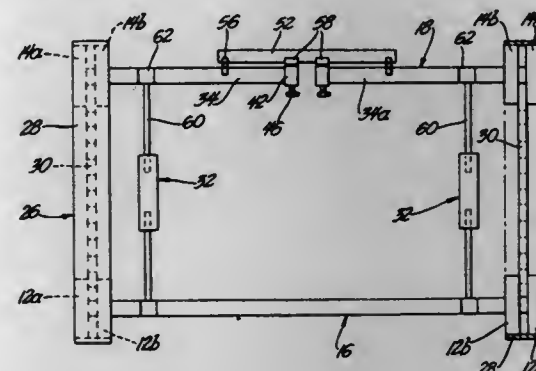
Donald H. Kendall, Almont, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 22, 1995, Ser. No. 443,913

Int. Cl.⁶ B62D 55/30

U.S. Cl. 180—9.1

2 Claims



1. A tensioning structure for use in mounting a flexible band track having guide blocks on a tandem tire configuration of a vehicle, the vehicle having a pair of complimentary tandem forward-rear dual tire sets one forward-rear dual tire set being disposed on each side of the vehicle, each forward-rear dual tire set being axially, longitudinally aligned, the forward dual tire sets of the tandem forward-rear dual tire sets being mounted on a front axle and the rear tire sets of the tandem forward-rear dual tire sets being mounted on a rear axle, the guide blocks of the flexible band being located on the surface of the flexible band in contact with the dual tire sets and disposed between adjacent tires of an individual tire set to provide band alignment, the tensioning structure including a tensioning member having a first end attached to the front axle holding one of the forward tire sets, the tensioning structure having a first bar with its axle end attached to a first axle block by means of a flexible ball joint coupling and a threaded adjustment end engaged with a complementarily threaded turnbuckle, the block being rigidly mounted to the forward axle, a spring seat rotatably mounted to the block, the spring seat being adapted to hold a leaf spring attached to the vehicle, a second bar having its axle end attached to the rear axle at a second axle block by means of a flexible ball joint coupling, the second bar having a threaded adjustment end engaged with the complementarily threaded turnbuckle, the second axle block being mounted to the rear axle and being adapted to hold the other end of the leaf spring, the turnbuckle allowing the effective combined length of the tensioning bars to be changed so as to allow the flexible band to be mounted on the tandem tire sets with the guide blocks between adjacent tires and then lengthened so as to increase the distance between the axles and thereby create sufficient tension to hold the flexible band in position.

5,671,820

BACKHOE HAVING AN ENGINE HOOD WITH A DRIVER'S SEAT MOUNTED THEREON

Masahiko Kobayashi; Shizuo Shimole, and Shizuo Demizu, all of Sakai, Japan, assignors to Kubota Corporation, Japan

Filed Feb. 14, 1996, Ser. No. 599,955

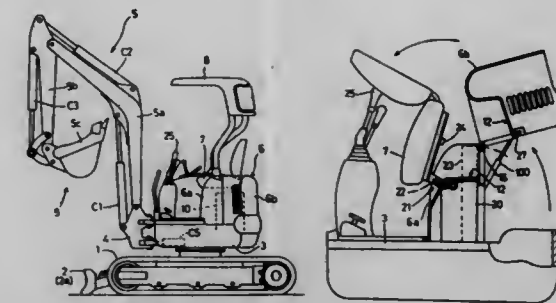
Claims priority, application Japan, Feb. 17, 1995, 7-028987; Feb. 17, 1995, 7-028989; Feb. 17, 1995, 7-028991; Feb. 17, 1995, 7-029194

Int. Cl.⁶ B62D 33/067

U.S. Cl. 180—68.1

14 Claims

1. A backhoe having an engine hood defining a recess for receiving part of a bottom surface of a driver's seat, and an engine mounted in horizontal posture inside the engine hood, said engine hood including:



a first hood space extending downward from a seat receiving surface of said recess;
a second hood space and a third hood space arranged outwardly of a first side plane and a second side plane extending along left and right inside surfaces of said recess, respectively; and
a fourth hood space surrounded by a rear plane of said first hood space and said second and third hood spaces;
wherein a cooling air intake is formed in one of a first and second engine hood side surfaces, and a cooling air outlet is formed in the other of said first and second engine hood side surfaces; and
wherein a large part of said engine is disposed in said first hood space, and a radiator is disposed in one of said second and third hood spaces substantially adjacent to where said air outlet is formed.

5,671,821

ELECTRIC PROPULSION SYSTEM FOR A BICYCLE

James Robert McGreen, 1617 Willow St., Alameda, Calif. 94501

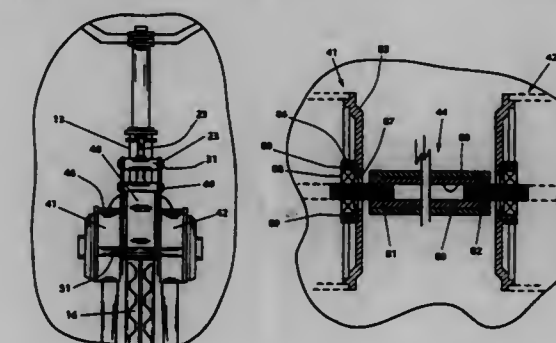
Division of Ser. No. 181,780, Jan. 18, 1994, Pat. No. 5,491,390.

This application Nov. 3, 1995, Ser. No. 552,623

Int. Cl.⁶ B62D 61/02; B62M 7/00

U.S. Cl. 180—220

18 Claims



1. An electric propulsion system for a bicycle, comprising:
a mounting structure adapted for connection to a frame portion of the bicycle;
a drive roller; and
first and second motors coupled to the mounting structure, each of the first and second motors including an output shaft joined to the drive roller and a first resilient bushing around the output shaft;
wherein the first resilient bushings of the first and second motors allow for translational movement of the first and second motor output shafts together with the drive roller.

5,671,822

SELF-BELAYING DESCENDING APPARATUS

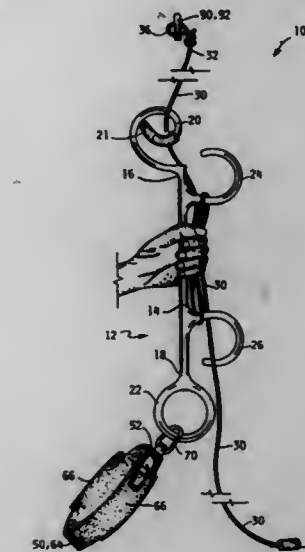
Webster C. Phillips, 8319 Fountain Ave., Los Angeles, Calif. 90069

Filed Sep. 15, 1995, Ser. No. 529,165

Int. Cl.⁶ A62B 1/00; 1/06; 1/16; 35/00

U.S. Cl. 182—5

11 Claims



3. A self-belaying descending apparatus comprising:

a) a descending control device comprising:

- (1) a vertical section having an upper end and a lower end, where to the upper end is integrally attached an open-loop line guide, and to the lower end is integrally attached a body support eyelet,
- (2) an upper, upwardly extending open-loop line control integrally attached normal to the vertical section and located below the open-loop line guide, and
- (3) a lower, downwardly extending open-loop line control integrally attached normal to the vertical section, in alignment with the upper open-loop line control and located above the body support eyelet.

b) a safety line having an upper end and a lower end, where the upper end is attached by an attachment means to a fixed elevated structure and the lower end is inserted through the open-loop line guide and wrapped around the upper and lower line controls with the lower end of said safety line freely extending downward, and

c) a body support having an integral front and back section, a means for being securely attached to the body and a means for attaching the body support eyelet on said device to the front section.

5,671,823

COLLAPSIBLE CATWALK

Keith L. Oakes, R. R. #2, Simcoe, Ontario, Canada, N3Y 4K1

Filed Feb. 10, 1995, Ser. No. 386,409

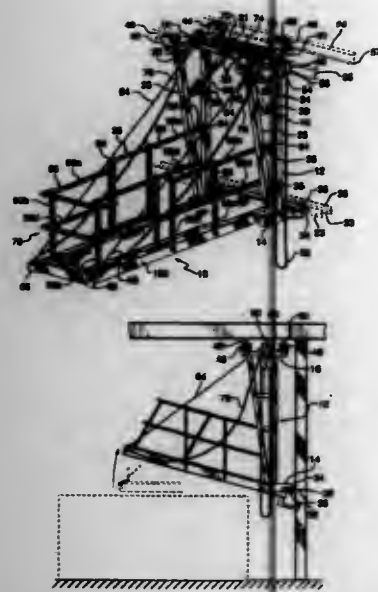
Int. Cl.⁶ E04G 3/10

U.S. Cl. 182—36

10 Claims

1. A collapsible catwalk comprising, in combination:

a support frame having a base and a top section; trolley means mounted on the frame top section adapted to suspend the support frame for lateral linear travel on at least one horizontal support rail, at least one guide wheel extending rearwardly from the support frame for maintaining the support frame vertical and for facilitating and guiding the support frame during lateral linear travel, a platform pivotally mounted on the support frame at the base thereof for pivotal movement from a substantially vertical retracted position to a substantially horizontal extended forward position, collapsible safety rails surrounding the platform pivotally mounted on the plat-



a release mechanism for releasing said enclosure from the control of the driving mechanism to allow said enclosure to descend under the force of gravity.

5,671,825

SHIELDED BEARING LUBRICATION

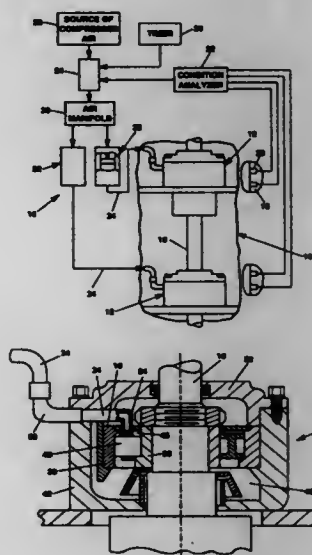
Jeffrey A. Wong, Stevensville; Thomas L. Daugherty, Arnold, and Gordon D. Huntzberry, Glen Burnie, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 19, 1996, Ser. No. 753,055

Int. Cl.⁶ F01M 1/18

U.S. Cl. 184—6.4

10 Claims



form for collapse upon retraction of the platform and for erection upon extension of the platform and brake means extending rearwardly from the platform for stopping the lateral movement of the catwalk when the platform is extended to its horizontal position and wherein said brake means are disengaged when the platform is in its vertical retracted position.

5,671,824

VERTICALLY MOVABLE EMERGENCY EGRESS SYSTEM

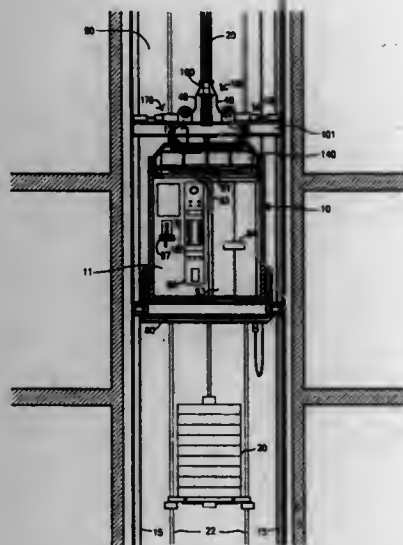
E. Kevin Keegan, 26 Exford Pl., Albertson, N.Y. 11507, and Peter J. Hanrahan, 1181 Broadway, Penthouse Suite, New York, N.Y. 10001

Filed Nov. 16, 1994, Ser. No. 340,641

Int. Cl.⁶ B66B 9/00

U.S. Cl. 182—82

19 Claims



1. An emergency escape apparatus for transporting passengers to a lower elevation in the event of an emergency situation, said apparatus comprising:
an enclosure for holding said passengers, said enclosure being vertically movable upwardly and downwardly by a driving mechanism; and

1. In combination with an assembly of rolling element bearings which require wetting of critical surfaces therein with lubricant for maintenance-free operation, and time-controlled feed means for automatically supplying said lubricant from separate reservoirs to the bearings in accordance with varying environmental conditions; apparatus for insuring said maintenance-free operation comprising: shield means protectively enclosing each of said bearings for confinement within chambers respectively divided by said critical surfaces into receiving and accumulating spaces; and lubricant conduit means connecting said reservoirs of the time-controlled feed means separately to the respective bearings through the shield means associated therewith for intermittently delivering precise quantities of the lubricant to the receiving spaces of the chambers having the accumulating spaces into which excessive and degraded lubricant is discharged from the bearings.

7. In combination with an assembly of bearings, each bearing having a chamber enclosing critical surfaces which require wetting with lubricant intermittently supplied for maintenance-free operation; apparatus for enhancing lubrication of the bearings to insure said maintenance-free operation comprising: separate pressurized sources of said lubricant; shield means for protectively enclosing said chambers in each of the bearings, and conduit means respectively connecting said pressurized sources of the lubricant to the shield means for separate delivery of precise quantities of the lubricant to the respective bearings while preventing ingress of contamination.

5,671,826

WEFT THREAD LUBRICATION DEVICE FOR WEAVING LOOMS

Pietro Zenoni, Leffe, Italy, assignor to L.G.L. Electronics S.p.A., Bergamo, Italy

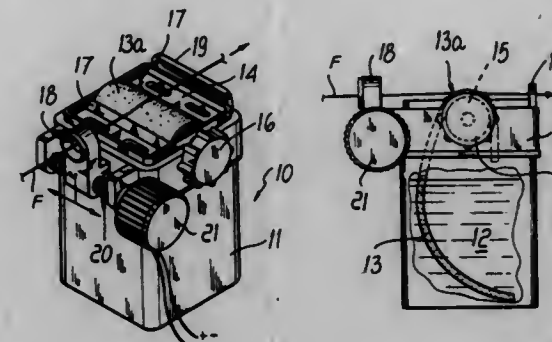
Filed Nov. 27, 1995, Ser. No. 563,035

Claims priority, application Italy, Dec. 2, 1994, TO94A0984

Int. Cl.⁶ F16N 7/12

U.S. Cl. 184—16

5 Claims



1. A device for lubricating weft thread for weaving looms, comprising: a container for holding lubricating fluid; a lid for closing said container; a strip of absorbing material being immersed in said container and being impregnated with said fluid by capillary action; a cylindrical support; an exterior end of the strip protruding from the lid of the container and wrapping around said support so that a respective portion of the strip, shaped as a cylindrical sector and impregnated with lubricating fluid, protrudes with respect to an upper surface of the lid for being exposed; the weft thread to be lubricated being made to slide on said exposed portion of the strip; and guiding means for guiding the thread and for producing a cyclic transverse movement thereof from one side of said exterior end to the other side of said exterior end of said exposed portion of the strip.

5,671,827

AIR DISC BRAKE

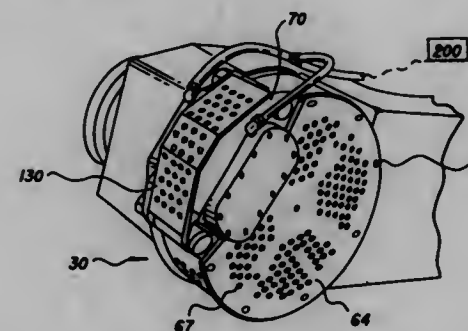
Ikaros Demetriou, 33 Lovilla Boulevard, Weston, Ontario, Canada, M9M 1C4, and Kenneth Peer, 1890 Valley View Rd., Hollister, Calif. 95023

Filed Nov. 7, 1995, Ser. No. 554,838

Int. Cl.⁶ F16D 65/847

U.S. Cl. 188—71.6

15 Claims



1. A disc brake apparatus comprising an annular brake disc carried by a wheel hub, said brake disc comprising circular friction plates secured to and spaced by a plurality of vanes extending radially along an inner face of each said friction plates for enhancing the flow of air past the disc and for enhancing dissipation of heat from the disc, the hub being rotatably mounted on an axle, a stationary support mounted adjacent said brake disc and a plurality of caliper brake assemblies, mounted to said stationary support, said caliper brake assemblies being spaced apart from each other

by spacer means and positioned on opposite sides of said brake disc, each caliper brake assembly comprising a caliper housing, piston means moveably mounted in said caliper housing, a brake pad assembly including a brake plate with a brake pad secured thereto movably mounted on said caliper housing and positioned by support and guide means extending from said caliper housing and means connected to one end of said caliper housing for communicating air under pressure from an outside source to said piston means causing an application of force to said brake pad assembly by said piston means so that the brake pads engage with opposite outer faces of said friction plates of said brake disc.

5,671,828

TRANSMISSION BAND ASSEMBLY

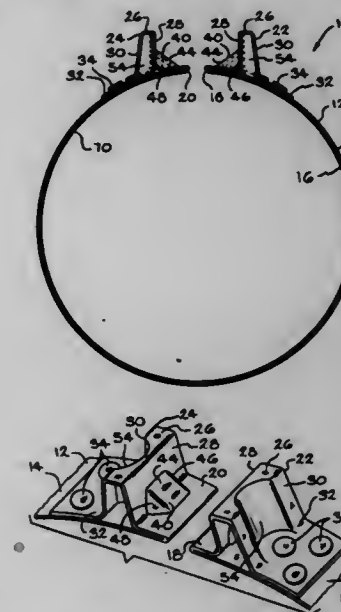
Douglas J. Slager, Wheaton, Ill., assignor to Borg-Warner Automotive, Inc., Sterling Heights, Mich.

Filed Feb. 8, 1996, Ser. No. 598,315

Int. Cl.⁶ F16D 49/08

U.S. Cl. 188—77 W

8 Claims



1. A transmission band assembly, comprising:
a substantially circular strap member having exterior and interior surfaces extending between opposed first and second ends;
at least one of said ends defining a bracket including a ridge having a first wall, being folded flat back over and onto itself forming an adjacent surface prior to the formation of said bracket, and an opposed second wall, said first wall including an upper gusset in direct mating engagement with a lower gusset, said second wall defining at least one recess, said upper and lower gussets being positioned on said first wall in an opposed relationship with said recess and at least a portion of said upper and lower gussets being formed directly on and over said adjacent surface; and
a friction material liner adjacent said interior surface.

5,671,829

BRAKE SYSTEM FOR ELEVATOR CAR DOORS

James A. Rivera, Bristol, Conn., assignor to Otis Elevator Company, Farmington, Conn.

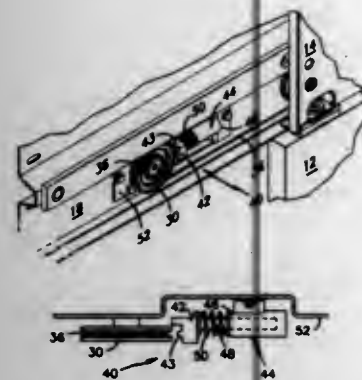
Filed Nov. 7, 1996, Ser. No. 746,279

Int. Cl.⁶ F16D 63/00; 51/00; B60T 13/04

U.S. Cl. 188—171

3 Claims

3. A synchronization system for timing movement of elevator car doors in an elevator system, said elevator car doors being suspended from a first and a second door hangers, said door

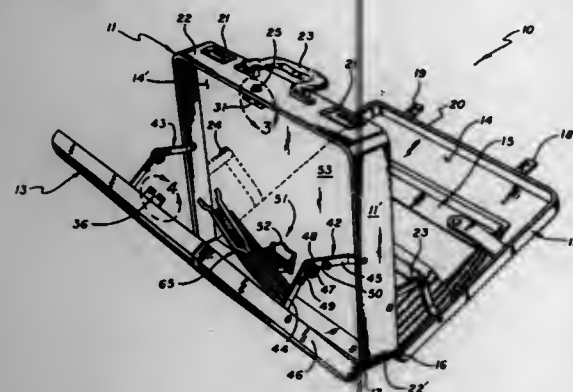


hangers being movably supported by a header bracket, said synchronization system comprising:

- a first pulley attaching onto one side of said header bracket;
- a second pulley attaching onto an opposite side of said header bracket;
- a relating cable extending over said first pulley and said second pulley to synchronize movement of said elevator car doors; and
- a brake mechanism having an activated mode and a deactivated mode, in said deactivated mode said brake mechanism engaging said first pulley to provide emergency stopping for said elevator car doors.

5,671,830
BRIEFCASE WITH HIDDEN COMPARTMENTS
 David G. Wood, 5749 Enfield St., Encino, Calif. 91316
 Filed Nov. 14, 1995, Ser. No. 557,907
 Int. Cl.⁶ A45C 3/02; 5/12 13/18; 15/00
 U.S. Cl. 190—101

4 Claims



1. A briefcase having a main body portion said main body portion being defined by an outer peripheral wall having a pair of spaced side walls, a top wall interconnecting said walls and a bottom wall interconnecting said side walls, said peripheral wall surrounding an inner wall attached to said outer peripheral wall; a first side portion closing off said inner wall and forming therebetween a first inner compartment; a second side portion closing off said inner wall and forming therebetween a second inner compartment; both of said first and second side portions being hingedly secured to said main body portion along the bottom wall thereof; locking means associated with said first side portion and said top wall of said main body portion for lockably securing said first side portion to said top wall; said second portion being releasably secured to the top wall of said main body portion, said second side portion having a peripheral wall comprised of a top wall and spaced side walls interconnected to said last-mentioned top wall, and a bottom wall interconnected to said last-mentioned side walls,

a latch plate mounted on the top wall of said second side portion releasably engageable with a locking member mounted on the top wall of said main body portion;

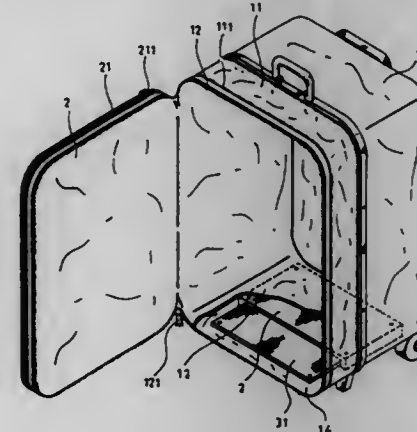
resiliently biased push button means mounted on the top wall of said main body portion associated with said locking member for releasably unlocking said latch plate from locking engagement in said locking member whereby actuation of said push button means, when said latch plate is locked to said locking member, releases said latch plate from engagement with said locking member allowing said second side portion to spring away from said main body portion due to the resilient hinged securement of said second side portion to said main body portion;

spring biased gun holster mounted in said second inner compartment, said inner compartment being defined by said inner wall of said main body portion an inner wall of said second side portion, and the peripheral walls of said main body portion and said second side portion and spring biased mounting means mounted to the inner wall of said main body portion having said holster mounted thereon said mounting means including a first mounting plate fixedly secured to the inner wall of said main body portion and a second mounting plate secured to said holster, said first and second mounting plates being pivotally secured together by a pivot pin, and a spring encircling said pivot pin having one free end secured to one of said mounting plates and the other free end secured to the other of said mounting plates said second mounting plate is pivotally secured to a holster backing plate; and

a stopping assembly having a stopping plate mounted on the inner wall of said main body portion, a stop member pivotally secured to both said backing plate and said second mounting plate and a resilient member attached to said stop member and engaging said stopping plate and abutting thereagainst in a first position holding said holster at an angle with respect to said inner wall and movable to a second position out of abutting engagement with said stopping plate.

5,671,831
ADJUSTABLE TRAVEL BAG
 Tai-Yung Chiu, P.O. Box 82-144, Taipei, Taiwan
 Filed Mar. 13, 1996, Ser. No. 614,651
 Int. Cl.⁶ A45C 7/00; 13/04; 13/36
 U.S. Cl. 190—103

1 Claim



1. An adjustable travel bag comprising a main bag body having a front open side, and an auxiliary bag body openably fastened to said main bag body by a main zipper to close/open the front open side of said main bag body, wherein said main bag body comprises an endless, strap-like folding collapsible coupling panel around the front open side and connected to said auxiliary bag body by said main zipper, said coupling panel having two rows of interlocking teeth fixedly mounted along two opposite side edges thereof and unfastenably fastened together by a slider to secure said coupling panel in a collapsed position so as to minimize holding space of

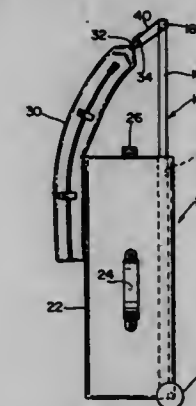
said main bag body, a rigid bottom board peripherally fastened to a bottom panel of said main bag body on the inside, a retractable plate arranged movably in and out of a space defined between said bottom panel and said rigid bottom board, said retractable plate having a front side fixedly secured to said collapsible coupling panel, and a lining fastened to inside of said main bag body and covered over said bottom board and said retractable plate.

5,671,832
COMBINATION LUGGAGE PIECES AND CONNECTOR
 Wallace London, Baltimore, and James S. Deutschendorf, Owings Mills, both of Md., assignors to Clemco Products, Inc., Baltimore, Md.

Filed May 8, 1996, Ser. No. 646,909
 Int. Cl.⁶ A45C 5/14; 13/38; B65D 71/00

U.S. Cl. 190—108

28 Claims



1. In combination,
 - (a) a piece of luggage having walls providing a container, at least a part of a said wall being movable to provide access into said luggage, supporting wheels on said luggage, and a handle for said luggage comprising a grip and mounted for movement between a stored position and an extended position in which said grip is remote from and at a higher elevation than said walls,
 - (b) a second piece of luggage having walls providing a second container and comprising a carrying element at a boundary of said second piece of luggage having a grip, and
 - (c) a releasable connector supporting said grip of said second piece of luggage closely adjacent said grip of said first piece of luggage;
 whereby, said second piece of luggage is supported with the grip thereof substantially at the highest part of said handle of said first piece of luggage in the extended position thereof to thereby provide improved stability to said combination due to the location of the center of gravity of said second piece of luggage while said combination is being towed.

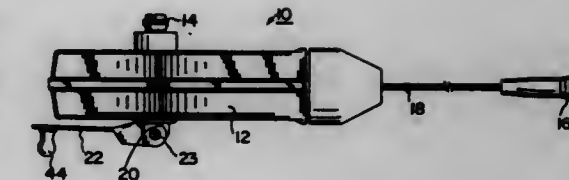
5,671,833
RETRACTABLE COAXIAL CABLE DEVICE
 Michael V. Edwards, and John C. Hostler, both of Phoenix, Ariz., assignors to W.L. Gore & Associates, Inc., Newark, Del.

Filed Apr. 23, 1996, Ser. No. 636,254
 Int. Cl.⁶ H02G 11/02

U.S. Cl. 191—12.2 R

24 Claims

1. A retractable coaxial cable device comprising: a coaxial cable with a predetermined length, the coaxial cable being capable of accurately transmitting a signal with a primary frequency of at least 40,000 Hz; terminations at each end of the coaxial cable; a rotatable member of sufficient dimensions to have the length of coaxial cable wound around the rotatable member;



an actuator to wind the coaxial cable around the rotatable member;

a housing containing the rotatable member, the housing allowing rotation of the rotatable member, at least one end of the coaxial cable exiting the housing; and

wherein the housing has an internal volume of less than about 600 cc and contains a length of at least 7 meters of coaxial cable therein.

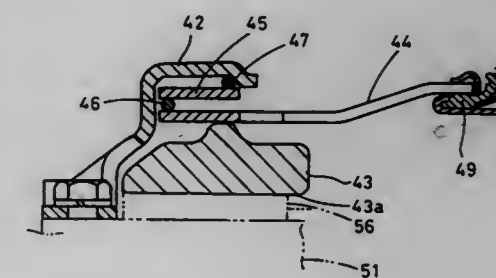
5,671,834
CLUTCH COVER ASSEMBLY
 Hiroshi Mizukami; Hiroshi Uehara, and Shinichi Okada, all of Neyagawa, Japan, assignors to Kabushiki Kaisha Dalkin Seisakusho, Osaka, Japan

Division of Ser. No. 359,078, Dec. 19, 1994, Pat. No. 5,551,547, which is a division of Ser. No. 103,455, Aug. 6, 1993, Pat. No. 5,400,887. This application May 16, 1996, Ser. No. 648,628

Claims priority, application Japan, Aug. 7, 1992, 4-55619 U
 Int. Cl.⁶ F16D 13/48

U.S. Cl. 192—89.23

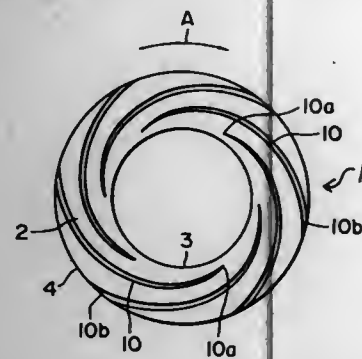
14 Claims



1. A clutch cover assembly comprising: a clutch cover fixed to an input rotation member; an annular pressure plate located within said clutch cover, formed with a lateral friction surface for clamping a friction member to said input rotation member, and formed with a protruding element on an opposite lateral side; an elastic member for applying an engaging load on said pressure plate radially spaced apart distance from said protruding element, said elastic member applying an engaging load on said pressure plate such that said elastic member and a diaphragm spring act on said pressure plate in series, said diaphragm spring pivotable about said protruding element, whereby a resultant combined load from said elastic member and said diaphragm spring provides an allowable deflection larger than a load of said diaphragm spring alone; and said diaphragm spring is supported by said clutch cover for engaging said pressure plate with said input member in conjunction with said elastic member and for releasing said engaging load of said elastic member from said pressure plate.

5,671,835
WET FRICTION MEMBER
 Tadashi Tanaka; Yoshikazu Mizuno; Mitsuru Sugita; Katsumi Sawano, and Akira Ono, all of Nagoya, Japan, assignors to Daido Metal Company Ltd., Nagoya, Japan
 Filed Oct. 20, 1995, Ser. No. 546,558
 Claims priority, application Japan, Nov. 7, 1994, 6-298930
 Int. Cl.⁶ F16D 13/60
 U.S. Cl. 192—107 R

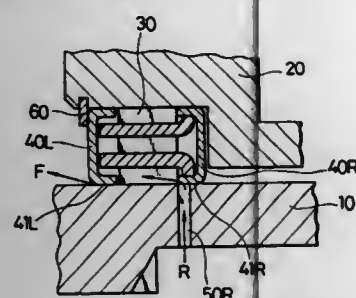
18 Claims



1. The combination of a wet friction member and a mated member, wherein the wet friction member is adapted to contact with or separate from the mated member while the mated member is rotating, said wet friction member having a base, a friction surface formed on the base and outer grooves formed on the friction surface each of which grooves extends from a starting position of intermediate portions of the friction surface and terminates onto the outer peripheral edge of the friction surface, said outer grooves being directed toward the direction of rotation of the mated member.

5,671,836
LUBRICATION SYSTEM FOR ONE-WAY CLUTCH
 Hirobumi Shirataki; Atsushi Sagae, and Toshio Awaji, all of Shizuoka-ken, Japan, assignors to NSK-Warner K.K., Tokyo, Japan
 Filed Jan. 11, 1996, Ser. No. 584,400
 Claims priority, application Japan, Jan. 10, 1995, 7-031310
 Int. Cl.⁶ F16D 41/07
 U.S. Cl. 192—113.32

7 Claims

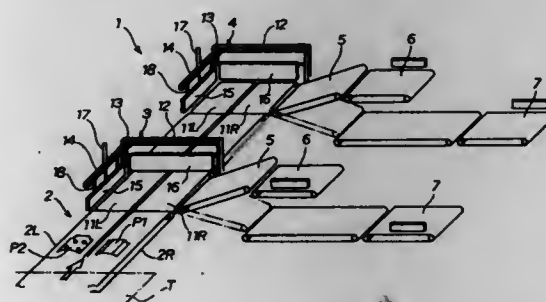


1. A lubrication system for a one-way clutch having an inner ring, an outer ring and end bearings arranged on axially opposite sides, said one-way clutch being of a type wherein lubeoil is fed into said one-way clutch by shaft-center oiling or under a centrifugal force, comprising:
 oil grooves formed in an inner peripheral wall of at least one of the end bearings said oil grooves having depths less than corresponding wall thicknesses of the end bearings whereby lubeoil is drawn through said oil grooves for application into said one-way clutch; and
 an oilway opening through an outer peripheral wall of an associated inner ring in a region where said outer peripheral wall of said inner ring and said inner peripheral wall of said at least one end bearing undergo relative sliding motion, said outer

peripheral wall of said inner ring being free of any oilway opening in a region where associated sprags are operatively brought into sliding contact with said outer peripheral wall of said inner ring.

5,671,837
PANEL DISTRIBUTION SYSTEM AND PANEL DISTRIBUTING METHOD CARRIED OUT BY THE SAME
 Ken Tazou; Tsugio Ueno; Kazuyoshi Takaya; Takashi Kitamura, and Mitsuo Ushida, all of Sayama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Japan
 Filed Apr. 30, 1996, Ser. No. 640,203
 Claims priority, application Japan, May 8, 1995, 7-109633; May 9, 1995, 7-110976; May 9, 1995, 7-110980
 Int. Cl.⁶ B65G 37/00
 U.S. Cl. 198—369.2

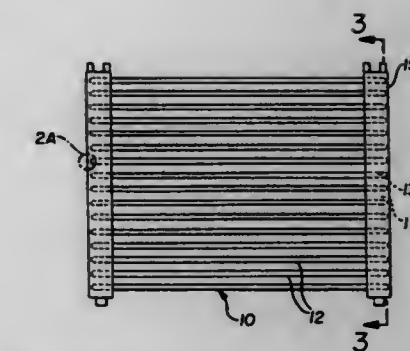
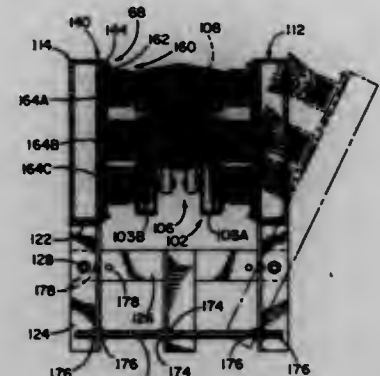
9 Claims



1. A panel distribution system for distributing panels coming out from a transfer press, comprising:
 a pair of juxtaposed vertical two-directional delivery conveyors for directing the panels coming out from the transfer press, selectively into an upper position and a lower position;
 a pair of juxtaposed loading stations each composed of a pair of overlapping upper and lower loading conveyors disposed adjacent to a delivery end of a corresponding one of said vertical two-directional delivery conveyors for receiving the panels at said upper position and said lower position, respectively, and then transferring the panels in a downstream direction;
 said vertical two-directional delivery conveyors and said loading stations extending linearly from the transfer press and jointly defining a straight conveyance line;
 said upper loading conveyors of said pair of loading stations including first panel positioning means for positioning the panels such that when two small panels are being conveyed on said upper loading conveyors, the small panels are positioned on the respective upper loading conveyors independently from each other, and when one large panel is being conveyed on said upper loading conveyors, the large panel is positioned on said upper loading conveyors;
 said lower loading conveyors of said pair of loading stations including second panel positioning means for positioning the panels such that when two small panels are being conveyed on said lower loading conveyors, the small panels are positioned on the respective lower loading conveyors independently from each other, and when one large panel is being conveyed on said lower loading conveyors, the large panel is positioned on said lower loading conveyors; and
 control means for controlling operation of said first and second panel positioning means.

5,671,838
APPARATUS FOR CLEANING OF CONVEYORS
 John H. Bowman, 9740 S. Meade Ave., Oak Lawn, Ill. 60453
 Filed Apr. 2, 1996, Ser. No. 626,354
 Int. Cl.⁶ B65G 45/18
 U.S. Cl. 198—496

36 Claims



(ii) molding said belts around and in enclosing relationship to respective opposite ends of said rods to secure and bond the elastomeric material of the belts to said rods.

1. A conveyor cleaning assembly for cleaning an endless conveyor as such conveyor moves in a predetermined direction along a portion of its path of movement, said cleaning assembly comprising:

a cleaning head which includes at least one cleaning element for engaging one or more surfaces of said conveyor and removing debris therefrom as said conveyor moves along said portion of its path in frictional engagement with said cleaning element,
 a support frame adjacent said conveyor,
 a head support on which said cleaning head is held for holding said cleaning head adjacent said portion of said path, said head support being mounted on said support frame for free movement between an engagement position on said frame wherein said cleaning head held on said head support is in cleaning engagement with said conveyor and a retracted position on said frame wherein said cleaning head held on said head support is clear of said conveyor, and
 a latch for selectively holding said head support in said engagement position and releasing said head support for free movement to said retracted position,
 whereby said cleaning head is supported in a predetermined position in cleaning engagement with said conveyor by said head support and said latch and may be freely retracted movement of said support head to such a retracted position for cleaning or replacement of said cleaning head upon release of said latch.

5,671,839
OPEN WEB
 Jeffrey John Sanderson, Thyside, United Kingdom, assignor to Reekie Manufacturing Limited, Thyside, United Kingdom
 PCT No. PCT/GB94/00520, § 371 Date Sep. 18, 1995, § 102(e) Date Sep. 18, 1995, PCT Pub. No. WO94/21108, PCT Pub. Date Sep. 29, 1994
 PCT Filed Mar. 16, 1994, Ser. No. 522,368
 Claims priority, application United Kingdom, Mar. 19, 1993, 9305681

Int. Cl.⁶ B65G 15/54

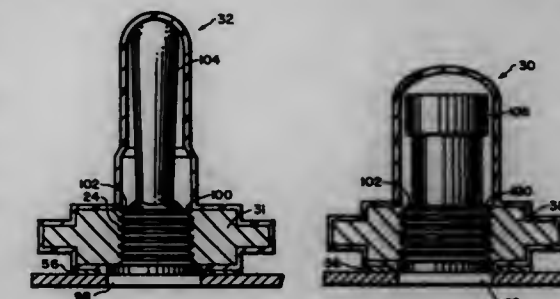
U.S. Cl. 198—848

9 Claims

1. An open web for conveying and separating agricultural products and the like comprising:
 a. a plurality of regularly spaced parallel rods of rigid material and uniform length; and
 b. a pair of spaced apart parallel elastomeric belts, said rods extending between and joined to said elastomeric belts to form a unified structure;
 said belts and said unified structure being fabricated by:
 (i) prelocating said rods in spaced parallel relationship and, thereafter;

5,671,840
VACUUM FORMED ELECTRIC SWITCH SEALS
 Milton Glicksman, Teaneck, N.J., assignor to Multi-Flex Seals, Inc., Hackensack, N.J.
 Filed Jul. 17, 1995, Ser. No. 503,099
 Int. Cl.⁶ H01H 19/06
 U.S. Cl. 200—302.3

6 Claims



1. A thin seal for an electric switch, comprising:
 (a) a unitary seal having a hollow cavity, said seal having an upper portion and a lower portion;
 (b) a nut, said nut having an exterior surface and a threaded interior surface, said exterior surface including a polygonal external surface, said nut having a top planar surface and a bottom planar surface, said nut having an opening to said threaded interior surface of said nut;
 (c) said lower portion encapsulating said exterior surface of said nut;
 (d) said upper portion of said seal having upstanding side walls and an enclosed top portion, said upper portion being smaller in diameter than said opening to the interior threaded surface of said nut;
 (e) said lower portion being larger in diameter to said opening to said interior threaded surface of said nut, said lower portion having an opening in its base portion at least as large as said opening to said interior threaded surface of said nut;
 (f) said lower portion having an extension of said seal confluent with said bottom planar surface of said nut facing away from said upper portion of said seal, said extension being positioned a spaced distance below and in a parallel plane with said bottom planar surface of said nut, said extension forming a redundant liquid and dust tight seal when said seal is in place on said electric switch; and
 (g) said seal being formed by placing said nut on a vertically positioned pin having an upper first section configured in a desired shape of said upper portion of said seal, said upper first section of said pin having a diameter smaller than said opening to said interior threaded surface of said nut, said pin having a lower second section having a diameter larger than said opening to said interior threaded surface of said nut, said

pin extending upwards from a planar surfaced mold, said nut being held a spaced distance above said planar surface of said mold by a shoulder formed at a junction of said first and second sections of said pin by said different diameters of said first and second sections of said pin, then placing a thin sheet of polyurethane plastic over a top portion of said nut, vacuum forming said sheet of plastic over said pin, thereby creating said thin electric switch seal by encapsulating the outer surface of said pin and said nut in a film of said sheet of plastic, then stripping said film off of said pin, and cutting said film at an area on said planar surface of said mold slightly larger than an area encompassed by said polygonal external surface of said nut at said shoulder of said pin so as to free said seal from remaining portions of said film, so that when said seal is secured to a flange on said electric switch with said switch extending upwards into said hollow cavity, said switch is free to move within said cavity without interference from said seal.

5,671,841 METHOD AND APPARATUS FOR SWITCHING MECHANISM

Richard Owen Glasston, East Hanover, N.J., assignor to Calculagraph Co., East Hanover, N.J.

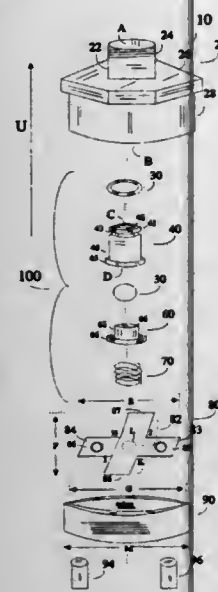
Continuation of Ser. No. 514,595, Aug. 14, 1995, abandoned.

This application Jun. 20, 1996, Ser. No. 667,299

Int. Cl.⁶ H01H 5/18

U.S. Cl. 200—406

37 Claims



1. A switching mechanism comprising:
a housing;

a spring comprising:

a first edge and a second edge, each edge substantially fixed to the housing, the spring substantially fixed to the housing only by the first edge and the second edge, the first and second edges substantially opposite one another, and a substantially central portion;

first and second movable contacts mechanically and electrically connected to the spring;

first and second substantially fixed contacts attached to the housing;

the first and second edges of the spring substantially fixed to the housing so that in a rest position the first movable contact does not contact the first substantially fixed contact and the second movable contact does not contact the second substantially fixed contact;

an actuator for providing an actuation force to force the substantially central portion of the spring towards a first direction;

wherein when the substantially central portion of the spring is forced towards the first direction the first and second movable contacts move in the first direction and come into electrical contact with the first and second substantially fixed contacts respectively;

wherein the spring is shaped substantially in the form of a cross comprising:

a column member having a first pair of opposing sides and a second pair of opposing sides, the first pair of opposing sides acting as the first and second edges of the spring,

a first protruding wing attached substantially centrally to one side of the second pair of opposing sides of the column member, and a second protruding wing attached substantially centrally to the other side of the second pair of opposing sides of the column member;

the first movable contact mechanically and electrically attached to the first protruding wing; and

the second movable contact mechanically and electrically attached to the second protruding wing.

5,671,842 GOLF CLUB BAG WITH RIGID ARMS AND CHAMFERED BASE

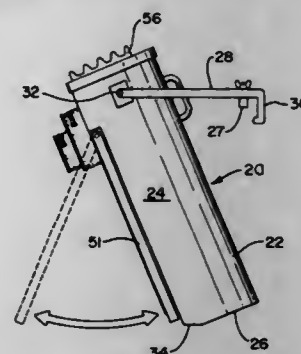
Ronald P. Jaworski, 832 Pike Rd., West Palm Beach, Fla. 33411

Filed Jan. 16, 1996, Ser. No. 587,364

Int. Cl.⁶ A63B 55/00; 55/04; 55/08

U.S. Cl. 206—315.3

16 Claims



1. A golf club bag adapted for use with a golf cart vehicle, of the kind having a rigid mounting bar for receiving a golf club bag in a substantially vertical orientation on said golf cart vehicle, said golf club bag comprising:

an elongated hollow bag body having an outer skin and defining a central, longitudinal axis;

a rigid base enclosing a lower end of said bag body;

at least one elongated, rigid arm member mounted to an upper portion of said bag body opposite from said lower end; and,

securing means disposed on a portion of said at least one arm member spaced from said bag body and engageable with said rigid mounting bar on said golf cart vehicle, said bag body being retained in said golf cart vehicle with said central longitudinal axis tilted away from said substantially vertical orientation of said rigid mounting bar and said upper portion of said bag body spaced away from said rigid mounting bar on said golf cart vehicle and positioned closer to ground level.

5,671,843 GOLF CLUB ORGANIZING ASSEMBLY HAVING STRAIGHT AND CURVED MEMBERS FOR GOLF CLUB CARRYING BAG

James L. Sutter, 32439 Inverness Dr., Evergreen, Colo. 80439

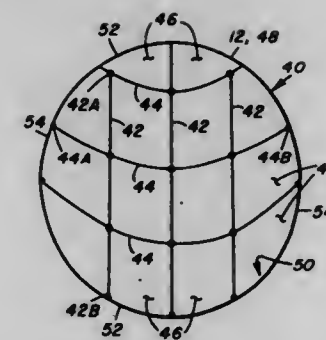
Filed Sep. 23, 1996, Ser. No. 710,866

Int. Cl.⁶ A63B 55/00

U.S. Cl. 206—315.6

30 Claims

1. A golf club organizing assembly for receiving golf clubs in a carrying bag, said assembly comprising:



(a) a plurality of substantially straight members interconnected at opposite ends to and extending between first opposite spaced portions of an open upper end of a golf club carrying bag; and

(b) a plurality of substantially curved members interconnected at opposite ends to and extending between second opposite spaced portions of the open upper end of the carrying bag, said curved members crossing said straight members and together defining a plurality of slots for receiving there-through the golf clubs into the carrying bag.

5,671,844 STORAGE DEVICE FOR STORING SPORTS EQUIPMENT

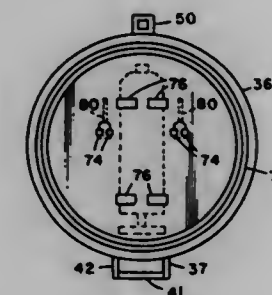
Mark L. Sircy, 575 Anchor Dr., Lenoir City, Tenn. 37771

Filed May 3, 1996, Ser. No. 642,509

Int. Cl.⁶ B65D 85/20

U.S. Cl. 206—315.1

18 Claims



1. A storage device for sports equipment wherein the device is attachable to an object situated adjacent the site of a playing court or field and wherein the object is provided with a substantially vertical surface, the storage device comprising:

means defining an open-topped receptacle for holding the sports equipment desired to be stored, the receptacle having an interior which is sized to accept the sports equipment desired to be stored;

a lid for the open top of the receptacle of the receptacle-defining means wherein the lid is hingedly attached to the receptacle-defining means for movement between opened and closed conditions;

means associated with the receptacle-defining means for attaching the receptacle-defining means in a stationary position against the substantially vertical surface of an object situated adjacent the site of a playing court or field, and wherein the lid has an underside and includes means associated with the underside for releasably securing a hand pump adjacent the underside of the lid.

5,671,845 WRAP-AROUND CARRIER PANEL LOCK AND ARTICLE RETAINER

Randall L. Harris, Powder Springs, Ga., assignor to Riverwood International Corporation, Atlanta, Ga.

Filed Sep. 6, 1996, Ser. No. 709,430

Int. Cl.⁶ B65D 71/18

U.S. Cl. 206—434

20 Claims



1. A wrap-around article carrier containing a plurality of adjacent rows of articles having curved bottom portions, comprising:
a top panel;

opposite side panels connected to the top panel;

a bottom panel comprised of an inner bottom panel flap connected at a side edge thereof to one of the side panels and an outer bottom panel flap connected at a side edge thereof to the other side panel, each bottom panel flap having a free edge opposite the edge connected to a side panel and two end edges;

the outer bottom panel flap including an integral retainer support tab hinged thereto adjacent each end edge of the outer bottom panel flap, the retainer support tabs being folded up from the outer bottom panel flap into the interior of the carrier;

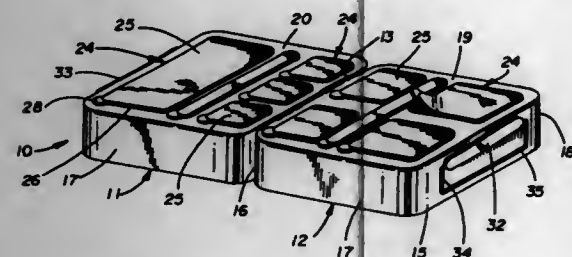
the inner bottom panel flap including an integral article retainer tab hinged thereto adjacent each end edge of the inner bottom panel flap, the article retainer tabs being folded up from the inner bottom panel flap into the interior of the carrier so as to engage the curved bottom portions of adjacent spaced articles and to engage the associated retainer support tab; and

the inner bottom panel flap including a locking tab adjacent each article retainer tab, each locking tab extending through an associated locking opening in the outer bottom panel flap into the interior of the carrier and engaging an associated retainer support tab.

5,671,846
PORTABLE PICNIC SALAD BAR
 Richard Frank, 548 Eldon Dr., NW., Warren, Ohio 44483
 Filed May 17, 1996, Ser. No. 650,042
 Int. Cl.⁶ B65D 1/24

U.S. Cl. 206—541

8 Claims

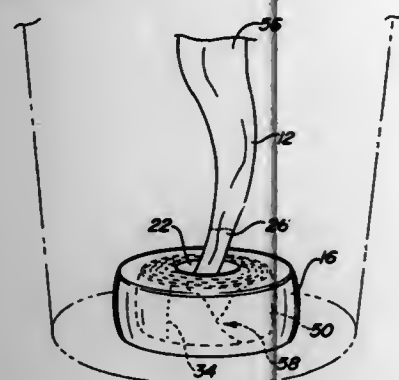


1. A portable self-contained foldable salad bar comprises; a first container body and a second container body hinged to one another, said container bodies having top portions, a plurality of wells formed in said respective top portions, upstanding rims on said top portions about each of said wells, resealable flexible closures registerable on said rims defining a multiplicity of food receiving compartments in each container body, said flexible closures having engagement tabs extending therefrom said container bodies registerable together forming an integral unit for transportation, latching means on said container bodies comprising a substantially identical mounting member and an engagement member on said respective bodies, means pivotally extending from said mounting member registerable over said engagement member, each of said closures on each of said respective container bodies registerable against one another in overlapping relationship one of said closures on said second container body registerable over multiple closures in said first container body upon closure of first container body against said second container body.

5,671,847
TRASH BAG DISPENSER
 Constance Rebecca Pedersen; Sloane Kristin Pedersen, and Knud Allen Pedersen, all of 16532 Cotuit Cir., Huntington Beach, Calif. 92649
 Continuation-in-part of Ser. No. 330,308, Oct. 27, 1994, abandoned. This application Oct. 11, 1995, Ser. No. 540,839
 Int. Cl.⁶ B65D 1/34

U.S. Cl. 206—554

5 Claims



1. A dispenser for dispensing trash container liners, said dispenser comprising:
 a flexible pouch having a top and a bottom defining a chamber, said top having an opening, said chamber housing a coil formed of a flat band of a plurality of trash container liners, said coil having an axis extending between said top and bottom of said chamber, said band having a half twist for each revolution of said coil and having an inner end of said coil removable through said opening of said pouch;

means for attaching said bottom surface of said pouch to a second surface.

5,671,848
KIT FOR THE DIAGNOSIS OF INSULIN DEPENDENT DIABETES MELLITUS
 Iron Robert Cohen; Dana Elias, both of Rehovot, and Doron Markovits, Gadera, all of Israel, assignors to Yeda Research and Development Co. Ltd., Rehovot, Israel
 Division of Ser. No. 848,517, Mar. 9, 1992, abandoned, which is a division of Ser. No. 371,249, Jun. 26, 1989, Pat. No. 5,114,844, which is a continuation-in-part of Ser. No. 322,864, Mar. 24, 1989, abandoned. This application Mar. 29, 1993, Ser. No. 39,704
 Int. Cl.⁶ G01N 33/53

U.S. Cl. 206—569

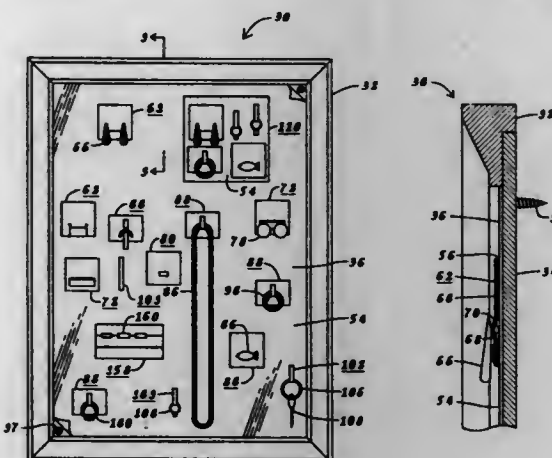
13 Claims

1. A kit for diagnosing the presence or incipience of IDDM, comprising:
 hHSP65;
 a tagged antibody capable of recognizing the non-variable region of the anti-hHSP65 antibody to be detected; and
 means for conveying to the user that the kit is for use in the diagnosis of IDDM.

5,671,849
DISPLAY UNIT HAVING DETACHABLE ITEM HOLDERS
 Debrah Kay Bacon, 6437 W. Riverchase Dr., Tampa, Fla. 33637
 Filed Aug. 15, 1995, Ser. No. 515,300
 Int. Cl.⁶ A47F 7/00

U.S. Cl. 211—13

15 Claims



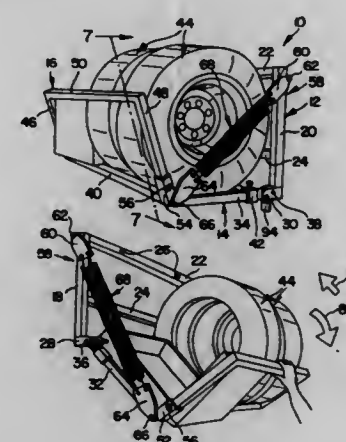
1. A display unit for display of items, each item having an attachment member, the attachment member of the item providing securement means, the display unit comprising:
 a) an opposing detachable fastener having a first member and a second member, the first member having an adhesion contact side and a base side, the second member having an adhesion contact side and a base side, the first member and the second member cooperating to provide detachable attachment means, the detachable attachment means having an attached state and a detached state, the attached state providing adhesion while the adhesion contact side of the first member and the adhesion contact side of the second member are in contact, the detached state providing for complete separation of the first member and the second member;
 b) a support surface having at least one piece of the first member of the opposing detachable fastener rigidly secured thereto and at least partially covering the support surface with the adhesion contact side of the first member of the opposing detachable fastener exposed;

c) a plurality of detachable holder units, each detachable holder unit; having a display attachment side and an item mounting side, the display attachment side providing for secured exposure of the adhesion contact side of the second member of the opposing detachable fastener, wherein, utilizing the second member of the opposing detachable fastener each detachable holder unit may be repeatedly dismantled and remounted at any select unoccupied location on the support surface, the item mounting side providing for contact by the item, each holder unit having attachment means, the attachment means comprising at least one aperture and providing for securement of the item to the item mounting side of the holder unit utilizing the attachment member of the item;
 whereby items may be attached to the individual detachable holder units and each of the detachable holder units may be repeatedly dismantled from the support surface of the display unit and remounted at any select unoccupied location on the support surface of the display unit.

5,671,850
STORAGE RACK APPARATUS
 Donald C. Basala, 421 E. Jessup Rd., Plainfield, Ind. 46168
 Filed Apr. 10, 1995, Ser. No. 419,369
 Int. Cl.⁶ A47F 5/00

U.S. Cl. 211—23

18 Claims

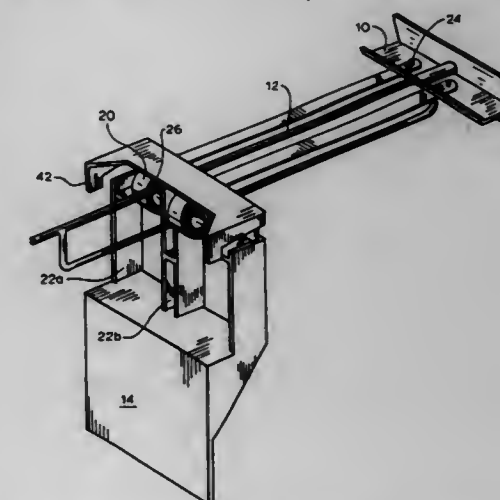


1. A storage rack apparatus configured to be mounted on a wall for holding articles, the apparatus comprising:
 a back frame section configured to be rigidly coupled to the wall;
 a bottom frame section pivotally coupled to the back frame section, the bottom frame section including a first support member and a second support member spaced apart from the first support member for holding the articles therebetween when the bottom section is in an upwardly pivoted storage position;
 a loading bar coupled to the bottom frame section, the loading bar frame member extending generally parallel to the first and second support members of the bottom section for holding the articles in a downwardly pivoted loading and unloading position; and
 at least one spring assist assembly coupled between the back frame section and the bottom frame section to assist pivotable movement of the bottom frame section and the loading bar relative to the back frame section, each spring assist assembly including a first support plate pivotally coupled to the back frame section, a second support plate pivotally coupled to the bottom frame section, and at least one spring coupled between the first and second support plates.

5,671,851
PRODUCT DISPLAY APPARATUS
 Terry Johnson, Chicago, and Randy L. Johnson, Lake Forest, both of Ill., assignors to Gamon International, Inc., Elk Grove Villages, Ill.
 Filed May 2, 1996, Ser. No. 643,084
 Int. Cl.⁶ A47F 1/00; 1/02

U.S. Cl. 211—51

13 Claims

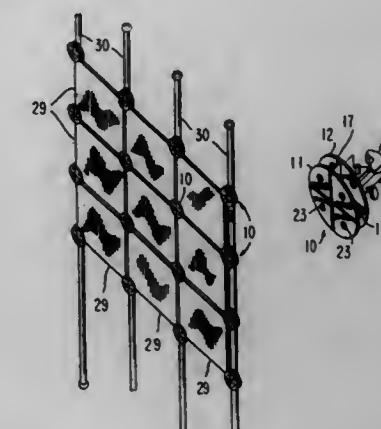


1. A product display apparatus for presenting a stack of inventory comprising:
 a base member having a mounting rod and a product suspension display rod attached thereto and projecting in parallel forwardly therefrom;
 a movable plate member slidably engaged with said mounting rod for providing a forward bias to a stack of inventory suspended on said display rod;
 means for urging said movable plate member forwardly; and
 latch means for selectively latching said movable plate member proximate said base member, said latch means being operable through manipulation of said movable plate member.

5,671,852
DISPLAY AND DECORATIVE FIXTURE APPARATUS
 James C. Maharg, Ridgefield, Conn., assignor to Alu Inc., New York, N.Y.
 Continuation of Ser. No. 280,065, Jul. 25, 1994, Pat. No. 5,494,178. This application Feb. 22, 1996, Ser. No. 604,898
 Int. Cl.⁶ A47F 5/00

U.S. Cl. 211—189

12 Claims



1. A display means comprising at least two longitudinally extending members designed to be maintained in operation in a vertical position; at least four panel holding means secured to the

two longitudinally extending members, two of such panel holding means on each longitudinally extending member, and a panel, the corners of which are held by the panel holding means and which extends between the two longitudinally extending members; the panel holding means comprising a facing pair of rigid plates, each plate having a substantially flat surface, the flat surfaces being juxtaposed in parallel facing relationship, a rigid spacing member separating, and interconnecting, in a rigid manner, the two plates, dividing means to divide the volume between the two plates into segments, and clamping means extending from one of the flat plates towards the other plate and movably held in relation thereto to clamp in place any member held within the volume between the two plates.

5,671,853

CHILD-RESISTANT ONE-PIECE CONTAINER AND ONE-PIECE CLOSURE ASSEMBLY

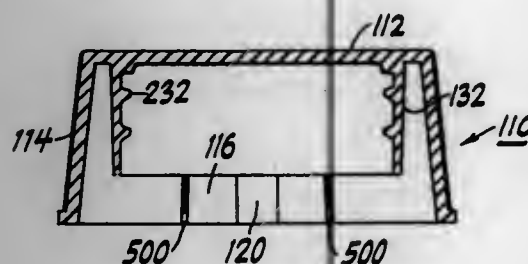
James Ellis Herr, E. Petersburg, Pa., assignor to Kerr Group, Inc., Lancaster, Pa.

Filed Oct. 31, 1995, Ser. No. 551,186

Int. Cl.⁶ B65D 55/02

U.S. Cl. 215—216

11 Claims



1. A closure and container combination, comprising:
a closure, including:

- a top wall;
- a depending annular skirt;
- at least one closure thread;
- at least one depressible movable panel separated from said annular skirt by at least one gap and connected to said closure by a hinge at an axially outward end of the movable panel adjacent said top wall; and
- at least one locking tab molded integrally with said at least one movable panel, said at least one locking tab comprising a trailing surface; and

a container, said container comprising:

- a receptacle portion;
- a threaded neck projecting from said receptacle portion; and
- an annulus adjacent to and encircling said neck, said annulus having located thereon at least one stationary locking lug, said stationary locking lug comprising a locking face, said stationary locking lug engaging said at least one locking tab upon rotation of said closure thread on said threaded neck in a first direction until said locking face engages said trailing surface, said engagement between said locking face and said trailing surface prohibiting rotation of said closure thread on said threaded neck in a direction opposite said first direction unless said at least one moveable panel is depressed radially inward.

5,671,854

CONTAINER FRAME ASSEMBLY

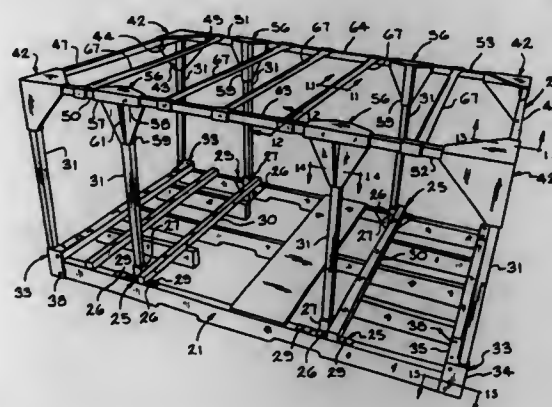
Lloyd Gene Thomas, Perrysburg, Ohio, assignor to Great Lakes Standard Manufacturing, Inc., Toledo, Ohio

Filed Jan. 26, 1996, Ser. No. 592,035

Int. Cl.⁶ B65D 88/12

U.S. Cl. 220—1.5

6 Claims



1. A container frame for use with a base and a container shell, said container frame assembly comprising a reinforcing frame having a plurality of vertical members, a plurality of base corner gusset members for receiving selected ones of said vertical members, at least two longitudinal rail members extending between said vertical members, upper corner gusset members including sockets aligned ninety degrees from one another for receiving one of said rail members and one of said vertical members, upper end members extending between opposed ones of said upper corner gusset members, and a plurality of cross members extending between adjacent ones of said longitudinal rail members; said vertical members, said rail members and said end members being generally U-shaped and constructed of formed sheet metal, said U-shaped members having intumed edges.

5,671,855

HIGH STRENGTH INDUSTRIAL STORAGE TANK

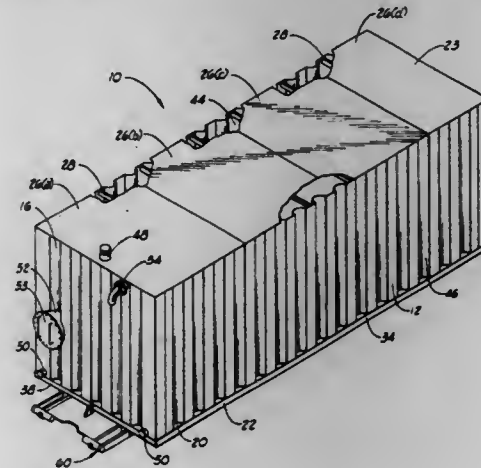
Eddy Norman, Jr., Springer, and Billy Steve Brown, Sulfur, both of Okla., assignors to Spade Leasing, Inc., Springer, Okla.

Filed Feb. 20, 1996, Ser. No. 603,644

Int. Cl.⁶ B65D 90/02

U.S. Cl. 220—1.5

6 Claims



1. A portable industrial storage tank comprising:
a pair of opposed sidewalls;
a pair of opposed end walls including a front end wall and a rear end wall each interconnecting said sidewalls,

said sidewalls and said end walls each including a series of alternating vertically extending outer members and vertically extending grooves, each groove extending toward the interior of said tank and including a bottom and two sides, each groove further including an inner arcuate portion arched toward the interior of said tank and having a substantially constant radius of from about 3.0 to about 4.5 inches, each side of each of said grooves being connected to one of said outer members;

- a floor connected to said sidewalls and said end walls;
- a foundation connected to and underlying said floor;
- a top opposing said floor and connected to said sidewalls and said end walls; and
- a roll-off transport truck hook-up assembly, said roll-off transport truck hook-up assembly including:
a cable hook-up assembly attached to said foundation; and
a pair of spaced skids attached to and underlying said foundation, said skids extending under said foundation in planes substantially parallel to vertical planes of said sidewalls and being spaced for engagement with the track assembly of a roll-off transport truck.

5,671,856

UNIVERSAL STACKABLE LOCKING CONTAINER

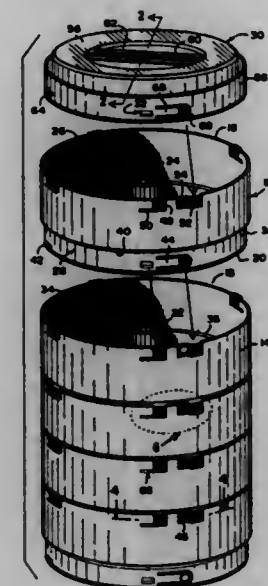
Scott Lisch, 89A Asbury Rd., Hackettstown, N.J. 07840

Filed May 28, 1996, Ser. No. 654,108

Int. Cl.⁶ B65D 21/032

U.S. Cl. 220—4.27

11 Claims



1. A universal stackable locking container comprising:

- a) a plurality of independent trays, in which each said tray can store small articles therein, wherein each said tray includes a cylindrical side wall having an open top with an annular rim thereabout, a disc-shaped bottom wall and an upstanding central barrel formed on said bottom wall, in which said barrel has a finger hole therethrough, so that a person can insert a finger into said finger hole and grip said barrel to lift and carry said tray;
- b) means in each said tray, for stacking said trays one upon the other, wherein each said tray stacking means includes:
i) an upper inner setback face with an inner annular seat on said side wall directly below said rim; and
ii) a lower outer setback face with an outer annular seat on said side wall directly above said bottom wall, so that when two of said trays are stacked together, said lower outer setback face of the upper tray will fit into said open top of the lower tray, with said outer annular seat of said upper

tray nesting on said rim of said lower tray and said bottom wall of said upper tray nesting on said inner annular seat of said lower tray;

- c) means in each said tray for interlocking and unlocking said trays when said trays are stacked one upon the other, wherein each said tray interlocking and unlocking means includes:
i) said lower outer setback face on said side wall having a plurality of locking tabs radially spaced thereabout and one flexible button arm with a locking button thereon built into said side wall adjacent one said locking tab; and
ii) said upper inner setback face on said side wall having a plurality of tab sockets with associated horizontal slots radially spaced thereabout at said annular rim and a button socket with an associated buttonhole adjacent one said tab socket, so that when two of said trays are stacked together and said lower outer setback face of said upper tray fits into said open top of said lower tray, said locking tabs will fit into said tab sockets, while said locking button will fit into said button socket, so that when said upper tray is slightly turned in a clockwise direction, said locking tabs will engage with said slots and said locking button will engage with said buttonhole and when said upper tray is slightly turned in a counterclockwise direction, said locking tabs will disengage from said slots and said locking button will disengage from said buttonhole;
- d) a cover to fit upon the uppermost tray; and
- e) means in said cover for interlocking and unlocking said cover to said uppermost tray.

5,671,857

COLLAPSIBLE CONTAINER

Per Sigmund Stromberg, Lillestrom, Norway, assignor to Strombergs Plast A.S., Strommen, Norway

Continuation of Ser. No. 211,830, Apr. 18, 1994, Pat. No.

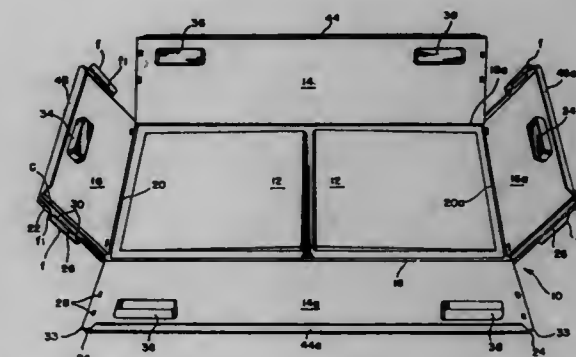
5,501,354. This application Dec. 15, 1995, Ser. No. 572,970

Claims priority, application United Kingdom, May 26, 1992, 9211112

Int. Cl.⁶ B65D 7/22

U.S. Cl. 220—7

1 Claim

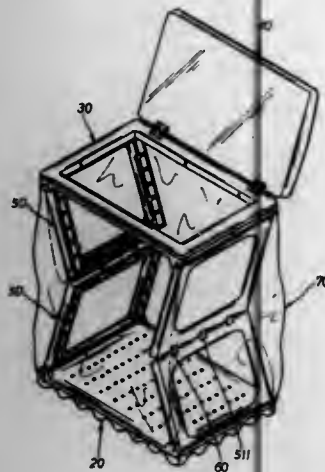


1. A blank for a collapsible container formed from a single molding of plastics material and comprising a bottom wall, side- and end wall panels hinged to said bottom wall so that said wall panels can be erected from a collapsed to an upright position, and complementary locking means provided at adjacent end portions of said side- and end wall panels for securing said wall panels in upright position, said blank being adapted to be stacked unto like blanks for shipment and storage, characterized in that said wall panels include formations which project beyond the interior surfaces of said wall panels and corresponding recesses are provided on the exterior surfaces of said wall panels and arranged to receive said projecting formations of a like blank positioned below and in that at least certain of said formations provide handle means when said side- and end wall panels are in upright position.

5,671,858
COLLAPSIBLE LAUNDRY CONTAINER STRUCTURE
 Peyson Hsu, Changhua Hsien, Taiwan, assignor to Ching Feng Blinds Co., Ltd., Changhua Hsien, Taiwan
 Filed Sep. 11, 1996, Ser. No. 712,472
 Int. Cl.⁶ B65D 33/00

U.S. Cl. 220—9.2

2 Claims

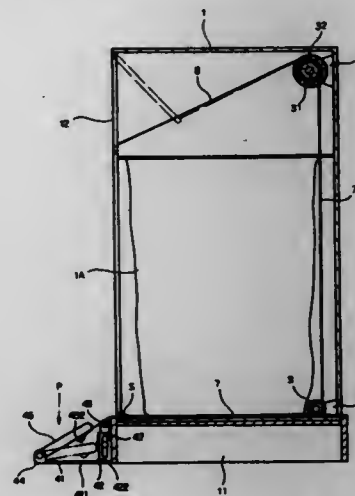


1. A collapsible laundry container structure, comprising: a base, an upper frame, a cover body, four supporting frames, six engaging means, and a water proof bag, wherein, the cover body is attached to a rear of the upper frame by hinge members, and opposite ends of the water-proof bag are respectively adapted to be fastened to an outer flange of the base and a periphery of the upper frame; the base is provided with four first pivot members disposed at four corners of a top surface thereof, a rivet hole disposed in a lateral face of each of the four first pivot members; the upper frame is provided with four second pivot members disposed at four corners of an underside thereof, a rivet hole disposed in a lateral face of each of the four second pivot members; each of the four supporting frames is equipped with three equidistant insert grooves at a first lateral side; wherein, three recesses are disposed at a flange of the first lateral side thereof corresponding to the three equidistant insert grooves, and an engaging foot and an engaging cavity are alternatively disposed between the three equidistant insert grooves, and two rivet holes are disposed at a second lateral side; each of the six engaging means is provided with two engaging feet extending from both lateral sides thereof which permit a collapsible fold; a first pair of the four engaging frames are engaged with the base and a second pair of the four engaging frame are engaged with the upper frame respectively via rivets respectively passing through the rivet holes correspondingly disposed at the second lateral side the supporting frames and the rivet holes in the lateral face of the first pivot members and the second pivot members; each engaging foot and engaging cavity of the first pair of the four engaging frames are alternatively joined to a correspondingly engaging cavity and engaging foot on the second pair of four engaging frames to form two vertical plates; the engaging means being engaged in the openings formed by the recesses by abutting frames of each of the two vertical plates and the engaging feet of the engaging means engaged in the insert grooves of the abutting frames to complete the assembly of the laundry container; wherein the water-proof bag engaged to the base and the upper frame is tightly and evenly expanded outside the two vertical plates to strengthen the assembly of the abutting frames and the base and upper frame; and wherein when dismantling the two vertical plates frames the engaging means are pushed from outside the water-proof bag so as to fold and store the abutting frames neatly upon the base with the cover body overlaid above.

5,671,859
DOOR CONTROL DEVICE FOR A LARGE GARBAGE CONTAINER
 Mlin-Tsang Sheu, No. 156, Cheng Kung Road, Chang Hua City, Taiwan, and Shang-Jen Chang, No. 204, Nan Chang Road, Tou Nan Chen, Yun Lin Hsien, Taiwan
 Filed Feb. 1, 1996, Ser. No. 595,281
 Int. Cl.⁶ B65D 43/26

U.S. Cl. 220—263

1 Claim



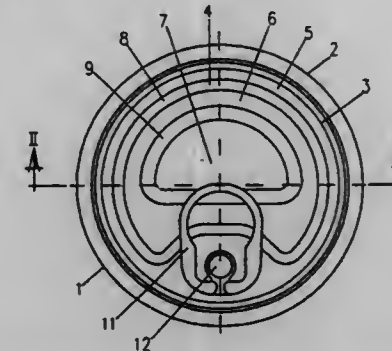
1. A garbage container comprising: a sleeve positioned at a front right lower corner of said container, a reel support disposed in a rear right lower corner of said container, a first wheel support disposed in a rear right upper corner of said container, a second wheel support disposed in a rear left upper corner of said container, an elongated rod connecting said wheel supports, a door disposed on a front upper portion of said container, a bottom seat disposed beneath said container, a pedal device disposed in front of said bottom seat, said pedal device having a pedal seat, a hollow vertical plate with two slots thereon, a positioning plate, and a pedal plate connected to said pedal seat pivotally, said vertical plate which is disposed on said pedal seat vertically having an interior to receive said positioning plate, said vertical plate positioned on a front surface of said bottom seat, said pedal plate having a rope positioning block thereunder, said positioning plate positioned in said vertical plate pivotally, said first reel disposed in an upper portion of said positioning plate pivotally, said second reel disposed in said reel support pivotally, a first and second driving wheels disposed in said corresponding wheel supports, respectively, each of said first and second driving wheels having a large wheel juxtapose to a small wheel, an end of a driving rope connected to said rope positioning block, said driving rope passing through said first reel, inserting in said sleeve, passing through said second reel, and winding said small wheel of said first driving wheel, a first follower rope extending from said door to said large wheel of said first driving wheel, and a second follower rope extending from said door to said large wheel of said second driving wheel.

5,671,860
FULL-APERTURE EASY-OPEN METAL CAN-END
 Gerard M. Louwerse, Velsbroek, and Eelco A. Stevens, Heerbugowaard, both of Netherlands, assignors to Hoogovens Staal, B.V., IJmuiden, Netherlands
 Filed Oct. 17, 1994, Ser. No. 325,103
 Claims priority, application Netherlands, Oct. 20, 1993, 9301812

U.S. Cl. 220—276

Int. Cl.⁶ B65D 17/34

20 Claims



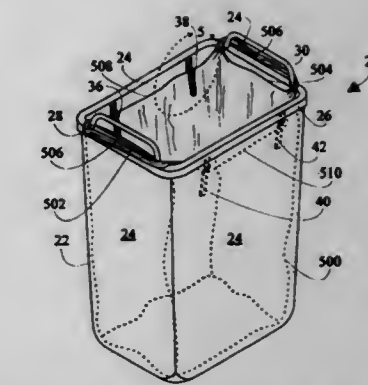
1. A full-aperture easy-open metal can-end with low opening forces for a can of the type which is opened by lifting and pulling of a tab attached to the can-end, said can-end having
 a) a can-end wall bounded by an outer circumference, and
 b) an endless score-line extending close to the outer circumference and defining a removable region of the can-end wall which is removed on opening,
 c) said removable region of said can-end wall having a profiled shape providing a plurality of terraces which are at different height positions with respect to the longitudinal can axis, and a plurality of inclined transition zones respectively between and connecting pairs of said terraces, said terraces comprising a flat outer terrace extending adjacent said score-line along at least part of the length of said score-line, an innermost terrace which is located more centrally in the can-end relative to said outer terrace and at least one intermediate terrace which is located between said outer terrace and said innermost terrace and has an inclination at an inclination angle in the range 3° to 20° to a plane perpendicular to the can axis, said inclination being in the direction opposite to a direction of inclination said inclined transition zone connecting said intermediate terrace to the next adjacent one of said terraces outwardly thereof.

5,671,861
HOLDER FOR SUPPORTING PLASTIC BAGS
 Kenneth A. Hall, 9421 Harvard St. #2, Bellflower, Calif. 90706, and John R. Fischer, 314 Randall Ave., Freeport, N.Y. 11520
 Filed Mar. 12, 1996, Ser. No. 615,504
 Int. Cl.⁶ B65D 90/04

U.S. Cl. 220—404

14 Claims

1. A holder for supporting a plastic bag in an open state so that items may be deposited in the bag, the plastic bag having two opposite end portions each having an integral loop handle, and two opposite side portions disposed between the end portions, said holder comprising:
 a support structure;
 two contrapositioned cleats connected to said support structure for accepting the loop handles;
 at least two contrapositioned downwardly projecting fingers connected to said support structure for downwardly engaging the side portions and thereby holding the plastic bag in an open state; and,
 said support structure having walls having an inside surface; said downwardly projecting fingers disposed on said inside surface of said support structure, said downwardly projecting fingers angled slightly out from said walls to facilitate placing

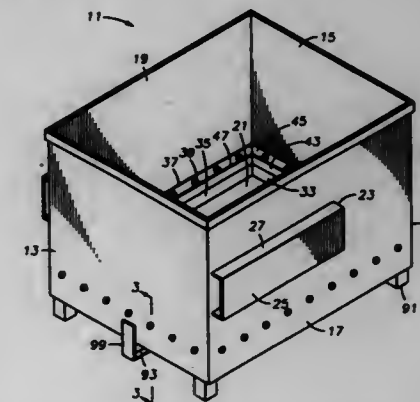


and capturing the side portions between said downwardly projecting fingers and said walls.

5,671,862
EXTENDED-LIFE TRASH RECEPTACLE
 Charles R. Cobos, 4500 Elaine Dr., Bryan, Tex. 77803
 Filed Dec. 6, 1995, Ser. No. 567,961
 Int. Cl.⁶ B65D 45/00

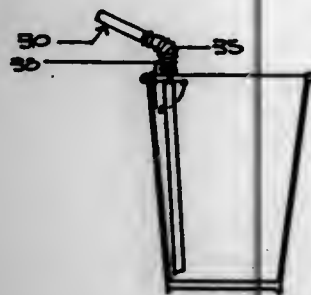
U.S. Cl. 220—622

15 Claims



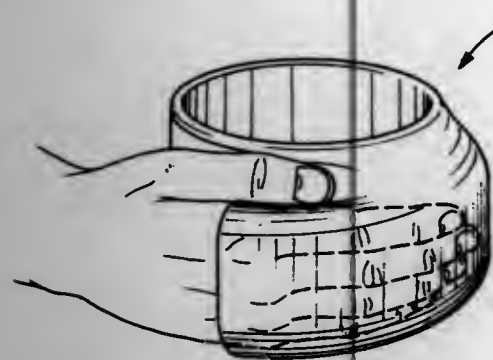
1. An extended-life trash receptacle, comprising:
 a plurality of contiguous metal walls forming a body having an open bottom;
 a replaceable bottom member having a lower surface and adapted to fit within and substantially cover said open bottom of said body;
 support means disposed on said walls of said body for engaging said lower surface of said replaceable bottom member for supporting said replaceable bottom member within said body; retaining means releasably mounted about said body for engaging an upper portion of said replaceable bottom member and holding said replaceable bottom member in place on said support means;
 said support means including a plurality of inwardly extending flanges disposed on the lower peripheral edges of said walls, on which said replaceable bottom member may rest;
 said replaceable bottom member including a bottom portion having said lower surface and walls extending upwardly therefrom, and said retaining means including an elongate strip releasably attached to each of said walls of said body and sandwiching each of said walls of said replaceable bottom member between said strips and said walls of said body;
 said elongate strips including an upper portion disposed against said walls of said body and a lower portion disposed against said walls of said replaceable bottom member for sandwiching said walls of said replaceable bottom member against said walls of said body, and including releasable mounting means disposed through said upper portions of said elongate strips and said walls of said body.

5,671,863
STATIONARY FLEXIBLE CLIP-ON STRAW
 Venes J. Ullana, P.O. Box 1415, Palm Springs, Calif. 92263
 Continuation-in-part of Ser. No. 195,464, May 1, 1994, abandoned. This application Jul. 12, 1995, Ser. No. 501,982
 Int. Cl.⁶ A47G 19/22
 U.S. Cl. 220—710



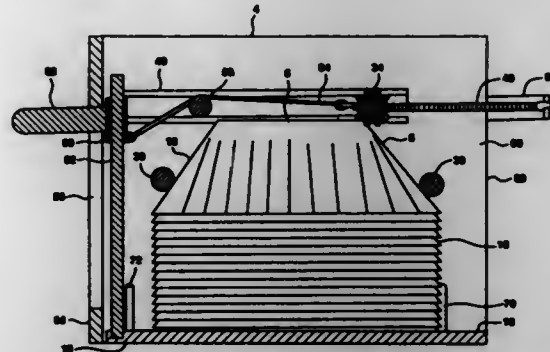
1. The combination of a drinking receptacle and straw holder comprising an apertured tab attached to the inside of a drinking receptacle proximate the rim of said drinking receptacle; said apertured tab being foldable about an axis immediately adjacent the inside of said drinking receptacle; and wherein said apertured tab is foldable to a horizontal position for straw mounting therein through said aperture tab, and foldable vertically to enable nesting of a plurality of said drinking receptacles.

5,671,864
NON-GRIP HOLDER FOR CONTAINERS
 Scott Caruthers, Millersville, Md., assignor to DAR Products Corporation, Baltimore, Md.
 Filed Jun. 22, 1995, Ser. No. 493,785
 Int. Cl.⁶ B65D 23/10
 U.S. Cl. 220—737



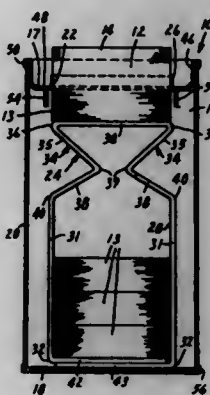
1. A non-grip handle adapted to be attached to an outer wall of a container, the container to be held and controlled by the hand of a human user, the handle comprising:
 an upper leg, a lower leg and a wall therebetween, the handle being disposed radially of the outer wall of the container, a chamber having an opening formed between the handle and the outer wall of the container, the chamber having dimensions to accommodate the hand of the user, the chamber being closed at a point distal from the opening,
 a depression being formed in the upper leg near the opening, whereby when the user's hand is inserted in the opening and received in the chamber, the user's hand is substantially in a natural, at rest, open position with the palm and the extended fingers of the user's hand being around the outer wall of the container and the user's thumb being supported in the depression such that a forceful grip is not necessary to pick up, hold and use the container.

5,671,865
COFFEE FILTER DISPENSER
 Christopher P. Sarris, 456 Ingalls Ave., Joliet, Ill. 60435
 Filed Dec. 7, 1995, Ser. No. 568,901
 Int. Cl.⁶ B65H 3/00
 U.S. Cl. 221—36



1. A coffee filter dispenser to dispense individual coffee filters of the cup type from a stack of such coffee filters comprising a chamber in which to receive a said stack of said coffee filters in a position wherein said cup type coffee filters in said stack are facing upside down, said chamber having a bottom wall on which to place said stack of cup type filters facing upside down, said stack having an uppermost cup type filter thereon facing upside down, said uppermost cup type filter having a bottom cup wall facing upwardly from said stack, initial loosening means positioned to engage said uppermost cup type filter in said stack to initially loosen said uppermost cup type filter from said stack, said initial loosening means being non-adherent, and ejection means positioned to engage and slidably eject said uppermost cup type filter from said stack after it has been initially loosened by said initial separating means.

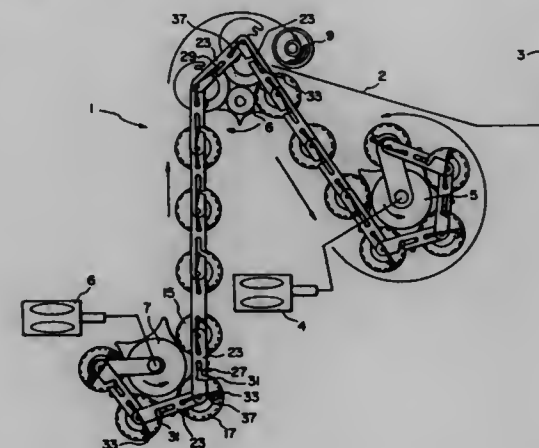
5,671,866
REFILLABLE SHEET DISPENSER WITH STORAGE
 Douglas P. Bodziak, Lake Elmo, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Filed Dec. 27, 1995, Ser. No. 578,072
 Int. Cl.⁶ A47K 10/24
 U.S. Cl. 221—45



1. A sheet dispenser for flexible sheets from a stack of sheets disposed one on top of another, said sheet dispenser comprising:
 walls having inner surfaces defining a cavity adapted to receive the stack and having opposite outer surfaces, said walls including
 a first end wall having an elongate outlet opening for said cavity between said inner and outer surfaces through which individual sheets from the stack in the cavity may be manually withdrawn,

a second end wall, and
 at least one side wall, said side wall having opposite ends, having one of said ends engaged with said first end wall and the other of said ends engaged with said second end wall; and
 means in said cavity for biasing the stack of sheets toward said first end wall, said means for biasing comprises an elongate strip of stiff resiliently flexible material, said strip having transverse bends at spaced locations, being resiliently flexible at said bends, and defining with said bends
 a generally planar pad support portion having opposite ends and upper and lower surfaces, said upper surface being positioned adjacent said first end wall;
 two locating portions of about equal length disposed generally at right angles to said pad support portion and disposed generally in alignment with the opposite ends of said pad support portion, said locating portions having supported ends opposite said pad support portion supported on said walls, and
 two force directing portions between said pad support portion and said locating portions including first force directing parts of about equal length, having first ends attached by bends at the opposite ends of said support portion, disposed at an acute angle with respect to said pad support portion and projecting generally toward each other along the lower surface of said pad support portion, and two second force directing parts of about equal length, having inner ends attached by bends at the ends of said first force directing parts opposite said first ends, said second force directing parts extending generally away from each other from said inner ends and having ends opposite said inner ends attached by bends to the ends of said locating portions opposite said supported ends, the space between and length of said locating portions being adapted to afford storage of at least one refill pad of notes in the space between said locating portions.

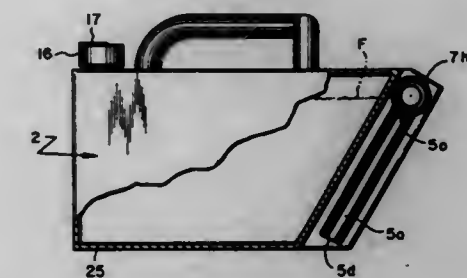
5,671,867
ARTICLE PACKAGING SYSTEM FOR AN AUTOMATED ARTICLE DISPENSING MECHANISM
 Daniel Cardenas, 2041 Shallowford Rd., Marietta, Ga. 30066
 Filed Sep. 12, 1995, Ser. No. 527,220
 Int. Cl.⁶ G07F 11/58
 U.S. Cl. 221—72



1. An article packaging system for an automated article dispensing mechanism comprising:
 a) a clamshell container including generally semi-cylindrical container halves pivotably mounted together about pivot means to permit opening and closing of an internal chamber thereof;
 b) biasing means for biasing said halves toward one another in a direction of closure of said chamber;
 c) first and second side rails, said first side rail pivotably mounted to said pivot means at one side of said container,

said second side rail pivotably mounted to said pivot means at another side of said container;
 d) third and fourth side rails, said third side rail pivotably mounted to said first side rail and including a slot, said fourth side rail pivotably mounted to said second side rail and including a further slot;
 e) one of said halves having a first pin receivable in said slot and a second co-axially disposed pin receivable in said further slot;
 f) whereby when said third and fourth rails are concurrently pivoted with respect to said first and second rails, respectively, in a first direction, said first and second pins leave said slot and further slot, respectively, and said biasing means maintains said halves in a closed position of said chamber; and
 g) when said third and fourth rails are concurrently pivoted with respect to said first and second rails, respectively, in a second direction opposite to said first direction, said first and second pins are maintained in said slot and further slot, respectively, and said halves are pivoted with respect to one another to open said chamber.

5,671,868
FLUID DISPENSING CONTAINER EQUIPPED WITH A FUNNELED SIDEWALL SECTION AND A VALVED POURING SPOUT
 Boone D. Herr, 6444 NE Going, Portland, Ore. 97218
 Filed Jun. 7, 1995, Ser. No. 484,492
 Int. Cl.⁶ B67D 3/00
 U.S. Cl. 222—1



1. A method for dispensing a fluid from a dispensing container equipped with an enclosed body for containing the fluid within the container with said body including a funneled sidewall section projecting upwardly and outwardly at an angular position so as to permit funneling of the fluid towards an upper region of the funneled sidewall section when the container is adjusted to a pouring position, an air vent for venting air into the enclosed body, a valved assembly communicating onto the upper region of said funneled sidewall section, an axial mount for pivotally mounting the valved assembly to the upper region of the sidewall section, with said assembly operatively controlling the flow of the fluid through the assembly by a pivotal movement of the assembly to an opened valved position and by adjusting the container to the pouring position which allows for the dispensing of fluid through the assembly and by the pivotal movement of the assembly to a closed valved position which terminates fluid flow, and a pouring spout affixed to said valved assembly for pouring the fluid discharged from said valved assembly, said method comprising:
 a) positioning said pouring spout in communication with a fluid receiving receptacle;
 b) pivoting the valved assembly and the attached pouring spout to the opened valved position while maintaining the communication between the spout and the receptacle;
 c) dispensing fluid to the receptacle from said container by tilting the container to the pouring position as to funnel fluid through the valve assembly and said spout;
 d) terminating the dispensing of the fluid from said container by implementing at least one subsequent step comprising:

- 1) readjusting the container so that fluid level within the container rests below the valve assembly and thereby terminate funneling of the fluid through the valve assembly;
- 2) repositioning the container so as to cause the pivotal movement of the valve assembly and the attached pouring spout to be positioned at the closed valve position; and
- 3) stopping the venting of air through the air vent.

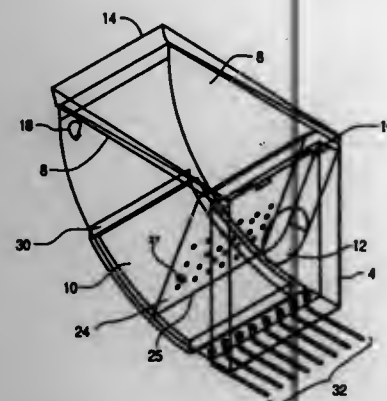
5,671,869

FIBER CHAFF DISSEMINATOR

Mark L. G. Althouse, Bel Air, Md., and Kevin J. Wilcock, Tooele, Utah, assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Dec. 4, 1995, Ser. No. 566,742
Int. Cl.⁶ G01F 11/00

U.S. Cl. 222—1

20 Claims



1. A fiber chaff dispenser which comprises:

- a.) a hopper capable of containing a mass of fiber chaff, the hopper comprising a single, continuous bottom and rear wall member whose cross section is generally an arc of a circle, and a front panel and two side panels attached to the bottom and rear wall member to form a substantially enclosed vessel having an open top; at least the bottom portion of the bottom and rear wall member having a plurality of airholes therethrough; the front panel having a single exit port for the fiber chaff;
- b.) a hinged lid attached to said hopper and extending a distance sufficient to substantially completely cover the open top;
- c.) means for lifting the lid a distance above the open top to thereby provide an airflow ingress to the hopper;
- d.) a dispensing chamber comprising a wall interior to the hopper spaced from and substantially parallel to the plane of the front panel, said chamber extending from the bottom portion of the bottom of the exit port and extending to a point below the hopper top;
- e.) a baffle means inside the hopper spaced a distance behind the dispensing chamber, the baffle spanning the width of the hopper between each of the two side panels and extending the distance to the bottom and rear wall member;
- f.) an airflow control channel extending along the curvature of the bottom and rear wall member and positioned over the airholes at the bottom portion thereof, said channel providing means to adjust the amount of air flow through said airholes;
- g.) a plurality of airjets extending through the bottom portion of the bottom and rear wall member behind the dispensing chamber, said airjets being capable of directing a supply of forced air therethrough into the hopper; and
- h.) blower means attached to the exit port and capable of receiving fiber chaff from the dispensing chamber and blowing said chaff out through a chute.

11. A method of dispensing fiber chaff which comprises:

I. providing a chaff dispenser which comprises:

- a.) a hopper capable of containing a mass of fiber chaff, the hopper comprising a single, continuous bottom and rear wall member whose cross section is generally an arc of a circle, and a front panel and two side panels attached to the bottom and rear wall member to form a substantially enclosed vessel having an open top; at least the bottom portion of the bottom and rear wall member having a plurality of airholes therethrough; the front panel having a single exit port for the fiber chaff;
 - b.) a hinged lid attached to said hopper and extending a distance sufficient to substantially completely cover the open top;
 - c.) means for lifting the lid a distance above the open top to thereby provide an airflow ingress to the hopper;
 - d.) a dispensing chamber comprising a wall interior to the hopper spaced from and substantially parallel to the plane of the front panel, said chamber extending from the bottom of the exit port and extending to a point below the hopper top;
 - e.) baffle means inside the hopper spaced a distance behind the dispensing chamber, the baffle spanning the width of the hopper between each of the two side panels and extending the distance to the bottom and rear wall member;
 - f.) an airflow control channel extending along the curvature of the bottom and rear wall member and positioned over the airholes at the bottom portion thereof, said channel providing means to adjust the amount of air flow through said airholes;
 - g.) a plurality of airjets extending through the bottom portion of the bottom and rear wall member behind the dispensing chamber, said airjets being capable of directing a supply of forced air therethrough into the hopper; and
 - h.) blower means attached to the exit port and capable of receiving fiber chaff from the dispensing chamber and blowing said chaff out through a chute;
- II. causing air to flow into said hopper from at least one of said airflow ingress, said plurality of airholes and said airjets; said air flow being sufficient to continuously lift fiber chaff in the hopper and supplying the chaff to the blower; and
 - III. causing said blower to acquire the chaff from said hopper and expel said chaff out through a chute.

5,671,870

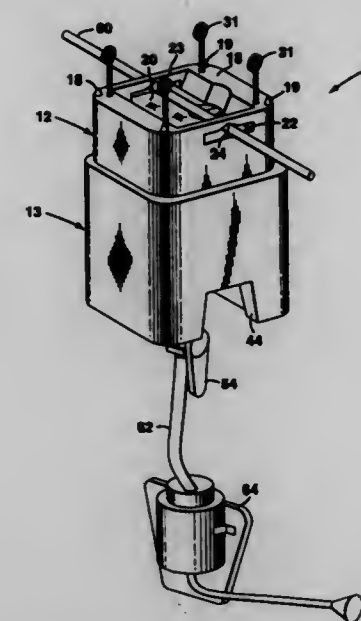
RETURNABLE DRY PRODUCT CONTAINER

William Francis Megargle, Beverly; Wayne Michael Bruhn, Sewell, both of N.J., and Steven Lee Clements, Dunlap, Ill., assignors to FMC Corporation, Chicago, Ill.
Division of Ser. No. 359,179, Dec. 19, 1994, Pat. No. 5,598,953. This application Sep. 18, 1996, Ser. No. 715,511
Int. Cl.⁶ B67D 5/06

U.S. Cl. 222—1

1 Claim

1. A method for providing dry products to product dispensers, comprising the steps of:
 - joining a container with a base to form a dry product container;
 - mechanically attaching a valve to the dry product container;
 - filling the dry product container with dry product;
 - stacking a plurality of dry product containers upon each other;
 - transporting the stacked dry product containers; hanging the dry product container;
 - attaching a first end of a hose to a valve of the dry product container;
 - placing a second end of the hose in a dispenser;
 - opening the valve;
 - closing the valve; and
 - emptying the dry product container;



stacking the dry product container; and
returning the dry product container.

5,671,871

INSERTS FOR CONTAINERS

Anthony Robert Hoare, Portishead, United Kingdom, assignor to David S. Smith (Packaging) Limited, Warwickshire, United Kingdom

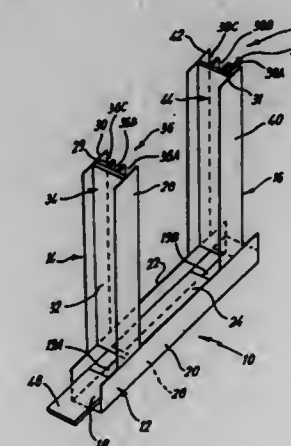
Filed Aug. 7, 1995, Ser. No. 512,212

Claims priority, application United Kingdom, Aug. 6, 1994, 9415948

Int. Cl.⁶ B65D 35/18

U.S. Cl. 222—105

13 Claims



1. An insert for a collapsible container having an opening, said insert comprising a first member defining a first elongate fluid passage in the form of a generally U-shaped channel adapted to extend from said opening inwardly of the container and adapted to be in fluid communication with said opening, and a second member defining a second elongate fluid passage in the form of a generally U-shaped channel extending transversely from the first fluid passage defined by said first member and being in fluid communication with said first fluid passage.

5,671,872

LIQUID CONTAINER PAPER TOWEL HOLDER

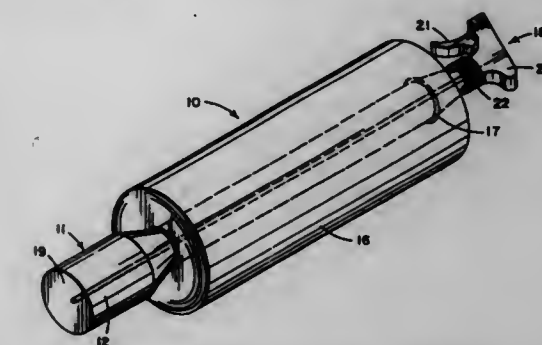
Lovick T. Daniels, Jr., 223 Brighton Way, Casselberry, Fla. 32707

Filed Apr. 26, 1996, Ser. No. 638,110

Int. Cl.⁶ B67D 5/42

U.S. Cl. 222—192

13 Claims



1. A liquid container paper towel holder comprising:

- a polymer liquid container having an enlarged hollow base having an angled annular surface extending therefrom and an elongated neck extending from the angled annular surface, said elongated neck having an open end and having external threads adjacent to the open end;
- a roll of paper towels having a hollow center positioned over said liquid container neck and supported at one end on said enlarged hollow base; and
- a spray top having a hand pump and a threaded lid attached to said liquid container thread adjacent said open end thereof and holding said roll of paper towels on said liquid container elongated neck; whereby a spray container can be used to spray a liquid and as a support for a roll of paper towels.

5,671,873

PROPORTIONING APPARATUS FOR VISCOUS MATERIALS

Norbert Hammerl, Petershausen, and Horst Fleischer, Dachau, both of Germany, assignors to Ludwig Schwerdtel GmbH, Karlsruhe, Germany

Filed Nov. 13, 1995, Ser. No. 558,280

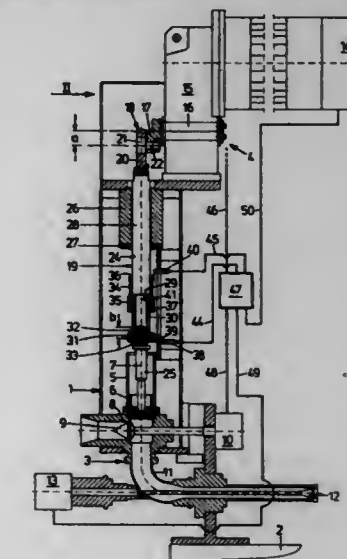
Claims priority, application Germany, Nov. 11, 1994, 44 40 243.0

Int. Cl.⁶ B67D 5/40

U.S. Cl. 222—309

10 Claims

1. A proportioning apparatus for viscous materials comprising:



frame (1),
a proportioning cylinder (5) mounted on the frame (1) and having an inlet (8) and an outlet (11) and a central longitudinal axis (7),
a delivery piston (6) disposed in the proportioning cylinder (5) displaceably along said central longitudinal axis (7),
an inlet valve (9) for closing and opening the inlet (8),
an outlet valve (12) for closing and opening the outlet (11),
a proportioning drive (4)
with an actuating rod (19) displaceable in the direction of the central longitudinal axis (7) and movable into delivering contact with the delivery piston (6), and
with an electric motor (14) coupled with the actuating rod (19) by way of a crank drive (18).

5,671,874
MINIATURE DISPENSER PUMP AND OUTLET VALVE FOR SAME

Alain Behar, Suresvres, and Marcel Endes, Le Mesnil-le-Roi, both of France, assignors to Sofab, France

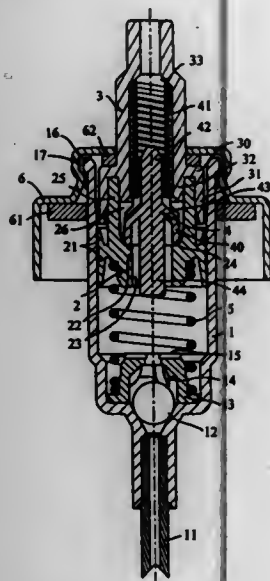
Filed Oct. 18, 1995, Ser. No. 544,717

Claims priority, application France, Oct. 19, 1994, 94 12460

Int. Cl.⁶ B67D 5/40

U.S. Cl. 222—341

9 Claims



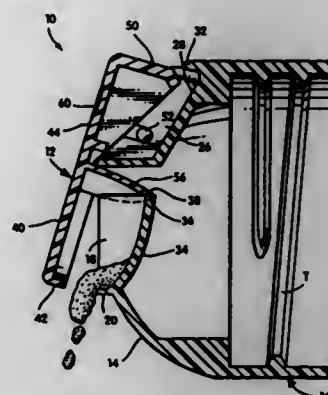
1. A miniature dispenser pump comprising a cylindrical body with a bottom intake provided with an inlet valve, in which body a skirt is provided and encloses a movable piston against the action of a return spring, the piston being provided with a nozzle which passes upwardly through the skirt, an axial channel; and an internal outlet valve member closing the channel, a return spring biasing the outlet valve member toward a closed position; wherein the nozzle is provided at its top portion with an internal shoulder, its bottom portion widening out into a collar, onto which a bushing is forced by its top edge, the bushing being formed to act externally as a piston sealing gasket, defining under the collar of the nozzle an internal chamber in which the outlet valve member is located; the chamber having a base intersecting an axial orifice; an annular seat for said outlet valve member in the base around the orifice; the return spring for the outlet valve member and the outlet valve member itself extending from below upwardly into the nozzle.

5,671,875
MEASURING/DISPENSING CLOSURE FLIP-TOP CAP AND BUILT IN SHUT-OFF BLADE
Edward S. Robbins, III, 2802 E. Avalon Ave., Muscle Shoals, Ala. 35661, and Gregory S. Burcham, Spruce Pine, Ala., assignors to Edward S. Robbins, III, Muscle Shoals, Ala.
Filed Jul. 2, 1996, Ser. No. 677,350

Int. Cl.⁶ G01F 11/26

U.S. Cl. 222—452

9 Claims



1. A measuring/dispensing closure for a container comprising a hollow body having an opening therein, and a pivotable flip top, said flip top mounted on the body for pivotal motion about a horizontal hinge axis between closed and open positions, said flip top having a first planar cap portion sized and adapted to cover said opening, and second press portion adapted to be pressed by a user to move said flip top from said closed to said open position; said hollow body having an internal, curved weir panel located below said opening and having an edge extending parallel with said hinge axis thus establishing a weir opening adjacent said weir edge, said weir panel defining, in cooperation with an underside portion of said flip top and a peripheral portion of said opening, a measuring chamber within said closure, and wherein said flip top is formed with a shut-off blade extending downwardly from and substantially perpendicularly to said planar cap portion, said shut-off blade movable into engagement with said weir edge when said flip top is in said open position.

5,671,876
SOCK ORGANIZER
Trevis Daniell Gardner, 418 Montgomery St., Prichard, Ala. 36610

Filed Jun. 23, 1993, Ser. No. 79,934

Int. Cl.⁶ A41H 43/00; A44B 1/00; A41F 1/00

U.S. Cl. 223—1

1 Claim

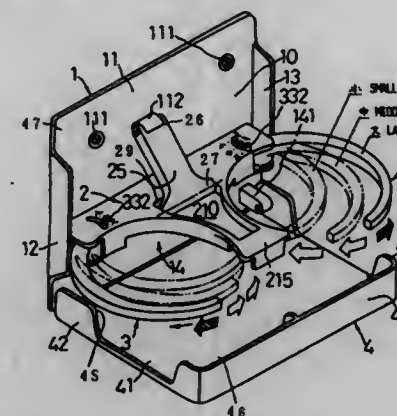


1. A sock organizer for gripping pairs of socks during washing in a washing machine comprising: a molded plastic clamp having substantially a V-shape with two mating laterally extending side members connected by an integral hinge, each side member having a pair of parallel edges, each side member including a plurality of parallel finger elements placed across each side member and extending laterally from each side member, each finger element including lateral ends with knurled teeth thereon, a detent lock mounted on each finger element on one side member and a mating detent lock mounted on each finger element of the other side member, a separate, adjacent, clearance hole for wash agitation between each adjacent side member, wherein the parallel finger elements on each side member are in mating relationship, the sock organizer further comprising a finger pull adjacent the end of said side members.

5,671,877
CONTAINER HOLDER DEVICE
Shigeru Yabuya, Inuyama, Japan, assignor to Toyoda Gosei Co., Ltd., Aichi, Japan
Filed Jan. 31, 1996, Ser. No. 594,440
Claims priority, application Japan, Jan. 31, 1995, 7-014629
Int. Cl.⁶ B60R 7/00

U.S. Cl. 224—282

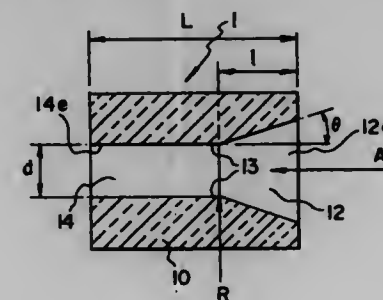
9 Claims



1. A container holder device comprising:
a case which is installed in a body of a vehicle, said case having a pair of generally vertical side walls defining a part of a storage chamber;
a base which is pivotally supported by said case so as to be movable between a stored position and a use position;
at least one movable arm having one end supported by said base so as to be movable with respect to said base to contact a periphery of a container when said base and said at least one arm are in said use position, said at least one arm being guided to move from an outside to an inside of at least one of said side walls upon movement of said base from said use position to said stored position so that said at least one arm contacts said at least one side wall in said storage position; and
urging means for urging said at least one arm toward the outside of said at least one side wall.

5,671,878
CERAMIC-MADE GUIDE FOR ROLLING LINE
Keiji Kawasaki, Chiryu, Japan, assignor to NGK Insulators, Ltd., Nagoya, Japan
Continuation of Ser. No. 361,671, Dec. 22, 1994, abandoned.
This application Jul. 3, 1996, Ser. No. 674,993
Claims priority, application Japan, Dec. 28, 1993, 5-334525
Int. Cl.⁶ B65H 23/04; G03B 1/48
U.S. Cl. 226—196

7 Claims

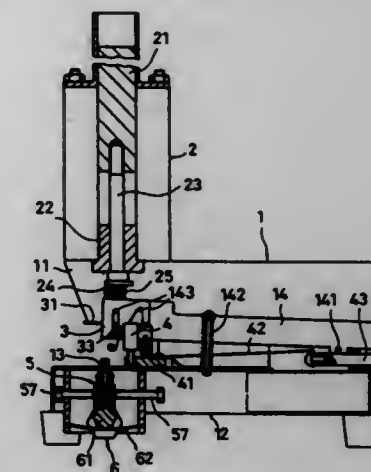


1. A guide for wire rod transfer in a rolling line, said guide being comprised of sintered silicon nitride or sialon and having a cylindrical contour and a throughhole for wire rod transfer, said throughhole having an as-fired surface and a surface roughness, R_{max} of 10 μ m or less and having a first end and a second end, said

throughhole being tapered at said first end so as to gradually decrease from a maximum diameter at said first end to a minimum diameter at a point within said guide, and said throughhole having said minimum diameter from said point to said second end.

5,671,879
LOW-NOISE POWER STAPLER
Liang-Peng Lin, 4 F., No. 282, Section 2, Li Nung Street, Taipei City, Taiwan
Filed May 14, 1996, Ser. No. 645,820
Int. Cl.⁶ B25C 1/06; B27F 7/36
U.S. Cl. 227—7

5 Claims



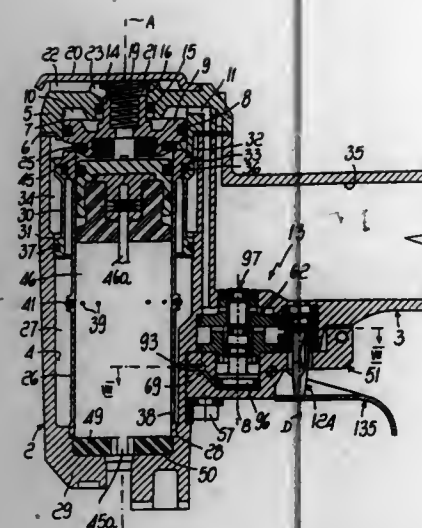
1. A power stapler comprising a base, a magazine mounted on said base to carry staples, a follow spring mounted in said magazine to push staples forwards, a spring-supported striking plate controlled to drive staples into sheet of paper, a contact switch, an electromagnetic valve controlled by said contact switch to drive said striking plate, a guard plate adapted for stopping staples in said magazine, an anvil assembly mounted in a hole in said base on which staples are hammered and deformed, and an anvil elevation adjusting device adapted for adjusting the elevation of said anvil assembly, wherein said electromagnetic valve is mounted on two upright frames above said base, comprising a valve rod vertically disposed at the top, a movable annular metal block disposed at the bottom, and a plunger having a top end fixedly connected to said valve rod and a bottom end inserted through said movable annular metal block and stopped above said spring-supported striking plate, said movable annular metal block being energized to attract said valve rod when said electromagnetic valve is turned on, causing said valve rod to force said plunger downwardly against said spring-supported striking plate, said movable annular metal block being simultaneously moved downwards with said valve rod when said valve rod is attracted by said movable annular metal block.

5,671,880
COMPRESSED-AIR NAIL FIRING TOOL WITH HEAD VALVE, OPERATING WITH SINGLE AND REPEAT FIRING
Marco Ronconi, Bologna, Italy, assignor to Fasco S.p.A., Cardiano Di Granarolo Emilia, Italy
Filed Mar. 11, 1996, Ser. No. 610,788
Claims priority, application Italy, Nov. 2, 1995, B095A0518
Int. Cl.⁶ B25C 1/04

U.S. Cl. 227—130

5 Claims

1. A compressed-air nail firing tool with head valve, operating by single firing and repeat firing through a selector, said tool comprising: a body that is composed of a head, said head enclosing a cavity that is closed at one end by a cover and, at an opposite



end, by a base; a tubular handle that protrudes from said head and forms a cavity, said cavity being connected to a compressed air source; a cylindrical jacket being accommodated in said cavity, said jacket forming an outer interspace; a check valve element being arranged on said jacket, said valve element allowing flow of air to pass from inside said jacket towards said interspace; a piston being guided in said jacket, said piston forming an upper chamber and a lower chamber; a striking blade, which is coupled to said piston, said blade running through said lower chamber and said base; a disk being guided in said cover coaxially to said jacket, said disk constituting said head valve, and being movable between a position for resting on said jacket, in which said upper chamber is connected to outside environment through passages of said disk and of said cover, and a position for abutment on said cover, in which said upper chamber is connected to said compressed air source, said interspace being connected to said lower chamber through slots formed in said jacket proximate to said base, said disk forming, together with said cover, a chamber that is selectively connectable to the outside and to said compressed air source; valve means for connecting said chamber to the outside and said air source; a spring acting on said disk so as to move said disk into a position for resting on said jacket; and wherein said valve means comprises: a cylindrical seat being formed in said body and being alternately selectively connectable to the outside and to said interspace through respective ducts; a shutter for controlling said ducts, which is actuatable between two positions, said shutter allowing, in one of said positions, a connection between said seat and said interspace while interrupting connection to the outside during repeat-firing operation, in a second position, the shutter interrupting connection between said seat and said interspace while allowing connection between said seat and the outside during single-firing operation; a distributor, which is composed of a piston being slideable in said seat, said piston forming a chamber into which said ducts lead; and a stem being coaxial to said piston and slideable in a sleeve, said sleeve being accommodated in said body coaxially to said seat and being connected to said seat at one end and to said cavity of said handle at an opposite end thereof, said sleeve having a first seat being connected to said chamber formed between said disk and said cover and a second seat being connectable alternately to the outside and to said cavity of the handle through a shunt valve, said shunt valve being composed of a seat formed in said body, a bush accommodated in said seat, said bush being connected, at one end thereof, to said cavity of the handle and, at an opposite end thereof, to the outside, said bush being provided with holes that are connected to said second seat of said distributor, a stem being slideable in said bush, said stem being actuated by a trigger between two positions, in a first one the stem connecting said second seat to the outside through said holes, whereas in a second one said stem connecting said second seat to said cavity of the handle.

5,671,881

METHOD OF MANUFACTURING AN OPTICAL ISOLATOR

Ryuji Osawa, Sendri, Japan, assignor to Tokin Corporation, Miyagi, Japan

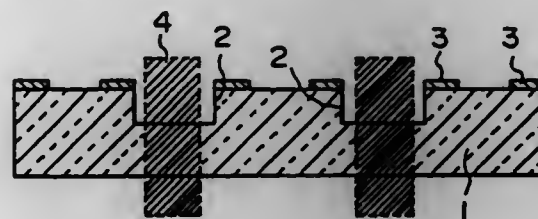
PCT No. PCT/JP95/02404, § 371 Date Sep. 3, 1996, § 102(e) Date Sep. 3, 1996, PCT Pub. No. WO96/17270, PCT Pub. Date Jun. 6, 1996

PCT Filed Nov. 27, 1995, Ser. No. 682,620

Claims priority, application Japan, Nov. 25, 1994, 6-315839 Int. Cl.⁶ B23K 1/20

U.S. Cl. 228—208

1 Claim



1. A method of manufacturing an optical isolator, comprising the steps of preparing an optical material block having such a size that a plurality of optical elements can be cut out therefrom, preliminarily forming line grooves in the surface of said block along predetermined cutting lines, thereafter forming an antireflection film and a metallized film for metal fusion bonding with a holder, and cutting with a cutting width narrower than the width of said grooves.

5,671,882

WRAPPING PACKAGE

Herbert Cerwinski, Grasbrunn-Neukeferloh, Germany, and Andreas Niederer, Wagram, Austria, assignors to Teich Aktiengesellschaft, Austria

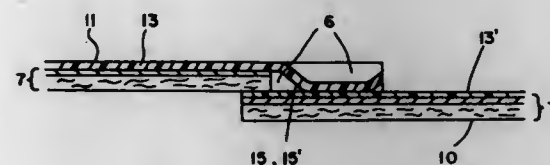
PCT No. PCT/AT95/00035, § 371 Date Oct. 17, 1995, § 102(e) Date Oct. 17, 1995, PCT Pub. No. WO95/22496, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 16, 1995, Ser. No. 530,380

Claims priority, application Australia, Feb. 17, 1994, 312/94 Int. Cl.⁶ B65D 75/14; 75/26

U.S. Cl. 229—87.08

11 Claims



1. A package containing an item comprising a wrapper folded around the item, said wrapper being comprised of a flexible wrapping material comprised of two different layers of material, said wrapping material having two edge zones disposed on opposite sides thereof, wherein the layer of material which faces the item contains at least one cut-out within one of the two edge zones and the other layer of material is comprised of a plastic foil and is sealable at the location of the cut-out, said wrapper being folded around the item such that the two edge zones of the wrapping material are overlapped and sealed at the cut out.

5,671,883

QUICK COLLAPSE PAPERBOARD CONTAINER

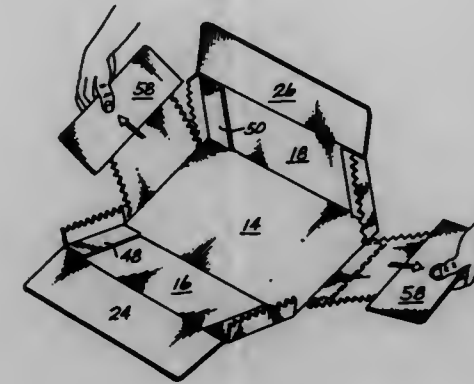
Nicholas A. Phillips, Chicago, Ill., assignor to Weyerhaeuser Company, Tacoma, Wash.

Filed Jun. 28, 1996, Ser. No. 672,607

Int. Cl.⁶ B65D 5/42

U.S. Cl. 229—236

3 Claims



1. In an easily collapsible paperboard container of the type having upstanding side walls, a pair of opposed end walls with each upwardly extending edge of an end wall joined to its adjacent side wall and a bottom wall joining the bottom edges of the side walls and end walls; the improvement comprising:

a pair of opposed lines of weakness in each end wall spaced apart a distance equal to or greater than fifty percent of the dimension between the upwardly extending edges and extending upwardly from a point substantially at the bottom edge to a point substantially at the top of the end wall, which opposed lines of weakness will function as severance lines when the container is to be collapsed into a substantially horizontal plane by exerting opposing forces relative to the lines of weakness to cause severing throughout their lengths.

5,671,884

BACKPACK SPRAYER WITH AN EXPANDABLE ACCUMULATOR CHAMBER

Mario John Restive, Frankfort, N.Y., assignor to D.B. Smith & Co., Inc., New York Mills, N.Y.

Filed Jul. 31, 1995, Ser. No. 509,149

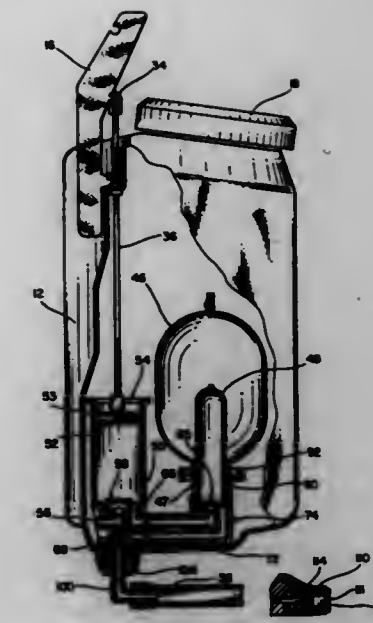
Int. Cl.⁶ B05B 9/08

U.S. Cl. 239—154

20 Claims

1. An improved backpack sprayer in which a supply tank is configured and dimensioned to be mounted on the back of an operator, and in which a pump assembly is located adjacent to a bottom of said tank and is in fluid communication therewith, said pump assembly being operable to pump a fluid from said tank into an accumulator through an inlet opening in said accumulator, and in which a discharge valve is associated with the inlet opening and is operable to release the fluid from said accumulator through the inlet opening for discharge through a spray nozzle, wherein the improvement comprises:

expandable accumulator means constituting said accumulator, in fluid communication with said pump assembly and having an expandable volume, for accumulating fluid under pressure as its volume expands from an initial volume to an expanded volume, and for discharging said fluid under pressure upon the opening of said discharge valve.



5,671,885

NUTATING SPRINKLER WITH ROTARY SHAFT AND SEAL

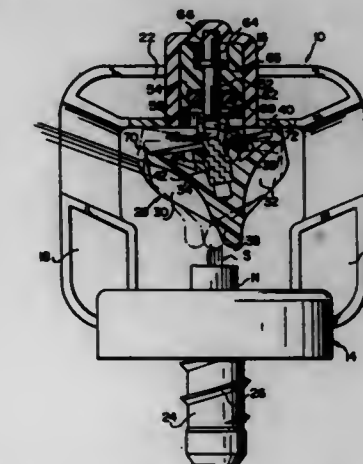
Paul D. Davisson, Walla Walla, Wash., assignor to Nelson Irrigation Corporation, Walla Walla, Wash.

Filed Dec. 18, 1995, Ser. No. 575,734

Int. Cl.⁶ B05B 3/06

U.S. Cl. 239—222.17

16 Claims



1. A sprinkler comprising a body portion supporting a nozzle and a rotatable spray plate in axially spaced relationship to said nozzle, said spray plate having a flexible coupling projecting therefrom and secured to one end of a relatively rigid shaft mounted in a housing located downstream of said nozzle.

5,671,886

ROTARY SPRINKLER STREAM INTERRUPTER WITH ENHANCED EMITTING STREAM

George Sesser, Walla Walla, Wash., assignor to Nelson Irrigation Corporation, Walla Walla, Wash.

Filed Aug. 23, 1995, Ser. No. 518,492

Int. Cl.⁶ B05B 3/08

U.S. Cl. 239—222.21

17 Claims

13. A sprinkler comprising a sprinkler body mounting a nozzle and a cap assembly including a hub supporting a rotor plate for rotation about an axis which passes through said nozzle; said rotor

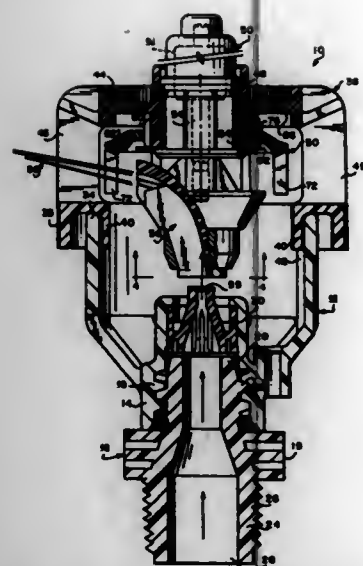
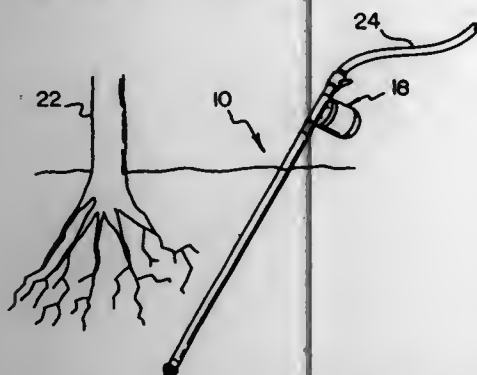


plate having a compound groove formed therein for receiving a stream emitted from said nozzle and for redirecting the stream substantially radially outwardly in two discrete stream portions; and a stream interrupter loosely mounted for eccentric rotation about said hub, said stream interrupter including an annular ring with a plurality of vanes depending therefrom and arranged to be successively struck by said stream portions exiting the compound groove such that said two discrete stream portions are combined to form a third concentrated stream.

5,671,887
HIGH PRESSURE WATER SPRAYER
Moise A. Iavarone, 61 Lantern Ln., Sayreville, N.J. 08872
Filed May 6, 1996, Ser. No. 642,929
Int. Cl.⁶ B05B 7/26
U.S. Cl. 239—310

1 Claim



1. A new and improved high pressure water sprayer adapted for use in association with a tree having subterranean roots and liquid fertilizer, the apparatus comprising, in combination:

- a garden hose formed in a tubular configuration and having a first end including male screw threads, in an operative orientation the garden hose being coupled to a water source;
- a shaft fabricated of PVC pipe and formed in a hollow elongated cylindrical configuration with inboard and outboard ends each including male screw threads, the shaft having a length of four feet and a diameter of 1/4 inches;
- a spray nozzle having an inboard region including female screw threads and an outboard region formed in a generally conical configuration with a plurality of apertures therethrough, in an operative orientation the inboard region of the spray nozzle being threadedly coupled to the outboard end of the shaft;
- a first adapter formed in a generally cylindrical configuration with a hollow interior, the first adapter having a diameter of 1/4

inch and a length of 3/4 inch, the adapter having an inboard end including male screw threads and an outboard end including female screw threads, in an operative orientation the outboard end of the first adapter being threadedly coupled to the inboard end of the shaft;

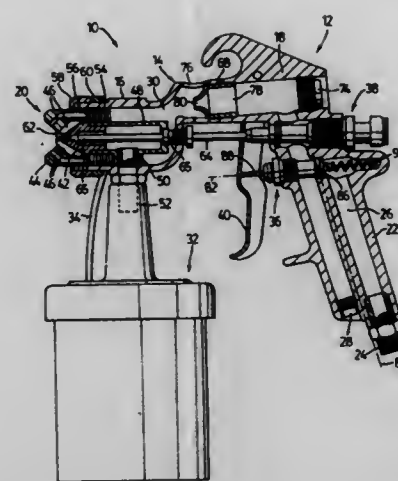
- a lid assembly having an upper region formed as a cylindrical tube with a hollow interior and a lower region formed as a generally circular cover, the cover having an inner surface including internal screw threads and a short pipette and a long pipette extending therefrom, the cylindrical tube having inboard and outboard ends each including female screw threads, each pipette having an upper region in communication with the hollow interior of the cylindrical tube, the outboard end of the cylindrical tube being threadedly coupled to the inboard end of the first adapter;
- a liquid retention jar formed in a generally cylindrical configuration with a closed bottom, an open top and a hollow interior, the open top including external screw threads positioned therearound, the open top of the liquid retention jar adapted to be coupled to the inner surface of the cover;
- a second adapter formed in a generally cylindrical configuration with a hollow interior, the second adapter having a diameter of 1/4 inch and a length of 3/4 inches, the adapter having an inboard end including female screw threads and an outboard end including male screw threads, in an operative orientation the outboard end of the second adapter being threadedly coupled to the inboard end of the upper region of the lid assembly;
- a quick connector formed in a generally cylindrical configuration with an outboard end, an inboard end, an exterior surface, a hollow interior and an internal diameter, the outboard end including male screw threads and being threadedly coupled to the inboard end of the second adapter, the inboard end of the quick connector including female screw threads and adapted to be threadedly coupled to a garden hose; and
- a regulator disc with a diameter approximately equal to the internal diameter of the quick connector and including a radially positioned aperture, an axle affixed within aperture of the quick connector, a handle positioned on the exterior surface of the quick connector, the handle operatively coupled to the axle and regulator disc, the handle having an closed orientation and an open orientation, in an operative orientation a user coupling the quick connector to a garden hose and placing liquid fertilizer in the liquid retention jar, the user then placing shaft and spray nozzle underground, the user then activating the apparatus by placing the handle in the open orientation thereby allowing water to flow through the quick connector past the regulator disc into the second adapter, the water then flowing through the inboard end of the lid assembly and down the short pipette into the liquid retention jar, in the liquid retention jar the water mixing with the liquid fertilizer and being propelled up through the long pipette into the outboard end of the lid assembly, the water then travelling through the first adapter into the shaft and out through the spray nozzle, the water being propelled through the apparatus at a velocity enabling a user to water the roots of trees.

5,671,888
SPRAY GUN WITH BARREL-MOUNTED VENTURI
Paul Smith, 35 Glengrove Avenue, West, Toronto, Ontario, Canada, M4R 1M5
Continuation-in-part of Ser. No. 267,921, Jul. 6, 1994, abandoned. This application Jan. 20, 1995, Ser. No. 375,657
Int. Cl.⁶ B05B 7/24

U.S. Cl. 239—415

19 Claims

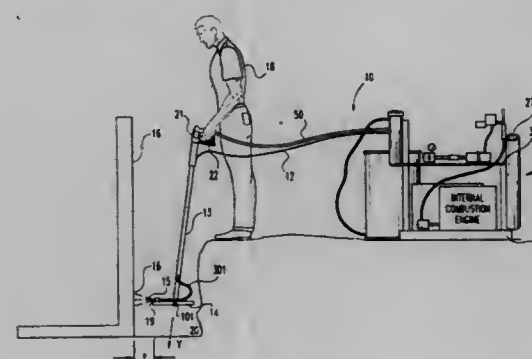
- 1. A spray gun comprising:
 - a barrel having a lengthwise passage;
 - a handle extending transversely from the barrel, the handle comprising an inlet port for receiving a flow of compressed air and a passage for directing the flow of compressed air through the handle into the passage of the barrel;



a spray head mounted to the barrel and communicating with the passage of the barrel;
means for entraining ambient air into the passage of the barrel in response to the flow of compressed air, the air entraining means comprising a venturi mounted within the barrel and an orifice formed in the barrel;
means for delivering a liquid to the spray head for discharge through the spray head; and,
means for controlling the flow of compressed air, the flow controlling means comprising an air valve mounted in the handle for shutting off the flow of compressed air along the flow path and a manually-operable trigger controlling the valve to selectively enable and disable the flow of compressed air.

5,671,889
WATERPROOFING SPRAY APPARATUS
Ralph S. Petty, 6680 White River Pl., Fishers, Ind. 46038
Filed Feb. 17, 1995, Ser. No. 390,084
Int. Cl.⁶ B05B 15/08
U.S. Cl. 239—418

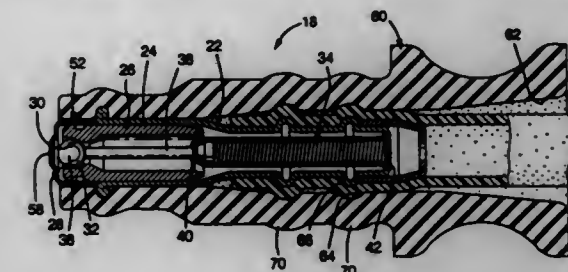
14 Claims



- 8. A method for aligning the nozzles of a waterproofing spraying apparatus with portions of a surface to be covered with a waterproofing coating, comprising:
 - providing a handheld spraying apparatus with a pivotable arm, the pivotable arm having the nozzles coupled thereto;
 - positioning the pivotable arm proximate the surface to be covered with the waterproofing coating; and
 - contacting the surface with the pivotable arm so as to move the arm from an extended position to a deflected position.

5,671,890
FUEL INJECTION NOZZLE
Richard Lloyd Cooper, Le Roy; James Zizelman, Honeoye Falls; Michael Raymond Salemi, Rochester; Jeffrey Mark Noll, Honeoye Falls, and Edwin Antonio Rivera, Fairport, all of N.Y., assignors to General Motors Corporation, Detroit, Mich.
Filed Dec. 18, 1995, Ser. No. 573,841
Int. Cl.⁶ F02M 61/08; F16K 51/00
U.S. Cl. 239—533.7

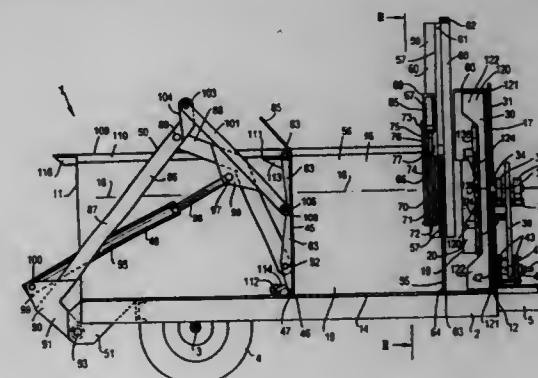
2 Claims



1. A fuel injection nozzle adapted to receive pressurized fuel pulses from a source comprising a nozzle body having a fuel passage extending longitudinally from a first, upstream end to a second, downstream end, an annular valve seat surrounding said fuel passage adjacent said second, downstream end, a valve member, movable between opened and closed positions relative to said valve seat to establish fuel flow through said passage, said valve seat including an angled seating surface for sealing engagement with said valve member and a conical end portion extending between said angled seating surface and said second, downstream end of said passage, said conical end portion having an angle less than that of said angled seating surface, said valve member operable between a first, closed position against said angled seating surface, a second, intermediate position in which said valve member and said conical portion operate to define an annular clearance operable as a restriction to fuel flow around said valve to thereby establish a drag force on said valve to move said valve away from said first, closed position and a third, open position.

5,671,891
APPARATUS FOR SPREADING MATERIAL
Richard Keenan, Richard Christopher Moore, and John Keenan, all of Bagenalstown, Ireland, assignors to Vetron Holdings Limited, Bagenalstown, Ireland
PCT No. PCT/IE93/00060, § 371 Date Jun. 28, 1995, § 102(e) Date Jun. 28, 1995, PCT Pub. No. WO94/15449, PCT Pub. Date Jul. 21, 1994
PCT Filed Dec. 30, 1993, Ser. No. 464,880
Claims priority, application Ireland, Dec. 31, 1992, S92 2953
Int. Cl.⁶ A01C 19/02
U.S. Cl. 239—676

18 Claims



1. Apparatus for spreading material, the apparatus (1) comprising

an elongated container (10) for the material extending from an upstream end (11) to a downstream end (12) and defining a longitudinally extending central axis (18), the container (10) being of substantially constant inner transverse cross-section, and comprising

- a base (14) of semi-circular transverse cross-section, the axis of generation of which co-incides with the central axis (18),
- a pair of spaced apart side walls (15,16) extending generally upwardly from the base (14) on opposite sides thereof and between the upstream and downstream ends (11,12), and
- a downstream end wall (17) extending upwardly from the base (14) between the side walls (15,16),
- a dispensing outlet (19) from one side of the container (10) being located adjacent the downstream end (12) thereof through which material from the container (10) is dispensed,
- a dispensing rotor (30) located in the container (10) at the downstream end (12) adjacent the downstream end wall (17), and being rotatable about a rotational axis (18) which extends parallel to and co-incides with the central axis (18) of the container (10) for dispensing material from the container (10) through the dispensing outlet (19),

an urging means (45) located in the container (10) for urging material in the container (10) in a downstream direction towards the dispensing rotor (30), and

- an isolating means (55) comprising an isolating plate (55), extending transversely of the central axis (18) and being slidably located in the container (10) adjacent the downstream end (12) thereof and upstream of the dispensing rotor (30), the isolating plate (55) having an outer periphery which substantially defines the periphery of the inner transverse cross-section of the container (10) for sealably engaging the base (14) and the side walls (15,16) for selectively isolating the dispensing rotor (30) from a portion (56) of the container (10) which is upstream of the isolating plate (55), the isolating plate (55) being slidable upwardly transversely of the central axis (18) from a closed position with the outer periphery of the isolating plate (55) sealably engaging the base (14) and side walls (15,16) for sealably isolating the dispensing rotor (30) from the upstream portion (56) of the container (10) to an open position with the dispensing rotor (30) communicating with the upstream portion (56) of the container (10) across substantially the entire inner transverse cross-section of the container (10) for receiving material from the upstream portion.

5,671,892

SHEARING MACHINE

Sumio Morikawa, Sakai, and Nobuyuki Zakohji, Toyonaka, both of Japan, assignors to Ohyo Diesel Co., Ltd., Osaka, Japan

Filed Oct. 10, 1995, Ser. No. 544,389

Claims priority, application Japan, Oct. 13, 1994, 6-247380
Int. Cl.⁶ B02C 1/04:1/10

U.S. Cl. 241—101.73

12 Claims

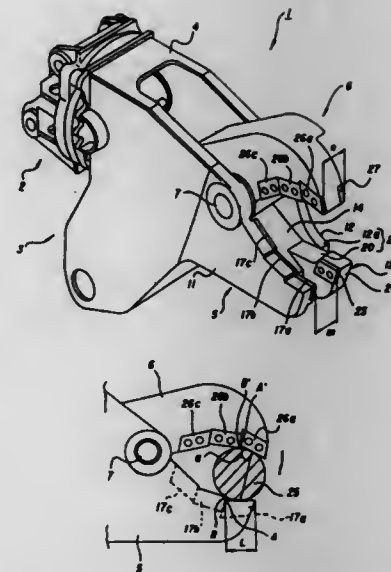
11. A shearing machine comprising:

- a shearing machine body having an upper jaw member rotatably connected to a lower jaw member so as to open and close like scissors, said lower jaw member having a leading edge portion arranged on an open and close trajectory of a leading edge portion of said upper jaw member, said lower jaw member being divided into two parts so as to fit a leading edge portion of said upper jaw member therebetween, wherein upper nose faces of said two parts are arranged on a common flat plane;

a plurality of shear blades arranged in series on each occluding portion of said upper and lower jaw members;

a bracket for rotatably supporting said shearing machine body, said bracket being attached to an arm of a work machine;

wherein said shear blades mounted on said upper and lower jaw members are arranged such that the arrangement of cutting edges of said shear blades forms a convexity curved in an opening direction of said jaw members with the front edge



portions of said shear blades inwardly protruded compared to an adjacent rear edge portion of said any adjacent forward one of shear blades.

5,671,893

DATA CARTRIDGE

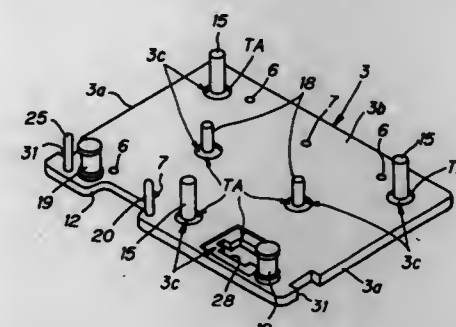
Kazuo Sasaki, Miyagi, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jun. 24, 1996, Ser. No. 668,749

Claims priority, application Japan, Jun. 26, 1995, 7-180562
Int. Cl.⁶ G11B 23/08;23/04

U.S. Cl. 242—342

5 Claims



1. A tape cartridge containing a pair of tape reels on which a tape is wound, comprising:
 - a metal base plate and an upper cover;
 - a tape guide fixed to the metal base plate; and
 - a roller slidably rotatably mounted on the metal base plate, wherein the metal base plate is provided with recesses formed by partially surface-pressing contact areas of the metal base plate with which the tape guide and the roller make contact.

5,671,894

RETRACTOR WITH LOAD LIMITING SPOOL WITH DECOUPLED PRETENSIONER

Niels Dybro, Utica, and Harold John Miller, III, Troy, both of Mich., assignors to AlliedSignal Inc., Morristown, N.J.

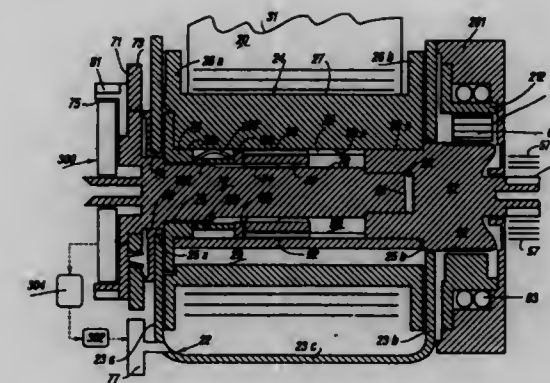
Filed Aug. 11, 1995, Ser. No. 514,074

Int. Cl.⁶ B60R 22/28;22/46

U.S. Cl. 242—374

19 Claims

1. A safety system comprising:



energy absorbing seat belt retractor (20) and a pretensioner means for initiating rewinding a retractor spool (24) and the seat belt (31) subsequent to an accident, the pretensioner means operatively coupled to a first portion of the retractor; the retractor (20) includes a rotationally mounted spool (24) connected to the first portion and an energy absorbing means (70, 90, 100, 102) for permitting the controlled rotation of the spool and the controlled protraction of the belt as the belt is loaded by an occupant,

the retractor having a first mode of operation, prior to an accident, in which the spool is free to rotate to protract and retract the belt in correspondence with the forces into thereto, a second mode of operation in which a lock wheel, operatively coupled to the spool, is prohibited from rotating in a spool protracting direction by interaction with a locking device and in such second mode of operation the energy absorbing means is able to absorb energy permitting the controlled protraction of the belt, as the seat belt is loaded above a first level by the occupant, and a third mode of operation, entered into subsequent to the accident, in which the pretensioner means is activated to engage the first portion and rewind the spool and with the locking device activated to prevent rotation of the lock wheel the energy absorbing means permits the controlled protraction of the belt as the belt is loaded above the first level by the occupant, wherein the performance of the energy absorbing means is the same regardless of whether or not the pretensioner means is in or out of engagement with the first portion.

5,671,895

SYSTEM AND METHOD FOR CONTROLLING THE SPEED AND TENSION OF AN UNWINDING RUNNING WEB

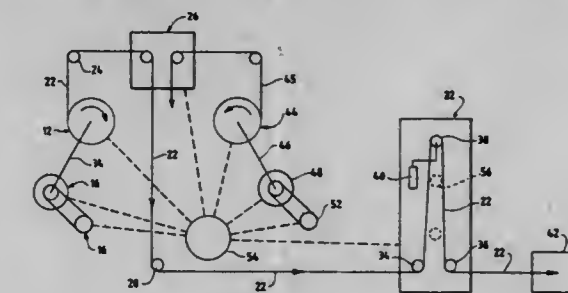
Roger Cederholm, Roscoe; James K. Ward, Rockton, and Emil G. Borys, Rockford, all of Ill., assignors to Martin Automatic, Inc., Rockford, Ill.

Filed Mar. 7, 1996, Ser. No. 612,268

Int. Cl.⁶ B65H 19/14;23/08;23/185

U.S. Cl. 242—420.6

10 Claims



1. An improved method for controlling the speed and the tension of a web being unwound from a first, rotating roll where the web runs from the roll along a predetermined path through an inertia-

compensated festoon, which has the capacity of storing varying amounts of running web during the operation of a web-using process without inducing tension variations into the web, and to the web-using process which requires the web to run at a preselected relatively high speed and at a preselected relatively low tension and which tends to pull the web so as to apply a web-unwinding torque to the roll; the method including the steps of:

applying a brake force to the rotating roll, when the web begins to unwind from the roll;

decreasing the braking force applied to the roll as the diameter of the roll is reduced, due to the web being unwound from the roll, so that the web will run through the process at the preselected speed and tension as the roll unwinds; and

when the roll has been unwound to an intermediate diameter where the decreasing web-unwinding torque is inadequate to continue to accelerate the mass of the roll assisting in rotating the roll in a web-unwinding direction by adding web-unwinding torque to the roll as the diameter of the roll continues to decrease from the intermediate diameter so that the web will continue to run through the process at the preselected speed and tension as the remaining web is unwound from the roll.

5,671,896

APPARATUS FOR THE REELING UP AND UNREELING OF FLAT PRINTED PRODUCTS

Urs Jäggi, Härkingen, Switzerland, assignor to GRAPHAG Holding AG, Hergiswil, Switzerland

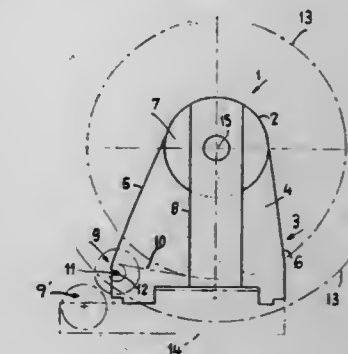
Filed Sep. 8, 1995, Ser. No. 525,093

Claims priority, application Switzerland, Sep. 14, 1994, 02795/94

Int. Cl.⁶ B65H 39/14;63/04

U.S. Cl. 242—528

15 Claims



1. An apparatus for reeling up and unreeling of flat printed products onto and from, respectively, a reel core, comprising:

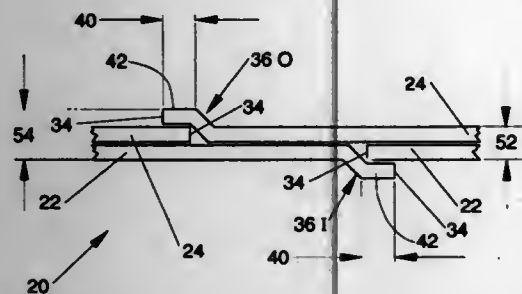
a reel stand;

a reel core having a horizontal reel axis and being fixedly arranged in the reel stand to form one piece so that the reel stand and reel core can be driven together to rotate about the horizontal reel axis;

a reeling strap mandrel rotatably and detachably seated in the reel stand and having a rotational axis that is parallel with the reel axis of the reel core; and

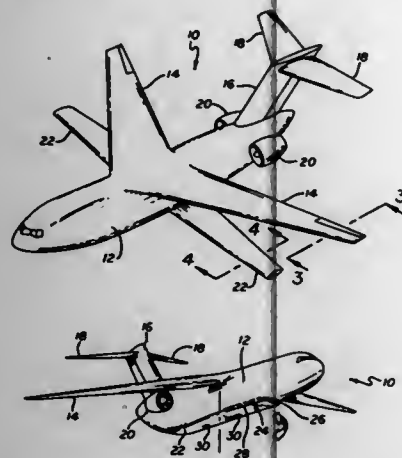
a reeling strap wound on the reeling strap mandrel and having one end connected to the reel core and a second end connected to the reeling strap mandrel, the reeling strap being unwound from the reeling strap mandrel and fed to the reel core in an undershot manner for forming a reel of layers of printed products on the reel core.

5,671,897
CORE FOR CORE WOUND PAPER PRODUCTS HAVING PREFERRED SEAM CONSTRUCTION
 Randy Gene Ogg, Cincinnati, Ohio, and Martin Henry Stark, Saginaw, Mich., assignors to The Procter & Gamble Company, Cincinnati, Ohio
 Continuation of Ser. No. 638,403, Apr. 29, 1996, abandoned, which is a continuation of Ser. No. 401,498, May 15, 1995, abandoned, which is a division of Ser. No. 268,414, Jun. 29, 1994, abandoned. This application Nov. 4, 1996, Ser. No. 743,396
 Int. Cl. B65H 75/18
 U.S. Cl. 242—610.1 3 Claims



1. A two-ply core having a generally round cross section with an inner circumference and an outer circumference, said core comprising an inner ply and an outer ply joined together in face-to-face relationship without an intervening ply therebetween, said inner ply and said outer ply each having a predetermined width defined by two edges and being spirally wound together to form a hollow cylinder, said outer ply subtending an arc greater than 360 degrees forming an outer ply overlap, said outer ply overlap being disposed on the outer circumference of said core wherein said inner ply is not disposed diametrically outwardly of any portion of said outer ply, and said inner ply subtending an arc greater than 360 degrees forming an inner ply overlap, said inner ply overlap being disposed on the inner circumference of said core wherein said outer ply is not disposed diametrically inwardly of any portion of said inner ply.

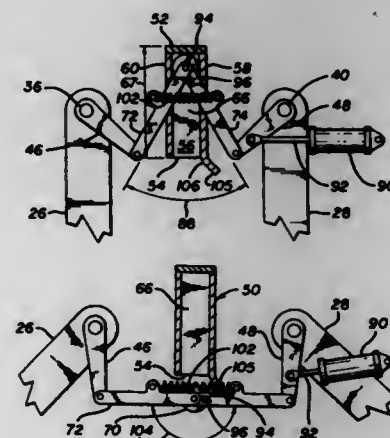
5,671,898
AIRCRAFT HAVING FIXED AND PIVOTAL WINGS
 Bruce B. Brown, 18323 Soledad Canyon Rd., #23 Canyon Country, Calif. 91351
 Filed Feb. 16, 1996, Ser. No. 602,958
 Int. Cl. B64C 3/38, 3/56
 U.S. Cl. 244—46 13 Claims



1. An aircraft having variable airframe geometry, comprising: an elongate fuselage having top and bottom sides;

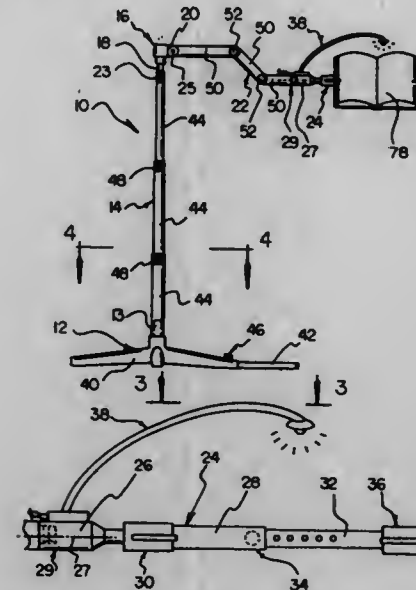
a swept back, low aspect ratio, high-speed wing fixedly mounted to the top of the fuselage; and
 a low-speed wing mounted adjacent to the bottom of the fuselage and pivotable between a slow speed flight position in which a longitudinal axis of the low-speed wing is generally perpendicular to a longitudinal axis of the fuselage, and a high-speed flight position in which the longitudinal axis of the low-speed wing is generally parallel to the longitudinal axis of the fuselage, the low-speed wing comprising a single spar, high aspect ratio wing which, in the slow speed flight position, spans across the fuselage, and, in the high speed flight position, lies adjacent to the bottom side of the fuselage.

5,671,899
AIRBORNE VEHICLE WITH WING EXTENSION AND ROLL CONTROL
 Paul H. Nicholas, Burbank; Larry Lipera, Lancaster; Stephen G. Justice, Santa Clarita, and Joseph M. Wurts, Valencia, all of Calif., assignors to Lockheed Martin Corporation, Bethesda, Md.
 Filed Feb. 26, 1996, Ser. No. 606,928
 Int. Cl. B64C 3/40, 3/56
 U.S. Cl. 244—49 9 Claims



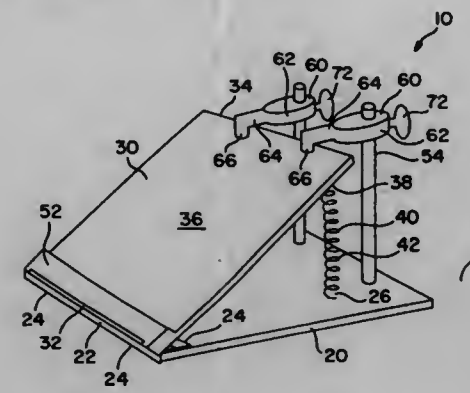
1. An airborne vehicle comprising:
 a main body having a longitudinal, a lateral and a vertical axis;
 a pair of wings pivotally mounted to said main body, each of said wings being movable about an axis of rotation from a retracted position to an extended position external of said main body along the lateral axis;
 a linkage assembly comprising:
 a guide means having an open ended slot aligned with the longitudinal axis of said main body and mounted therein;
 first and second links each having first and second ends, said first ends of said first and second links coupled to said wings at a position offset from the axis of rotation of said wings, and said second ends thereof pivotally coupled to each other,
 pin means rotatably coupled to said second ends of said first and second links, said pin means movable from a first position within said slot wherein said first and second links are at an acute angle to each other to a second position external of said open end of said slot wherein said first and second links are rotated to a greater angular relationship; and
 latch means for securing said first and second links in said greater angular relationship after said pin means exits said open end of said slot; and
 means to move said pin means from said first position to said second position and, additionally, along the lateral axis when said pin means is in said second position.

5,671,900
ADJUSTABLE ARTICLE-HOLDING STAND APPARATUS
 Daniel James Cutler, 633 W. State Apt. #2-A, Springfield, Mo. 65806
 Filed Sep. 25, 1995, Ser. No. 533,016
 Int. Cl. A47B 97/04
 U.S. Cl. 248—451 19 Claims



1. An adjustable article-holding stand apparatus, comprising:
 a base assembly,
 an adjustable vertical riser assembly connected to said base assembly,
 a vertical-to-horizontal swivel assembly having a first portion and a second portion, wherein said first portion of said vertical-to-horizontal swivel assembly is connected to said adjustable vertical riser assembly,
 an adjustable horizontal arm assembly connected to said second portion of said vertical-to-horizontal swivel assembly, and
 an adjustable-length article-holding assembly connected to said adjustable horizontal arm assembly,
 wherein said adjustable-length article-holding assembly includes an auxiliary-device-adaptor assembly connected thereto.

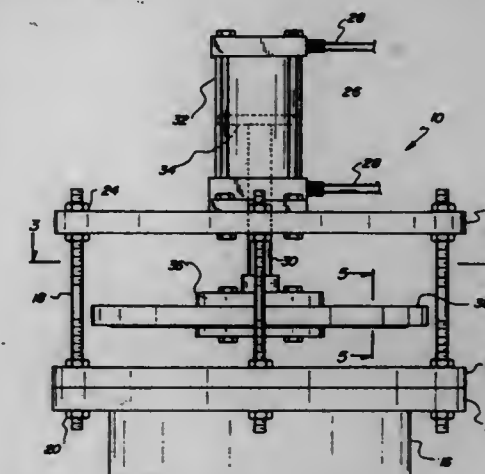
5,671,901
PAGE HOLDING APPARATUS AND METHOD
 Robert L. Jacober, 12130 SW. 107th Ave., Miami, Fla. 33176
 Filed Nov. 6, 1995, Ser. No. 553,924
 Int. Cl. A47B 97/04
 U.S. Cl. 248—452 12 Claims



1. A holder apparatus for propping and holding a printed item for viewing, comprising:

a printed item support member having a support member forward edge, a support member rearward edge and a support member upper face;
 hinge means;
 a base member having a base member forward edge, for resting on an apparatus support surface, wherein said base member forward edge is connected by said hinge means to said support member forward edge;
 biasing means extending between said support member and said base member for elevating said support member rearward edge to tilt said support member upper face toward a user of said apparatus;
 a post member secured to said base member and extending upwardly behind said support member;
 and an anchor arm member slidably mounted on said post member for pressing downwardly against and thereby holding a page of said printed item.

5,671,902
AXIALLY MOVEABLE PLATE VALVE
 John Gustave Gauthiere, 2157 Beuna Vista Dr., Greeley, Colo. 80631, and Paul Douglas Wood, 536 37 Ave., Greeley, Colo. 80634
 Filed Mar. 15, 1995, Ser. No. 404,740
 Int. Cl. F16K 31/143; 1/00
 U.S. Cl. 251—63.5 7 Claims



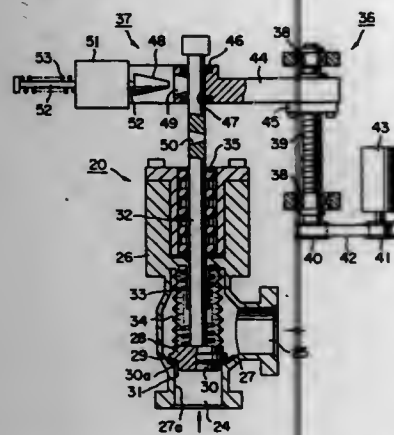
1. A axially moveable plate valve comprising:
 a substantially planar valve seat having a valve seat center aperture extending therethrough, said valve seat being securable to a flange of an associated drain pipe;
 a support plate supported in a spaced relationship relative to said planar valve seat, said support plate including a through-extending support plate center aperture;
 a valve plate positioned between said support plate and said valve seat and being selectively movable between an open position wherein said valve plate is spaced from said valve seat and a closed position wherein said valve plate covers said valve seat center aperture;
 actuator means to effect movement of said valve plate relative to said valve seat; and
 stanchion means for supporting said support plate in a spaced relationship relative to said valve seat, said stanchion means being adapted to permit easy adjustment of the spacing between said support plate and said valve seat to thereby adjust the spacing between said valve seat and said valve plate in said open position.

5,671,903
HEAT TREATMENT APPARATUS AND VALVE DEVICE
FOR USE IN THE SAME
 Kenji Homma, and Hironobu Nishi, both of Kanagawa-ken, Japan, assignors to Tokyo Electron Tophoku Kabushiki Kaisha, Japan

Filed Dec. 28, 1994, Ser. No. 365,460
 Claims priority, application Japan, Dec. 29, 1993, 5-352739;
 Dec. 29, 1993, 5-352740

Int. Cl.⁶ F16K 31/44
 U.S. Cl. 251—69

3 Claims



eter of said handle lower recess, whereby when said handle is disengaged from said valve stem said valve stem key is free to rotate within said handle counterbore, thereby preventing the unintentional opening of said valve, and whereby said splines may only be engaged when said handle is rotated to align said key with said keyway, and when said key is in said handle counterbore and not in alignment with said keyway, said splines cannot be cooperatively engaged by moving said handle to operate said valve thus providing an important safety feature to prevent the unintentional opening of said valve.

1. A heat treatment apparatus having a reduced pressure exhaust valve with an automatic remote control device and an emergency shut-off device, said reduced pressure exhaust valve comprising:

- a valve body to be rested on a valve seat in a valve closing direction and to be lifted from the valve seat in a valve opening direction by sliding of a valve rod in gas tight manner through a valve casing,
- an urging means for urging said valve body in the valve closing direction,
- an electric drive means for opening/closing said valve body through said valve rod against an urging force of the urging means, and
- an interconnection releasing means disposed between the electric drive means and said valve rod for bringing said valve rod and the electric drive means into interconnection with each other, and for releasing the interconnection in an emergency to close said valve body, the interconnection releasing means includes lock pin holes formed both in the electric drive means and the valve rod, a lock pin to be engaged into said lock pin holes, a solenoid which drives the lock pin, and a control means for deenergizing the solenoid in an emergency, the interconnection releasing means disengaging the lock pin out of the lock pin holes.

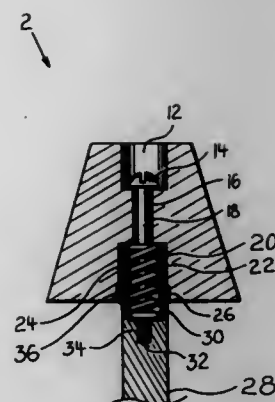
5,671,904
VALVE SAFETY HANDLE
 Richard A. Minutillo, 289 Vagabond Dr., Port Orange, Fla. 32127

Filed Sep. 9, 1996, Ser. No. 711,060
 Int. Cl.⁶ F16K 35/02

U.S. Cl. 251—96

12 Claims

1. A valve safety handle comprising a handle slidably and rotatably attached to a valve stem by means of a bolt, a plurality of valve stem male splines on one end of said valve stem, said handle comprising a handle lower recess communicating with a handle counterbore, a plurality of handle female splines in said handle lower recess sized to engage said valve stem male splines, a radially extending valve stem key disposed among said valve stem male splines, and a handle keyway disposed in said handle lower recess among said handle female splines, a diameter of said handle counterbore exceeding a diam-



5,671,905
ELECTROCHEMICAL ACTUATOR AND METHOD OF MAKING SAME

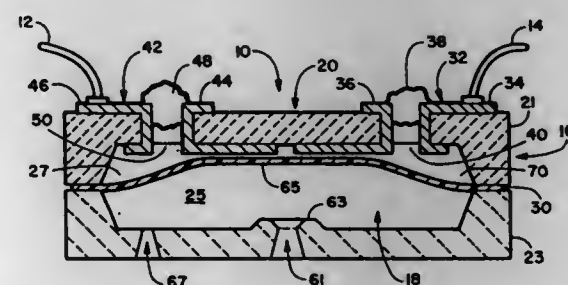
Dean A. Hopkins, Jr., 765 Regent Park Dr., San Jose, Calif. 95123-1332

Filed Jun. 21, 1995, Ser. No. 493,278

Int. Cl.⁶ F16K 31/02; F03C 5/00

U.S. Cl. 251—129.01

16 Claims

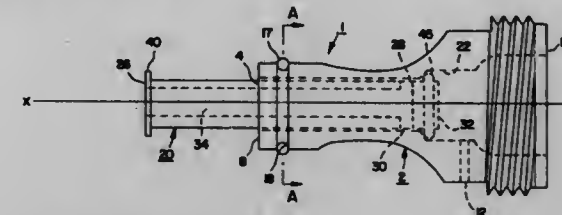


1. A micro-miniaturized electrochemical actuator, comprising: a housing defining an interior chamber; semi-solid electrolyte means hermetically sealed within said interior chamber for facilitating the conduction of current; electrode means extending through said housing and at least partially into said interior chamber for contacting in electrical communication said electrolyte means; digital semiconductor means for controlling the timing, duration, frequency and amount of current flowing to said electrode means; and moveable means disposed at least partially within said interior chamber for facilitating actuation, whereby when current is passed between said electrode means, as directed by said controlling means, a gas is liberated from said semi-solid electrolyte means increasing the pressure applied to said moveable means by said electrolyte means, and causing said moveable means to move.

5,671,906
FLUSH VALVE
 Frank Rosen, 1133 Golden Olive Ct., Sanibel, Fla. 33957
 Filed Dec. 8, 1995, Ser. No. 569,767
 Int. Cl.⁶ B08B 9/00

U.S. Cl. 251—148

1 Claim



1. A flush valve comprising:

- a valve body having an engine end and a source end, said valve body having a channel between said engine end and said source end, said engine end having means for affixing said valve body into a flush orifice of said engine;
- means for obstructing a discharge flow of liquid from said engine end of said valve body through said channel of said valve body, said means for obstructing said discharge flow of liquid includes an elongated valve stem, said valve stem is coaxial with said channel of said valve body, said elongated valve stem has:
- a primary aperture at a source end; and
- at least one secondary aperture spaced from a solid engine end of said elongated valve stem;
- said channel extends from said primary aperture through said elongated valve stem to said secondary aperture;
- said elongated valve stem operates between two positions, said two positions being:
- a first position to open said channel and
- a second position to close said channel, said elongated valve stem has a smooth exterior surface and slides axially along a direction of elongation within said valve body, said elongated valve stem slides between said first position and said second position, said elongated valve stem actuates automatically between said first position and said second position by a pressure differential between a pressure at said source end of said elongated valve stem and a pressure at said engine end of said elongated valve stem.

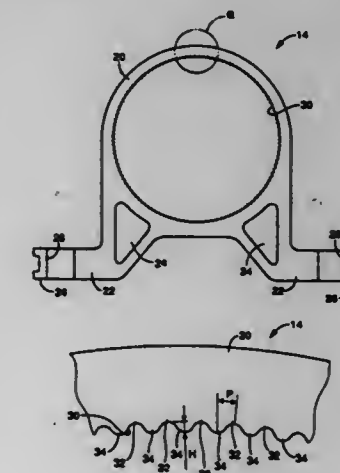
a toroidal region encompassing said second edge whereby said second edge is in said interior, said first edge having a first annular bead surface, said second edge having a second annular bead surface; an improved method of attaching a moveable piston to said flexible member, said method comprising the steps of: forming a cylindrical surface, said cylindrical surface having an extension at a first end, curving said extension to create an inwardly directed sinuous curve; seating said second annular bead surface around said curve; and, crimping said curve against said bead surface.

5,671,908
ELASTIC MOUNT AND PROCESS OF MANUFACTURING THE SAME
 Rentaro Kato, Kasugai, Japan, assignor to Tokai Rubber Industries, Ltd., and Showa Aluminum Corporation, both of Japan

Filed Dec. 16, 1996, Ser. No. 764,923
 Claims priority, application Japan, Dec. 27, 1995, 7-340585
 Int. Cl.⁶ F16F 9/16; F16M 7/66

U.S. Cl. 267—140.12

12 Claims

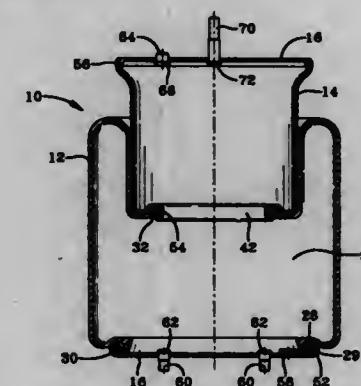


1. An elastic mount comprising: an outer hollow member which is formed of an aluminum alloy and has an inner hole; an inner shaft member which extends in said inner hole of said outer member; an elastic member which is formed by vulcanization of a rubber material in said inner hole between said outer member and said inner member to elastically connect the outer and inner members to each other; said outer member having an inner circumferential surface including a plurality of recesses and a plurality of protrusions which cooperate with each other to define said inner hole and each of which continuously extends in an axial direction of the inner hole; said recesses and said protrusions being alternate with each other at a pitch of 0.5 mm to 2.0 mm in a circumferential direction of said inner hole; a top end of each of said protrusions having a height of 0.3 mm to 1.0 mm from respective bottom ends of the two recesses on both sides of, and adjacent to, said each protrusion; said elastic member being directly bonded to said inner surface of said outer member by the vulcanization of said rubber material.

5,671,907
METHOD OF ATTACHMENT OF FLEXIBLE MEMBER TO STAMPED STEEL PISTON
 John Eric Arnold, North Canton, Ohio, assignor to The Good-year Tire & Rubber Company, Akron, Ohio
 Filed Dec. 7, 1995, Ser. No. 568,924
 Int. Cl.⁶ F16F 9/04

U.S. Cl. 267—64.27

5 Claims



1. In an air spring assembly comprising a flexible member, said flexible member having a central axis, spaced first and second edges, a cylindrical side wall, and an interior, said side wall having

5,671,909

OSCILLATING ROD MEMBER EQUIPPED WITH DYNAMIC DAMPER

Masaaki Hamada, and Takahiro Aoi, both of Komaki, Japan, assignors to Tokai Rubber Industries, Ltd., Japan

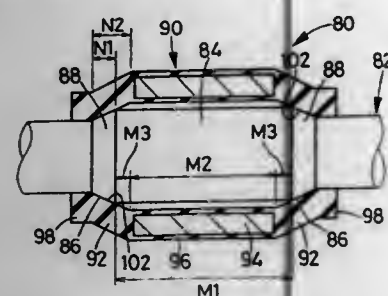
Division of Ser. No. 431,837, May 1, 1995, Pat. No. 5,593,144. This application Jun. 28, 1996, Ser. No. 672,658

Claims priority, application Japan, May 13, 1994, 6-099551; Oct. 13, 1994, 6-247545

Int. Cl.⁶ F16F 7/00

U.S. Cl. 267—141

7 Claims



1. A rod-damper combination comprising:

an oscillating rod member including a middle portion, and a pair of tapered portions axially spaced apart from each other by said middle portion, said tapered portions having respective tapered outer circumferential surfaces whose outside diameters decrease in axially outward directions of said rod member away from said middle portion; and

a dynamic damper including (i) a mass portion having a substantially cylindrical shape and including a mass member, and (ii) two elastic support members formed integrally with and on axially opposite sides of said mass portion to elastically support said mass portion with respect to said rod member, said mass member of said mass portion having an axial length that is smaller than an axial length of said middle portion of said rod member,

said two elastic support members of said dynamic damper having respective tapered inner circumferential surfaces, said dynamic damper being positioned on said oscillating rod member such that said tapered inner circumferential surfaces of said two elastic support members are held in abutting contact with said tapered outer circumferential surfaces of said tapered portions of said rod member, respectively, and such that said mass portion is diametrically outwardly spaced from said middle portion of said rod member by a predetermined distance while said mass member is disposed within said axial length of said middle portion.

5,671,910

VACUUM PLATES

David Davies, 12 Gibbs Close, Finchampstead, Berkshire, Great Britain, RG11 4TY, and Laurence R. Petrie, 8 North Lake Road, Alfred Cove, Australia, 6154, assignors to James C. Carne; Charles N. Carne; David Davies, all of United Kingdom, and Laurence R. Petrie, Australia

PCT No. PCT/GB93/00902, § 371 Date Apr. 25, 1995, § 102(e) Date Apr. 25, 1995, PCT Pub. No. WO93/22104, PCT Pub. Date Nov. 11, 1994

PCT Filed Apr. 29, 1993, Ser. No. 331,636

Claims priority, application United Kingdom, May 6, 1992, 9209716; Israel, Dec. 9, 1992, 104040

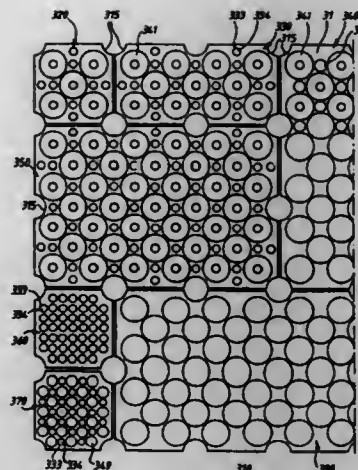
Int. Cl.⁶ B25B 11/00

U.S. Cl. 269—21

24 Claims

1. A support plate positionable between a base plate of a vacuum plate system and a workpiece to be held by the vacuum plate system, the support plate comprising:

a sheet of flexible material having a reverse surface and a working surface for contact respectively with a said base plate and workpiece;



5,671,911

BY-PASS BALL VALVE

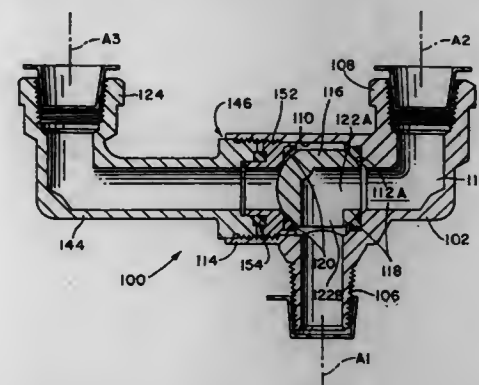
John Samuel Piscitelli, Pittsburgh, Pa., assignor to Amcast Industrial Corporation, Dayton, Ohio

Filed Aug. 7, 1996, Ser. No. 689,222

Int. Cl.⁶ F16K 11/087

U.S. Cl. 251—315.14

19 Claims



1. A by-pass ball valve including a first port having a first axis, a second port having a second axis and a third port having a third axis, said first, second and third axes being parallel to but offset from one another, said by-pass ball valve comprising:

a valve body defining a neck portion, said first port, said second port and a ball receiving cavity interconnecting said first port and an offset channel leading to said second port, said ball receiving cavity terminating in a ball entrance channel;

a rotary ball valve positioned within said ball receiving cavity of said valve body between a first annular ball seal adjacent said offset channel and a second annular ball seal adjacent said ball entrance channel, said rotary ball valve defining a passage therethrough which can be rotated between a first position connecting said first port to said second port and a second position connecting said first port to said third port;

a rotatable operating stem sealingly retained within said neck portion and engaging said rotary ball valve for rotation of said

rotary ball valve within said valve body between said first and second positions; and
an elbow element engagable with said ball entrance channel and defining said third port, said valve body and said elbow element defining a single band around which said by-pass valve can be sealed.

5,671,912

METHOD & APPARATUS FOR PROVIDING LOW SPEED SAFETY BRAKING FOR A HOIST SYSTEM

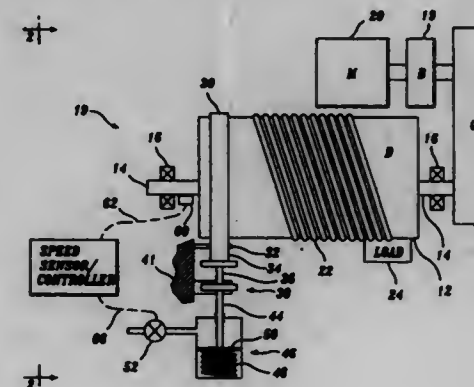
Fred E. Langford, Redmond, and Roger A. Johnson, Mukilteo, both of Wash., assignors to Ederer Corporation, Seattle, Wash.

Continuation-in-part of Ser. No. 290,552, Aug. 10, 1994, abandoned. This application Oct. 24, 1995, Ser. No. 547,600

Int. Cl.⁶ B66D 5/26

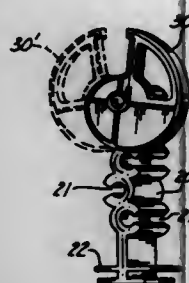
U.S. Cl. 254—267

8 Claims



below said insulator layer from an upper section of said substrate located above said insulator layer; and a plurality of photodetection elements each formed on a different portion of said upper section and each including means for detecting photons in a selected wavelength range; wherein said different portions of said upper section have different thicknesses and wherein said thicknesses at least in part determine said selected wavelength range of said photons detected by each of said detection elements.

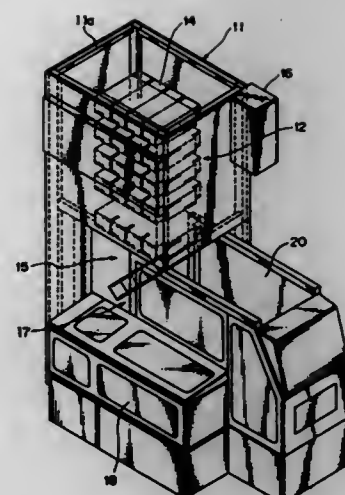
5,671,915
LOCKING CAM WORKPIECE CLAMPING APPARATUS
Willis Ray Williams, 767 S. Fielder, Arlington, Tex. 76013
Filed Aug. 11, 1995, Ser. No. 514,126
Int. Cl.⁶ B25B 5/08
U.S. Cl. 269—231 3 Claims



1. A workpiece clamping apparatus for securing a workpiece relative to a planar support surface; wherein, the workpiece clamping apparatus comprises:
a cam having an arcuate exterior surface; a central aperture extending through the cam along a longitudinal axis; and an integrally formed tang projecting into said central aperture; pin means slidably disposed within said central aperture for mounting said cam along said longitudinal axis at the opposite ends of said pin means; and
means for attaching the workpiece clamping apparatus to said planar support surface, wherein the pin means is provided with a groove dimensioned to receive said tang in the central aperture of the cam; and, the groove is further provided with stop means to prevent the pin means from being separated from said cam.

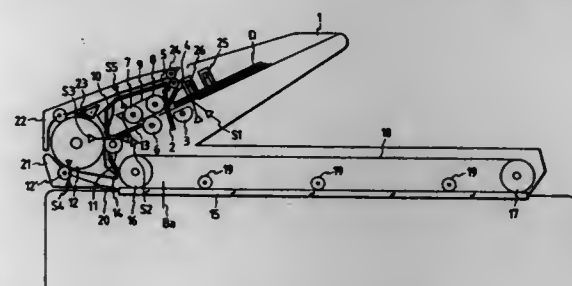
5,671,916
AUTOMATIC SHEET LOADER
Yutaka Kaneko, Tokyo, Japan, assignor to Tetra Laval Holdings & Finance, S.A., Switzerland
PCT No. PCT/JP94/01003, § 371 Date Nov. 2, 1995, § 102(e) Date Nov. 2, 1995, PCT Pub. No. WO95/00396, PCT Pub. Date May 1, 1995
PCT Filed Jun. 23, 1994, Ser. No. 535,289
Claims priority, application Japan, Jun. 23, 1993, 5-152349
Int. Cl.⁶ B65H 3/08; 1/26

U.S. Cl. 271—99 5 Claims
1. An automatic sheet loader for loading a group of sheets into a magazine comprising:
(a) a frame;
(b) sheet transfer means, mounted on said frame and defining a vertical sheet transfer path within said frame, for receiving the group of sheets at an uppermost end of the sheet transfer path and for transferring the group of sheets to a lowermost end of the sheet transfer path;
(c) a magazine section adjacent said lowermost end and containing the magazine;
(d) swing means, pivotally mounted to said frame at the lowermost end of the sheet transfer path, for receiving the group of sheets, in horizontal orientation, from said sheet transfer



means, for pivoting the group of sheets into a position oblique to the horizontal and facing the magazine to cause the sheets to drop into the magazine, said swing means including a stopper for temporarily retaining the group of sheets on the swing means, in the oblique position; and
(e) a suction device located beneath said magazine for removing the bottom sheet from said group of sheets.

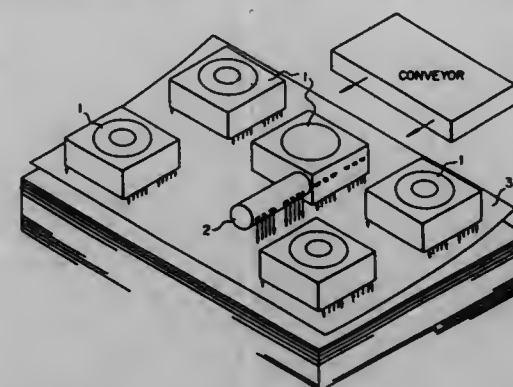
5,671,917
ORIGINAL CONVEY APPARATUS WITH LAST ORIGINAL DETECTION SENSOR
Satoshi Choho, Tokyo; Akimaro Yoshida; Katsuaki Hirai, both of Yokohama, and Shuichi Yabe, Kawasaki, all of Japan, assignors to Canon Aptex Inc., Mitsukaido, and Canon Kabushiki Kaisha, Tokyo, both of Japan
Continuation of Ser. No. 81,219, Jun. 25, 1993, abandoned.
This application Apr. 22, 1996, Ser. No. 634,889
Claims priority, application Japan, Jun. 26, 1992, 4-193116
Int. Cl.⁶ B65H 7/08
U.S. Cl. 271—111 14 Claims



1. An original convey apparatus, comprising:
an original tray for resting originals thereon;
original supply means for supplying the originals from said original tray toward a reading position disposed downstream in a conveyance direction from said original tray;
a plurality of original detection means for detecting whether any of the originals have not yet been supplied from said original tray to the reading position, said plurality of original detection means being disposed at different positions corresponding to varying original sizes; and
original size information means for detecting original size information,
wherein selection of one of said original detection means is dependent on the detected original size information, and wherein a first of said plurality of original detection means is for detecting large-sized originals, and a second of said plurality of original detection means is for detecting small-sized

originals, said second original detection means being disposed downstream in the conveyance direction from said first original detection means.

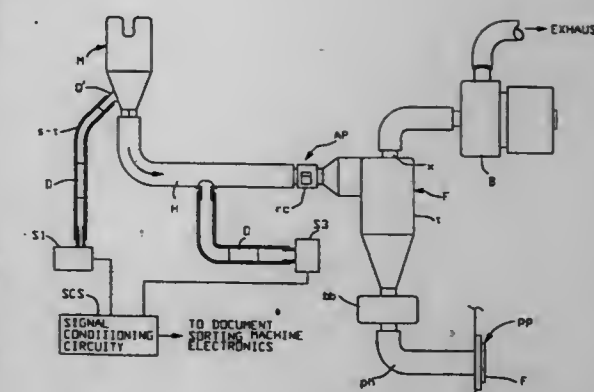
5,671,918
SHEET DELIVERY FOR A SHEET-PROCESSING MACHINE
Wolfram Hofmann, Hesseneck, and Mario Koch, Reilingen, both of Germany, assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany
Filed Sep. 22, 1995, Ser. No. 532,169
Claims priority, application Germany, Sep. 24, 1994, 44 34 190.3
Int. Cl.⁶ B65H 29/68
U.S. Cl. 271—182



1. Sheet delivery for a sheet-processing machine, comprising a conveyor system for transporting sheets successively and for releasing the sheets above a sheet pile having a horizontal surface, and a plurality of ventilators having a controllable output, said ventilators being disposed in an array above the horizontal surface of the sheet pile for directing blown air from above the sheet pile towards respective oncoming sheets successively transported by said conveyor system and released thereby above the sheet pile, said ventilators being formed with respective outlet openings effecting a venturi constriction at respective discharge sides thereof, said ventilators being high-speed ventilators constructed for small air volumes and blowing a concentrated high-speed air jet with laminar flow substantially vertically from above against the respective oncoming sheets.

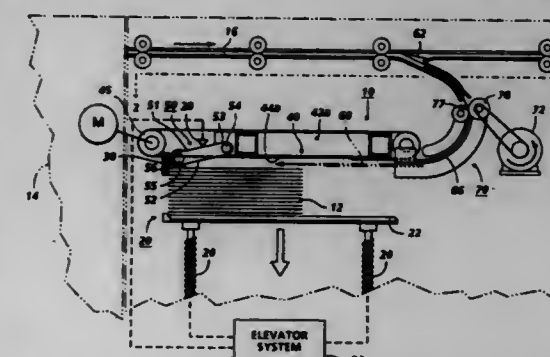
5,671,919
DOUBLE-DOCUMENT DETECTION ARRANGEMENT
Zhongtai Chen, West Bloomfield; Ronald G. Shell, Bloomfield Hills; Randy C. Keller, Canton, and J. Michael Spall, Plymouth, all of Mich., assignors to Unisys Corporation, Blue Bell, Pa.
Division of Ser. No. 451,800, May 26, 1995, Pat. No. 5,509,648, which is a division of Ser. No. 197,420, Feb. 15, 1994, Pat. No. 5,419,546, which is a division of Ser. No. 176,368, Dec. 30, 1993, Pat. No. 5,437,375. This application Apr. 17, 1996, Ser. No. 634,054
Int. Cl.⁶ B65H 7/12
U.S. Cl. 271—260 11 Claims

1. An item processing apparatus with a station for separating multiple planar items from single like items, which are transported along a track past said station where the items are first subjected to opposed vacuum means supplied from a prescribed vacuum-generating system, to separate them; and where their state, whether single or multiple, is then determined by pressure sensor means for measuring and analyzing the resulting pressure differentials within said vacuum-generating system; and wherein said system is, in turn, provided with cyclonic filter means which also functions as suction pump means for removing and storing dust and debris



4 Claims
entrained within the vacuum-forming air flow, this cyclonic filter means providing a constant vacuum-airflow regardless of the nature or quantity of debris removed and collected; said vacuum-generating system being also provided with pressure sensor means to indicate whether single or multiple items are passing and also with fail-safe means to warn of vacuum failure.

5,671,920
HIGH SPEED PRINTED SHEET STACKING AND REGISTRATION SYSTEM
Thomas Acquaviva, Penfield; William Brant, and Randolph Cruz, both of Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Jun. 1, 1995, Ser. No. 457,938
Int. Cl.⁶ B65H 29/54
U.S. Cl. 271—307 12 Claims



1. In a sheet stacking and registration system with a sheet stacking area for sequentially stacking the flimsy printed sheets output of a reproduction apparatus being sequentially fed to said sheet stacking area, with an edge registration system defining a sheet lead edge stacking registration position; the improvement in high speed sheet stacking and registration with improved sheet control, comprising:
a vacuum belt sheet transport for vacuum acquiring a limited lead edge area of said sheets being fed to said stacking area and for transporting said acquired sheets over said stacking area, above sheets previously stacked therein, towards said sheet lead edge stacking registration position of said edge registration system;
a sheet peeling system for peeling the lead edges of said sheets off of said vacuum sheet transport adjacent to said sheet lead edge stacking registration position and for guiding said peeled sheet lead edge downwardly and towards said registration position;
said vacuum belt sheet transport has a belt vacuum aperture pattern for reducing said vacuum acquisition of said sheets as said sheets are being peeled off by said sheet peeling system; and
a normal force system operatively associated with said sheet peeling system for pressing down the lead edges of said

peeled off sheets against said previously stacked sheets in said sheet stacking area as the lead edges of said sheets reach said sheet lead edge stacking registration position.

5,671,921
SEAL CARD GAME WITH MULTIPLE ADVANCED LEVEL CONTESTANTS
 Paul D. Quinlan, Lee's Summit, Mo., assignor to Universal Manufacturing Co., Inc., Kansas City, Mo.
 Filed Apr. 12, 1996, Ser. No. 629,934
 Int. Cl. A63F 3/06; B41D 15/00
 U.S. Cl. 273—139



1. A seal card game with multiple advanced level contestants, which includes:
 - (a) a plurality of individual play cards each including:
 - (1) a plurality of game symbol combinations printed thereon and a break-open window said break-open window having a closed position concealing a respective game symbol combination and an open position revealing same;
 - (2) a plurality of said game symbol combinations comprising graphic symbols and forming instant winner indicia entitling the holder to a monetary prize amount whereby prize amounts are paid out as the individual cards are played; and
 - (3) a plurality of said game symbol combinations comprising multiple-digit numbers and forming advanced contestant qualifying indicia for identifying qualified advanced contestants; and
 - (b) a seal card having:
 - (1) an advanced contestant identification area having said multiple digit numbers printed thereon and a sign-up list with signature lines adjacent said multiple-digit numbers for registering advanced contestants identified by said advanced contestant qualifying indicia;
 - (2) an advanced contestant selection area having a plurality of said multiple-digit numbers printed thereon and a plurality of break-open windows each having a closed position concealing a respective multiple-digit number and an open position revealing same, the number of said multiple-digit numbers in said selection area being less than the number of said multiple-digit numbers in said identification area;
 - (3) a prize area having a plurality of different prize amounts printed on said card and a plurality of break-open windows each having a closed position concealing a respective prize amount and an open position revealing same;
 - (4) said advanced contestant selection area having a numerical sequence printed on said seal card in association therewith and defining a sequence for opening said prize amount break-open windows by each advanced contestant; and
 - (5) said prize amounts in said prize area being printed in random order on said seal card behind said prize area break-open windows.

5,671,922

Patent Not Issued For This Number

5,671,923
GRIP FOR GOLF SHAFTS
 Ben Huang, 16652 Gemini La., Huntington Beach, Calif. 92647
 Continuation-in-part of Ser. No. 507,575, Jul. 26, 1995, Pat. No. 5,584,482, which is a continuation-in-part of Ser. No. 595,445, Feb. 26, 1996, abandoned, which is a continuation-in-part of Ser. No. 58,313, May 3, 1993, which is a continuation-in-part of Ser. No. 953,190, Sep. 29, 1992, abandoned, which is a continuation-in-part of Ser. No. 890,383, May 26, 1992, abandoned, which is a continuation-in-part of Ser. No. 637,931, Jan. 14, 1991, abandoned. This application Apr. 15, 1996, Ser. No. 632,578
 Int. Cl. A63B 53/14

U.S. Cl. 273—301

8 Claims



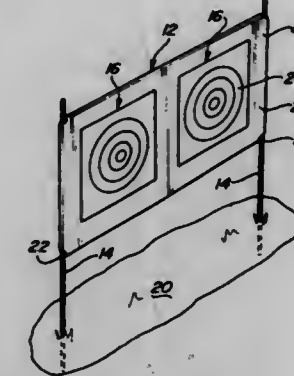
1. The combination of a grip and a tapered hollow golf club shaft having an upper grip-receiving portion, said combination comprising:
 - a strip consisting of an open-pored felt layer having a generally flat inner surface and a closed pore polyurethane layer having its inner surface bonded to the outer surface of the felt layer, with the pores of such polyurethane layer extending generally normal to the longitudinal axis of the strip, and with the felt layer providing strength for the polyurethane layer while the polyurethane layer both absorbs shocks and provides tackiness so as to inhibit slippage of a user's hand relative to the shaft;
 - the strip being spirally wrapped about the grip-receiving portion of the shaft, with the upper end of the strip being flush with the upper end of the shaft;
 - a cap formed with a slotted inner skin tightly telescopically received by the interior upper end of the shaft, an outer skirt that tapers at the same angle as the shaft and depends downwardly over the upper portion of the strip, with the outer skirt extending over and engaging the upper extremity of the strip to restrain the upper end of the strip from unraveling from the shaft; and
 - a ferrule interposed between the lower end of the strip and the shaft, with the cap and the ferrule preventing movement of the abutting side edges of the strip along the shaft and also precluding unwrapping of the lower portion of the strip relative to the shaft.

5,671,924
PORTABLE TARGET STAND
 Van Edward Scott, 2602 Riverview Ave., #11, North Muskegon, Mich. 49445

Filed Jan. 17, 1995, Ser. No. 373,557
 Int. Cl. F41J 3/00

U.S. Cl. 273—407

11 Claims



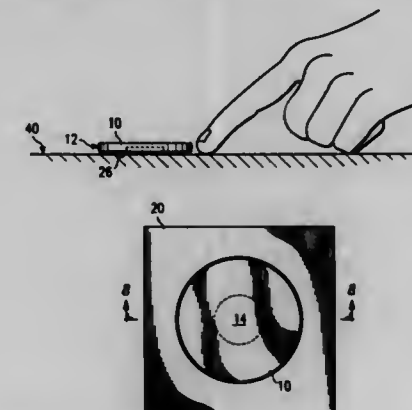
1. A portable target stand comprising:
 - a generally planar rigid target backer having:
 - a generally rectangular target portion with a front surface and a rear surface;
 - a pair of vertical sleeves formed on the rear surface of said target portion;
 - vertical posts partially disposed in the vertical sleeves of the target backer, said sleeves and posts frictionally engaging to support said target backer on said posts; and
 - said posts being adapted to be driven into the ground for supporting said target backer above the ground.

5,671,925
CIRCULAR GAMEPIECE WITH PROTECTOR
 Mark A. Gonzalez, Plano, Tex., assignor to MGwhiz, Inc., Plano, Tex.

Filed Sep. 11, 1996, Ser. No. 712,060
 Int. Cl. A63B 65/10

U.S. Cl. 273—424

18 Claims



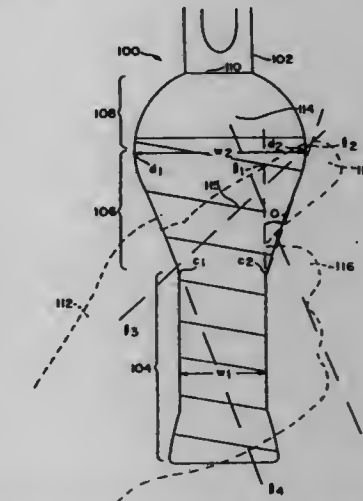
1. A gamepiece, comprising:
 - a substantially planar gamepiece having first and second faces, the gamepiece also having an outer perimeter, the outer perimeter being of a predetermined shape;
 - the gamepiece also having a recess in one of the faces, the recess being of a predetermined shape, the recess disposed to receive a weight;
 - the weight, when received in the recess, operable to stand proud of said recessed face;
 - the weight further operable to cause the gamepiece, when laid on a substantially smooth surface with said recessed face

lying posteriorly, to respond to a blow struck to the outer perimeter thereof by staying close to said surface while sliding on said surface.

5,671,926
TENNIS RACKET WITH ENHANCED HAND GRIP
 Edward H. Hagey, 3653 Jennifer St., San Diego, Calif. 92117
 Continuation-in-part of Ser. No. 363,606, Dec. 18, 1994, Pat. No. 5,492,324. This application Jun. 2, 1995, Ser. No. 459,302
 Int. Cl. A63B 49/08

U.S. Cl. 273—73 J

11 Claims



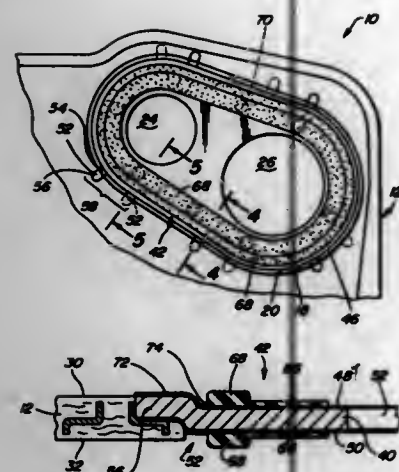
9. A tennis racket having a handle shaft, the shaft having a butt end and a head end, said handle shaft having a substantially uniform first handle portion including a first width dimension and a substantially uniform first depth dimension, and an attachment, comprising:
 - a three dimensional structure having front and back faces and opposed side edges forming a truncated teardrop configuration when viewed face on for attachment to a racket handle shaft spaced from the butt end forming an enlarged handle portion of said handle shaft having a width dimension that is larger than said shaft width dimension and a depth dimension, said structure including a tapered end portion forming a handle transition portion of said handle shaft with said side edges diverging at an angle of between about ten and twenty degrees from said shaft to said enlarged handle portions toward said head end providing a transition between said shaft and said enlarged dimensions, said front and back faces corresponding to front and back faces of a racket head, one of said front and back faces forming a substantially flat surface.

5,671,927
GASKET ASSEMBLY WITH SEALING MEMBER HAVING MAIN BODY WITH INTEGRAL TABS
 David J. Schweiger, Downers Grove, Ill., assignor to Dana Corporation, Toledo, Ohio
 Filed Apr. 7, 1995, Ser. No. 419,071
 Int. Cl. F16J 15/12

U.S. Cl. 277—9

20 Claims

1. A sealing member adapted to seal a high pressure fluid opening comprising:
 - a metal plate, said plate having a main body with an outer periphery and further including opposed upper and lower surfaces, a high pressure fluid flow opening defined by said main body, a plurality of integral tabs extending radially outwardly from said outer periphery of said main body, each of said tabs having a radially inner root and a radially outer apex, a tab pair formed by two of said tabs in close circum-



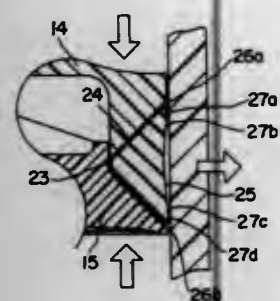
ferential proximity, a plurality of tab pairs circumferentially spaced about said outer periphery of said main body, a first tab and a second tab of each said tab pair having a generally S-shaped cross-section such that said apex is transversely spaced from the plane of said main body, said first tab and said second tab adapted to engage a gasket body on opposite sides of said gasket body; and a compressible laminate bonded to said main body of said metal plate adjacent said outer periphery, said laminate including a bead adjacent said outer periphery of said main body.

5,671,928 SEAL FOR CHROMATOGRAPHY COLUMN HAVING RIDGES

Colin K. Lanyi, Minchinhampton, and Geoff Purdom, Oxon, both of England, assignors to Millipore Investment Holdings Limited, Wilmington, Del.

Filed Dec. 29, 1995, Ser. No. 581,656
Int. Cl.⁶ G01N 30/60; F16J 15/32

U.S. Cl. 277—207 R



1. An annular seal for chromatography columns adapted for radial sealing with a cylindrical surface, said seal having a sealing face, a first annular edge comprising a compressive surface and a second annular edge spaced from said first annular edge and comprising a sealing surface, said sealing surface being substantially planar and having two parallel edges, said sealing surface further comprising at least one release ridge disposed on said sealing surface adjacent to each parallel edge, which release ridge aids in ensuring breaking of the seal between said sealing surface and said cylindrical surface.

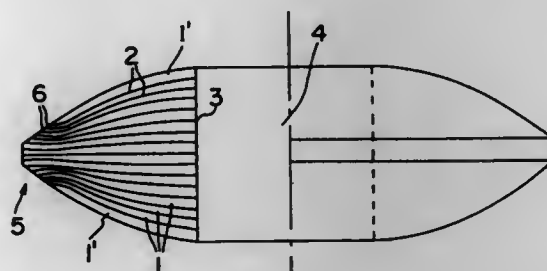
5,671,929 LENTICULAR SEALING RING WITH ALTERNATING GRAPHITE AND METAL LAMELLAE

Herwig Pflug, Waldems, Germany, assignor to Klinger AG, Zug, Sweden

Filed Jul. 19, 1996, Ser. No. 683,849
Claims priority, application Germany, Jul. 20, 1995, 195 26 364.2

Int. Cl.⁶ F16J 15/12
U.S. Cl. 277—233

15 Claims



1. A sealing ring having a lenticular shape defining an inner central axial opening and a pair of axially opposed curved surfaces extending outwardly from said opening and comprising a plurality of first lamellae made of expanded graphite and a plurality of second lamellae made of metal, said first and second lamellae being arranged in alternating relationship, said first lamellae having a density which increases from inner to outer portions thereof, and a graphite lamella cover defining at least half of each curved surface, wherein a plurality of metal and graphite lamellae terminate in an outer edge region which encircles the lamella cover.

5,671,930 SEAL STRUCTURE FOR CYLINDER HEADS

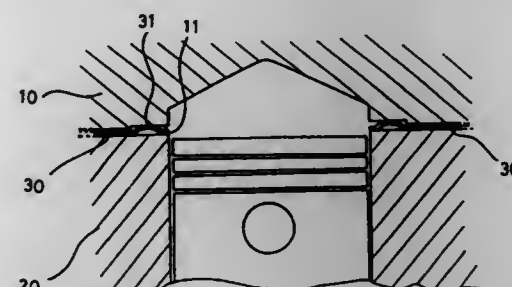
Kwang Hyon Cho, Kunpo, Rep. of Korea, assignor to Kia Motors Corporation, Seoul, Rep. of Korea

Filed Jul. 25, 1996, Ser. No. 684,846

Claims priority, application Rep. of Korea, Jul. 8, 1996, 1996-20185

Int. Cl.⁶ F16J 15/08
U.S. Cl. 277—235 B

4 Claims



1. A sealing structure for sealing a cylinder head to a cylinder block, comprising:
a first gasket placed in a junction between said cylinder head and said cylinder block and being provided with an annular bead; said junction being disposed radially outwardly from a combustion chamber and being defined by a groove formed in said cylinder head and a surface of said cylinder block, said groove opening into said combustion chamber; said annular bead of said first gasket placed in said junction and is in linear contact with an upper surface of said groove.

5,671,931 ROLLER SKATE

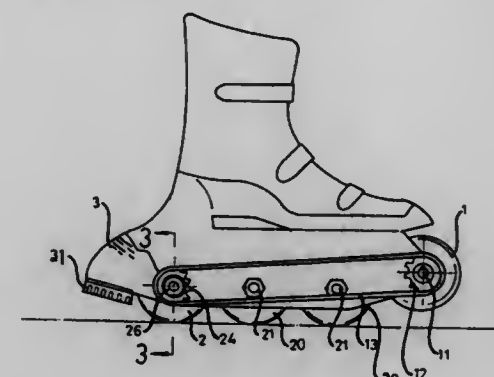
Hui-Chin Su, 28, Lane 349, Fan-An Road, Chia-Yi City, Taiwan

Filed May 21, 1996, Ser. No. 651,145

Int. Cl.⁶ A63C 17/04

U.S. Cl. 280—11.22

2 Claims



1. A roller skate comprising:
a body including a lower portion,
a front shaft, at least one middle shaft and a rear shaft rotatably supported in said lower portion of said body,
a front wheel, at least one middle wheel and a rear wheel secured to said front shaft and said middle shaft and said rear shaft respectively for engaging with a ground surface, said front wheel being arranged to be disengaged from the ground surface when said middle wheel and said rear wheel are in contact with the ground surface, and said rear wheel being arranged to be disengaged from the ground surface when said middle wheel and said front wheel are in contact with the ground surface, and
means for coupling said rear wheel to said front wheel so as to allow said rear wheel to be driven by said front wheel when said rear wheel is elevated.

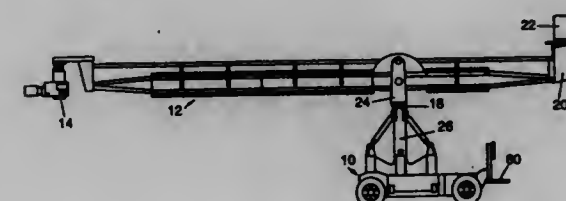
5,671,932 CAMERA CRANE

Leonard T. Chapman, North Hollywood, Calif., assignor to Leonard Studio Equipment, Inc., North Hollywood, Calif.

Filed Oct. 4, 1994, Ser. No. 317,807

Int. Cl.⁶ B62D 51/04
U.S. Cl. 280—47.11

16 Claims



1. A mobile camera crane base comprising:
a chassis;
front and rear wheels attached to the chassis;
a mast on the chassis;

a crane arm supported on the mast;
actuator extending between the mast and the arm;
a weight bucket around the mast; and
a steering block attached to the chassis via a hinge joint.

5,671,933 UTILITY CART

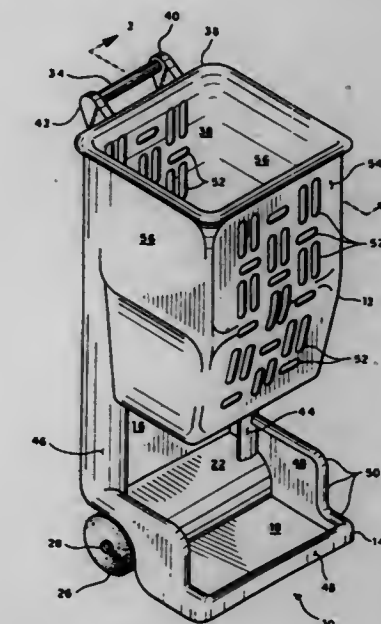
Ray D. Tucker, 1719 Searcy, San Antonio, Tex. 78232

Filed Sep. 14, 1995, Ser. No. 527,941

Int. Cl.⁶ B62B 1/00

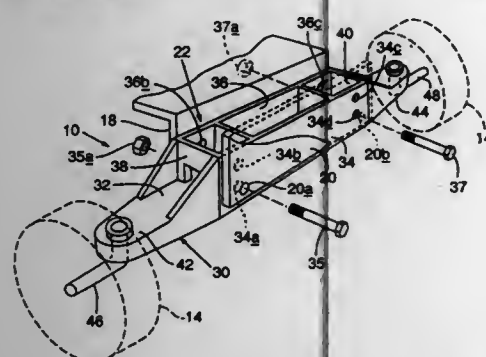
U.S. Cl. 280—47.19

18 Claims



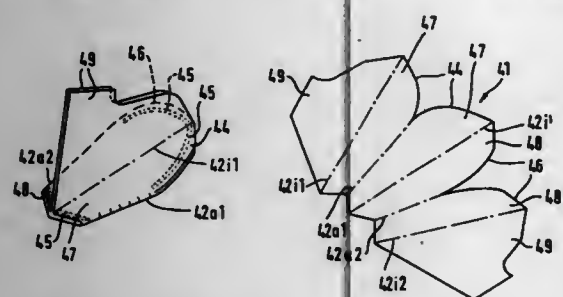
1. A utility cart, comprising:
an open topped upper container and an open lower storage shelf, with said upper container and said lower shelf being disposed in a substantially vertical array;
a rear panel extending between said upper container and said lower shelf, said rear panel having opposite lateral edges, each of said lateral edges including a wide generally semicircular stiffening flange;
said lower shelf having a floor disposed in a substantially horizontal plane when said cart is in a substantially vertical rest position, with said floor of said lower shelf serving as a base support for said cart when said cart is in a rest position, and;
said floor of said lower shelf having a raised rearward portion, with a lateral axle having a pair of wheels thereon disposed beneath said raised rearward portion of said floor and defining a lower rear edge for said cart, and with said wheels each having a lowermost circumferential portion disposed substantially coplanar with said base support of said cart when said cart is in a substantially vertical rest position, whereby;
a user of said cart places articles within said upper container and upon said lower shelf as desired, and transports said cart and any articles therein by tilting said cart rearwardly to raise said lower shelf floor above the underlying surface and to position the center of mass of said cart substantially vertically over said wheels, thereby precluding need for significant support of any of the mass of said cart and any articles therein during transport, and places said cart in a substantially vertical rest position with the center of mass of said cart being disposed over said base support of said cart and with said cart resting thereon.

5,671,934
ADJUSTABLE AXLE MOUNTING ASSEMBLY FOR CHILDREN'S RIDE-ON VEHICLES
 Lawrence Roger Harrod, Ft. Wayne, Ind., assignor to Mattel, Inc., El Segundo, Calif.
 Filed Aug. 30, 1995, Ser. No. 520,772
 Int. Cl.⁶ B62D 21/00
 U.S. Cl. 280—87.05



1. A wheel-mounting assembly for use in a children's ride-on vehicle having a frame, the assembly comprising:
- a cross member extending transversely of the frame providing a mount for two wheels, the cross member including a base and wall structure that includes a plurality of spaced-apart walls extending from the base to form a box-shaped rectangular structure, wherein the plurality of spaced-apart walls include a forward wall and a rearward wall; and
 - a frame-formed support structure for receiving the cross member and providing a mount on which the cross member is fastened, the structure further allowing the cross member to be selectively vertically positioned and fastened relative thereto for accommodating different-sized wheels, wherein the structure includes a pair of downwardly extending plates that define a slot for receiving the cross member and extend transversely of the frame to engage the forward and the rearward walls of the cross member and thereby provide a mount for the cross member.

5,671,935
AIR BAG AND MANUFACTURING METHOD THEREFOR
 Johann Berger, Obere Schlossstrasse 114, D-73553 Alfdorf, and Artur Foehl, Schorndorf, both of Germany, assignors to Johann Berger, Alfdorf, Germany
 PCT No. PCT/EP94/00222, § 371 Date Oct. 5, 1995, § 102(e) Date Oct. 5, 1995, PCT Pub. No. WO94/18033, PCT Pub. Date Aug. 18, 1994
 PCT Filed Jan. 27, 1994, Ser. No. 500,859
 Claims priority, application Germany, Feb. 2, 1993, 43 029 04.3; Dec. 21, 1993, 43 43 738.9
 Int. Cl.⁶ B60R 21/16
 U.S. Cl. 280—243.1

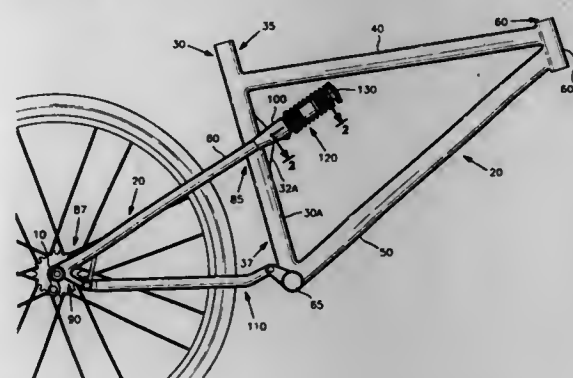


1. An air bag comprising:
- a) a single, one-piece cutting comprising textile material or plastics film,

15 Claims

- b) a plurality of sections of said cutting foldable about a plurality of inner and outer folding edges disposed in parallel planes closely juxtaposed,
 - c) said folding edges fully encompassing the width of said cutting,
 - d) a first and a second pair of said sections of said cutting being mirror-inverse about a first and a second of said plurality of outer folding edges, respectively, and having, after folding, joining edges in planes located one above the other for joining to each other,
 - e) said inner folding edges and said outer folding edges alternating within said cutting,
 - f) said juxtaposed folding edges covering acute angles with respect to each other,
 - g) said first pair of said mirror inverse sections having stitching edges that are mirror inverse about said first outer folding edge and said second pair of said mirror inverse sections having stitching edges that are mirror inverse about said second outer folding edge; and
 - h) two outermost sections of said cutting having mirror inverse stitching edges;
- wherein said air bag may be produced to any desired shape by altering the size and shape of said plurality of sections.

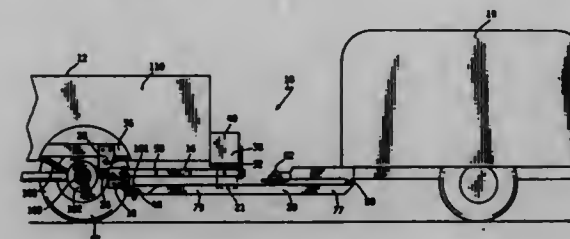
5,671,936
SHOCK ABSORBING BICYCLE FRAME APPARATUS
 David Roy Turner, 11 Condor Dr., Eagle, Colo. 81631
 Filed Aug. 10, 1995, Ser. No. 518,607
 Int. Cl.⁶ B62K 25/28
 U.S. Cl. 280—284



1. A shock absorbing bicycle time apparatus comprising:
- a bicycle frame assembly, a rear wheel support fork, and a pair of rear wheel stabilizer rods;
 - the bicycle frame assembly including a means for supporting a bicycle seat, a means for supporting a handle bar, a means for rotationally engaging a crank shaft;
 - the frame assembly further including a shock absorber attachment means fixed thereto;
 - the rear wheel support fork including a pair of connector rods, said rods extending in side by side, spaced apart relationship, at an upward angle, a lower end portion of each of the connector rods having an axle engagement means positioned below the shock absorber attachment means, an upper end portion of each of the connector rods terminating at, joined by, and rigidly fixed to a shock mounting bridge, the bridge positioned forward of the shock absorber attachment means and pivotally engaged therewith;
 - the pair of rear wheel stabilizer rods, each extending, below the rear wheel support fork between, and pivotally connected with at least one of the lower end portions of one of the connector rods and the frame assembly;
 - a shock absorbing means mounted to the shock mounting bridge and interconnected between said bridge and the shock absorber attachment means such that shock energy delivered

9 Claims

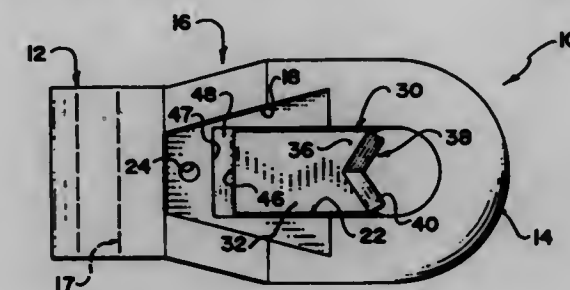
5,671,937
TOWING APPARATUS
 Jerome B. Haberle, 19875 Highway 81, Maple Grove, Minn. 55311
 Filed May 27, 1994, Ser. No. 250,374
 Int. Cl.⁶ B60D 1/06; 1/36
 U.S. Cl. 280—407



1. A towing apparatus for towing a towed vehicle by a tow vehicle the tow vehicle having a back end and a first hitch receiver positioned forwardly of the back end, the towed vehicle having a first hitch, the apparatus comprising: an intermediate coupling section comprised of a coupling frame having a first end and second end opposite the first end, a second hitch attached to the first end, said second hitch hitchable to the first hitch receiver, a connector bracket at the second end, said connector bracket connectable to the towed vehicle frame, and a second hitch receiver attached to the coupling frame, the first hitch of the towed vehicle hitchable to said second hitch receiver, further comprising a guide rail mounted underneath the tow vehicle and a carriage slidably engaged with said guide rail, the carriage further comprising a first portion suitably sized to fit over the guide rail and slide thereon between a rearward hitching position and a forward towing position, the carriage lockable to said guide rail at the towing position, the carriage having a second portion for accepting a hitch receiver, the first hitch receiver attached to said carriage.

19 Claims

5,671,938
IMPLEMENT HITCH
 Brian R. Olson, 3018 Gordon Rd., Regina, Saskatchewan, Canada, S4S 2T8
 Continuation of Ser. No. 492,568, Jun. 20, 1995, abandoned.
 This application Oct. 3, 1996, Ser. No. 723,637
 Int. Cl.⁶ B60D 1/02
 U.S. Cl. 280—515



1. A hitch for receiving a draw pin comprising:
- a hitch body including a hitch ring and means for mounting the hitch ring on a tongue of a towed vehicle;
 - a ring adapter for adjusting the size of the hitch ring to accommodate draw pins of different sizes, the ring adapter including a back stop member,

17 Claims

means for mounting the back stop member on the hitch body with the back stop member extending into the ring from one side thereof and forming a draw pin opening between the restricting member and the ring, and adjustment means for selectively positioning the restricting member across the ring; and

a clevis attachment including top and bottom clevis arms with aligned draw pin holes, and means for mounting the clevis attachment on the hitch body with one of the clevis arms extending into the ring from said one side thereof.

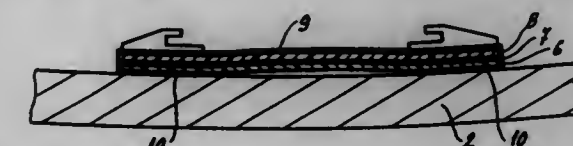
5,671,939
BINDING MOUNT ASSEMBLY FOR AN ALPINE SKI
 David G. Pineau, 22 Intervale Rd., Wellesley, Mass. 02181
 Filed Mar. 10, 1995, Ser. No. 401,966
 Int. Cl.⁶ A63C 5/00
 U.S. Cl. 280—602



1. A binding mount assembly for mounting a binding over a portion of an alpine ski, said assembly comprising:
- a mounting system which is fixable to the alpine ski; and
 - a binding carrier that is mountable to said mounting system so that the binding spans the portion of the ski;
- wherein said mounting system and said binding carrier cooperate when joined together to form a binding mount assembly having a first junction at a first end portion and a second junction at a second end portion that is longitudinally spaced from said first junction, at least one of said first and second junctions being selectively adjustable between a sliding arrangement that permits longitudinal and pivotal movement between said mounting system and said binding carrier and a fixed arrangement which prevents longitudinal movement and only permits pivotal movement therebetween, and wherein the other of said first and second junction is arranged to permit at least pivotal movement between said mounting system and said binding carrier, whereby the alpine ski may be in either a float mode where the portion of the ski beneath the binding is allowed to naturally flex and in a fixed mode where the flexing of the portion of the ski beneath the binding is inhibited.

15 Claims

5,671,940
DEVICE FOR MOUNTING A BOOT ON A DOWNHILL SKI
 Roger Abondance, La Murette, France, assignor to Skis Rossignol S.A., Voiron, France
 Continuation of Ser. No. 154,530, Nov. 19, 1993, abandoned.
 This application Jan. 16, 1997, Ser. No. 784,297
 Claims priority, application France, Nov. 19, 1992, 92 14128
 Int. Cl.⁶ A63C 5/075
 U.S. Cl. 280—602



1. A ski having a device for mounting a boot on the ski positioned in a central zone of the ski and extending over a length

28 Claims

substantially equal to a length needed for mounting heel and toe bindings and a boot, said device comprising:

- a first viscoelastic plate comprising at least one section of viscoelastic material having an upper face and a lower face, the lower face of the first viscoelastic plate being joined with an upper surface of the ski; and
- a first rigid constraining plate over which bindings can be mounted, the first rigid constraining plate having an upper face and a lower face, the upper face of the first viscoelastic plate being joined with the lower face of the first rigid constraining plate,

wherein the first viscoelastic plate comprises a heel area corresponding to an area over which a heel binding can be mounted, a toe area corresponding to an area over which a toe binding can be mounted, and a central area between the heel area and the toe area, and wherein the first viscoelastic plate is attached to at least one of (a) the lower surface of the first rigid constraining plate over at least part of but less than an entire length of a face of the heel area, the toe area and the central area of the first viscoelastic plate and (b) the upper surface of the ski only in the central area or only in the heel and toe areas.

5,671,941 APPARATUS FOR ATTACHING A SHOE TO A GLIDING ELEMENT

François Girard, Veyrier Du Lac, France, assignor to Salomon S.A., Metz-Tessy, France

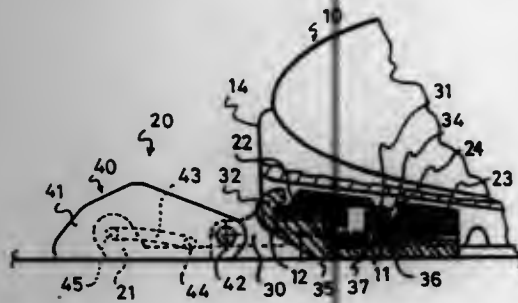
Filed Apr. 17, 1995, Ser. No. 423,156

Claims priority, application France, Apr. 29, 1994, 94 05409

Int. Cl.⁶ A63C 9/18

U.S. Cl. 280—615

14 Claims



1. An apparatus adapted to be affixed to a gliding element and for attaching a shoe to the gliding element for the practice of a gliding/skating sport, said apparatus comprising:

- a latching mechanism including a latching element adapted to be carried by the gliding element and adapted for latching cooperation with a complementary element borne by a shoe, said latching element being positioned substantially in an area corresponding to the metatarsophalangeal joint zone of a foot;

- an engagement mechanism including an engagement element adapted to be carried by the gliding element and adapted for engagement cooperation with an element borne by the shoe at a front end of the shoe, said engagement element being positioned forwardly of said latching element and in an area corresponding to a front end of the shoe;

wherein said latching mechanism and said engagement mechanism attach the shoe to the gliding element along a zone extending from said front end of the shoe to substantially the area of the metatarsophalangeal joint zone; and

wherein said latching mechanism includes a device allowing release of the complementary element from said latching element in response to an exerted force beyond a predetermined magnitude by the shoe on the latching element.

5,671,942 FRONT JAW FOR A SKI BINDING

Gerd Klubitschko, Oberammergau, and Premek Stepanek, Garmisch-Partenkirchen, both of Germany, assignors to Marker Deutschland GmbH, Germany

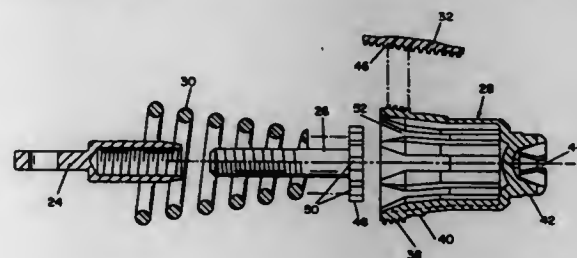
Filed Feb. 23, 1995, Ser. No. 392,528

Claims priority, application Germany, Feb. 23, 1994, 44 05 875.6; Feb. 23, 1994, 94 03 019 U

Int. Cl.⁶ A63C 9/08

U.S. Cl. 280—634

8 Claims



1. A front jaw for a ski binding, the front jaw comprising: a housing means arranged on a base plate means mountable to a ski, said housing means having a detachable housing portion; at least one sole holder means located within the housing means for holding the sole of a ski boot;

- an adjustable tension applying means comprised of: a connecting portion attachable to the at least one sole holder means;

- a coupling screw having a screw head and connectable to the connecting portion; and

- spring means for loading said tension applying means, the loading effect of the spring means being adjustable by rotation of the coupling screw; and

- cap means for receiving the screw head of the coupling screw, said cap means having inner surface portions which lockingly engage with the screw head when received therein, said detachable housing portion being dimensioned to receive the cap means, wherein the cap means engages with the screw head to effect rotation of the coupling screw, said cap means having a tool receiving portion extending outside the detachable housing portion for rotation by a tool to effect rotation of the coupling screw.

5,671,943 COVER FOR TEMPORARILY PROTECTING AUTOMOTIVE AIR BAG MODULE

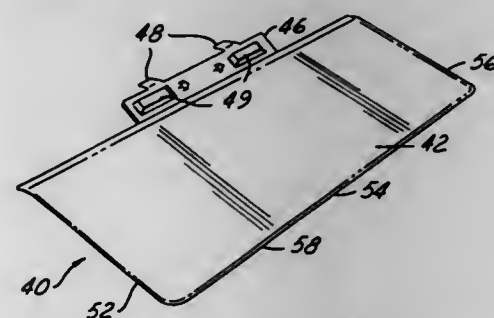
Robert J. Barnhart, East Detroit, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.

Filed Feb. 6, 1996, Ser. No. 614,608

Int. Cl.⁶ B60R 21/16

U.S. Cl. 280—728.3

2 Claims



1. In combination, an air bag module having a lid and a removable cover for temporarily protecting the lid after the air bag module is installed in an instrument panel of an automotive vehicle and during the time a trim panel, provided with an opening adapted

to expose the lid and through which the cover can be removed, is assembled on the instrument panel,

said lid being generally rectangular,

said cover having a flexible, generally rectangular main body portion of a size and shape corresponding to said lid and adapted to fit over said lid and being fabricated of a rubber-like material,

said air bag module having laterally spaced slots, and said main body portion having a marginal edge portion formed with mounting tabs adapted to releasably engage said slots to removably mount and locate said cover on said lid.

5,671,944 GAS GENERATOR FOR AIR BAG

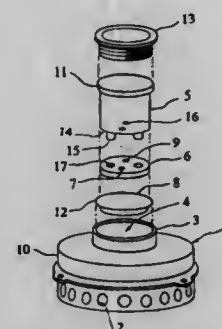
Masayuki Ueda, and Nobuyuki Katsuta, both of Hyogo, Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed Oct. 24, 1996, Ser. No. 736,286

Int. Cl.⁶ B60R 21/26

U.S. Cl. 280—737

1 Claim



1. A gas generator for an air bag which includes a housing having gas outlet ports, gas generation means disposed inside of the housing and ignition means for igniting the gas generation means, such that a gas generated in the gas generation means by an impact occurring when a car crashes is introduced into the air bag for protecting a driver or passengers of the car from the impact occurring during the collision, characterized in that

said ignition means includes a mechanical sensor (5) having piercing pins, a cap piece (6) disposed in close proximity to said mechanical sensor and having hole portions (9) disposed to deviate from the central axis thereof in the radial direction, percussion caps (7) put in said hole portions of said cap piece and forced to ignite by said piercing pins, and a transfer charge container (8) disposed in close proximity said cap piece for containing a transfer charge, and

said mechanical sensor includes at least TWO positioning pins (15) provided on the end surface facing said cap piece and disposed to deviate from the central axis thereof in the radial direction, while said cap piece includes hole portions (17) for putting in said positioning pins.

5,671,945 AIR BAG ASSEMBLY WITH DIFFUSER

Daniel Allen Rhule, Miamisburg; Alex Scott Damman, Clayton, and Vince Urban Otto, Dayton, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 26, 1996, Ser. No. 592,118

Int. Cl.⁶ B60R 21/28

U.S. Cl. 280—740

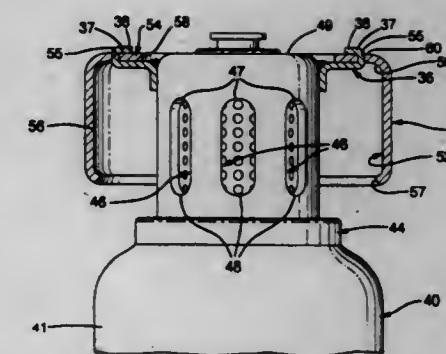
18 Claims

1. An air bag assembly comprising:

- an axially elongated inflator for generating gas, the inflator having first and second ends and having a gas discharge opening located on the first end;

- an air bag deployable upon generation of gas by the inflator;

- a housing for supporting the first and second ends of the inflator;



- a retainer and diffuser means for retaining the first end of the inflator to the housing and for diffusing the inflator gas directly into the air bag such that the inflator gas is spread more evenly into the air bag during air bag inflation; and the inflator having an axial length and the retainer and diffuser means having an axial length less than one half the axial length of the inflator.

5,671,946 APPARATUS FOR INFLATING A VEHICLE OCCUPANT PROTECTION DEVICE

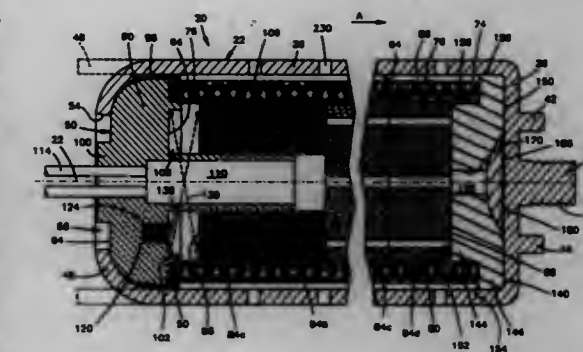
Daniel D. Whalen, Gilbert, Ariz.; David L. Geyer, Shelby Township, Mich., and Gina H. Simpson, Mesa, Ariz., assignors to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Filed Feb. 28, 1996, Ser. No. 608,139

Int. Cl.⁶ B60R 21/26

U.S. Cl. 280—741

7 Claims



1. Apparatus for supplying inflation fluid for inflating an inflatable vehicle occupant protection device, said apparatus comprising:

- an enclosure having a chamber partially defined by an end wall portion of said enclosure;

- gas generating material within said chamber and spaced a distance from said end wall portion, said gas generating material being ignitable at a first temperature;

- auto-ignition material ignitable at a second temperature below said first temperature, said auto-ignition material, when ignited, igniting said gas generating material;

- a filter element disposed between said gas generating material and the inflatable vehicle occupant protection device; and

- a resilient member having (i) a first portion between said end wall portion and said gas generating material for inhibiting movement of said gas generating material relative to said enclosure, and (ii) a second portion providing a seal between said filter element and said end wall portion, said first portion having a passage for directing the combustion products from ignition of said auto-ignition material against said gas generating material.

5,671,947

CONVERTIBLE PASSENGER CAR

Uwe Henn, Wimsheim, Germany, assignor to Dr. Ing. h.c.F.

Porsche, Weissach, Germany

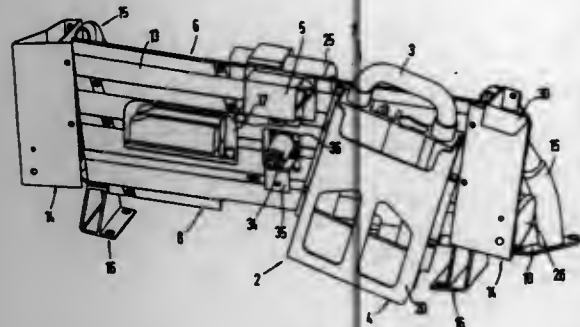
Filed Jan. 22, 1996, Ser. No. 589,603

Claims priority, application Germany, Jan. 20, 1995, 195 01 584.3

Int. Cl.⁶ B60R 21/13; 21/00

U.S. Cl. 280—756

40 Claims



1. A convertible motor vehicle, having a folding top and a rollover protection device arranged behind the seats which comprises at least one prefabricated cassette containing a protective bow and an actuator, and a rollover sensor, the prefabricated cassette being fixable on a receiving device, wherein the receiving device and at least the components of the rollover protection device are combined to form a precalibrated, operative module which is produced outside the vehicle,

wherein the receiving device is formed by a separate supporting frame which extends in a transverse direction of the vehicle and which can be fixed on the adjoining vehicle body, the supporting frame extending along a significant portion of the interior width of the vehicle,

wherein the supporting frame is essentially composed of:

a large-surface, transversely extending hollow profile, two laterally exterior upright column sections, and two rear-side supporting elements, and wherein the upright column sections are fixedly connected on both sides to the transversely extending hollow profile, the column sections being constructed to be open toward the top and the bottom.

5,671,948

SEAT AND SEAT BELT RESTRAINT ASSEMBLY

Thomas J. Susko, Eastpointe; Paul M. St. Clair, Farmington Hills, and Todd Hoover, Dearborn, all of Mich., assignors to Lear Corporation, Southfield, Mich.

Filed Apr. 10, 1996, Ser. No. 630,380

Int. Cl.⁶ B60R 22/22; B60N 2/02

U.S. Cl. 280—801.1

13 Claims

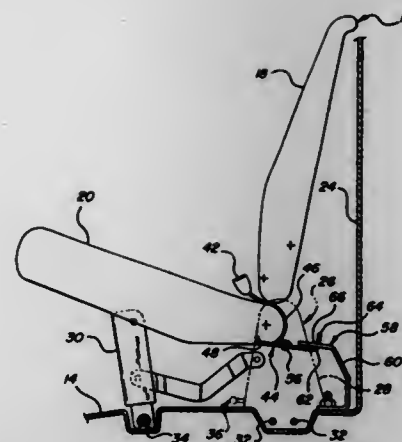
13. A bench seat and seat belt restraint assembly of the type disposed in a motor vehicle, said assembly comprising:

a bench seat having a backrest cushion and a seat cushion, said seat cushion including a tubular frame member, said bench seat including a collapsing mechanism for converting said bench seat between a use position wherein said seat cushion is generally perpendicular to said backrest cushion and a non-use position wherein said seat cushion is generally parallel to said backrest cushion;

a stanchion for supporting said bench seat above a vehicular floor, said stanchion including a decoupler for disconnecting said bench seat from the vehicular floor;

a seat belt element for restraining an occupant in said bench seat during sudden deceleration of the vehicle;

a seat bracket fixedly attached to said frame member of said seat cushion;



a strap interconnecting said seat belt element and said seat bracket;

a shank extending from said seat bracket;

a floor bracket for fixed attachment to the vehicle floor;

and characterized by one of said floor bracket and said shank including a male coupling end and the other of said floor bracket and said shank including a female coupling interlockable with said male coupling when said bench seat is in said use position for establishing a secondary path of restraint directly between said seat belt element and the vehicular floor to transfer restraint loads directly to said vehicular floor in the event said bench seat yields under restraint loads imposed during sudden deceleration, said male coupling automatically disengaging from said female coupling when said bench seat is moved to said non-use position.

5,671,949

SEAT BELT PRETENSIONER

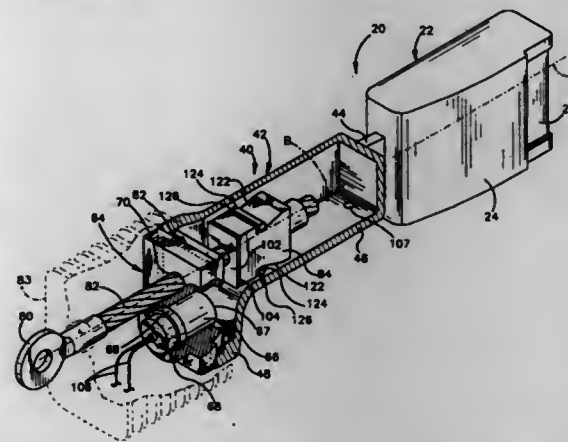
Barney J. Bauer, Fenton, and Charles M. Hotary, Romeo, both of Mich., assignors to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Filed Dec. 20, 1995, Ser. No. 575,836

Int. Cl.⁶ B60R 22/46

U.S. Cl. 280—806

29 Claims



1. An apparatus for tensioning a vehicle seat belt and tightening the seat belt against a vehicle occupant, said apparatus comprising: a buckle connectable with a tongue of a seat belt; an anchor connectable with a part of a vehicle;

a housing fixed to said buckle, said housing including a first wall and a longitudinal axis;

a second wall in said housing and cooperating with said first wall to define opposite ends of an expansible chamber, said second wall being movable relative to said first wall in a first direction along the axis, said second wall being connected with said anchor;

5,671,951

CARRYING CASE HAVING A DETACHABLE CLIP-BOARD

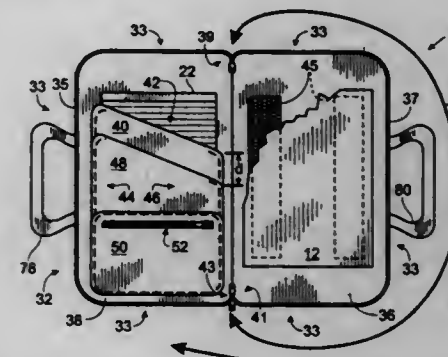
Stuart E. Palmiter, and Sally Anne Palmiter, both of 920 SE. Morlan, Gresham, Ore. 97080

Filed Oct. 25, 1995, Ser. No. 547,985

Int. Cl.⁶ B42D 3/12; B65D 85/28

U.S. Cl. 281—31

14 Claims



1. A carrying case combination for a detachable clip-board, comprising:

a pair of covers having a hinge connection therebetween which permits said covers to swing into open and closed positions, said pair of covers being formed of a substantially water resistant material, one of said covers having on an inside surface thereof a first element of a hook and loop fastener, a complementary second element of said hook and loop fastener being attached to a clip-board, said first element cooperating with said complementary second element of said hook and loop fastener to provide a releasable fastening member that affixes the clip-board to said one of said covers when the clip-board is pressed against said inside surface of said one of said covers for removably attaching the clip-board to said inside surface, said open position of said covers defining an opening edge substantially along the perimeter of said covers excluding said hinge connection, wherein portions of said opening edge on each cover include closure members which are sealable together in a closed position.

13. A combination carrying case and detachable clip-board, comprising:

a clip-board; and a pair of water resistant covers having a hinge connection therebetween which permits said covers to swing into open and closed positions, the clip-board being removably attached to one of said covers on an inside surface thereof having a first element of a hook and loop fastener cooperating with a complementary second element of the hook and loop fastener for removably attaching the clip-board to said inside surface, said open position defining an opening edge substantially along the perimeter of said covers excluding said hinge connection, wherein portions of said opening edge on each cover include closure members which are sealable together in a closed position.

5,671,952

SERVICE MANIFOLD AND SPECIAL ELBOW FOR TANK BLANKETING AND VENTING VALVES

Jone Yen Ligh, P.O. Box 420509, Houston, Tex. 77242-0509

Filed Mar. 10, 1995, Ser. No. 401,948

Int. Cl.⁶ F16L 35/00

U.S. Cl. 285—27

10 Claims

1. An elbow comprising a pipe having a 90° bend forming an inner arc and an outer arc portion, a first end extending through an opening in the wall of a linear main pipe, said first end having a shank of enlarged outer diameter relative to the diameter of said inner and outer arc portion and forming a junction therewith fixedly engaged in said opening, said enlarged outer diameter serving to reduce the arc of the bend and allow for a tight seating

a connector fixed to said second wall and said buckle and said anchor, said connector extending through said first wall; and actuatable means carried by one of said first and second walls and in fluid communication with the expansible chamber for applying, upon actuation, a fluid pressure force against said first and second walls to expand said expansible chamber for moving said buckle in the first direction along the axis to tension the seat belt and tighten the seat belt against the occupant;

said housing and said first wall being movable relative to said second wall in response to actuation of said actuatable means.

5,671,950

FASTENABLE BINDER WITH INSERT

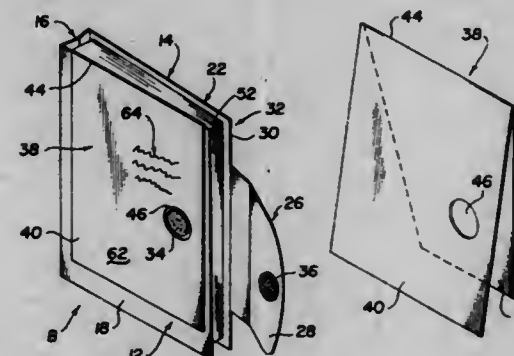
Charles Hanson, Dallas, Tex., assignor to Ampad Corporation, Dallas, Tex.

Filed Sep. 26, 1996, Ser. No. 721,502

Int. Cl.⁶ B42D 3/00

U.S. Cl. 281—29

18 Claims



1. In combination with a binding for a plurality of sheets of the type having a front cover attached to a rear cover along a fold line with the front and rear covers each having an interior and an exterior surface, the invention comprising:

a movable closure flap having an inside surface attached to the rear cover along an edge opposite the fold line joining the front and rear covers;

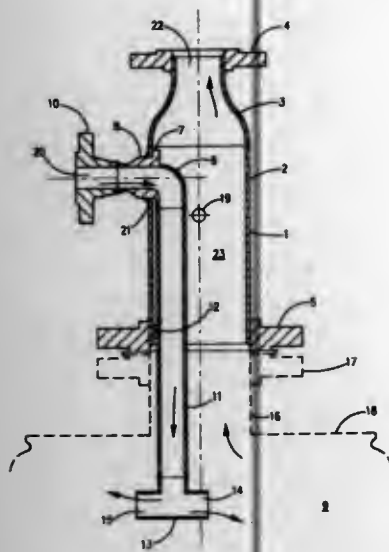
a first retaining means attached to the exterior surface of the front cover and a second retaining means complementary to the first retaining means attached to the inside surface of the movable closure flap for releasably securing the movable closure flap to the front cover in a closed position;

a removable display jacket having a front panel hingedly connected to a rear panel along an upper edge; the display jacket being adapted to receive the front cover between the front panel and the rear panel;

the front panel of the display jacket having a passageway formed therein through which the second retaining means is releasably engaged with the first retaining means; and

a front pocket formed with the interior side of the front cover having an opening facing a top edge of the front cover for receiving a portion of the rear panel of the removable display jacket;

whereby the display jacket is releasably secured to the binding when the second retaining means is engaged with the complementary first retaining means through the passageway in the front panel of the display jacket when the binding is in a closed position.

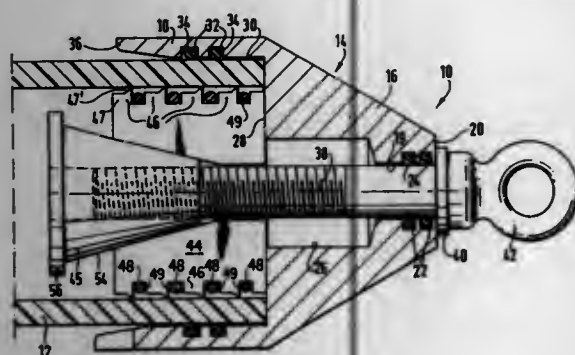


of the elbow in said opening and a stop on said outer arc abutting said wall and aligned with the said junction of said enlarged outer diameter and said outer arc.

5,671,953
PIPE END FITTINGS
Roderick Charles Brewis, Ranmore Cottage, Norton St. Philip, Somerset BA3 61Q, and Steven James Kent, Cleveland, both of England, assignors to Roderick Charles Brewis, Somerset, and Pipe Equipment Specialists Limited, Cleveland, both of England
PCT No. PCT/GB94/01980, § 371 Date Mar. 11, 1996, § 102(e) Date Mar. 11, 1996, PCT Pub. No. WO95/07430, PCT Pub. Date Mar. 16, 1995
PCT Filed Sep. 12, 1994, Ser. No. 612,957
Claims priority, application United Kingdom, Sep. 10, 1993, 9318777

Int. Cl.⁶ F16L 33/20
U.S. Cl. 285—258

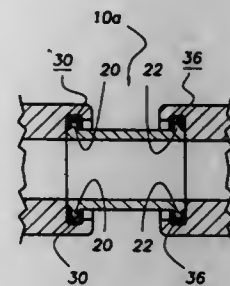
16 Claims



1. An end fitting for a tubular element having:
a threaded elongate element,
a tubular body having a front portion with a bore through which the elongate element extends and a rear portion defining a skirt;
an expandable element which, in use, is located around the elongate element and at least partly radially within the skirt, said expandable element being tubular having a tube body which is divided into a multiplicity of separate body pieces by slots extending the full axial length of the tube body; and
an expansion mandrel having a threaded bore engageable by the thread of the elongate element so that, in use, the mandrel can be drawn forwardly to urge expansion of the expandable element by relative rotation of the elongate element.

5,671,954
SWIVEL CONNECTOR FOR NOZZLE AND GARDEN HOSE
Leon J. Cheramle, 1208 Huey P. Long Ave., Gretna, La. 70053
Filed Dec. 13, 1995, Ser. No. 571,387
Int. Cl.⁶ F16L 28/08
U.S. Cl. 285—281

1 Claim

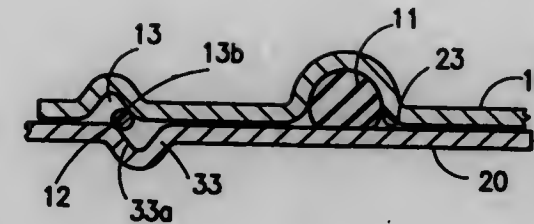


1. A swivel connector for connecting a garden hose with a water receiving device comprising:
an inner ring seal member having a central tubular portion and a first and second seal flange extending from either peripheral end of said central portion, said first seal flange having a first resilient outer sealing surface, said second seal flange having a second resilient outer sealing surface;
a first female swivel member having a first tubular portion having a first end having a first inner peripheral groove sized to receive, and having slidably sealingly disposed therein, said first seal flange of said inner ring seal member in a manner to form a fluid pathway between said central tubular portion of said inner ring seal member and said first tubular portion of said first female swivel member, and a second end having a hose connecting mechanism in connection therewith for forming a fluid connection with a male fitting end of a water hose; and
a second female swivel member having a second tubular portion having a third end having a second inner peripheral groove sized to receive, and having slidably sealingly disposed therein, said second seal flange of said inner ring seal member in a manner to form a fluid pathway between said central tubular portion of said inner ring seal member and said second tubular portion of said second female swivel member, and a fourth end having a connecting mechanism for forming a fluid connection with a water flow receiving device;
said first resilient outer sealing surface being sufficiently compressible to allow said first seal flange to be positioned into said first inner peripheral groove and sufficiently resilient to decompress to form a sliding seal against said first inner peripheral groove, said second resilient outer sealing surface being sufficiently compressible to allow said second seal flange to be positioned into said second inner peripheral groove and sufficiently resilient to decompress to form a sliding seal against said second inner peripheral groove.

5,671,955
THREADLESS PIPE COUPLER FOR SPRINKLER PIPE
Paul W. Shumway, Avondale, Ariz., assignor to American Fence Corporation, Phoenix, Ariz.
Filed Jun. 9, 1995, Ser. No. 489,106
Int. Cl.⁶ F16L 37/02
U.S. Cl. 285—305

5 Claims

1. A sprinkler system comprising:
a first elongated pipe, said first elongated pipe comprising a first end portion adjacent a first end of said first pipe, said first end portion having a single first circumferential groove on the external surface of said first pipe, said first groove being spaced apart from first end of said first elongated pipe by a predetermined distance;
a second elongated pipe, said second elongated pipe comprising a first end portion adjacent a first end of said second pipe, said



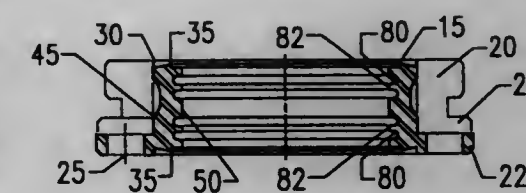
first end portion having a single first circumferential groove on the external surface of said second pipe, said second pipe first groove being spaced apart from said first end of said second pipe section by said predetermined distance;
a pipe coupler for receiving and joining said first and said second elongated pipe sections, said pipe coupler comprising: a single piece cylindrical sleeve, said sleeve comprising first and second end portions,

said first end portion receiving said first end of said first elongated pipe and said second end portion receiving said first end of said second elongated pipe,
said first end portion having first and second interior circumferential grooves on the interior surface of said sleeve and said second end portion having first and second interior circumferential grooves on said interior surface,
said first end portion first circumferential groove being spaced apart from the end of said first end portion by a second predetermined distance,
said second end portion first circumferential groove being spaced apart from the end of said second end portion by said second predetermined distance,
said first end portion second circumferential groove being spaced apart from said first end portion end by a third predetermined distance,
said second end portion second circumferential groove being spaced apart from said second end portion end by said third predetermined distance,
said first and second end portion first circumferential grooves each having both sidewalls extending at an incline to said interior surface of said coupler; said coupler further comprising:
a first lock ring carried in said sleeve first end portion first circumferential groove,
a second lock ring carried in said sleeve second end portion first circumferential groove,
a first seal ring carried in said sleeve first end portion second circumferential groove,
a second seal ring carried in said sleeve second end portion second circumferential groove,
said first lock ring being movable from a relaxed state to permit insertion of first pipe end portion into said sleeve first end portion to retain said first pipe in locking engagement with said pipe coupler whereby axial movement of said first pipe relative to said pipe coupler causes said first lock ring to engage said inclined surface of first end portion first circumferential groove and a sidewall of said first elongated pipe first circumferential groove, and said first seal ring sealingly engages said first pipe external surface, said second lock ring being movable from a relaxed state to permit insertion of said second pipe end portion into said sleeve second end portion,
said second lock ring retaining said second pipe in locking engagement with said pipe coupler whereby axial movement of said second pipe relative to said pipe coupler causes said second lock ring to engage said inclined surface of second end portion first circumferential groove and a sidewall of said second elongated pipe first circumferential groove, and said second seal ring sealingly engages said second pipe external surface;
said first and second lock rings each being irremovable from said coupler while each respective said first and second pipe is inserted into said coupler and wherein:

said sleeve first end portion first groove comprises a first aperture extending through said sleeve and said first lock ring comprises first and second arms extending outwardly through said first aperture, said first and second arms being movable to urge said first lock ring from said relaxed state into engagement with the bottom surface of said first end portion first groove whereby said first pipe first end may be inserted into said sleeve beyond said first lock ring.

5,671,956
VACUUM SYSTEM COUPLER
Charles K. Crawford, Wilton, N.H., assignor to Kimball Physics, Inc., Wilton, N.H.
Filed Mar. 7, 1996, Ser. No. 612,381
Int. Cl.⁶ A16L 25/00
U.S. Cl. 285—328

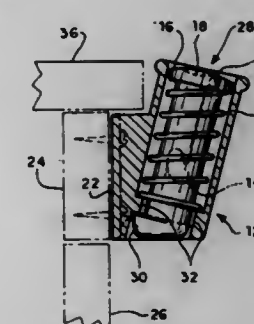
17 Claims



1. An all-metal vacuum flange coupler comprising a unitary body in the form of a hollow extension tube terminating at each end in a flange, each said flange including a sealing surface, and comprising a plurality of radially outwardly extending tabs or lugs for accommodating bolt holes, wherein the tabs or lugs of one flange are offset radially with respect to the tabs or lugs of the opposite flange, said coupler further comprising an annular recess and an annular knife edge formed in the sealing surface of each flange for engaging a metal gasket.

5,671,957
CHILD RESISTANT TUBE LATCH
Roger Raffini, 10 Sunset Hill Rd., Georgetown, Conn. 06829
Filed Dec. 14, 1995, Ser. No. 572,713
Int. Cl.⁶ E05C 5/02
U.S. Cl. 292—62

13 Claims



7. A child-resistant latch comprising:
a round, coiled spring defining a coiled area;
a deadbolt having a body, a first end on one side of said body and a second end on another side of said body, said body being within said coiled area of said spring, said first end of said deadbolt having a button and a pair of locking pins, periphery of said button being larger than a periphery of said spring such that said button is external of said coiled area of said spring and compression of said button results in compression of said spring;
a guard tube housing said spring and said deadbolt, said guard tube having a pair of locking pin guides in which said pair of locking pins are guided and caused to lock, said guard tube

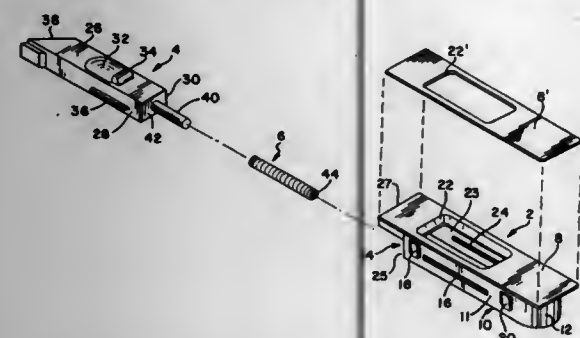
including a ridge which reduces the area of said guard tube at the point of said ridge to less than an area of said spring, such that said spring can be compressed against said ridge; and mounting means for mounting said guard tube to a surface adjacent a door or drawer to be locked.

5,671,958
SNAP ON LATCH MECHANISM FOR A SASH WINDOW
Matthew Peter Szapucki, 1282 W. Todd Rd., Toms River, N.J. 08755, and Richard Kulkaski, 1710 Gannet Ct., Forked River, N.J. 08731

Filed Jun. 28, 1996, Ser. No. 672,424
Int. Cl.⁶ E05C 1/10

U.S. Cl. 292-175

10 Claims



1. A latch mechanism comprising:
an housing having a top plate with an outer edge;
side walls depending from said top plate;
said side walls having outer surfaces joining said top plate at a distance from its edge so as to form a ledge between each outer surface and said edge of said top plate;
a slot in each side wall;
an end wall depending from said top plate that is transverse to said side walls;
flexible tabs extending outwardly from the outer surface of each side wall and toward said top plate, said tabs having an inner side surface;
a bolt having first and second ends and wings on opposite sides such that when said bolt is between said side walls of said housing, each wing passes through a slot in a side wall; said wings being shorter than said slots so as to permit said bolt to be slid longitudinally within said housing; and
a spring located between the first end of said bolt and said end wall of said housing.

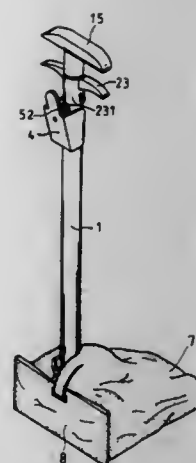
5,671,959
REFUSE COLLECTING DEVICE
Eric Tsou, No. 9, Lane 83, Sec. 1, Kunshu Road, Sanchung City, Taiwan

Filed Oct. 21, 1996, Ser. No. 733,958
Int. Cl.⁶ A01K 29/00; E01H 1/12

U.S. Cl. 294-1.4

20 Claims

1. A refuse collecting device comprising:
an elongated tube having an upper axial end and a lower axial end, a bag support being attached to the tube in the proximity of the lower end and sideways projected therefrom;
a bag mount comprising a frame and a cylindrical member extending from the frame to be movably received within the lower end of the tube between an inward bag released position and an outward bag expanded position, the frame comprising a plurality of bosses on an underside, the bag mount comprising first biasing means to bias the bag mount to the outward position;
a bag having a body with an opening, the opening having a plurality of holes formed on one side thereof corresponding to and fit onto the bosses, the bag opening having dimension that



when the bag mount is in the inward position, an opposite side of the bag opening is engageable and supported on the bag support and when the bag mount is moved to the outward position, the bag opening is expanded and thus firmly held between the bag support and the bag mount;

a paddle having a shape corresponding to the frame of the bag mount and rotatably attached to the tube to be movable between a closed position where the paddle shields and covers the frame and thus the opening of the bag and an open position where the paddle is located away from the frame to expose the bag opening, the paddle comprising second biasing means to bias the paddle to the closed position;

an inner cylinder received and moveable within the tube between a lower position and an upper position via an intermediate position therebetween, the inner cylinder comprising third biasing means to bias the inner cylinder toward the lower position;

a first wire having an end fixed to the paddle and an opposite end fixed to the inner cylinder, the first wire having a first length of slack so that when the inner cylinder is in the lower position, the paddle is allowed to be biased by the second biasing means to the closed position and when the inner cylinder is moved, against the third biasing means, from the lower position to the intermediate position, the first length of slack is stretched and the paddle is forced by the first wire to rotate against the second biasing means and relative to the tube to the open position;

a second wire having an end fixed to the tubular member of the bag mount and an opposite end fixed to the inner cylinder, the second wire having a second length of slack so that when the inner cylinder is in the lower position and the intermediate position, the bag mount is allowed to be biased by the first biasing means to the outward position to expand and firmly hold the bag and when the inner cylinder is moved against the third biasing means to the upper position, the second length of slack is stretched and the bag mount is forced by the second wire to move against the first biasing means and relative to the tube to the inward position; and

a cylindrical hand grip fit over the tube in a manually movable manner and coupled to the inner cylinder for moving the inner cylinder therewith between the lower position and the upper position.

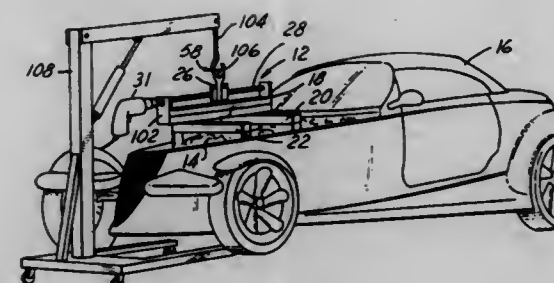
5,671,960
ENGINE BALANCE LIFTER
David Chyz, Clinton Township, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.

Filed May 28, 1996, Ser. No. 654,490
Int. Cl.⁶ B66C 1/10; 13/08

U.S. Cl. 294-81.3

4 Claims

1. An engine balance lifter comprising
an elongated, longitudinally extending main beam,



first and second elongated, laterally extending cross beams, means mounting said cross beams on said main beam in spaced apart relation at selected points along the length of said main beam and at selected angular positions with respect to said main beam,

first and second engine clamps for said first cross beam and third and fourth engine clamps for said second cross beam, means securing said first and second clamps to said first cross beam in spaced relation at selected points along the length of said first cross beam,

means securing said third and fourth clamps to said second cross beam in spaced relation at selected points along the length of said second cross beam,

means on each said clamp adapted for removable attachment to an engine, and

a suspension hanger having means supporting said main beam at selected points along the length of said main beam,

said main beam comprising an elongated channel of inverted cross-section having side flanges terminating in laterally inwardly turned, spaced-apart, parallel tracks,

said means mounting said cross beams on said main beam comprising a first bolt rotatably mounted on said first cross beam and a second bolt rotatably mounted on said second cross beam,

a first nut in said channel slidably engaging said tracks and threaded on said first bolt,

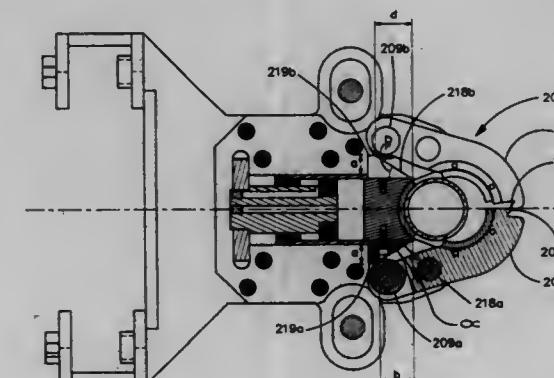
and a second nut in said channel slidably engaging said tracks and threaded on said second bolt,

whereby tightening said bolts in said nuts will clamp said cross beams to said channel at selected points along the length of said main beam and in desired angular positions with respect to said main beam.

5,671,961
BACK-UP POWER TONGS
David A. Buck, 1348 Sawmill Hwy., Breaux Bridge, La. 70517
Filed Oct. 13, 1995, Ser. No. 542,780
Int. Cl.⁶ B66C 1/62; B25B 13/48

U.S. Cl. 294-116

23 Claims



1. A back-up power tongs tool for gripping a tubular member comprising:

a. a front end having a width and at least two pivoting jaws, said width not being substantially greater than that needed to accommodate said pivoting jaws when in an open position;
b. wherein both of said pivoting jaws are adapted to grip the tubular member to prevent rotation of the tubular member about a longitudinal axis of the tubular member; and
c. an axial jaw capable of moving in an axial path to engage the tubular member.

5,671,962
BIFINGER HAND FOR AN INDUSTRIAL ROBOT AND A METHOD OF CONTROLLING THE OPERATION OF THE BIFINGER HAND

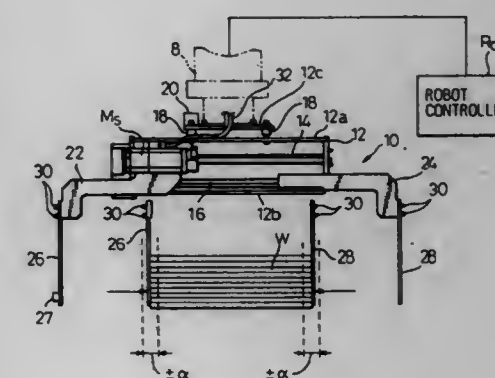
Kazuhisa Otsuka, and Akira Tanaka, both of Minamitsuru-gun, Japan, assignors to Fanuc Ltd., Yamanashi, Japan

Filed Aug. 22, 1995, Ser. No. 517,850

Claims priority, application Japan, Sep. 22, 1994, 6-227988
Int. Cl.⁶ B25J 9/16

U.S. Cl. 294-119.1

10 Claims



1. A robot hand provided with a bifinger unit, having a pair of relatively movable fingers for grasping a workpiece therebetween, comprising:

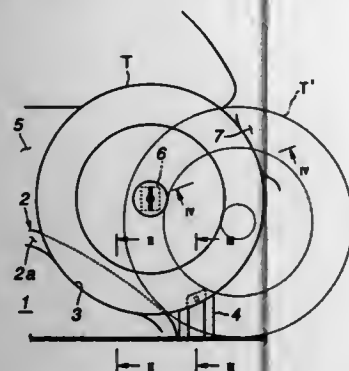
a palm means formed as a base portion of said robot hand;
a pair of finger-support means for removably supporting the pair of fingers, said finger support means being movably mounted on said palm means;

finger feed means mounted on said palm means for providing said pair of finger-support means with a feed motion along a predetermined axis to therein relatively move said pair of fingers between a grasping position thereof and a predetermined releasing position thereof distant from said grasping position;

a single servomotor means mounted on the palm means of said robot hand for driving the finger feed means; and

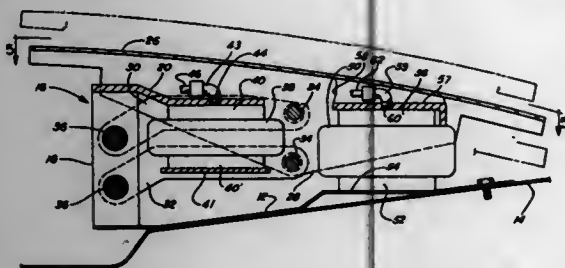
control means for controlling an operation of said servomotor to therein adjust said grasping position of said pair of fingers so that a predetermined optimum holding force is applied to the workpiece based upon weight, size, shape, hardness, and surface condition of the workpiece, wherein said control means is connected to a holding force input means by which holding force data, necessary for determining said predetermined optimum holding force of the workpiece, is input into said control means.

5,671,963
SPARE TIRE STORAGE ARRANGEMENT
 Shinji Kanamori, and Yoshiaki Hino, both of Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
 Continuation of Ser. No. 506,194, Jul. 24, 1995, abandoned.
 This application Oct. 25, 1996, Ser. No. 738,348
 Claims priority, application Japan, Jul. 27, 1994, 6-196064
 Int. Cl.⁶ B62D 43/08
 U.S. Cl. 296—37.2



1. An arrangement for storing a spare tire in a vertical orientation in a rear interior part of a motor vehicle body, comprising:
 a supporting surface, at least partly defined by a wheel housing accommodating a rear wheel exterior of said vehicle body, and projecting into a luggage compartment at a rear part of said vehicle body; and
 means for holding said spare tire in said interior part of said vehicle body against said supporting surface;
 said supporting surface defining an inclined surface rising away from a central part of said spare tire, and abutting a peripheral part of said spare tire in said interior part of said vehicle body rearwardly of said rear wheel exterior of said vehicle body.

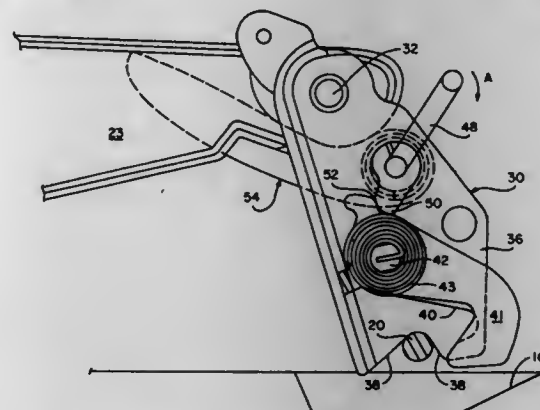
5,671,964
VEHICLE SEAT MOUNTING MECHANISM
 Delbert D. DeRees, Romeo; Kanalyah C. Mehta, Rochester Hills; Robert A. Vetter, Sterling Heights, and Howard W. Meyer, Bloomfield Hills, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.
 Continuation-in-part of Ser. No. 174,088, Dec. 28, 1993, abandoned. This application Nov. 17, 1995, Ser. No. 559,897
 Int. Cl.⁶ B60N 1/02
 U.S. Cl. 296—65.1



1. A seat mounting mechanism for a vehicle including a seat carrier, said mechanism comprising a base, a tower secured to the base, a pair of oppositely disposed flanges extending downwardly from a mid-section of the seat carrier, oppositely disposed pairs of links, each link pivotally connected at its respective ends between respective flanges and the tower, a first air bag spring secured at one end thereof to said tower and operatively connected at the other end thereof to at least one of said oppositely disposed links, a second air bag spring secured between said base and said seat

carrier, and external control means for controlling initial pressures in each of said air bag springs.

5,671,965
TUMBLE SEAT WITH DISPLACEABLE SIDE HANDLE RELEASE
 James G. O'Connor, Lake Orion, Mich., assignor to Atoma International, Inc., Newmarket, Canada
 Filed Mar. 26, 1996, Ser. No. 621,684
 Int. Cl.⁶ B60N 2/04
 U.S. Cl. 296—65.1



1. A vehicle seat for use in a vehicle including floor means having a pair of front and rear wells disposed with respect to a longitudinal axis of the vehicle and anchor members extending across said wells, said seat being constructed and arranged to be movable between an operative position for receiving a passenger thereon and forwardly tumbled, storage position, said vehicle seat comprising:

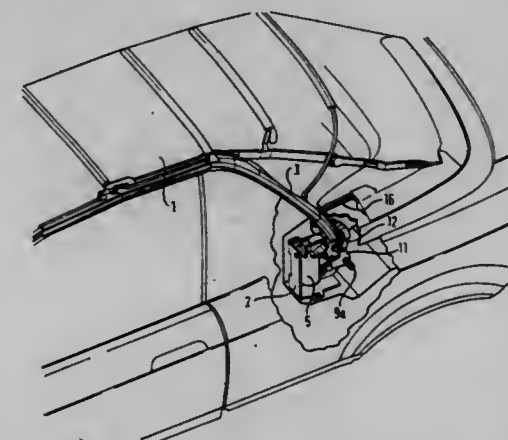
a pair of rigid support structures disposed on opposite sides of said vehicle seat,
 a cushioned seat structure on said pair of rigid support structures,
 front and rear legs mounted on each of said rigid support structures, each of said legs including a downwardly facing surface for engaging the anchor members, and associated front and rear hook members, each of said front and rear hook members being mounted for movement between (1) an operative position so as to enter the associated front and rear wells and engage in hooked relationship with the anchor members so as to detachably retain the rigid support structures in a fixed, operative position on the floor means with the anchor members and the downwardly facing surfaces in engagement and (2) an inoperative position removed from engagement with the anchor members,

each of said rear legs being pivotally coupled to an associated rigid support structure so as to be movable between (1) an operative position extending generally downwardly with respect to an associated rigid support structure permitting said rear hook members to be disposed in the operative position thereof, and (2) a forwardly folded position disposed generally adjacent an associated rigid support structure, and
 an actuating mechanism operatively associated with said rear hook members and including manually movable handle structure associated with at least one of said rear legs in a position to be manually grasped and operated at a side of said vehicle seat, said handle structure being biased toward a use position by a spring system, said actuating mechanism being constructed and arranged with respect to said rear hook members so that manual movement of said handle structure from said use position moves said rear hook members from their operative position to their inoperative position thereby permitting said vehicle seat to be pivoted about said front anchor members, disposed in the operative position thereof, and moved to the forwardly tumbled, storage position thereof.

said handle structure including a lost-motion connection constructed and arranged such that when said rear legs move toward their forwardly folded position causing a portion of said handle structure to contact a surface of an associated rigid support which would otherwise restrict movement of said rear legs, said lost-motion connection permits said handle structure to move against the bias thereon, enabling said rear legs to complete movement to their forwardly folded position thereof.

5,671,966
DRIVE ASSEMBLY FOR A FOLDING TOP OF A MOTOR VEHICLE
 Peter Busch, Mengkofen, Germany, assignor to ED. Scharwächter GmbH & Co., Remscheid, Germany
 Filed Dec. 6, 1995, Ser. No. 568,042
 Claims priority, application Germany, Dec. 7, 1994, 44 43 405.7

Int. Cl.⁶ B60J 7/12
 U.S. Cl. 296—107



1. A drive assembly for a folding top of a motor vehicle including main pillar means and tightening clamp means located in a top storage well which is closed with a top storage well cover, said drive assembly comprising:

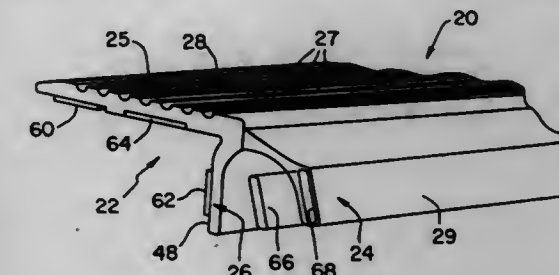
a bracket secured on a vehicle body and including pivot supports for the main pillar means and the tightening clamp means; and
 drive means for pivoting the main pillar means and the tightening clamp means;

wherein the drive assembly includes at least one electric motor provided at a side of the top, a bracket in which a reducer is accommodated, and sequential control means for drivingly connecting the reducer with the main pillar means and the tightening clamp means, wherein the sequential control means comprises a substantially V-shaped drive lever one arm of which is connected with the main pillar means and another arm of which is connected with the tightening clamp means, wherein the sequential control means further comprises a two-arm lever pivotally supported on the bracket so that it pivots in a direction opposite to a pivotal direction of the drive lever, and

wherein one arm of the two-arm lever is engageable with the another arm of the drive lever and another arm of the two-arm lever is connected with the tightening clamp means for transmitting to the tightening clamp means rotational torque from the electric motor.

5,671,967
COEXTRUDED VEHICLE SILL COVER ARTICLE
 Cecil R. Gurganus, Evansville; Roy C. Sanford, Dale; Jerry W. Atkinson, Vincennes; Scott E. Baker, Newburgh; Michael C. Sander, Evansville, and John J. Vincini, Newburgh, all of Ind., assignors to GenCorp Inc., Fairlawn, Ohio
 Filed Apr. 28, 1995, Ser. No. 431,205
 Int. Cl.⁶ B60R 13/06
 U.S. Cl. 296—146.9

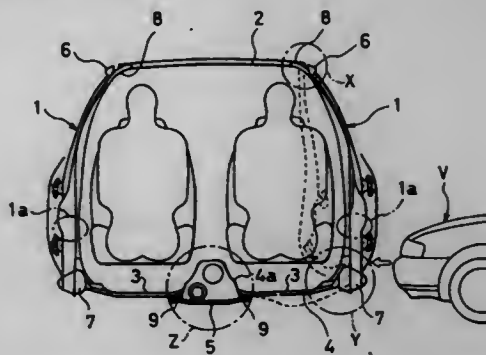
16 Claims



1. A sill cover article for a vehicle comprising a first, relatively rigid sill cover portion for providing a sill cover function and a second, relatively flexible lower door sealing portion for providing a seal between a door of said vehicle and a body of said vehicle when the door is closed in substantially opposing relation to said vehicle body, said lower door sealing portion including an ice-release agent for preventing ice from forming on a surface thereof and an additive which emits under exposure to light according to a concentration of the ice-release agent to indicate whether the ice-release agent is present in sufficient concentration.

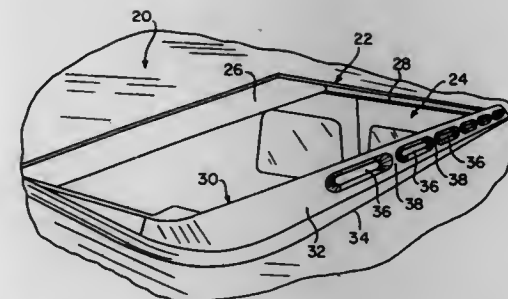
5,671,968
BODY STRUCTURE FOR MOTOR VEHICLE
 Toshio Masuda, Ashikaga, and Masayuki Honma, Ora, both of Japan, assignors to Fujii Jukogyo Kabushiki Kaisha, Tokyo, Japan
 Continuation of Ser. No. 510,531, Aug. 2, 1995, abandoned.
 This application Dec. 4, 1996, Ser. No. 760,632
 Claims priority, application Japan, Aug. 31, 1994, 6-230466
 Int. Cl.⁶ B65D 25/02
 U.S. Cl. 296—188

18 Claims



11. A passenger compartment structure of a motor vehicle with a left and right side having, right and left center pillars, each of said center pillars having an inner panel and an outer panel vertically erected at left and right sides, respectively, of said motor vehicle for bordering said compartment structure, a roof side rail forwardly and rearwardly extending from an upper position of each of said center pillars at said both sides, a side sill forwardly and rearwardly extending from a lower position of each of said center pillars at said both sides, a center roof brace formed of an upper panel and a lower panel connected between both of said upper positions of said center pillars, a floor panel interposed between said both lower positions of said center pillars for covering an under side of said compartment structure, comprising:

a joint member connected between said lower panel of said center roof brace and said inner panel of each of said center pillars to reinforce said upper positions of said center pillars; a doubler connected between said lower position of each of said center pillars for preventing said lower position of said center pillar from collapsing when another vehicle collides sidewardly; a reinforcement interposed between said inner panel and said outer panel of each of said center pillars; and said reinforcement having a strength discontinuity portion at an approximately lower position of each of said center pillars for easily giving away so as to protect a passenger when collision occurs from a sideward direction.



5,671,969

GUIDE MECHANISM FOR PLATES

Johannes Sutor, Düsseldorf, and Michael Lenders, Meerbusch, both of Germany, assignors to Westmont Technik GmbH & Co. KG, Germany

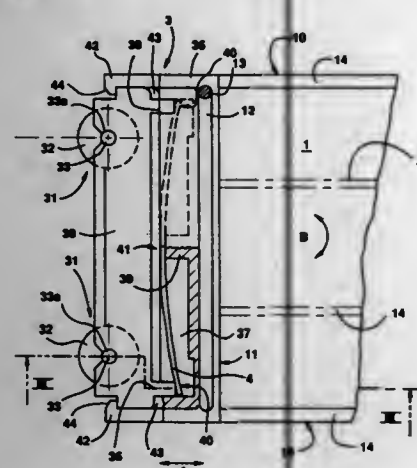
Filed Aug. 7, 1995, Ser. No. 512,091

Claims priority, application Germany, Aug. 9, 1994, 9412816 U

Int. Cl.⁶ B60J 7/00

U.S. Cl. 296—214

25 Claims



23. A guide mechanism for plates of a sun protection system under a translucent sun roof in a car, comprising at least two plates, with guide blocks attached at each end of a plate and at least two guide tracks, each of which carries at least one of the guide blocks belonging to the plate, placed at essentially constant intervals in guide sections, the invention comprising said plate having elastic spring devices that coact with the plates to reduce friction within the guide tracks.

5,671,970

WIND DEFLECTOR FOR MOTOR VEHICLE SUNROOF
Kenneth D. Edelmann, Auburn Hills, Mich., assignor to Webasto Sunroofs, Inc., Rochester Hills, Mich.

Filed Feb. 21, 1996, Ser. No. 604,677

Int. Cl.⁶ B60J 7/22

U.S. Cl. 296—217

5 Claims

1. A wind deflector for use in a sunroof for a motor vehicle comprising an integrally formed elongate body constructed and arranged to be disposed in a deployed position wherein said body projects at least partially above the level of the vehicle roof and extends transversely of the motor vehicle along a leading edge of the sunroof aperture, said elongate body having a plurality of openings formed therethrough and spaced along a longitudinal extent of said body,

said openings each being defined by 1) an upper portion defining an upper extremity of said opening, 2) a lower portion defin-

ing a lower extremity of said opening, and 3) a pair of side portions disposed on opposite sides of said opening and defining lateral extremities of said opening, said upper portion having an operative surface constructed and arranged to extend downwardly as it extends rearwardly relative to the motor vehicle so as to be able to direct air downwardly and rearwardly through the sunroof aperture when said elongate body is in said deployed position, said lower portion having an operative surface which extends downwardly as it extends rearwardly relative to the motor vehicle and which generally converges with the operative surface of said upper portion as said operative surfaces of the upper and lower portions extend downwardly and rearwardly so as to enable air to be funneled generally vertically and through said opening and through the sunroof aperture, said pair of side portions being constructed and arranged to connect said upper portion with said lower portion at opposite sides of said opening, respectively, and said side portions providing respective surfaces that are generally concave as they extend from said upper portion to said lower portion and that generally converge towards one another as they extend rearwardly relative to the motor vehicle so as to enable air to be funneled generally horizontally and through said opening.

5,671,971

APPARATUS FOR ADJUSTING FASTENING POSITION OF FASTENING MEANS IN SEAT BELT DEVICE

Toshiro Koyanagi, Yayoi Hashimoto, both of Hikone, and Haruyuki Takagi, Tokyo, all of Japan, assignors to Takata Corporation, Tokyo, Japan

Continuation of Ser. No. 981,201, Nov. 25, 1992, abandoned.

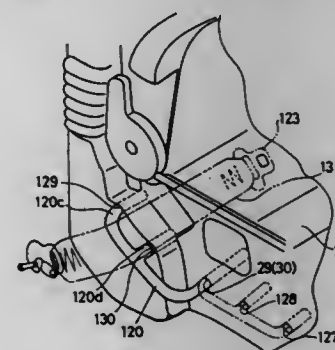
This application Jan. 19, 1995, Ser. No. 375,467

Claims priority, application Japan, Dec. 5, 1991, 3-322098

Int. Cl.⁶ A47C 1/08; 13/00

U.S. Cl. 297—250.1

5 Claims



1. An apparatus including an infant-restraining protective seat for restraining and protecting an infant, said apparatus comprising a belt guide means located under a seat portion of said protective seat for guiding a seat belt device installed in a seat of a vehicle to secure said protective seat to said vehicle, said seat belt device having at least a seat belt and fastening means such as a tongue and buckle, for restraining and protecting a passenger seated in the seat, wherein said belt guide means guides said seat belt device

under said seat portion of said infant-restraining protective seat to secure said infant-restraining protective seat.

said belt guide means comprising adjusting means for adjusting the position of said fastening means in a longitudinal direction of the seat belt so as to prevent interference contact between said fastening means and a corner of said protective seat when said fastening means is fastened in order to secure said infant-restraining protective seat to said vehicle seat, wherein said adjusting means includes at least one portion which is extendible in a horizontal direction from at least one side wall of said infant-restraining protective seat.

5,671,972

SEAT BACK ADJUSTMENT MECHANISM FOR A CHAIR
Romeo Tedesco, Weston, Canada, assignor to Global Upholstery Company, Downsview, Canada

Continuation-in-part of Ser. No. 497,657, Jun. 30, 1995, Pat.

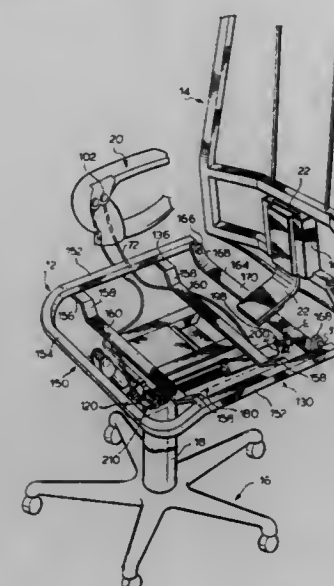
No. 5,577,804. This application Nov. 14, 1995, Ser. No.

557,260

Int. Cl.⁶ B60N 2/02

U.S. Cl. 297—362.13

29 Claims



1. A chair comprising:
 - (i) a longitudinally extending seat member having a central portion and opposed, transversely extending front and rear ends;
 - (ii) a wheeled base;
 - (iii) a support member extending between said wheeled base and said central portion of said seat member;
 - (iv) a chair back member pivotally mounted with respect to said seat member for movement between an upright position and a reclined position;
 - (v) an arm rest member having button means positioned in said arm rest member, said button means being movable between a first position and a second position;
 - (vi) a cylinder containing a non-compressible fluid transversely offset from said central portion, having mechanical actuating means and operatively connected to said chair back member for adjustment of the inclination thereof; and,
 - (vii) flexible cable means having a first end connected to said button means and a second end mechanically connected to said actuating means

whereby, when said button means is moved from said first position to said second position, said actuating means is actuated so that the inclination of the chair back member may be adjusted and when said button means is moved from said second position to said first position, the inclination of the chair back member is fixed.

5,671,973

Patent Not Issued For This Number

5,671,974

FURNITURE COUPLING SYSTEM AND METHOD

Brian Boycott, and Edward Boycott, both of 11865 County Road No. 42, Tecumseh, Ontario, Canada, N8N 2M1

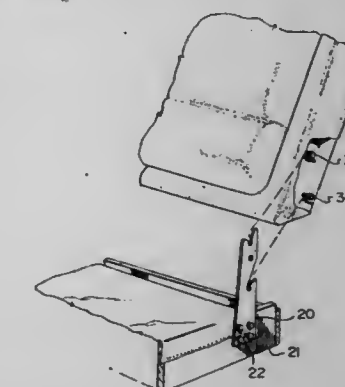
Filed Aug. 2, 1995, Ser. No. 510,443

Claims priority, application Canada, Aug. 11, 1994, 2129918

Int. Cl.⁶ A47C 4/02

U.S. Cl. 297—440.2

11 Claims



1. A coupling for connecting members of seating furniture comprising:
 - a mounting bracket attached to a base of said furniture, said mounting bracket including a pair of slots;
 - an engaging bracket attached to a back of said furniture;
 - a pair of pins disposed in said engaging bracket wherein each of said pins is removably engageable in one of said pair of slots of said mounting bracket for removably connecting said back to said base;
 - a first retaining aperture defined in said mounting bracket;
 - a second retaining aperture defined in said engaging bracket;
 - wherein a fastener is removably receivable within said first retaining aperture and said second retaining aperture for removably securing said back to said base after said mounting bracket and said engaging bracket are engaged; and
 - wherein one of said pair of slots has a locking point disposed at a center of said slot for receiving one of said pair of pins and wherein an opening of said one of said pair of slots is defined by a first angled inwardly extending surface and second angled inwardly extending surface opposed to said first surface, wherein said first angled inwardly extending surface is angled at approximately 45° from said opening to said locking point.

5,671,975

SEATING SYSTEM WITH HORIZONTAL BAR HAVING SEAT PORTIONS CONNECTED THERETO

Anton Müller, Aalen, Germany, assignor to Eisen- und Drahtwerk Erlau Aktiengesellschaft, Aalen, Germany

Filed Apr. 19, 1996, Ser. No. 634,800

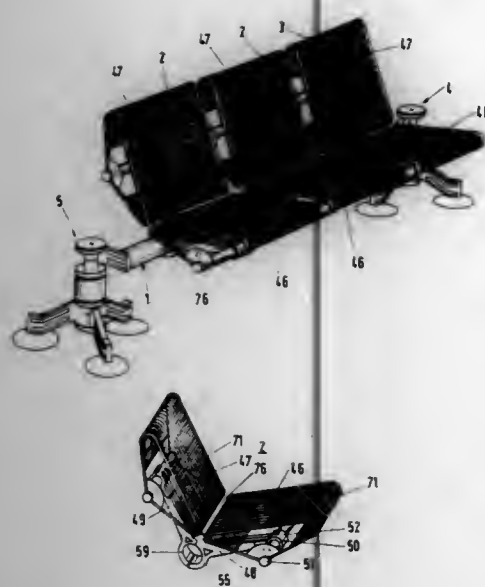
Claims priority, application Germany, Apr. 19, 1995, 29506593 U

Int. Cl.⁶ A47C 7/00

U.S. Cl. 297—445.1

52 Claims

1. A seating system comprising:
 - at least one support;
 - at least one horizontal bar supported by said at least one support;
 - at least one seat portion connected to said horizontal bar;
 - said at least one support comprising at least one suspending member;



at least one support arm for each one of said at least one supports;
said at least one support arm hung from said at least one support;
said at least one support arm connecting said horizontal bar to said at least one support;
wherein said at least one support arm is clamped to said at least one suspending member;
wherein said at least one suspending member has at least one clamping member for clamping said at least one support arm;
wherein said at least one clamping member has at least one receiving element for said at least one support arm; and
wherein said at least one receiving element is a groove in said clamping member.

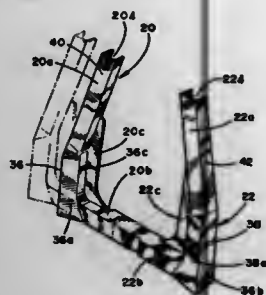
5,671,976

MODULAR AUTOMOTIVE SEAT FRAME

Mark D. Fredrick, Corunna, Mich., assignor to Mitchell Corporation of Owosso, Inc., Owosso, Mich.
Continuation of Ser. No. 240,853, May 9, 1994, Pat. No. 5,547,259. This application Feb. 26, 1996, Ser. No. 606,887
Int. Cl.⁶ A47C 7/02

U.S. Cl. 297—452.18

16 Claims



1. A modular automotive seat back frame, comprising:
a first one-piece side support including an integral cross member;
a second one-piece side support including an integral cross member telescopically received within said cross member of said first side support;
adjustable mounting means for securing said first side support to said second side support at a desired spaced apart distance by varying a distance said cross member of said second side support is received within said cross member of said first side support; and

a headrest tube mounted to said side supports, said headrest tube interfitted with said first side support and said second side support.

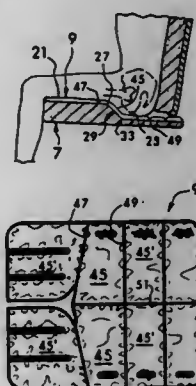
5,671,977

SEATING AND BACK SYSTEMS FOR A WHEELCHAIR

Eric C. Jay, Boulder, and John C. Dinsmoor, III, Westminster, both of Colo., assignors to Jay Medical Ltd., Boulder, Colo.
Continuation of Ser. No. 217,366, Mar. 24, 1994, Pat. No. 5,524,971, which is a continuation of Ser. No. 945,733, Sep. 16, 1992, Pat. No. 5,352,023. This application Apr. 16, 1996, Ser. No. 632,898
Int. Cl.⁶ A47C 7/02

U.S. Cl. 297—452.24

13 Claims



1. A seating system for properly fitting and supporting a user's thighs and buttocks, said seating system including:

a base seating member having a front and a rear and having a forward section and a rearward section adjacent one another and together extending essentially from the front to the rear of the base seating member along a central axis, said forward section having an upper surface forming a shelf extending substantially along and across said central axis to support the user's thighs, and said rearward section having an upper surface extending substantially along and across said central axis to support the user's buttocks including the user's ischial tuberosities,

said upper surfaces of said forward and rearward sections meeting to form an edge extending substantially across the central axis of said base seating member on each side of said central axis, said upper surface of rearward section forming a depressed, seating well having at least two portions with the first portion extending downwardly of said edge in an area immediately adjacent said edge to form a step face and with a second portion of the upper surface of said rearward section extending rearwardly of said step face, and

said seating system further including a pad having at least one pouch filled with fluid and having a transversely extending front seam and a transversely extending rear seam, said pad being positioned on said base with said pouch positioned over said step face with said front seam extending substantially laterally across said central axis forward of said edge between the upper surfaces of said forward section and said rearward section of said base seating member, said front seam spaced rearwardly from a front edge of said base, and said rear seam extending substantially laterally across said central axis rearward of said edge.

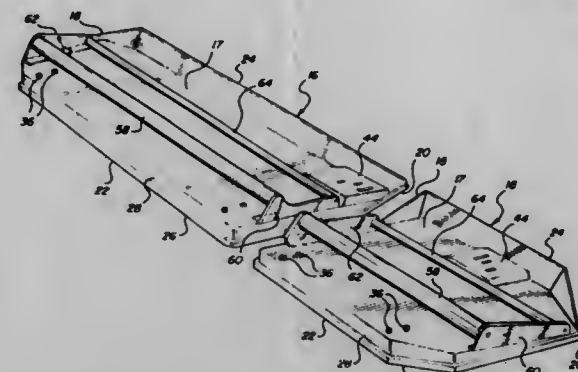
5,671,978

VEHICLE SEAT CUSHION

Lars-Eric Verner Olsson, Sjuntorp, Sweden, assignor to Lear Corporation, Southfield, Mich.
Filed Jun. 28, 1996, Ser. No. 672,645
Int. Cl.⁶ A47C 7/02

U.S. Cl. 297—452.55

21 Claims



1. A side impact resistant seat cushion for a vehicular seat assembly, said seat cushion comprising:

a base plate having a top surface bounded by a left end and a right end and a front edge and a rear edge;
a foam pad disposed over said top surface of said base plate;
a fabric covering disposed over said foam pad and operatively connected adjacent said right and left ends and said front and rear edges of said base plate;

said base plate including a first beam extending laterally substantially from said left end to said right end thereof for rigidifying said base plate to increase resistance to buckling under side impact loading thereby improving passenger safety, said first beam disposed between said top surface of said base plate and said fabric covering;

said base plate further including a second beam spaced from and parallel to said first beam and disposed between said top surface of said base plate and said fabric covering; each of said first and second beams having an elevation measured perpendicularly from a respective portion thereof to said top surface; said elevation of said second beam being less than said elevation of said first beam.

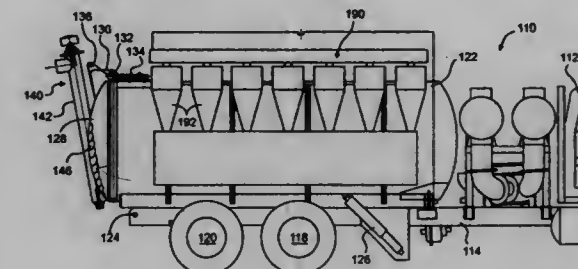
5,671,979

VEHICLE HAVING A CONTAINMENT VESSEL AND AUGER DISCHARGE DEVICE

Gary A. Poborsky, 483 Helsel Rd., Johnstown, Pa. 15904
Filed Feb. 14, 1996, Ser. No. 601,454
Int. Cl.⁶ B60P 1/40

U.S. Cl. 298—17 R

28 Claims



1. A vehicle for transporting and discharging materials, the vehicle comprising: a frame;

a material containment vessel, said material containment vessel mounted to said frame and having an interior and a rear portion with a rear wall, said rear wall including an opening therein;

a tubular shell, said tubular shell structurally coupled to said material containment vessel and including first and second longitudinal ends, a discharge port, and an opening therein between said first and second longitudinal ends, said opening of said tubular shell in fluid communication with said opening of said material containment vessel;

an auger, said auger extending at least partially through said opening of said rear wall of said material containment vessel and into the interior of said material containment vessel, said tubular shell encasing said auger on both sides of said opening in the rear wall; and

a motor for rotating the auger to convey material from the interior of the material containment vessel through the tubular shell to be discharged out the discharge port;

wherein said rear wall is convex having a rearwardmost center section and a forwardmost section where the convex section terminates, said opening in said rear wall extending from the rearwardmost center section to at least one area of the forwardmost section.

5,671,980

Patent Not Issued For This Number

5,671,981

SENSOR MALFUNCTION DETECTING SYSTEM IN VEHICLE CONTROL SYSTEM

Nobuyuki Sasaki, and Hirohisa Tanaka, both of Hyogo, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

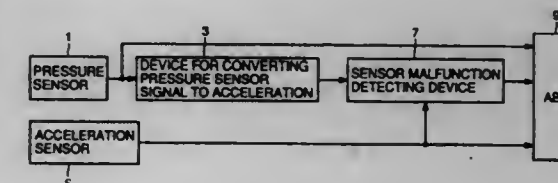
Filed Apr. 17, 1996, Ser. No. 633,585

Claims priority, application Japan, Apr. 20, 1995, 7-095311

Int. Cl.⁶ B60T 8/10

U.S. Cl. 303—122.06

11 Claims



1. A sensor malfunction detecting system in a control system for a vehicle using output values from first and second sensors of different types as control information, comprising:
calculating means for repeatedly calculating a difference between an acceleration value based on an output from said first sensor and a value based on an output from said second sensor;

determining means for repeatedly determining whether said difference calculated by said calculating means is within a prescribed range that is calculated based on at least one of an initial variation error of one of said sensors a temperature drift of one of said sensors a degradation of one of said sensors, and a calculation accuracy of said calculating means;

counting means for storing a count value and selectively updating said count value in accordance with a result of said determining by said determining means, in which said count value is updated every time it is determined by said determining means that said difference is out of said prescribed range; and

malfunction determining means for determining that one of said sensors is malfunctioning when said count value updated by said counting means reaches a prescribed target value; wherein said determining means and said counting means are respectively implemented by arithmetic operations in a processor.

5,671,982
SYSTEM FOR APPLYING A YAWING CONTROL
MOMENT BY SETTING BRAKE VALVE OPENING AND
CLOSING TIMES

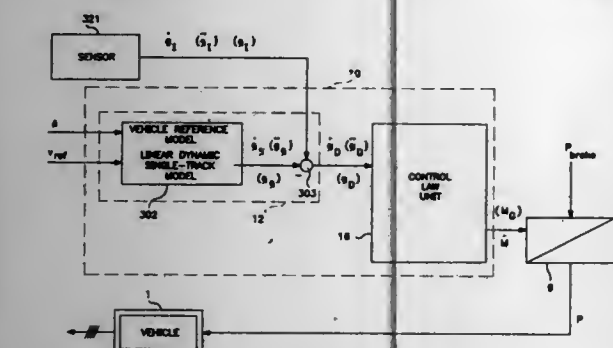
Peter Wanke, Frankfurt, Germany, assignor to ITT Automotive Europe GmbH, Frankfurt am Main, Germany
 Division of Ser. No. 475,389, Jun. 7, 1995. This application
 Jun. 7, 1995, Ser. No. 475,190

Claims priority, application Germany, Nov. 25, 1994, 44 41 956.2; Nov. 25, 1994, 44 41 958.9; Nov. 25, 1994, 44 41 957.0; Nov. 25, 1994, 44 41 959.7; Dec. 31, 1994, 44 47 313.3; Apr. 27, 1995, 195 14 047.3

Int. Cl.⁶ B60T 8/32; 8/62

U.S. Cl. 303—146

6 Claims



1. A control system for controlling driving stability of a vehicle which has a steering angle and a plurality of brakes to which respective braking pressures are applied, each brake having valve means for adjusting the brake pressure applied to the brake, individually, comprising:

- means for determining the steering angle;
- yawing moment control means, responsive to the steering angle, for determining a yawing moment that is applied to the vehicle to prevent one of the group consisting of an undesirable yaw angle, yaw rate and yaw acceleration;
- distribution logic means responsive to the yawing moment control means for determining pressure adjustments that are required for each brake, individually, to apply the yawing moment to the vehicle, said pressure adjustments being determined independently of whether an actual brake pressure is measured;
- first valve switch timing means, responsive to the pressure adjustments determined by the distribution logic means, for calculating first valve switching times which are usable to open and close the valve means of each brake, individually, so as to perform the required pressure adjustments;
- second valve switch timing means for applying criteria other than yaw moment control criteria to determine second valve switching times which are usable to open and close the valve means of each brake, individually, so as to perform further pressure adjustments; and
- prioritizing means for determining actual valve switching times that are used to open and close the valve means of each brake based on the first and second valve switching times.

5,671,983
LOCKABLE STORAGE BAG CONTAINING INTERNAL
DISPOSED HAND COVERING ELEMENT

Angela Miller, and Richard L. Miller, both of 12 Parkside Dr., Dix Hills, N.Y. 11746

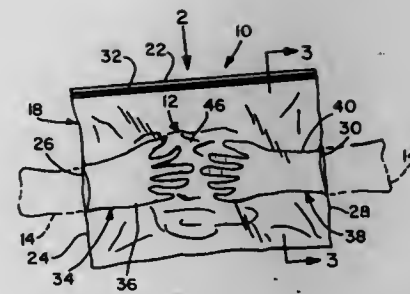
Filed Dec. 19, 1995, Ser. No. 575,077

Int. Cl.⁶ A61G 11/00

U.S. Cl. 312—1

11 Claims

1. A lockable storage bag, comprising:
 a) a hollow receptacle bag having a closed bottom edge, an open top edge, a substantially closed left edge with an opening therein, and a substantially closed right edge with an opening



- therein and being substantially parallel to said substantially closed left edge of said hollow receptacle bag;
- b) securing means for opening and closing said open top edge of said hollow receptacle bag;
- c) a left side hand covering element disposed on said substantially closed left edge of said hollow receptacle bag, at said opening in said substantially closed left edge of said hollow receptacle bag; said left side hand covering element communicating with said opening in said substantially closed left edge of said hollow receptacle bag and extending inwardly therefrom into said hollow receptacle bag; and
- d) a right side hand covering element disposed on said substantially closed right edge of said hollow receptacle bag, at said opening in said substantially closed right edge of said hollow receptacle bag; said right side hand covering element communicating with said opening in said substantially closed right edge of said hollow receptacle bag and extending inwardly therefrom into said hollow receptacle bag; said right hand covering element opposing, and being in substantial longitudinal alignment with, said left side hand covering element by virtue of said substantially closed right edge of said hollow receptacle bag being substantially parallel to said substantially closed left edge of said hollow receptacle bag and said left hand covering element extending inwardly from said substantially closed left edge of said hollow receptacle bag and said right hand covering element extending inwardly from said substantially closed right edge of said hollow receptacle bag.

5,671,984
EXHIBITION APPARATUS

Hiroyuki Kadera, Saitama-ken, Japan, assignor to Showa Koki Co., Ltd., Itabashi, Japan

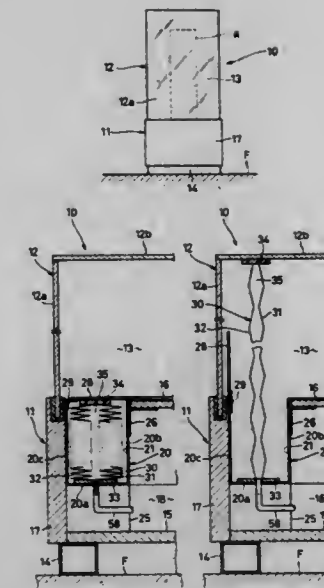
Filed Jul. 2, 1996, Ser. No. 674,668

Claims priority, application Japan, Jan. 22, 1996, 8-027350
 Int. Cl.⁶ A47F 3/00; F16M 13/00

U.S. Cl. 312—114

9 Claims

- 1. An exhibition apparatus comprising:
 (a) an exhibition case having a peripheral wall surrounding an exhibit;
- (b) expansible protective means disposed in a contracted state thereof selectively at an upper part or a lower part of said exhibition case and inwardly of said peripheral wall of said exhibition case, said protective means surrounding said exhibit when said protective means expands in a vertical direction;
- (c) detection means for detecting a larger shaking of said exhibit case than a predetermined level; and
- (d) actuation means for expanding said protective means in response to the detection of shaking made by said detection means.



5,671,985
DRAWER INTERLOCK ASSEMBLY

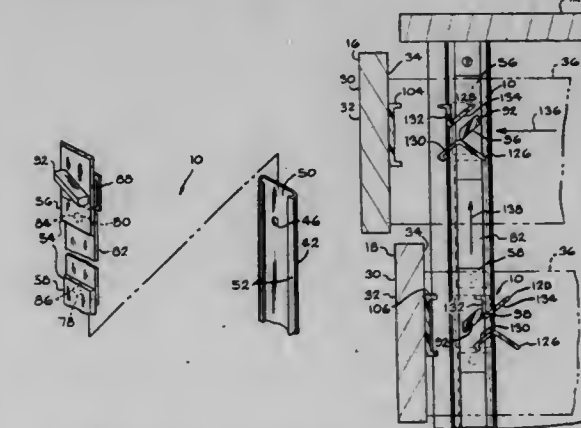
Jerry D. Grieser, Archbold; Richard A. Nelson, Napoleon, both of Ohio; Michael J. McGinnis, Hudson, N.H.; Richard Steinberg, Bedford, N.H., and James J. Decknick, Manchester, N.H., assignors to Sauder Woodworking Co., Archbold, Ohio, and Keller Products, Inc., Manchester, N.H.

Filed Aug. 27, 1996, Ser. No. 703,506

Int. Cl.⁶ E05B 65/46

U.S. Cl. 312—221

17 Claims



- 1. A drawer interlock assembly for a furniture article having at least first and second drawers, comprising:
 a track member positioned on said furniture article;
 at least first and second locking members slidably mounted in said track member, each of said locking members including a body having a top, a bottom, a front surface, a back surface, a first side and a second side, said body including at least one tab positioned on said back surface, said locking members being interconnected by at least one interconnection strip defining at least one opening for receiving said tab, each of said locking members including a locking projection; and
 at least first and second drawer members attached to said first and second locking members, respectively, each of said drawer members including a first ramp and a second ramp, said first ramp of said first drawer member having a guiding surface that engages said locking projection of said first locking member to cause said second locking member to move from a first position to a second position as said first drawer is opened, said second ramp of said second drawer member having a locking surface that engages said locking projection of said

second locking member at said second position to prevent said second drawer from opening.

5,671,986
DISHWASHER RACK SUPPORT ASSEMBLY

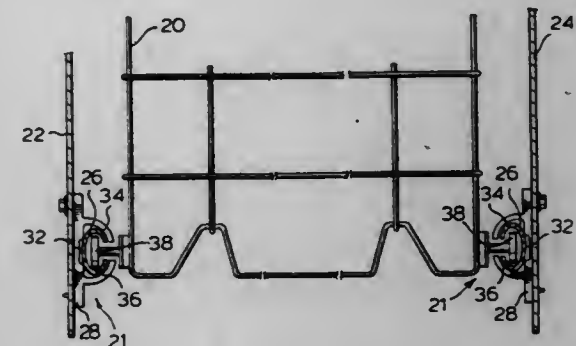
Pierre Vinet, 855 4th Avenue, P.A.T., Montreal, Quebec, Canada, H1B 4N5

Filed Jan. 22, 1996, Ser. No. 589,452

Int. Cl.⁶ A47B 88/00

U.S. Cl. 312—334.8

12 Claims



- 1. A dishwashing machine of the front loading type having a wash chamber and an access opening thereto, comprising:
 a rack for supporting dishes to be washed slidably mounted in the chamber for movement between a loading position wherein the rack extends at least partially out through the access opening and a retracted position wherein the rack is fully within the chamber;
- a support assembly at each side of the rack including:
 an elongated channel slide member having a major body portion and upper and lower projecting flange portions converging toward each other;
- a rack support member on the rack side being disposed to slidably move along the channel slide member and to translate the load force of the rack to the channel slide member; and,
 at least one bracket member mounted to the wash chamber side wall for slidably supporting the channel slide member, the bracket member having a central body portion lying flush to the wash chamber side wall for mounting thereto, said bracket member having upper and lower guiding flanges projecting from the central body portion towards the rack and converging toward each other to define a guideway surface complementary to the outer surface of the channel slide member to permit sliding movement therein of the channel slide member and to prevent lateral movement of the channel slide member toward the wash chamber side wall, and the channel slide member being movable laterally and snapped into place relative to the bracket member during assembly.

5,671,987
RETRACTABLE SPICE BIN

Gerry G. Hommes, 18535 Brymer St., Northridge, Calif. 91326

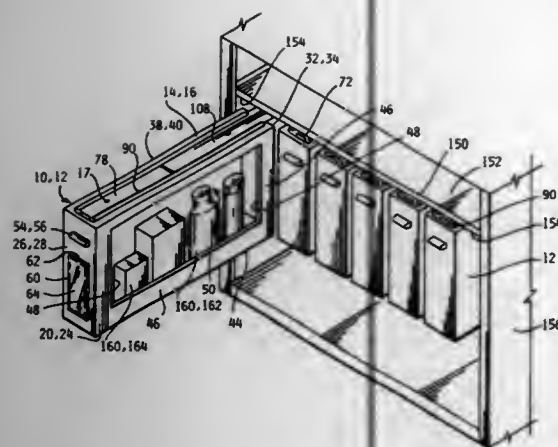
Filed Jul. 14, 1995, Ser. No. 502,644

Int. Cl.⁶ A47B 88/00

U.S. Cl. 312—334.23

2 Claims

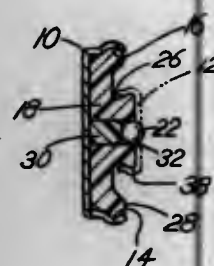
- 1. A retractable spice bin comprising:
 a) a kitchen cabinet that includes an upper, horizontal mounting structure having an upper surface and a lower surface,
- b) a six sided bin having a rectangular shape and integrally having:
 (1) a solid upper panel having an upper surface and a lower surface,
- (2) a solid lower panel having an upper surface and a lower surface,



- (3) a solid front panel having an outer surface, an inner surface, and a handle,
- (4) a solid rear panel having an outer surface, an inner surface and a handle,
- (5) a solid first vertical side panel having an outer surface and an inner surface, wherein said first vertical side panel prevents any spice container from falling out during the insertion into or retrieval from said spice bin or when said spice bin is being pulled out from the cabinet or being pushed into the cabinet,
- (6) a second vertical side panel having a cutout therein, wherein said cutout defines an open rectangular area that permits said spice containers to be inserted and maintained therein and removed therefrom, and
- c) a retractable slide assembly comprising:
 - (1) an upper way longitudinally attached to the lower surface of said horizontal mounting structure,
 - (2) a lower way longitudinally attached to the upper surface of said upper panel in alignment with said upper way, and
 - (3) a captive gib dimensioned to traverse through said upper and lower ways, where said retractable slide assembly allows said bin to be retracted inward for storage and extended outward to allow access into said bin through the open rectangular open area on said second vertical side panel.

5,671,988
DRAWER SLIDE LATCH
 Kevin O'Neill, Cambridge, Canada, assignor to Waterloo Furniture Components, Ltd., Kitchener, Canada
 Filed May 24, 1995, Ser. No. 449,808
 Int. Cl.⁶ A47B 88/04
 U.S. Cl. 312—334.44

7 Claims



1. A drawer slide comprising, in combination:
 - at least first and second telescoping slide members for slidable attachment of a drawer to a cabinet, said slide members each having opposed channels extending in a telescoping direction between opposite ends, said opposed channels being separated by a planar span, the channels of the second member slidably received in the space separating the channels of the first slide

member, and a detent latch for releasably maintaining the slide members in a fixed telescoping condition, said detent latch comprising:

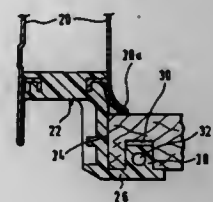
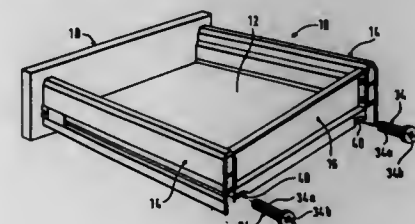
an elastomeric stop member structure mounted in the first slide member at a fixed position, said stop member structure dimensioned to fit within the spaced, opposed channels of the first slide member against the planar span and having a mid section between the spaced, opposed channels of the first slide members, said stop member structure further including a passage in the mid section, a bearing projecting from the passage away from the planar span of the first slide member, said passage including biasing means for biasing the bearing away from the planar span;

said stop member structure defining a stop for limiting telescopic movement of the second slide within the first slide; and

said second slide including an integral tab projecting from one of said opposite ends between the spaced channels thereof cooperative with the bearing to engage the bearing and retain the tab and second slide in a detent releasable position when the tab is positioned over the stop member structure.

5,671,989
HOLDING ARRANGEMENT FOR DRAWER BOTTOMS AT THE SIDE WALLS OF THE DRAWER
 Horst Lautenschläger, Reihelm, Germany, assignor to MEPLA-Werke Lautenschläger GmbH & Co. KG, Germany
 Filed Nov. 13, 1996, Ser. No. 747,638
 Claims priority, application Germany, Dec. 11, 1995, 195 46 098.7

U.S. Cl. 312—348.1

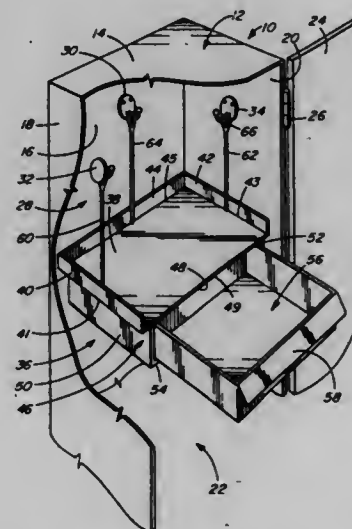


1. An arrangement for holding a bottom panel of a drawer at side walls of the drawer, such that the bottom panel is adjustable in the pulling-out direction of the drawer, comprising:
 - a supporting flange, for attachment with a lower edge region of the drawer side walls and which protrudes substantially horizontally from said lower edge region, and configured to seatably receive lateral edge regions of the bottom panel,
 - an extended projection, protruding upward substantially at right angles from the supporting flange, located adjacent a rear end region of the side walls, for receiving an extended, groove-like recess in the underside of the bottom panel which is shaped substantially complementarily in cross-section to the extended projection,
 - an adjusting screw, having a head, a threaded section having a top part and a shaft, and
 - a borehole, in a rear end surface of the extended projection, extending in the pull-out direction of the drawer, for accommodating the shaft of the adjusting screw, the head of which can be screwed down so as to contact directly or indirectly a

rear end surface of the bottom panel forming a boundary of the bottom panel, and
 wherein the diameter of the head of the adjusting screw is larger than the width or depth, or both, of the cross-section of the extended projection.

5,671,990
LOCKER SHELF APPARATUS
 Mark H. Teasdale, 4069 Brockton Crescent, North Vancouver, British Columbia, Canada, V7G 1E5
 Filed Feb. 20, 1996, Ser. No. 603,373
 Int. Cl.⁶ A47B 95/00
 U.S. Cl. 312—351

16 Claims



tive mirror, the optical signals being subsequently reflected from the semi-reflective mirror to the viewing position.

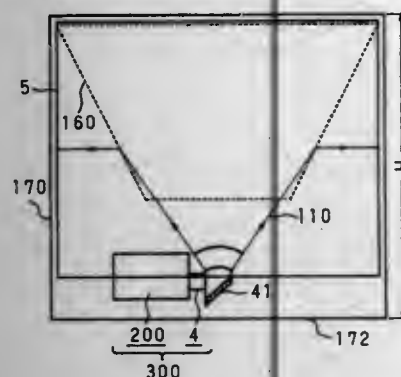
5,671,993

PROJECTION-TYPE APPARATUS

Shinsuke Shikama, Nagaokakyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Japan
Division of Ser. No. 998,948, Dec. 30, 1992, Pat. No. 5,442,484. This application May 4, 1994, Ser. No. 238,067
Claims priority, application Japan, Jan. 6, 1992, 4-000235; Mar. 25, 1992, 4-67105; Sep. 9, 1992, 4-240793
Int. Cl.⁶ G03B 2/28

U.S. Cl. 353—77

30 Claims



1. A projection-type display apparatus, comprising: projection means including a built-in image display device and adapted to project an image displayed on the image display device in an enlarged manner; a projection lens provided at an exiting portion of said projection means; a first mirror provided in said projection lens for reflecting a light beam that is substantially horizontal to an upward direction; a second mirror for reflecting a projected light beam exiting from said projection lens; a translucent screen on which the projected light beam reflected by said second mirror is incident, to thereby form an enlarged image; and a cabinet for accommodating said projection means and for holding said second mirror and said translucent screen; wherein a portion of said projection means before said first mirror including the image display device is asymmetrically mounted relative to a vertical center line of said translucent screen such that said portion of said projection means is entirely disposed on one side relative to the vertical center line of said translucent screen and arranged on a plane substantially perpendicular to the projected light beam exiting from said projection lens, wherein the projected light beam exiting from said projection lens is reflected in a substantially upward direction by said first mirror and then bent to a substantially horizontal direction by said second mirror so as to be incident upon said translucent screen.

5,671,994

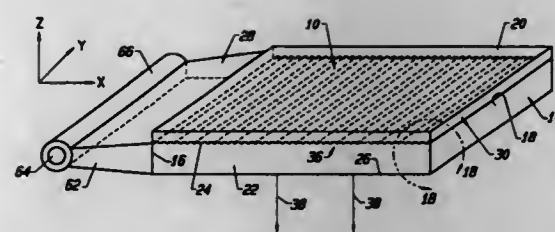
FLAT AND TRANSPARENT FRONT-LIGHTING SYSTEM USING MICROPRISMS

Ping-Kaung Tai, and Han Zou, both of Toledo, Ohio, assignors to Clio Technologies, Inc., Holland, Ohio
Filed Jun. 8, 1994, Ser. No. 255,378
Int. Cl.⁶ F21V 7/04

U.S. Cl. 362—31

53 Claims

1. A system especially suitable for illuminating the front side of an object, as viewed by an observer, comprising:



- (a) a light pipe assembly having opposing forward and rearward faces;
- (b) an arrangement directing light into said light pipe assembly in a predetermined way;
- (c) an arrangement of optical components forming part of said light pipe assembly reflecting substantially all of the light directed into said light pipe assembly in said predetermined way in a forward direction through the forward face of the light pipe assembly, said light pipe assembly including said arrangement of optical components being substantially transparent to visible light in a direction across the opposing forward and rearward faces of the assembly such that the light pipe assembly can be positioned between the object being illuminated and the observer without in any significant way disrupting the observer's view of the object; and
- (d) wherein said light pipe assembly includes means for insuring that the visible light passing across the opposing faces of the light pipe assembly does so in a substantially undistorted manner, whereby the observer is able to view said object through the light pipe assembly substantially free of distortion.

5,671,995

HEADLAMP FOR MOTOR VEHICLES

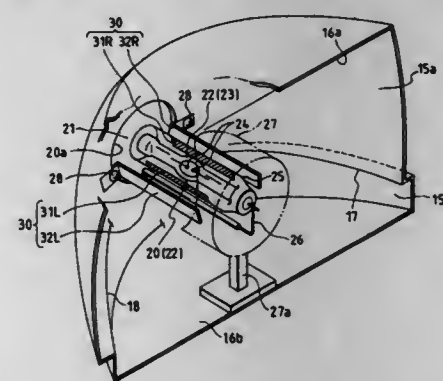
Hiroyuki Serizawa, and Hiroyuki Takatsuka, both of Shizuoka, Japan, assignors to Koito Manufacturing Co., Ltd., Tokyo, Japan

Filed Nov. 16, 1995, Ser. No. 558,484

Claims priority, application Japan, Nov. 18, 1994, 6-285042
Int. Cl.⁶ B60Q 1/14; 1/16

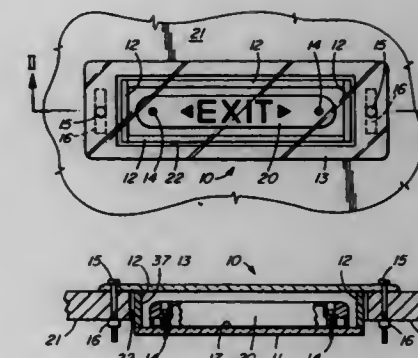
U.S. Cl. 362—61

22 Claims



1. A headlamp for motor vehicles, comprising: a reflector having a paraboloidal effective reflecting surface; a bulb insertion hole formed at a rear top of said reflector; a discharge bulb coupled to said bulb insertion hole, said discharge bulb comprising a sealed glass bulb, an arc tube accommodated in said glass tube, and a pair of electrodes housed in said sealed glass bulb, said electrodes positioned oppositely of each other in a front-rear direction of the headlamp, a center of said paired electrodes being substantially coincident with a focal point of said effective reflecting surface; a front lens provided in front of the effective reflecting surface, said effective reflecting surface comprising an upper effective reflecting surface having a focal point positioned at a point

closer to said effective reflecting surface than said center of said electrodes, and a lower effective reflecting surface having a focal point positioned at a point closer to said front lens than said center of electrodes, said upper and lower effective reflecting surfaces defining a partition line therebetween; a pair of shades disposed on both sides of said arc tube for cutting light directed from said sealed glass bulb to said partition line and contributing to formation of clear cutting lines of low beams, said paired shades comprising: a pair of first shade members, disposed close to said arc tube, for cutting light emitted from a lower side of said sealed glass bulb and directed to said upper effective reflecting surface; and a pair of second shade members, disposed outside and close to said first shade members, for cutting light emitted from said sealed glass bulb and directed to said partition lines without being intercepted by said first shades.



5,671,996

VEHICLE INSTRUMENTATION/CONSOLE LIGHTING

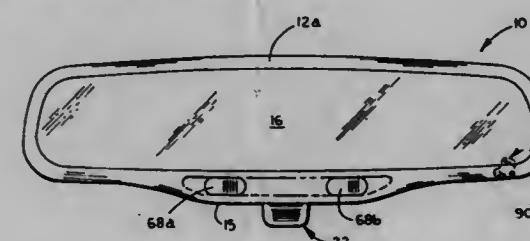
Brent J. Bos, Zealand; Stephen J. Forbes, Wyoming, and Roger L. Veldman, Holland, all of Mich., assignors to Donnelly Corporation, Holland, Mich.

Filed Dec. 30, 1994, Ser. No. 367,844

Int. Cl.⁶ B60R 1/12

U.S. Cl. 362—83.1

79 Claims



1. An interior rearview mirror assembly for a vehicle having an engine, at least one electrically operated accessory, and an accessory/ignition circuit with an ignition switch having an accessory on position for operating the accessory and an ignition on position for operating at least the engine and the accessory, said assembly comprising: a mirror case including a reflective mirror element; a support for securing said assembly on the vehicle; said assembly including a non-incandescent, directed, low level, light emitting source; and said light emitting source positioned on said assembly to provide directed, low level, local area illumination of an interior portion of the vehicle, said light emitting source including a light emitting diode and an electrical resistor connected in series with said light emitting diode, said light emitting diode being located on said assembly at a distance from the interior vehicle portion to be illuminated, said light emitting diode and resistor being adapted for connection to the accessory/ignition circuit of the vehicle whereby said light emitting diode will be continuously illuminated when the ignition switch is at one of the accessory on and ignition on positions.

5,671,997

TAMPER-RESISTANT FIXTURE FOR SELF-LUMINOUS RADIOACTIVE LIGHT

J. Barry Potts, 5876 Willow Street, Vancouver, British Columbia, Canada, V5Z 3S6

Continuation-in-part of Ser. No. 69,378, Jun. 1, 1993, abandoned. This application Dec. 8, 1994, Ser. No. 353,528

Int. Cl.⁶ G09F 13/00

U.S. Cl. 362—84

12 Claims

1. A tamper-resistant fixture for a self luminous radioactive light operable to be affixed to a surface, said fixture comprising a

5,671,998

ASSEMBLY DEVICE COMBINING A CONTAINER AND A CHEMILUMINESCENT LIGHT SOURCE

Marcel Georges Collet, 57 Avenue Jupiter, 1190-Brussels, Belgium

PCT No. PCT/BE91/00061, § 371 Date Feb. 24, 1993, § 102(e) Date Feb. 24, 1993, PCT Pub. No. WO92/04577, PCT Pub. Date Mar. 19, 1992

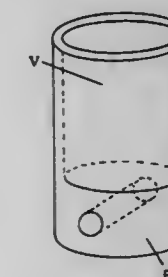
PCT Filed Aug. 30, 1991, Ser. No. 980,791

Claims priority, application Belgium, Aug. 30, 1990, 9000835; Oct. 4, 1990, 9000941

Int. Cl.⁶ F21V 33/00; F21K 2/00

U.S. Cl. 362—101

24 Claims



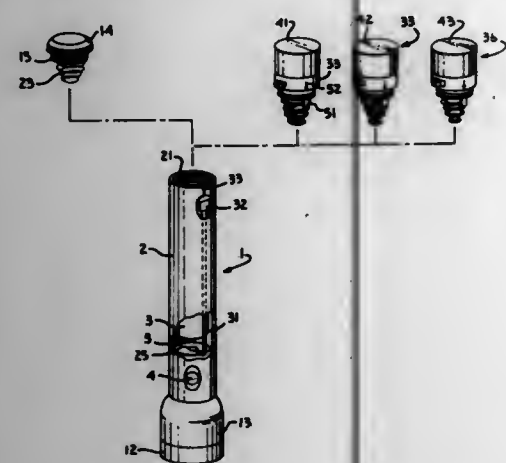
1. Apparatus comprising a container with at least partially transparent or translucent walls for containing a liquid, and a chemiluminescent light source, said light source comprising a tight envelope, transparent or translucent, containing appropriate reactants producing the chemiluminescence, wherein said container has a bottom portion for receiving said envelope, said envelope being exclusively surrounded by a material of said bottom portion so as not to affect a capacity of said container.

5,671,999
FLASHING IDENTIFICATION LIGHT ADAPTOR
SYSTEM FOR FLASHLIGHT
 Phillip K. Guthrie, and Charles A. Stundzia, both of Hilton Head Island, S.C., assignors to TBI Concepts, L.L.C., Johns Island, S.C.

Filed Aug. 8, 1996, Ser. No. 694,166
 Int. Cl.⁶ F21L 7/00

U.S. Cl. 362-184

7 Claims



1. A flashing light adaptor system for connection to a flashlight equipped with an end cap with threads mating with cooperating threads in a barrel of the flashlight, the end cap including a spring contacting a first terminal of a battery and urging an opposite terminal of the battery into contact with a positive terminal, said flashing light adaptor system comprising:

- a. an adaptor housing adapted to replace said end cap, said adaptor housing being equipped with threads mating with the cooperating threads in the flashlight barrel;
- b. a flashing light source positioned within said adaptor housing;
- c. a switch selectively connecting the opposite battery terminal to said flashing light source; and
- d. a colored lens removably attached to said adaptor housing in covering relation with said light source.

5,672,000
DECORATIVE LAMP STRIP
 Tayeh Lin, 3rd Floor, No. 16, Chung Yang S. Road, Sec. 2, Peitou District, Taipei City, Taiwan

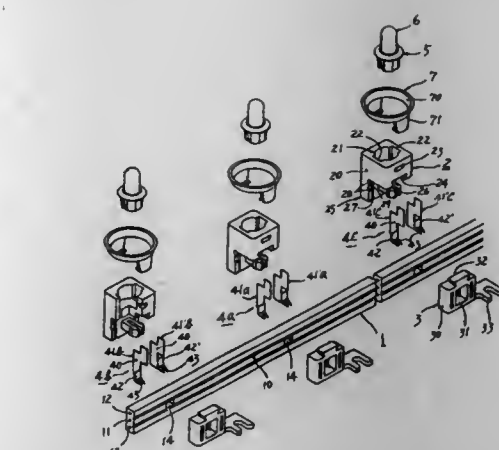
Filed Sep. 14, 1994, Ser. No. 305,723

Int. Cl.⁶ F21V 21/34

U.S. Cl. 362-249

5 Claims

- 1. A decorative lamp strip, comprising:
 - a. a flat electric wire, comprising:
 - i. a middle strand conductor for series connection,
 - ii. an upper strand conductor for parallel connection, and
 - iii. a lower strand conductor, also for parallel connection;
 - a plurality of square holes on an electric wire body for installing each main seat;
 - b. each of the main seat having a L-shaped seat body thereof for installing a main seat in the position of each square hole on the flat electric wire, each main seat comprising:
 - i. a cylindrical pit at the center on the upper side of main seat,
 - ii. two lateral U-shaped concave edges on the inner wall on the two sides of the cylindrical pit and along the length of said inner walls,



- iii. a dovetail slot on the front bottom side of the main seat, and
- iv. a set of "arrowhead" shaped snap pillar at the center of vertical plate on the lower side of the main seat body;
- c. each fixing plate for installing the main seat on the flat electric wire, each fixing plate comprising:
 - i. a plate body with an upward dovetail tenon, and
 - ii. a square hole at the center of the plate body;
- to insert the dovetail tenon into the dovetail slot and to insert a set of "arrowhead" shaped snap pillar into the square holes so as to fix the main seat in the position of square holes on the flat electric wire;
- d. a set of series connected conductive piece or a set of a first and a second parallel connected conductive pieces, each set thereof comprising:
 - i. a left conductive piece as a lateral Z-shaped plate body of which the lower end is folded into a vertical positioning piece toward left side and then folded into two horizontal sharp teeth toward front side, and the upper end is inserted into a lateral U-shaped concave edge on the left side of cylindrical pit on the main seat, and
 - ii. a right conductive piece as a lateral Z-shaped plate body of which the lower end is folded into a vertical positioning piece toward right side and then folded into two horizontal sharp teeth toward front side, and the upper end is inserted into a lateral U-shaped concave edge on the right side of cylindrical pit on the main seat;

- e. each lamp seat as a seat body in the shape of a reverse top hat, comprising:
 - i. a central cylindrical pit for installing a bulb, and
 - ii. two openings on the two sides at the bottom of seat body and leading to the cylindrical pit;
- to insert a bulb into the cylindrical pit on the lamp seat which is then inserted into the cylindrical pit on the main seat; and
- f. each bulb with two conductive legs at lower end to be inserted into the cylindrical pit on the lamp seat, wherein these two conductive legs respectively pass through the two openings at the bottom of lamp seat body and then to be folded upward to contact the two outer side walls of the lamp seat body;

therefore, to install each main seat in the position of each square hole on the flat electric wire, to insert a set of "arrowhead" shaped snap pillar on the main seat into the square hole, to install a fixing plate on the said set of "arrowhead" shaped snap pillar, to thrust the two horizontal sharp teeth of each set of series connected or parallel connected conductive piece into the middle or upper and lower strand conductors of the flat electric wire, and to insert the

lamp seat with a bulb into the cylindrical pit on each main seat, then the said decorative lamp strip is well combined.

5,672,001
VEHICLE HEADLAMP
 Johannes Bertling, Vaihingen; Karl-Otto Dobler, Reutlingen; Rainer Neumann, Stuttgart; Henning Hogrefe, Walddorf-haeschlach; Heike Eichler, Reutlingen; Martin Lampen, Tuebingen, and Doris Boebel, Stuttgart, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

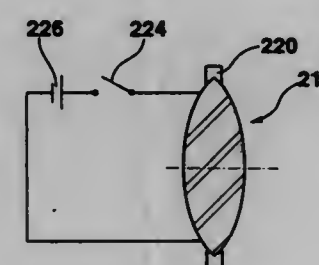
Filed Oct. 13, 1995, Ser. No. 543,120

Claims priority, application Germany, Oct. 13, 1994, 44 36 620.5

Int. Cl.⁶ F24V 5/00

U.S. Cl. 362-278

7 Claims



1. A vehicle headlamp, comprising a reflector; a light source; a light-transmitting element located in a ray path of a light reflected from said reflector so as to influence the light passing through said light-transmitting element, said light-transmitting element having at least a region which is deformable in order to change the influence exerted upon the light passing through said light-transmitting element, said region of said light-transmitting element containing piezoelectric crystals; and an electric voltage source connected to said piezoelectric crystals in order to deform said region of said light transmitting element.

5,672,002
LIGHT ASSEMBLY FOR A CEILING FAN
 Alvin E. Todd, Jr., 3360 Progress Hill Blvd., Pigeon Forge, Sevier County, Tenn. 37863

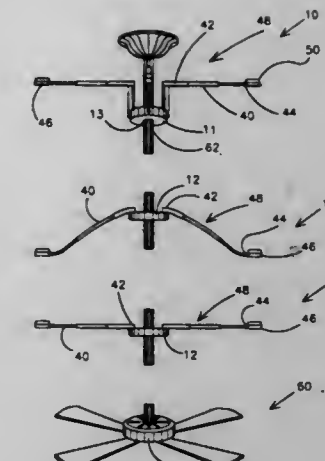
Continuation-in-part of Ser. No. 574,127, Dec. 18, 1995, which is a continuation-in-part of Ser. No. 301,658, Sep. 7, 1994, Pat. No. 5,528,469. This application May 3, 1996, Ser. No. 642,302

Int. Cl.⁶ F21V 33/00

U.S. Cl. 362-294

8 Claims

1. A light assembly for securing to an existing ceiling fan, said light assembly comprising:
 a securing device mounting to the existing ceiling fan;
 a plurality of support arms each defining a first end, a second end and a length adjuster, each of said first ends being secured to said securing device, each of said second ends carrying an illuminating unit, said length adjuster of each of said plurality of support arms being telescopic such that the distance said second end of each of said plurality of support arms extends from said securing device is adjustable.



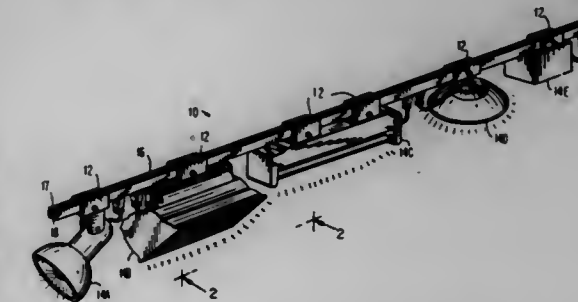
5,672,003
UNIVERSAL TRACK LIGHT MOUNTING SYSTEM
 Sylvan R. Shemitz, and David B. Miller, both of Woodbridge, Conn., assignors to Sylvan R. Shemitz Designs, Inc., West Haven, Conn.

Filed Feb. 9, 1996, Ser. No. 600,274

Int. Cl.⁶ F21V 21/00

U.S. Cl. 362-396

19 Claims



1. A universal track clamp for mounting a track lighting component to the outside of a lighting track, said track having a length and having a top, a bottom, a first side, and a second side defining a cross section perpendicular to said length, said cross section being substantially rectangular, said clamp comprising:
 a first bracket; and
 a second bracket; wherein:
 said first bracket engages said top and one of said sides of said track;
 said second bracket engages said top and one other of said sides of said track; and
 said first bracket and said second bracket are adjustably interconnected for varying separation therebetween for accommodating tracks of different sizes; wherein:
 said clamp cooperates with a component fastener for connecting said clamp to said lighting component.

5,672,004
LIGHTING APPARATUS AND RELATED METHOD
 Edward A. Schmidt, Jr., Mandeville, La., assignor to IMO Industries, Inc., New Orleans, La.

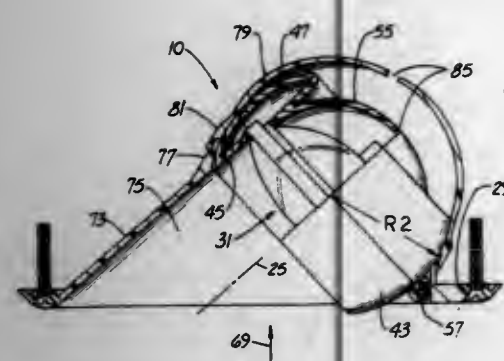
Filed Sep. 3, 1996, Ser. No. 707,007

Int. Cl.⁶ F21S 1/10

U.S. Cl. 362-421

17 Claims

1. In a lighting apparatus having (a) a retainer, (b) a lamp holder held by the retainer, and (c) a lamp secured with respect to the holder, the improvement wherein:
 the lamp holder has a pair of support edges spaced from one another by a first dimension;



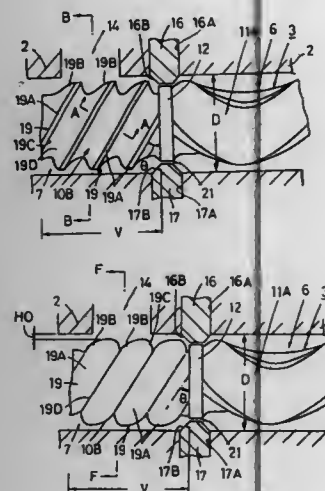
the retainer includes first and second notches, each having a pair of notch edges spaced from one another by a second dimension greater than the first dimension, thereby permitting the holder to be removed through the notches.

5,672,005 KNEADER

Tsugushi Fukui; Kimio Inoue; Yoshinori Kuroda; Hiroshi Ueda, and Masahiko Kashiwa, all of Takasago, Japan, assignors to Kabushiki Kaisha Kobeseikoshu, Kobe, Japan
PCT No. PCT/JP95/00751, § 371 Date Nov. 30, 1995, § 102(e) Date Nov. 30, 1995, PCT Pub. No. WO95/28224, PCT Pub. Date Oct. 26, 1995

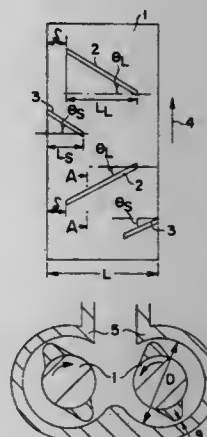
PCT Filed Apr. 18, 1995, Ser. No. 549,762
Claims priority, application Japan, Apr. 18, 1994, 6-079050; Apr. 17, 1995, 7-091019

Int. Cl.⁶ B29B 7/38; B01F 7/08
U.S. Cl. 366—75 20 Claims



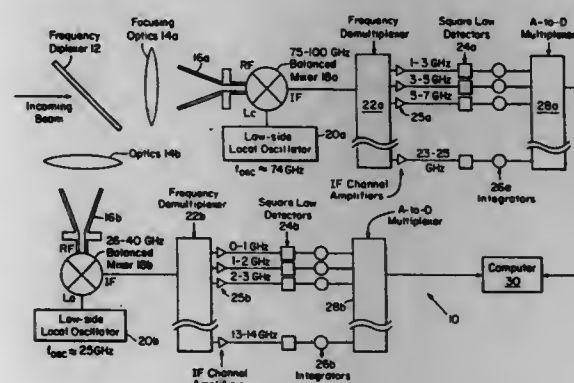
1. An kneader comprising:
a barrel having an axially extending kneading chamber and a vent port in communication with said kneading chamber, and a rotor rotatably inserted into said kneading chamber, having a kneading portion and a feed portion having a shape different from that of said kneading portion, said feed portion being spaced from said kneading portion along the length of said rotor and having a screw tip on an outer peripheral surface thereof and being positioned in a vent zone including said vent port,
wherein said screw tip of said feed portion in said vent zone has a material feed surface comprising an outwardly curved surface in axial section.

5,672,006
INTERNAL RUBBER MIXER
Shuichi Hanada; Yajuro Selke; Toshikazu Shojima; Takashi Moribe, all of Nagasaki; Haruhiro Takano, and Ichiro Nishimura, both of Hiratsuka, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, and The Yokohama Rubber Co., Ltd, both of Tokyo, Japan
Filed Feb. 29, 1996, Ser. No. 609,926
Claims priority, application Japan, Mar. 1, 1995, 7-042011
Int. Cl.⁶ B29B 7/18
U.S. Cl. 366—84 10 Claims



1. An internal rubber mixer, comprising:
a mixing chamber; and
two rotors disposed parallel to each other in said mixing chamber and rotatable about respective axes of rotation in mutually opposite directions, wherein each rotor comprises
two long wings thereon, each of said two long wings having end portions spaced from respective ends of said rotor and a helix angle that is not less than 30 degrees and less than 50 degrees to the respective axis of rotation, and
two short wings thereon, each short wing being disposed downstream, with respect to the direction of rotation, of one of said two long wings.

5,672,007
RADIOMETER FOR DETERMINING OIL FILM THICKNESS
Elliott R. Brown, Billerica; Gregory G. Hogan, Stowe, and Gerald M. Daniels, Norwood, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.
Continuation-in-part of Ser. No. 41,728, Apr. 1, 1993, Pat. No. 5,381,442. This application Jan. 6, 1995, Ser. No. 369,621
Int. Cl.⁶ G01N 25/00; G01B 11/06
U.S. Cl. 374—7 26 Claims



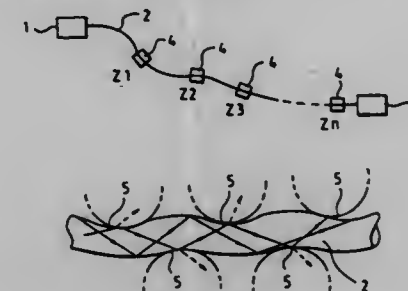
1. A radiometer for determining the thickness distribution of an oil film on a body of water comprising:

a) a receiver for detecting the electromagnetic power radiated by the body of water and oil film by sampling the radiated power over a continuous range of frequencies, and for generating therefrom a first electrical signal proportional to a brightness temperature of the water and film versus radiation frequency; and
b) a signal processing means for deriving the thickness distribution of the oil film from the first electrical signal.
13. A method for determining the thickness distribution of oil film on a body of water comprising the steps of:
a) detecting the electromagnetic power radiated by the body of water and oil film over a continuous range of frequencies, and generating a first electrical signal therefrom which is proportional to a brightness temperature of the water and film versus radiation frequency; and
b) processing the first electrical signal to obtain a thickness distribution of the oil film.

5,672,008 RECONFIGURABLE MULTIPOINT TEMPERATURE SENSOR

Philippe Bonniau, Houilles; Jean Chazelas, Paris, and Marc Turpin, Bures S/Yvette, all of France, assignors to Thomson-CSF, Paris, France
PCT No. PCT/FR94/00691, § 371 Date Feb. 2, 1995, § 102(e) Date Feb. 2, 1995, PCT Pub. No. WO94/29675, PCT Pub. Date Dec. 22, 1994

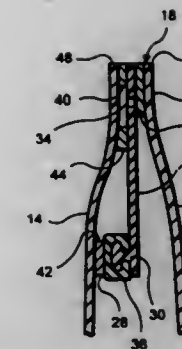
PCT Filed Jun. 10, 1994, Ser. No. 379,431
Claims priority, application France, Jun. 15, 1993, 93 07187
Int. Cl.⁶ G01K 11/32
U.S. Cl. 374—161 5 Claims



1. A temperature sensor comprising:
a light source;
an optical fiber receiving light from said light source;
a time domain reflectometry read device connected to said optical fiber for measuring a variation in light flux; and
a plurality of elements made of shape-memory alloy arranged on the optical fiber, each element having a plurality of turns arranged alternately on opposite sides of the optical fiber, wherein each element exerts essentially no stress on the fiber when it is at a temperature on one side of a transition temperature and exerts a stress on the fiber when it is at a temperature on another side of the transition temperature so that the optical fiber is subjected to stress from opposite directions form adjacent turns.

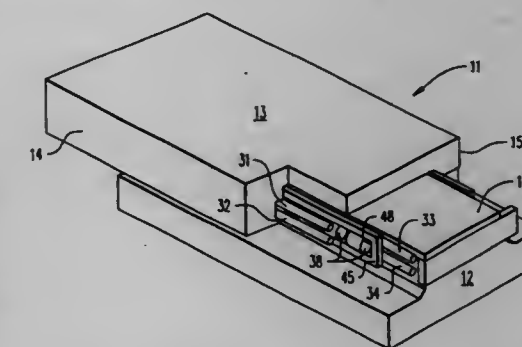
5,672,009
RECLOSABLE POUCH AND ZIPPER THEREFOR
Art Malin, Northbrook, Ill., assignor to Illinois Tool Works Inc., Glenview, Ill.
Filed May 21, 1996, Ser. No. 651,977
Int. Cl.⁶ B65D 33/25
U.S. Cl. 383—204 24 Claims

7. A resealable pouch comprising:
a first pouch wall;
a second pouch wall;



a first longitudinally extending zipper member having an elongated first profile portion at a lower part thereof and a flange portion disposed above said first profile portion, a perforation line in said flange portion, first means securing one side of said flange to said first pouch wall in an area above and below said perforation line, second means securing an opposite side of said flange to said second pouch wall in a longitudinally extending area only above said perforation line;
a second longitudinally extending zipper member having a second profile portion complementary to said first profile portion; and
third means securing said second zipper member to said second pouch wall.

5,672,010
LINEAR SLIDE BEARING APPARATUS
Allan E. MacNicol, 61 Doc's Dr., Grantham, N.H. 03753, and Henry L. Gibbs, 273 Union St., Millis, Mass. 02054
Filed Nov. 18, 1996, Ser. No. 751,894
Int. Cl.⁶ F16C 29/02
U.S. Cl. 384—42 23 Claims

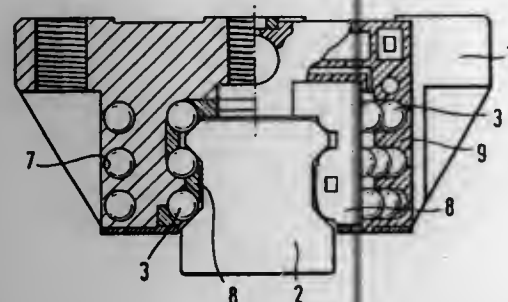


1. A slide bearing support apparatus including one member movable in a given direction relative to another member, the combination comprising:
a pair of parallel slide bearing assemblies disposed between said members and each comprising:
a raceway defining guide surfaces along a travel path in the given direction;
a plurality of slide bearing members retained by said raceway and supporting said one member on said another member, said bearing members being shaped and arranged for sliding movement on said guide surfaces during movement of said one member relative to said another member.

5,672,011
ROLLING BEARING FOR LINEAR MOVEMENTS
 Jean Marie Eder, Woerth, France; Friedrich Holweg, Heroldsberg, and Heinz Greiner, Ebersbach, both of Germany, assignors to Ina Walzager Schaeffler KG, Germany
 Continuation of Ser. No. 204,131, Mar. 1, 1994, abandoned.
 This application Feb. 14, 1995, Ser. No. 388,613
 Claims priority, application Germany, Sep. 6, 1991, 41 29 619.2; Mar. 26, 1992, 42 09 824.6
 Int. Cl.⁶ F16C 29/06

U.S. Cl. 384—45

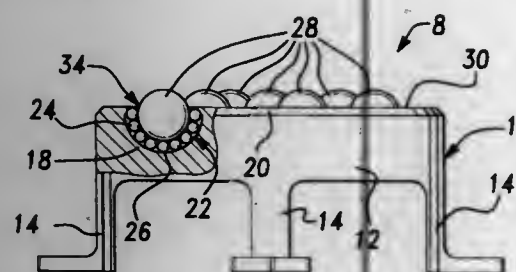
10 Claims



1. A rolling bearing for linear movements comprising a carrier (1) which is displaceable along a guide rail (2) and supported on two longitudinal sides of the guide rail (2) on plural pairs of rolling element circuits, a one-piece cage (8) being associated with each longitudinal side and each rolling element circuit being comprised of a rectilinear row (4) of load-transmitting rolling elements guided by the cage (8), a row (5) of returning rolling elements arranged in a return passage (7) in the carrier (1) and two rolling element deflector arches (6) connecting the two said rows at ends thereof, a part of each deflector arch (6) being arranged in the one-piece (8) cage as a continuation of the rectilinear row (4) of rolling elements while another pair of the deflector arch (6) is arranged in a head piece (9) disposed on an adjacent end face of the carrier (1), characterized in that at least six rolling element circuits are arranged in three pairs on the carrier (1), the three load-transmitting rolling element rows (4) in each cage (8) are arranged parallel to and vertically above one another, and the cage (8) comprises a lower web (20), above this, a guide rail-side web (21), above this, a carrier-side web (22) and above this, an upper web (23) with no overlap between any of the webs (20 to 23) in the horizontal direction.

5,672,012
CARGO DECK BEARING
 Paul Malone, Long Beach, Calif., assignor to RBC Transport Dynamics Corporation, Santa Ana, Calif.
 Filed Mar. 28, 1996, Ser. No. 623,177
 Int. Cl.⁶ F16C 29/04; B65G 13/00
 U.S. Cl. 384—49

34 Claims



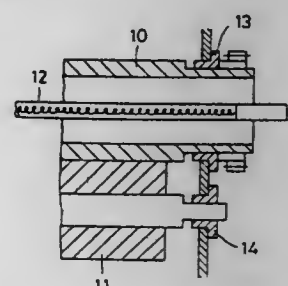
1. A cargo deck bearing assembly (8) comprising: an integral housing (10) including a base (12) and means (14) extending outwardly from said base (12) and adapted to affix said base (12) to a supporting surface;

a plurality of cavities (18) provided at the upper surface of said base (12);
 a plurality of generally hemispherically shaped cups (22) seated one in each of said cavities (18);
 a plurality of bearing balls (24) disposed in a single layer in each of said cups (22);
 a plurality of relatively large bearing balls (28), each of said large bearing balls (28) being seated in one of said cups (22) and being supported by said single layer of relatively smaller bearing balls (24);
 a rigid skid plate (30) mounted on the upper surface of said base (12), and means (32) affixing said skid plate (30) to said base (12); and
 a plurality of apertures (34) provided in said skid plate (30), each aperture being superposed over one of said large bearing balls (28), the diameter of each of said apertures (34) being sufficiently large to permit a portion of each of said large bearing balls (28) to extend therethrough above the upper surface of said skid plate (30), but smaller than the diameter of each of said large bearing balls (28), thereby containing said large bearing balls (28) and said small bearing balls (24) within said cup (22).

5,672,013
HEAT-RESISTANT SLIDING BEARING
 Koya Ohira, Kuwana, Japan, assignor to NTN Corporation, Osaka, Japan
 Filed Sep. 25, 1996, Ser. No. 710,980
 Claims priority, application Japan, Sep. 26, 1995, 7-247635
 Int. Cl.⁶ F16C 33/20

U.S. Cl. 384—297

3 Claims



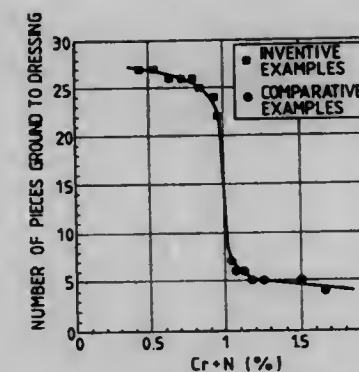
1. A heat-resistant sliding bearing formed from a heat-resistant, lubricative resin comprising 100 parts by weight of a polyimide resin, and 5-25 parts by weight of scaly graphite.

5,672,014
ROLLING BEARINGS
 Shigeru Okita; Nobuaki Mitamura; Susumu Tanaka; Kenji Yamamura, and Manabu Ohori, all of Kanagawa, Japan, assignors to NSK Ltd., Tokyo, Japan
 Filed Sep. 29, 1995, Ser. No. 536,773
 Claims priority, application Japan, Sep. 29, 1994, 6-235493; Dec. 27, 1994, 6-326379; Mar. 13, 1995, 7-052338; Sep. 20, 1995, 7-242181
 Int. Cl.⁶ F16C 33/44

U.S. Cl. 384—492

6 Claims

1. A rolling bearing comprising components of an inner race, an outer race and a plurality of rolling elements, wherein the rolling elements are formed of a first alloy steel consisting essentially of:
 $0.72 \leq C \leq 0.90$ wt %;
 $0.1 \leq Si \leq 0.7$ wt %;
 $0.5 \leq Mn \leq 1.1$ wt %;
 $0.1 \leq Cr \leq 0.6$ wt %; and
 incidental impurities and the balance of Fe, wherein each of the rolling elements includes, in its surface layer, C and N contents of

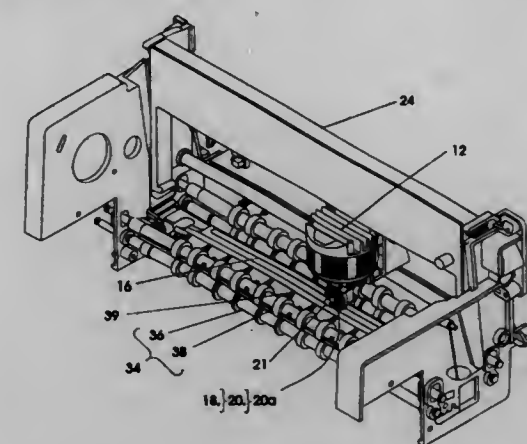


$0.8 \leq C \leq 1.4$ wt % and $0.05 \leq N \leq 0.3$ wt %, wherein at least one of the inner race and the outer race are formed of a second alloy steel consisting essentially of:

$0.3 \leq C \leq 0.6$ wt %;
 $0.1 \leq Si \leq 0.7$ wt %;
 $0.6 \leq Mn \leq 1.5$ wt %;
 $0.1 \leq Cr \leq 0.6$ wt %; and
 incidental impurities and the balance of Fe, wherein each of the inner race and the outer race includes, in its surface layer, C and N contents of
 $0.8 \leq C \leq 1.4$ wt % and $0.05 \leq N \leq 0.3$ wt %.

5,672,015
APPARATUS AND METHOD FOR PRINTING
 Jeffrey B. Lyerly, Harrisburg; Frederick C. Miller, and Carl W. Robinson, both of Charlotte, all of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Apr. 11, 1994, Ser. No. 226,145
 Int. Cl.⁶ B41J 11/20
 U.S. Cl. 400—58

1 Claim



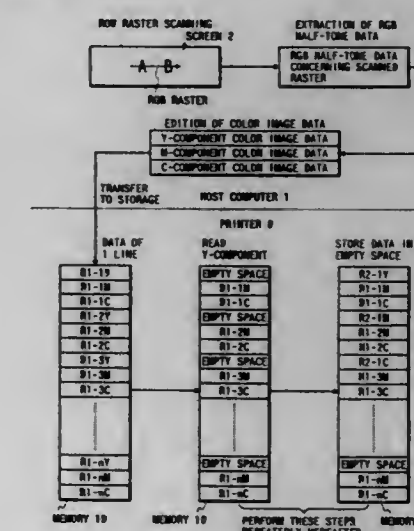
1. In a printing apparatus having a printhead displaceable along a record carrier, said record carrier being supported beneath said printhead by a platen, the improvement comprising:

- (a) means, carried by said printhead, for spacing the printing distance between said printhead and said record carrier, said spacing means positioned to bear upon said record carrier in advance of said printhead;
- (b) means for selectively urging said platen away from said printhead and said spacing means so as to permit ribbon means to be inserted between said printhead and said platen; and
- (c) a shield for a ribbon inserted beneath said printhead and above said record carrier, wherein said shield includes
 - (i) means for releasably attaching said shield over said spacing means and onto said printhead;

- (ii) an outer shield, integral with said attaching means, for receiving said ribbon thereon, having an aperture for permitting said printhead to print upon said record carrier; and
- (iii) an inner shield positioned above said outer shield, for receiving said ribbon thereunder, having an aperture corresponding to said outer shield aperture, wherein said inner and outer shields are capable of slidably engaging said ribbon therebetween.

5,672,016
METHOD FOR CONTROLLING COLOR IMAGE DATA
 Tsuyoshi Miyano, Iwate-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan
 Filed Dec. 20, 1995, Ser. No. 575,564
 Claims priority, application Japan, Dec. 28, 1994, 6-329067
 Int. Cl.⁶ B41J 2/21
 U.S. Cl. 400—120.02

3 Claims



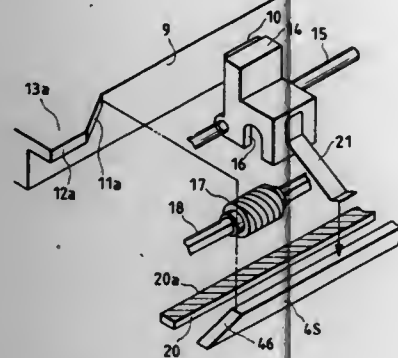
1. A method for controlling a color printer to print a color image corresponding to color image data transmitted from an external device, comprising the steps of:

- storing color image data for a first row of the color image in a storage device such that data associated with a first color component of the color image data is stored in a first plurality of storage spaces of the storage device, data associated with a second color component of the color image data is stored in a second plurality of storage spaces of the storage device, and data associated with a third color component of the color image data is stored in a third plurality of storage spaces of the storage device;
- simultaneously transmitting the data associated with the first color component of the first row from the first plurality of storage spaces to a print head of the color printer while storing color image data for one-third of a second row of the color image in the storage device such that data associated with the first color component, the second color component and the third color component of the color image data associated with said one-third of the second row of the color image is stored in the first plurality of storage spaces;
- simultaneously transmitting the data associated with the second color component from the second plurality of storage spaces of the storage device to the print head while storing color image data for a second one-third of the second row in the second plurality of storage spaces;
- simultaneously transmitting the data associated with the third color component from the third plurality of storage spaces to the print head while storing color image data for a third one-third of the second row in the third plurality of storage spaces; and
- simultaneously transmitting the data associated with the first color component of the second row from a fourth plurality of

storage spaces of the storage device to the print head while storing color image data for a first one-third of a third row of the color image in the storage device such that data associated with the first color component, the second color component and the third color component of the color image data associated with said first one-third of the third row of the color image is stored in the fourth plurality of storage spaces, wherein the fourth plurality of storage spaces includes selected storage spaces of the first, second and third pluralities of storage spaces.

5,672,017
THERMAL PRINTER
Jun Taniguchi, Iwate-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan
Filed May 17, 1996, Ser. No. 649,393
Claims priority, application Japan, Jun. 16, 1995, 7-149869
Int. Cl.⁶ B41J 2/315
U.S. Cl. 400—120.16

2 Claims

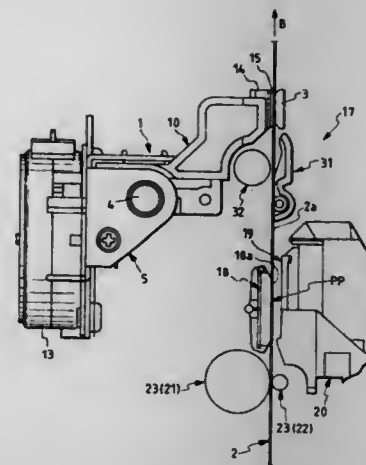


1. A thermal printer comprising:
an external frame;
a platen fixedly mounted on the external frame;
a carriage movably mounted on the external frame such that the carriage is restricted to reciprocate parallel to the platen, the carriage having a first surface facing the platen and a second surface facing away from the platen;
a thermal head attached to the carriage on the first surface;
a biasing member for urging the carriage toward the platen; and
an elongated abutment section mounted on the external frame and aligned parallel to the platen;
wherein the biasing member includes a leaf spring having a first end fixedly attached to the second surface of the carriage and a second end abutting the abutment section such that the second end of the leaf spring slides against the abutment section as the carriage reciprocates along the platen.

5,672,018
CURL STRAIGHTENING DEVICE FOR STRAIGHTENING CURL OF PRINT PAPER AND TAPE CASSETTE PROVIDED WITH THE SAME
Toshiyuki Yamamoto, and Takanobu Matsuura, both of Iwate-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan
Filed Dec. 22, 1995, Ser. No. 577,404
Claims priority, application Japan, Dec. 26, 1994, 6-323254
Int. Cl.⁶ B41J 15/00
U.S. Cl. 400—613.3

8 Claims

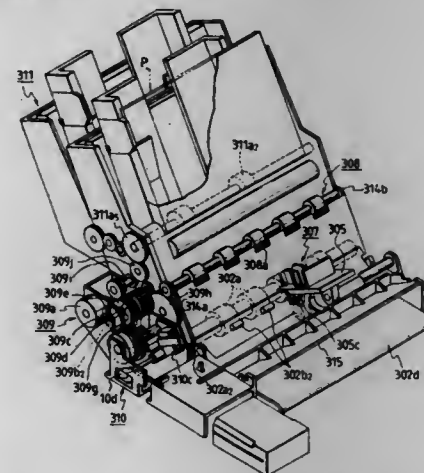
1. A printer comprising:
a print head located at a print position along a paper feed path along which a paper sheet is conveyed in a paper moving direction such that printing by the print head is applied to a first surface of the paper sheet; and



a curl straightening device located adjacent the paper feed path at a downstream side of the moving direction of said paper sheet relative to the print position, the curl straightening device including:
a supporting platen which supports the paper sheet such that the supporting platen contacts the first surface of the paper sheet;
a carriage which is reciprocally movable along the supporting platen; and
a pressing member, provided on the carriage opposite to the platen and positioned to press against a second surface of the paper sheet as the carriage is reciprocated, thereby removing curl from the paper sheet caused by printing on the first surface of the paper sheet.

5,672,019
SHEET SUPPLYING APPARATUS
Soichi Hiramatsu, Hachioji; Tetsuo Suzuki, Yokohama; Masa-hiro Taniguro, Yokohama; Hiroyuki Saito, Yokohama; Haruyuki Yanagi, Machida; Takashi Nojima, Tokyo; Satoshi Saikawa, Inagi; Hiroyuki Kinoshita, Kawasaki, and Hideaki Kawakami, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 127,601, Sep. 28, 1993, abandoned.
This application Sep. 19, 1996, Ser. No. 716,091
Claims priority, application Japan, Sep. 30, 1992, 4-286943
Int. Cl.⁶ B41J 11/58
U.S. Cl. 400—624

15 Claims

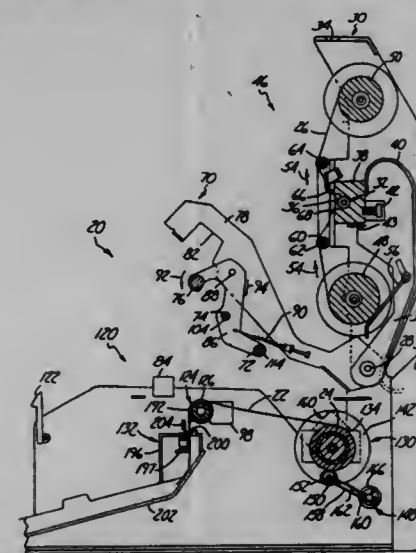


1. A sheet supplying apparatus, comprising:
sheet supporting means for supporting a plurality of sheets;
rotary supply means for feeding out a sheet supported on said sheet supporting means by rotation in a sheet supply direction;

rotary convey means for conveying a sheet fed out by said rotary supply means, said rotary convey means conveying the sheet in a normal convey direction for a predetermined amount, and then conveying the sheet in a reverse direction so as to form a loop in the sheet between said rotary supply means and said rotary convey means, thereby to register the sheet;
drive means for rotatably driving said rotary convey means in a normal convey direction and a reverse direction;
switching means pivotable in response to rotation of the rotary convey means;
an output gear provided on said pivotable switching means and connected to said drive means; and
an input gear connected to said rotary supply means;
wherein said switching means is rocked to engage said output gear to said input gear to thereby transmit a rotational driving force from said drive means to said rotary supply means for rotating said rotary supply means in the sheet supply direction when said rotary convey means is rotated in the normal convey direction, and said output gear is disengaged from said input gear when said rotary convey means is rotated in the reverse direction.

5,672,020
HIGH RESOLUTION COMBINATION DONOR/DIRECT THERMAL PRINTER
Benjamin P. Leonard, St. Paul; Eric A. Ware, Plymouth; Marty F. Higgins, Brooklyn Center; Robin L. Ogle, Corcoran; Paul R. Erickson, Prior Lake, and Danny J. Vatland, Chanhassen, all of Minn., assignors to LaserMaster Corporation, Eden Prairie, Minn.
Division of Ser. No. 285,059, Aug. 1, 1994, Pat. No. 5,516,219.
This application Jun. 6, 1995, Ser. No. 467,840
Int. Cl.⁶ B41J 29/02
U.S. Cl. 400—690.4

13 Claims

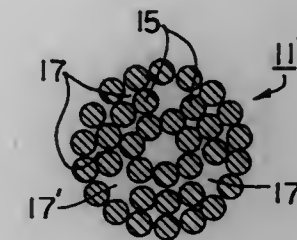


1. A high-resolution thermal printer comprising:
a stationary print head having resolution of at least 300 dpi;
a platen opposed to the print head;
a printing media transport system for transporting printing media between the print head and the platen;
a printing media guide assembly comprising:
an upper clamshell structure pivotable to an open position to eliminate contact between a printing media guide and the printing media wherein the printing media guide and the printing media establish mutual contact when the upper clamshell structure is pivoted to a closed position;
first and second pivoting arms pivotally supported on an intermediate clamshell portion connected to the upper

clamshell structure and pivoting about a pivot axis adjacent a longitudinal axis of the platen when the upper clamshell structure is at the closed position;
a nip roller supported by the first and second pivoting arms parallel to and adjacent the platen;
a guide bar placement block for positioning against a first end of the printing media guide; and
a spring for positioning against a second end of a printing media guide bar, the guide bar placement block and the spring cooperating to ensure proper axial positioning of the printing media guide.

5,672,021
FIBROUS NIB FOR USE IN A CAPILLARY FEED MARKER
Herman Abber, Brockton; Lee A. Carlson, Southboro; Lewis H. Johnson, Mansfield, all of Mass., and Craig L. Donaldson, Yorba Linda, Calif., assignors to Avery Dennison Corporation, Pasadena, Calif.
Filed Feb. 10, 1995, Ser. No. 386,482
Int. Cl.⁶ B43K 8/04
U.S. Cl. 401—199

16 Claims

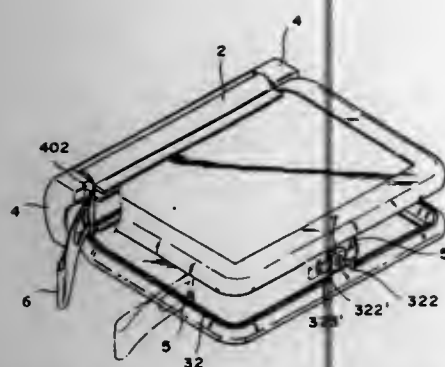


1. A capillary feed marker comprising:
(a) an elongated hollow body, said elongated hollow body being shaped to include an ink reservoir and an opening at one end thereof;
(b) an elongated nib mounted in said elongated hollow body, said elongated nib having a first end thereof disposed within said ink reservoir to receive ink therefrom and having a second end thereof extending out through said opening in said elongated hollow body for use in applying ink to a substrate, said elongated nib being made by
(i) providing a plurality of fibers, some of said fibers being made of a first material, other of said fibers being made of a second material not identical to said first material, said fibers of said first material being completely dissolvable, said fibers of said second material not being completely dissolvable,
(ii) fashioning said plurality of fibers into a porous structure, said porous structure having a plurality of capillaries formed between said plurality of fibers, and
(iii) completely dissolving said fibers of said first material so that capillaries defined, at least in part, by said fibers of said first material may be enlarged upon dissolution of said fibers of said first material from said porous structure.

5,672,022
BINDER FOR LOOSE-LEAF NOTEBOOK
Yu Chia Lin, 5th Fl., No.1, Lane 193, Chung Cheng N. Rd., Sanchung City, Taipei Hsien, Taiwan
Filed Sep. 17, 1996, Ser. No. 714,280
Int. Cl.⁶ B42F 13/00
U.S. Cl. 402—73

14 Claims

1. A binder for loose-leaf notebook, comprising a middle connector, two pivotal connectors, two loose covers, and two end insertions;



spring element that simultaneously forms an upper bearing shell and is supported on the underside of a cover that closes the ball joint socket, characterized by the fact that the cover (5), the outer diameter of which exceeds the inner diameter of the ball joint socket (1) in the initial state, is nonpositively supported in the ball joint socket (1) with its edge (5c), and that the spring element (4) is exclusively supported in the center of the cover (5) by means of spring tabs (4a) that point toward the center and transform into a cylindrical center part (4b) at their outer edge, with a marginal region (4c) that has the shape of a ball race and adjoins the surface of the ball (3c) situated adjacent to said cylindrical center part.

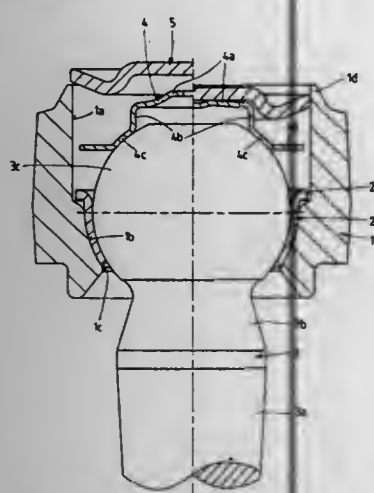
said middle connector being a hollow body defining a hollow portion having two end openings for receiving said two end insertions therein, said middle connector further having two side axes projecting from each longitudinal side thereof, forming two clearances between said side axes and said hollow portion;
said pivotal connectors each including a curvy loose cover groove for receiving an inner edge of said loose cover therein and an axis groove behind said curvy loose cover groove for receiving said side axis of said middle connector therein;
said loose covers each having an curvy inner edge for detachably receiving in said loose cover groove of said pivotal connector;
said end insertions each having an insertion portion for inserting into said end opening of said hollow portion of said middle connector and a head portion for stopping said pivotal connector from slipping off and disengaging from said middle connector and said loose cover from said pivotal connector.

5,672,023 BALL JOINT

Hanno Lieber, Essen-Kettwig, and Erhard Welchert, Jüchen-Glerath, both of Germany, assignors to TRW Fahrwerksysteme GmbH & Co. KG, Düsseldorf, Germany
Filed Apr. 12, 1996, Ser. No. 631,030
Claims priority, application Germany Apr. 12, 1995, 195 13 826.0

U.S. Cl. 403—138

Int. Cl. F16C 11/08



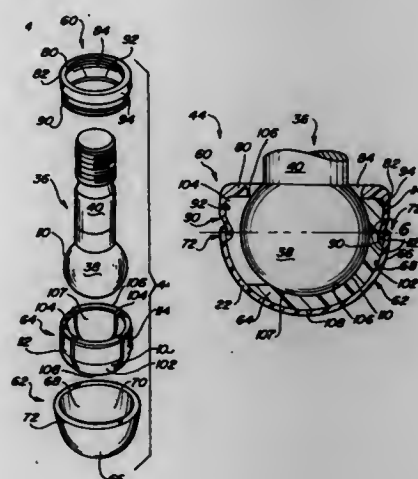
1. Ball joint, in particular, for tie rods and steering rods of utility vehicles, comprising a ball joint socket, inside of which the ball of a ball-ended spindle is arranged in a rotatable and tiltable manner arranged by means of a bearing shell positively arranged in the lower part of the ball joint socket which supports the ball below its largest diameter on a bearing surface that has the shape of a ball race, namely under the influence of spring force generated by a

5,672,024 PREPACKAGED BALL JOINT

Garth B. Maughan, Delta, and Leane C. O'Daniel, Toledo, both of Ohio, assignors to Dana Corporation, Toledo, Ohio
Filed Jun. 2, 1995, Ser. No. 460,445
Int. Cl. F16C 11/00

U.S. Cl. 403—141

8 Claims



10 Claims

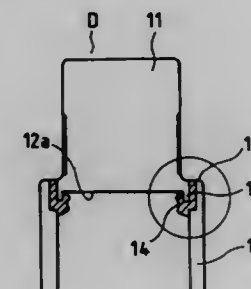
1. A prepackaged ball joint subassembly adapted to be installed into a final housing, said subassembly comprising:
an encasement having an inner chamber defined therein and an end wall at an upper axial end of said encasement, wherein said encasement comprises an upper hood with a lower hook means and a lower bowl with an upper hook means, one of said hook means extending radially outwardly and the other of said hook means extending radially inwardly such that said upper hood and said lower bowl are snapped together by means of said hook means;
a bearing received in and having an outer surface corresponding to the confines of said inner chamber, said bearing including an inner seat face; and
a stud with a stud head and a shank, said head engaging said seat face, wherein said stud is articulately retained in said encasement by said end wall, wherein said hood and said bowl include annular portions, each of said hook means including an annular groove, wherein at least one of said lower and upper hook means is adapted to temporarily flex when said upper hood and said lower bowl are snapped together, and wherein said bearing includes a lower outer surface terminating at an upper edge, an upper rim, and a recessed pocket located between said upper edge of said lower outer surface and said upper rim, said pocket adapted to receive said hook means such that a radially outer surface of said hood is generally coplanar with a radially outer surface of said bowl.

5,672,025 WATERPROOF CONNECTOR HOUSING, AND METHOD AND MOLD FOR PRODUCING SAME

Sakai Yagi, and Motohisa Kashiyama, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan
Filed Nov. 30, 1995, Ser. No. 566,437
Claims priority, application Japan, Dec. 5, 1994, 6-300763
Int. Cl. H01R 13/52; 43/24

U.S. Cl. 403—288

5 Claims



1. A waterproof connector for connection with a mating connector housing, said waterproof connector comprising:
a housing body;
a hood comprising a peripheral wall formed at an end of the housing body and connected to the end of the housing body through a first stepped portion, said hood having a second stepped portion inside the hood adjacent to said first stepped portion, and having through holes each having a transverse hole extending to a point, disposed generally centrally of a thickness of a peripheral wall of said hood, in parallel relation to an end surface of said second stepped portion and a plane of contact between said housing body and the mating connector housing, and a longitudinal hole communicating with said transverse hole and extending from said transverse hole in an insertion direction of said waterproof connector so as to extend through said first stepped portion and open to an exterior of said waterproof connector;
an elastic seal ring for forming a watertight seal between said waterproof connector and the mating connector housing, said elastic seal ring being disposed on an inner surface of said hood, said elastic seal ring being filled in said through holes, said elastic seal ring having a retaining piece portion engaged with said hood.

5,672,026 HYDRAULIC FRICTION CLAMP COUPLING FOR SHAFTS

Lennart Disborg, Linköping, Sweden, assignor to ETP Transmission AB, Linköping, Sweden
PCT No. PCT/SE94/00548, § 371 Date Dec. 12, 1995, § 102(e) Date Dec. 12, 1995, PCT Pub. No. WO95/00767, PCT Pub. Date Jan. 5, 1995

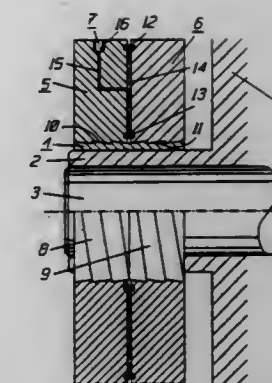
PCT Filed Jun. 7, 1994, Ser. No. 564,042

Claims priority, application Sweden, Jun. 17, 1993, 9302105
Int. Cl. F16D 1/09

U.S. Cl. 403—369

10 Claims

1. Hydraulically actuatable friction clamp coupling which is used for clamp connecting a shape deformable sleeve to a displaceable drive shaft comprising:
a shape deformable inner ring which is adapted to engage the sleeve radially relative to a longitudinal axis of the drive shaft, said inner ring being a single piece and including a radially outer surface divided into first and second cone surfaces which face one another, said first and second cone surfaces when viewed in axial cross section each including several cone elements such that each of said first and second cone surfaces has a saw-toothed shape in axial cross section;
first and second outer rings mounted on said inner ring,



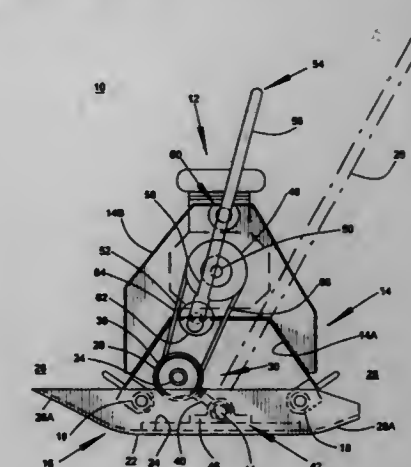
said first and second outer rings having respective inner races provided with respective third and fourth cone surfaces which face one another, said third and fourth cone surfaces when viewed in axial cross section each including several cone elements such that each of said third and fourth cone surfaces has a saw-toothed shape in axial cross section which match respectively with the saw-tooth shapes of said first and second cone surfaces, and
said first and second outer rings together forming an intermediate, sealed pressure chamber which is filled with a hydraulic pressure medium; and
a pressurizing means for pressurizing the pressure medium in said pressure chamber to press said outer rings longitudinally apart, such that said third and fourth cone surfaces press inwardly against the matching and cooperating said first and second cone surfaces to cause said inner ring to compress and in turn to compress the deformable sleeve into frictional engagement with the drive shaft.

5,672,027 REVERSIBLE PLATE COMPACTOR HAVING AN IMPROVED DRIVE AND DIRECTIONAL CONTROL

Theodore S. Wadensten, 75 Stillson Rd., Wyoming, R.I. 02898
Filed Aug. 1, 1996, Ser. No. 698,170
Int. Cl. E01C 19/30

U.S. Cl. 404—133.05

12 Claims



1. A reversible self-propelled plate compactor comprising:
a) a tamper plate having a tamper side for contacting material to be compacted;
b) a motor carried on a mounting plate, said mounting plate being selectively shaped, said mounting plate being resiliently attached to said tamper plate for isolating said mounting plate and said motor from said tamper plate, said motor having a drive means attached to an output shaft;
c) a vibratory assembly including a weight being eccentrically carried on a vibrator shaft for imparting vibratory motion

when rotating by way of a driven means mounted thereon, said driven means being selectively driven by said drive means by way of a drive belt, said drive belt having a selected pitch length, said vibratory shaft having selected portions being journaled in a vibratory housing, said vibratory housing being attached to one end of an arm, the opposite end of the arm including a pivot means, said pivot means being arrayed for pivotally attaching the arm to an interior side of the tamper plate, said interior side being opposite to said tamper side, an axis of the pivot means being transverse to a direction of self-propelled travel;

- d) a direction control arm including a grasping end, an engaging end; and a center of rotation, the engaging end being distal to the grasping end and having an engaging means attached thereto; said center of rotation being selectively positioned with respect to the grasping end and the engaging end; said center of rotation being arrayed for pivotally attaching said direction control arm to a selected portion of the plate compactor so that the engaging means is positioned between the drive means and the driven means, said engaging means being also positioned for selectively engaging one of the strands of the drive belt; and
- wherein the directional control arm is selectively pivoted about the center of rotation for engaging and urging the selected strand of the drive belt by and with the engaging means while simultaneously maintaining engagement of the drive belt with the drive means and the driven means, said urging of the selected strand of the drive belt causing a pivoting of the vibratory housing and the driven means about the axis of the pivot means so that the vibratory housing is positioned near one selected end of a first end and second end of said tamper plate for moving the compactor in a desired direction of travel.

5,672,028

FLOOD CONTROL SYSTEM

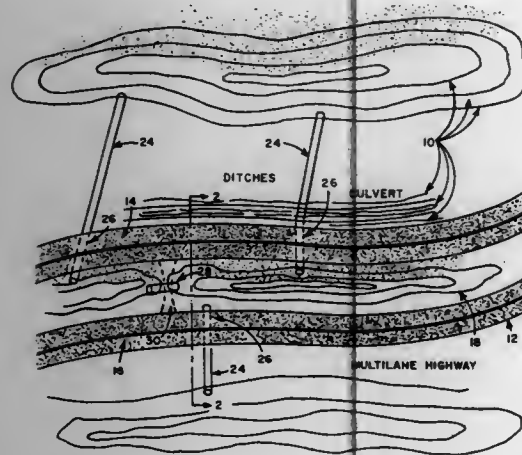
Maheshkumar M. Mehta, P.O. Box 1472, Rockingham, N.C. 28379

Filed Dec. 4, 1995, Ser. No. 566,922

Int. Cl.⁶ E02B 11/00

U.S. Cl. 405—36

6 Claims



1. A flood water control system for directing water flow from flood sensitive low land for use with multi-lane highways separated by medians comprising: a plurality of directional ditches extending from low land to multi-lane highways, a plurality of holding basins positioned in the median of the multi-lane highways; a plurality of culverts extending from the directional ditches under the highways to the holding section; and means to selectively open and close the culverts to initiate and terminate water flow into the holding basins.

5,672,029

SYSTEM FOR PIPE REHABILITATION

Mark L. Boyer, Houston, Tex., assignor to Boyer, Inc., Houston, Tex.

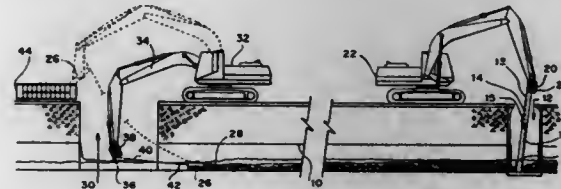
Division of Ser. No. 547,472, Oct. 24, 1995, Pat. No. 5,626,442.

This application Jan. 8, 1997, Ser. No. 780,314

Int. Cl.⁶ F16L 1/00

U.S. Cl. 405—154

5 Claims



1. A system for use in rehabilitating pipe comprising a down hole boom with a first winch affixed thereto that is inserted in first access area which is an access shaft to a host pipe; a cable guide adjustably mounted along the down hole boom; a first cable spooled on the first winch that can be driven into the access shaft over the cable guide which is fixed in position on the downhole boom to guide the cable into the host pipe; a host vehicle with a boom on the surface adjacent to a second access area to the host pipe a selected length from the first access shaft; a second winch on the end of the boom of the host vehicle, capable of movement from the surface to the host pipe through a second access area; a second cable spooled on the second winch that can be positioned by the boom and driven into the host pipe; a housing mounted to the end of the boom and surrounding the second winch that allows for free movement of the second cable into the host pipe; and the cables on the first and second winch capable of disengagable attachment to equipment used to rehabilitate host pipe.

5,672,030

METHOD OF MAKING BOOKS

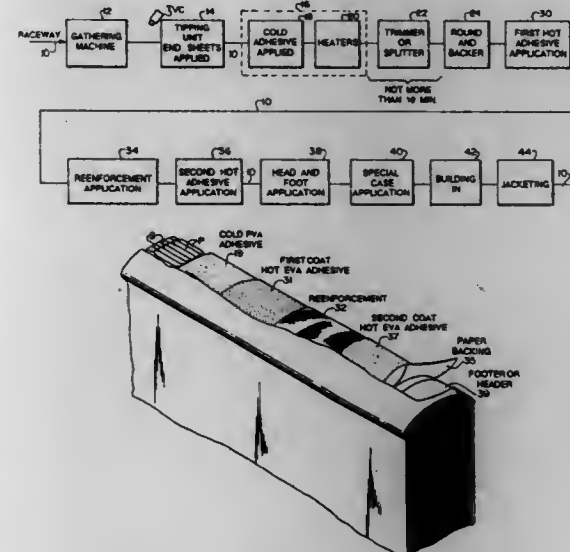
Robert Wayne Dean, Winchester, Va., assignor to Berryville Graphics, Berryville, Va.

Filed Jan. 2, 1996, Ser. No. 581,938

Int. Cl.⁶ B42B 5/00

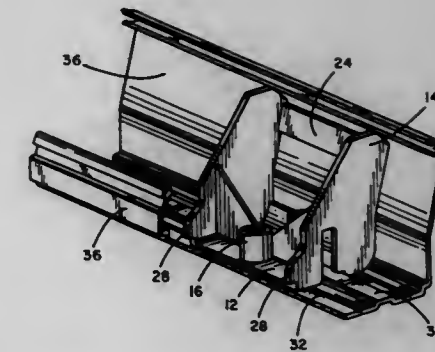
U.S. Cl. 412—7

13 Claims



1. A method of making a durable and long lasting book comprising the steps of:

- (a) providing a stack formed of a plurality of unbonded perforated collated signatures;
- (b) applying cold pva adhesive to the perforations of the stack so that the cold pva adhesive moves inwardly of the perforations;
- (c) passing the stack through heating means to partially dry the cold pva adhesive and form a book block;
- (d) within approximately ten minutes or less following step (c), passing the book block through a round and backer to provide a curved configuration and increase the surface area of the spine of the book block;
- (e) applying a layer of hot eva adhesive to the surface area of the spine of the book block immediately after it leaves the round and backer so that the hot eva adhesive mingles with and bonds to the previously applied cold pva adhesive;
- (f) applying a layer of reinforcement material over the layer of hot eva adhesive;
- (g) applying a second layer of hot eva adhesive over the layer of reinforcement material; and
- (h) applying a case to the book block to form a book.



cover retaining means projecting from the base for maintaining the cover in the open position, and wherein the base includes alignment means for locating positions on the duct floor.

5,672,031

MILLING CUTTER

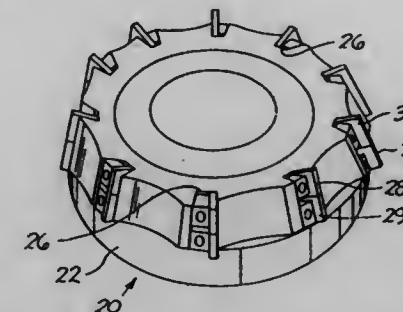
Edward J. Oles, Ligonier, Pa., assignor to Kennametal Inc., Latrobe, Pa.

Filed May 12, 1995, Ser. No. 440,047

Int. Cl.⁶ B23C 5/00

U.S. Cl. 407—35

20 Claims



1. A milling cutter for milling a workpiece comprising: a milling head rotatable about its central longitudinal axis; a thin film diamond coated milling insert being carried by the milling head and presenting a cutting edge, said milling insert being of a first grade of material; and a wiper insert being carried by the milling head and presenting a wiping edge, the wiper insert being of a grade of material different than that of said thin film diamond coated milling insert.

5,672,032

Patent Not Issued For This Number

5,672,033

LATCHING DUCT COVER FIXTURE

Jack E. Caveney, Hinsdale, and Robert Nicoll, Glenwood, both of Ill., assignors to Panduit Corp., Tinley Park, Ill.

Filed Sep. 22, 1995, Ser. No. 532,188

Int. Cl.⁶ B23B 49/02

U.S. Cl. 408—72 B

19 Claims

1. A fixture for positioning in a duct having a floor and a cover movable from an open position of approximately ninety degrees from the floor to a closed position, comprising: a base for positioning on the floor of the duct; and

5,672,034

SECURITY LOCK AND DEADBOLT LOCATOR

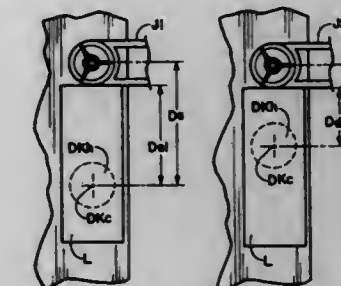
Melville J. McLean, 3411 Miracoma Ave., Anaheim, Calif. 92806

Filed Jun. 22, 1995, Ser. No. 493,437

Int. Cl.⁶ B23B 45/14

U.S. Cl. 408—79

2 Claims



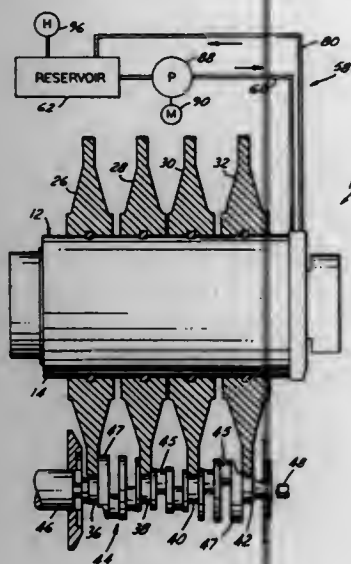
1. A locator for use with a door hole boring jig for locating the position for drilling holes for security locks or deadbolts, or both, in doors a specified distance from a previously drilled doorknob hole in such doors, the locator comprising, in combination: a plate constructed and configured to define a pair of opposed first and second parallel edges, an outer surface, and a generally planar inner surface; and split hub means defined by a hub center and comprising a plurality of radially spaced resiliently radially outwardly biased projections extending from points on the inner surface of the plate to points radially spaced and equidistant from the hub center; the plate being so constructed and configured as to position the first edge a distance Dsl from the hub center to position, when in use, a door hole boring jig such that the door lock center LKc as defined by the door hole boring jig is a first predetermined distance from the doorknob center DKc as located by the split hub means on the locator, and to position the second edge a distance Ddb from the hub center to position, when in use, a door hole boring jig such that the deadbolt lock center DBc as defined by the door hole boring jig is a second predetermined distance from the doorknob center DKc as located by the split hub means on the locator;

the split hub being so constructed and configured as, when in use with the hub inserted in a previously bored doorknob hole DKh, to position the hub center Hc at the center DKc of said doorknob hole DKh, the radially spaced projections thereof resiliently engaging the doorknob hole thereby positioning the hub center.

5,672,035
TURN BROACHING MACHINE
James A. Pawlik, Sterling Heights, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.
Filed Sep. 16, 1996, Ser. No. 715,812
Int. Cl.⁶ B23C 5/28

U.S. Cl. 409—135

5 Claims



1. A turn broaching machine for broaching a workpiece comprising:
 - a hollow broaching arbor having a central rotational axis and a cylindrical side wall concentric with said rotational axis;
 - a plurality of axially spaced apart, circumferentially extending cutting segments projecting radially outwardly from said side wall;
 - said cutting segments each having a radially outer peripheral edge provided with broaching elements;
 - a closed loop system for circulating a heated fluid through the arbor;
 - said system comprising a fluid coupling at one end of said arbor including a stationary ring;
 - said coupling also including a second ring secured in concentric relation to said arbor and interfitted with said stationary ring;
 - a reservoir for the heated fluid;
 - means for heating the fluid in said reservoir to a substantially constant temperature in a range on the order of about 100° F.—150° F. and maintaining the fluid at that temperature;
 - a first fluid line from said reservoir to an entry end thereof in said stationary ring;
 - a second fluid line from an exit end thereof in said stationary ring to said reservoir;
 - said second ring having a first conduit communicating with the interior of said arbor and with the entry end of said first fluid line enabling fluid from said first fluid line to enter said arbor and having a second conduit communicating with the interior of said arbor and with the exit end of the second fluid line enabling fluid in said arbor to be withdrawn from said arbor

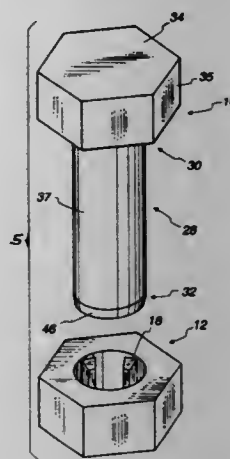
through said second fluid line, and a pump for maintaining a flow of fluid to and from said arbor in said first and second fluid lines.

5,672,036
WELDABLE PLASTIC FASTENER
James Medel, Cape Coral, Fla., assignor to Unimation, Inc., Ft. Myers, Fla.

Continuation-in-part of Ser. No. 452,356, May 30, 1995, which is a continuation-in-part of Ser. No. 390,184, Feb. 17, 1995, which is a continuation-in-part of Ser. No. 84,699, Jun. 29, 1993, Pat. No. 5,391,031, which is a continuation-in-part of Ser. No. 887,722, May 22, 1992, Pat. No. 5,222,850. This application Dec. 7, 1995, Ser. No. 568,638
Int. Cl.⁶ F16B 37/06; 39/02

U.S. Cl. 411—82

17 Claims



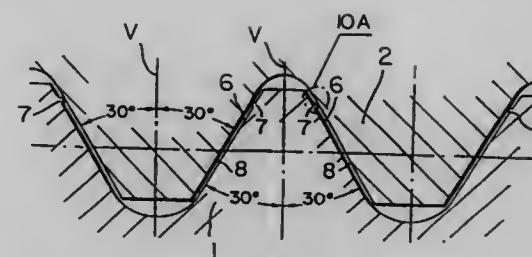
1. A plastic nut and bolt combination for fastening panels to each other, the combination comprising:
 - a bolt having a shank formed from a plastic material and having proximate and distal ends thereof;
 - a polygonal nut formed from a plastic material and having exterior flats and an interior surface defining a bore;
 - a plurality of raised projection members formed integrally extending from the nut interior surface into the bore together defining a diameter slightly smaller than the shank diameter so as to provide an interference fit between the shank and projection members; and
 - a bonded interface being located between the engaged projection members and the bolt shank at the areas engaged with a force fit comprising a solidified intermixture of the respective plastic materials which forms a bond with each other at the bonded interface, application of a torque force allowing removal of the nut from the shank by breaking the bond formed therebetween at the interface.

5,672,037
LOOSENING AND DISLODGING PREVENTING SCREW
Yukichi Iwata, Shinagawa, Japan, assignor to Iwata Bolt Kabushiki Kaisha, Tokyo-To, Japan
Filed Oct. 25, 1995, Ser. No. 547,998
Claims priority, application Japan, Nov. 1, 1994, 6-268885; Nov. 7, 1994, 6-272183
Int. Cl.⁶ F16B 39/30; 35/04

U.S. Cl. 411—311

7 Claims

1. A male screw comprising a head, shaft, threads and at least one projecting part projecting from a male thread flank plane substantially near a peak part of said male thread flank plane such

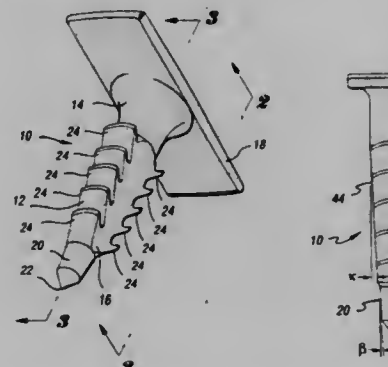


that, when the male screw is mated with a female screw, said projecting part presses against a female thread flank plane, thereby preventing loosening and dislodging between the male and female screws, said projecting part having a cone shape.

5,672,038
FASTENER
Gary Garland Eaton, Troy, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.
Continuation of Ser. No. 559,859, Nov. 20, 1995, abandoned.
This application Dec. 23, 1996, Ser. No. 772,235
Int. Cl.⁶ F16B 19/00

U.S. Cl. 411—510

7 Claims



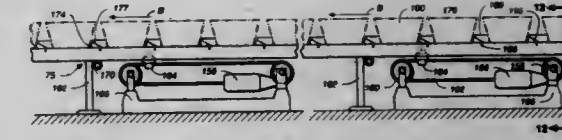
1. A fastener for securing a first member to a substrate member, comprising:
 - a tapered body having first and second ends and opposing tapered flat sides;
 - a head secured to said first end of said body;
 - an extended pilot section extending from said second end of said body, and having a sharp pointed end for penetrating and forming a hole in the substrate member;
 - a plurality of angled barbs extending from said body for preventing removal of the fastener from the formed hole, said barbs having distal ends cooperating to form a taper such that each successive distal end extends further away from the body than the previous distal end for improved gripping; and
 - said fastener being a one-piece injection molded part.

5,672,039
ORDER CONSOLIDATION INDEXING SYSTEM
Daniel C. Perry, San Jose; Louis Hiti, Fremont, and Robert M. Surtees, Hayward, all of Calif., assignors to Computer Aided Systems, Inc., Hayward, Calif.
Filed Mar. 4, 1994, Ser. No. 205,989
Int. Cl.⁶ B65G 25/10

U.S. Cl. 414—280

7 Claims

7. An apparatus, comprising:
 - a stationary frame;
 - a rigid reciprocating member supported by said frame for supporting a plurality of objects, carrying said objects in a forward direction relative to said frame when said reciprocating



ing member is moving in said forward direction, and carrying said objects in a backward direction relative to said frame when said reciprocating member is moving in said backward direction, said reciprocating member being supported on said frame by a plurality of rollers and said reciprocating member including a tapered feed end for facilitating insertion of said objects thereon;

a plurality of stops positioned along said frame that allow forward movement of said objects and prevent backward movement of said objects when said objects abut thereto when moving in said backward direction, thereby defining a sequence of positions for said objects relative to said frame;

a guide for confining said objects to movement in said forward and backward directions; and

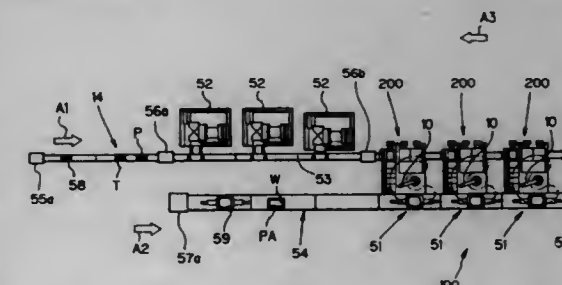
a drive for moving said reciprocating member alternately in said forward and backward directions relative to said frame thereby advancing said objects through said sequence of positions.

5,672,040
PARTS FEEDING APPARATUS AND PARTS FEEDING PROCESS

Akira Kimura, Tokyo; Tsuyoshi Inoue, Kanagawa; Naruhiko Abe, Kanagawa, and Tadashi Watanabe, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Feb. 24, 1995, Ser. No. 394,945
Claims priority, application Japan, Mar. 7, 1994, 6-062082; Mar. 7, 1994, 6-062083
Int. Cl.⁶ B65G 47/00

U.S. Cl. 414—403

12 Claims



1. A parts feeding apparatus for feeding parts which are disposed on a plurality of trays, to an assembling body for assembly, comprising:
 - conveyor means for conveying the plurality of trays to and from the assembling body; and
 - transferring and positioning means for individually transferring and positioning each of the plurality of trays, which are conveyed by said conveyor means, in a predetermined position within said assembling body, in which each of the parts can be selected from a tray positioned in the predetermined position and assembled by robot means included in the assembling body;
- wherein said transferring and positioning means includes:
- a first transfer unit for individually transferring each of the plurality of trays upward in a first direction from said conveyor means;
 - a positioning unit for positioning each tray from said first transfer unit in the predetermined position which is within an assembling range of the robot means included in the assembling body; and
 - a second transfer unit for selectively transferring each tray which has been positioned in the predetermined position, downward from the predetermined position in a second

direction reversed from said first direction, and for delivering the tray to said first transfer unit when the tray still contains parts, and for delivering the tray to said conveyor means when the tray is empty.

5,672,041
COLLAPSIBLE, POWERED PLATFORM FOR LIFTING WHEELCHAIR

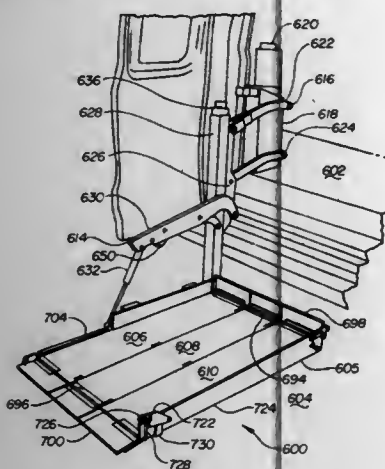
Lynn O. Ringdahl, Alexandria; Jeffrey J. Stoen, Glenwood; James B. Welte, Sunberg; Gary G. Gruber, Alexandria, and Timothy W. Jenum, Glenwood, all of Minn., assignors to Crow River Industries, Inc., Plymouth, Minn.

Continuation-in-part of Ser. No. 363,290, Dec. 22, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 473,666

Int. Cl.⁶ B60P 1/48

U.S. Cl. 414—545

19 Claims



1. An apparatus for moving an object between an upper position and a lower position, the apparatus comprising:

- a platform including at least three sections that are pivotally connected along generally parallel fold lines, the sections being selectively pivotally moveable between an unfolded orientation in which the sections are substantially coplanar and a folded orientation in which the sections form a compact configuration;
- a deployment assembly for selectively pivoting the platform about a deployment pivot axis between a substantially vertical orientation and a substantially horizontal orientation, the deployment pivot axis being generally transversely aligned with respect to the fold lines of the platform;
- a barrier structure configured for retaining the object on the platform, the barrier structure including side barrier panels aligned generally parallel to the fold lines of the platform, and a distal barrier panel aligned generally parallel to the deployment pivot axis; and
- a lift assembly for moving the platform between the upper position and the lower position.

5,672,042
UNDERLIFT ASSEMBLY TOW TRUCKS

James J. Bartel, Southfield, Mich., assignor to Jerr-Dan Corporation, Greencastle, Pa.

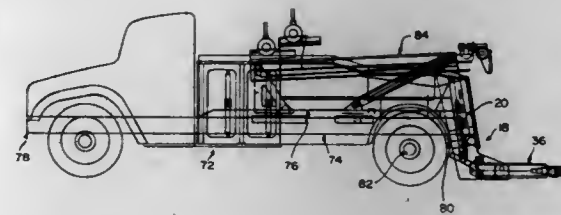
Filed Oct. 31, 1995, Ser. No. 550,772

Int. Cl.⁶ B60P 3/12

U.S. Cl. 414—563

19 Claims

- 1. An underlift assembly for attachment to a vehicle comprising: a support arm coupled to the vehicle;



5,672,043
LIFTING AND SWIVELLING DEVICE, IN PARTICULAR FOR MOTOR VEHICLES

Ludwig Hagara, Hebbelgasse 4/4, A-1100 Vienna, Austria

PCT No. PCT/AT94/00103, § 371 Date Jan. 30, 1996, § 102(e) Date Jan. 30, 1996, PCT Pub. No. WO95/03992, PCT Pub. Date Feb. 9, 1995

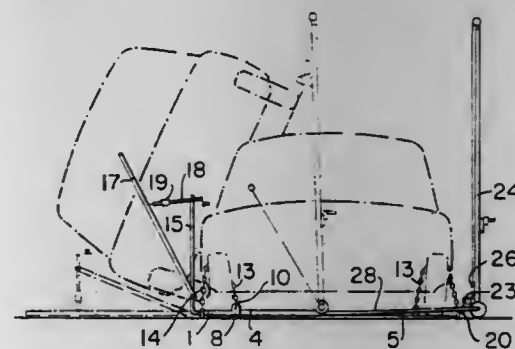
PCT Filed Jul. 29, 1994, Ser. No. 586,776

Claims priority, application Austria, Jul. 30, 1993, 1521/93

Int. Cl.⁶ B66F 7/22

U.S. Cl. 414—678

5 Claims



- 1. In a lifting and swivelling apparatus comprising a frame having first and second ends, a lifting device having a bottom end and holding means for effecting an articulated connection between the first end of the frame and the lifting device, tie rods for effecting an articulated connection between the frame and the bottom end of the lifting device, an actuating device for vertically adjusting the holding means along the lifting device and for locking the holding means at any vertical location of the lifting device, the improvement comprising the frame being a clamping frame comprising at the second end of the frame a supporting frame, the supporting frame comprising a curved portion curved by essentially 90° and an essentially straight portion connected to the curved portion, the supporting frame having an outer side, the supporting frame being configured to roll on the outer side of the supporting frame during swivelling of the clamping frame and to cause the bottom end of the lifting device simultaneously to

approach the supporting frame, further comprising fastening means mounted on the clamping frame for securing the object to be tilted.

5,672,044
FREE-TRAVELING MANIPULATOR WITH POWERED TOOLS

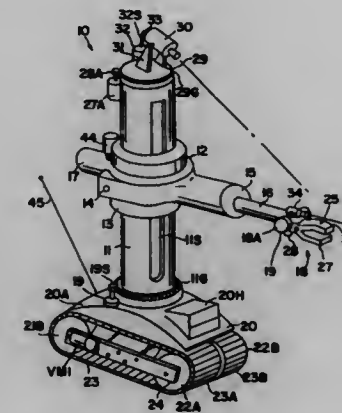
Jerome H. Lemelson, Suite 286, Unit 802, 930 Tahoe Blvd., Incline Village, Nev. 89451-9436

Continuation of Ser. No. 899,353, Jun. 15, 1992, abandoned, which is a continuation of Ser. No. 621,341, Dec. 3, 1990, abandoned, which is a division of Ser. No. 249,404, Sep. 23, 1988, Pat. No. 5,017,084, which is a division of Ser. No. 941,554, Dec. 11, 1986, Pat. No. 4,773,815, which is a continuation of Ser. No. 639,301, Aug. 9, 1984, abandoned, which is a continuation-in-part of Ser. No. 200,347, Oct. 24, 1980, abandoned, which is a continuation of Ser. No. 910,998, May 30, 1978, abandoned, which is a continuation of Ser. No. 753,321, Dec. 20, 1976, abandoned, which is a continuation of Ser. No. 544,832, Jan. 29, 1975, abandoned, which is a continuation-in-part of Ser. No. 436,073, Jan. 24, 1974, abandoned. This application Jun. 7, 1995, Ser. No. 480,113

Int. Cl.⁶ B66C 23/00

U.S. Cl. 414—744.3

34 Claims



1. An automatic, moveable manipulator comprising:

- (a) a carriage;
- (b) a power drive coupled to said carriage and positioned to move the carriage in a multitude of directions, comprising two moving members oriented parallel to each other, which may be driven simultaneously and independently in the same or different directions;
- (c) at least one manipulator arm supported by said carriage, wherein said arm includes a tool holder having an engagement-release mechanism configured to support one of a plurality of tools on said arm and an electrical coupling through said arm including a power line extending to the selected, supported one of the tools;
- (d) a motor drive coupled to the arm so as to move said arm with said tool holder;
- (e) a tool rack containing a plurality of power-operated tools configured to be electrically and physically connected to said tool holder of said manipulator arm;
- (f) a wireless receiver supported by said carriage;
- (g) an electronic storage device supported by said carriage and structured to store signals received from a remote location by said receiver; and
- (h) a controller coupled to reproduce the stored signals from said storage and structured to process the reproduced signals to generate command control signals and to apply said command control signals to control the operation of the manipulator.

174-444 O.G.-97-8: QL3

5,672,045

SYSTEM FOR STACKING SHEETS ON PALLETS

Frank Matthias Schmid, Krefeld, and Ernst Claassen, Goch, both of Germany, assignors to Jagenberg Papiertechnik GmbH, Neuss, Germany

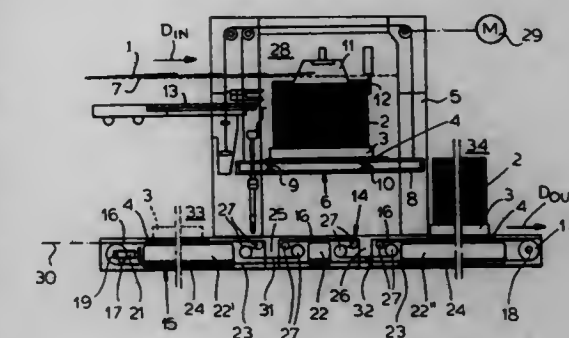
Filed Nov. 10, 1995, Ser. No. 555,983

Claims priority, application Germany, Nov. 11, 1994, 44 40 367.4

Int. Cl.⁶ B65H 29/50

U.S. Cl. 414—794.5

13 Claims



1. An apparatus for stacking sheets on pallets, the apparatus comprising:

- a conveyor belt having horizontally extending upper and lower reaches extending through a stacking station, the upper reach defining a horizontal support plane and extending in an outfeed direction;
- two sets of deflectors in the stacking station spaced apart in the outfeed direction and engaging the upper reach to form therein respective upwardly open U-shaped loops below the support plane;
- a lift having a pair of support beams extending transverse to the outfeed direction and jointly displaceable between a lower position received in the respective loops and below the support plane and an upper position above the support plane;
- means for feeding to the station a succession of sheets and for forming in the station on a pallet supported on the beams in the upper position thereof a stack of the sheets directly above the loops;
- means for raising and lowering the lift for displacing it from the upper position to the lower position to deposit on the belt the pallet and the stack of sheets on the beams; and
- drive means for advancing the belt in the outfeed direction with the beams in the lower position to convey the stack of sheets hitherto supported on the beams away from the lift in the outfeed direction.

5,672,046

SIDE-CHANNEL COMPRESSOR

Rudi Dittmar, Helmers, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Sep. 24, 1996, Ser. No. 710,886

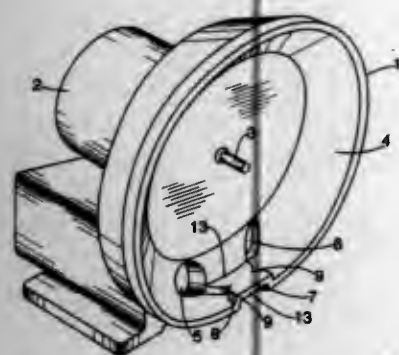
Claims priority, application Germany, Oct. 6, 1995, 195 37 353.7

Int. Cl.⁶ F04D 5/00

U.S. Cl. 415—55.1

7 Claims

- 1. A side-channel compressor, comprising: a compressor housing having at least one side channel; and a baffle separating intake and delivery sides of the side channel, said baffle having boundary sides extending in a radial direction with respect to the side channel, and having a profile deviating in the axial direction of the compressor, said boundary sides of the baffle each including an approximately heart-shaped indentation extending over an entire radial height of



the boundary side, the indentations being provided on the intake and delivery sides and having tips facing each other.

5,672,047

ADJUSTABLE STATOR VANES FOR TURBOMACHINERY

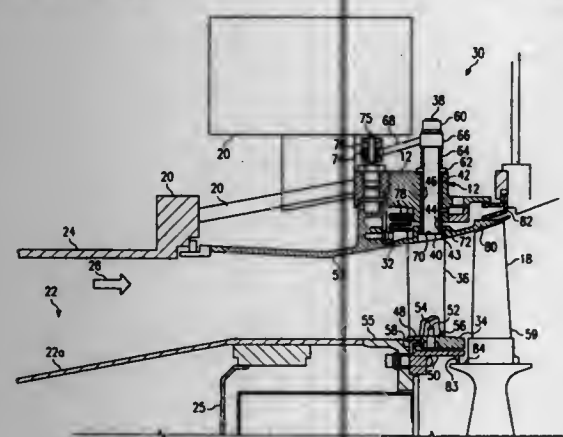
Dietrich Birkholz, Olean, N.Y., assignor to Dresser-Rand Company, Corning, N.Y.

Filed Apr. 12, 1995, Ser. No. 421,672

Int. Cl.⁶ F01D 49/02

U.S. Cl. 415—160

19 Claims



1. An adjustable stator vane assembly comprising:
an annular outer shroud;
an annular inner shroud positioned within and concentric to said annular outer shroud so as to form an annular flow path therebetween;
a plurality of vane shaft bushings;
a plurality of rotatable stator vanes, each of said rotatable stator vanes being positioned between said inner shroud and said outer shroud and spaced apart from each other about the circumference of said inner shroud, each of said rotatable stator vanes having a first end and a second end, each of said rotatable stator vanes having a vane shaft attached to the first end of the respective rotatable stator vane, each vane shaft being mounted in a respective one of said vane shaft bushings for rotational movement of the associated rotatable stator vane about a longitudinal axis of the respective rotatable stator vane;
a synchronizing ring;
an actuator for providing arcuate motion of said synchronizing ring;
a plurality of actuation linkages, one end of each actuation linkage being attached to a respective one of said vane shafts and the other end of each actuation linkage being attached to said synchronizing ring;
whereby each of said plurality of rotatable stator vanes can be simultaneously rotated about its longitudinal axis by said actuator providing arcuate motion of said synchronizing ring;

a clearance being established between the second end of the rotatable stator vanes and one of said shrouds, the clearance being maintained at approximately 0.01 inch wherein the second end of each of said rotatable stator vanes has a spherical tip surface and the shroud which is juxtaposed to said second end of each of said rotatable stator vanes has a mating spherical surface so that a clearance between said second end and said mating spherical surface does not change appreciably when the rotatable stator vanes are rotated.

5,672,048

CEILING FAN HOUSING

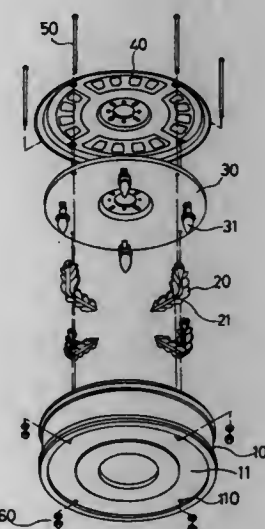
Jack Yu, No. 109-1, Avenue 6, Lane 164, Tzong Sa Road, Da Du Hsiang, Taichung Hsien, Taiwan

Filed Aug. 22, 1996, Ser. No. 701,679

Int. Cl.⁶ F04D 29/32; 29/64

U.S. Cl. 416—5

1 Claim



1. A housing for a ceiling fan comprising:
a cylindrical member made of transparent material, said cylindrical member including an upper portion and including a bottom plate,
a cover engaged on said upper portion of said cylindrical member,
at least one panel received in said cylindrical member and disposed between said bottom plate and said cover, and engaged with said bottom plate and said cylindrical member,
a plurality of fastening members engaged through said cover and said at least one panel and said bottom plate for securing said bottom plate and said cylindrical member and said cover together, and for securing said at least one panel in place,
a board engaged between said cylindrical member and said cover, and
at least one light bulb secured to said board for lighting said at least one panel and for allowing said panel to be seen through said cylindrical member.

5,672,049

ELECTROMECHANICAL DEVICE FOR THE PROTECTION OF A PUMP IN WATERWORKS OF VARIOUS TYPES, IN THE ABSENCE OF WATER

Ugo Clurlo, Via di Moriano No. 1625, 55100 Monte San Quirico, Lucca, Italy

Filed Apr. 26, 1994, Ser. No. 233,354

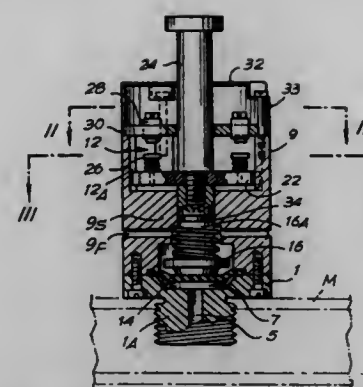
Claims priority, application Italy, Apr. 28, 1993, LU/93/A/5

Int. Cl.⁶ F04B 49/06

U.S. Cl. 417—44.1

15 Claims

1. A pump protection device comprising:



a housing defining first and second chambers, said first chamber being in communication with a flow of a pump;
a diaphragm positioned across said first chamber;
a movable element having a first portion in contact with said diaphragm, said movable element having a second portion extending from said first chamber into said second chamber;
a spring means for biasing said movable element against said diaphragm;
electrical circuit means positioned in said second chamber and for interacting with said second portion of said movable element to determine when a pressure of the flow is an insufficient pressure for the pump to operate, said electrical circuit means blocking operation of the pump when said pressure is insufficient;
an annular seal positioned around said second portion of said movable element to form a seal between said first chamber and said second chamber.

5,672,050

APPARATUS AND METHOD FOR MONITORING A SUMP PUMP

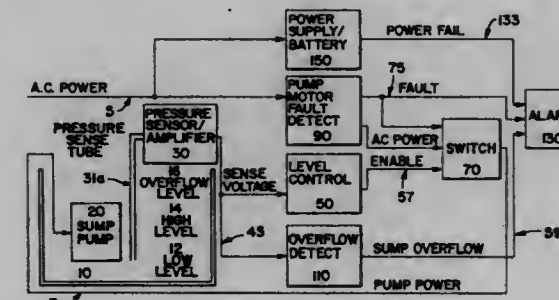
Daniel J. Webber, Conifer, Colo., and Wesley Ratulowski, Chicago Ridge, Ill., assignors to Lynx Electronics, Inc., Lemont, Ill.

Filed Aug. 4, 1995, Ser. No. 511,255

Int. Cl.⁶ F04B 49/00

U.S. Cl. 417—18

38 Claims



10. An apparatus for monitoring and controlling a motor driven sump pump for a sump having a liquid with a height of an upper surface of the liquid therein, comprising:
power means for supplying power to the apparatus;
pressure sensing means for detecting a pressure resulting from the height of the upper surface of the liquid within the sump, and including a means for converting the detected resulting pressure into a continuous electrical signal, wherein the continuous electrical signal represents the height of the upper surface of the liquid within the sump;
control means comparing the continuous electrical signal to a first preselected electrical signal level that represents at least a first preselected pressure for turning the motor either "on" or "off" when the detected pressure is either above or below the first preselected pressure;

5,672,051

POWER-MANAGED FUEL DELIVERY SYSTEM

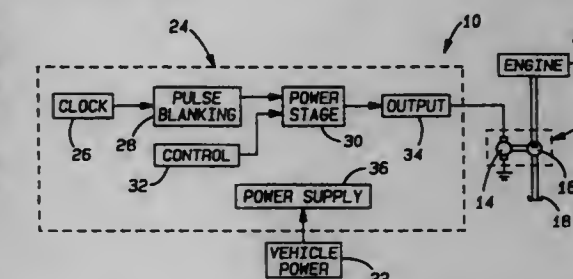
John R. Forgue, Cheshire, and George H. Bucc, South Windsor, both of Conn., assignors to Walbro Corporation, Cass City, Mich.

Filed Jul. 12, 1995, Ser. No. 501,602

Int. Cl.⁶ F04B 49/06

U.S. Cl. 417—44.11

16 Claims



1. A fuel delivery system for an internal combustion engine that comprises a fuel pump having a d.c. electrical motor for driving said pump at a speed that varies as a function of electrical power applied to said motor and circuit means for applying electrical power to said motor from a source of d.c. potential, characterized in that said circuit means includes means responsive to voltage level at said source of d.c. potential for automatically increasing electrical power applied to said motor from said source when voltage available at said source decreases to a preselected level, including a d.c.-to-d.c. converter having a transformer, rectifier means coupling said transformer to said motor and switch means for applying alternating current to said transformer when voltage available at said source of d.c. potential decreases to said preselected level, and means connecting said source of d.c. potential to said transformer such that said motor draws power from said source of d.c. potential through said transformer and said rectifier means during both operation and non-operation of said switch means.

5,672,052

BLOWER MUFFLING APPARATUS

Fumiaki Ishida, Narashino; Masayuki Fujio, Sakura; Hiro-moto Ashihara, Fukuoka, and Takeshi Moritake, Narashino, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 5, 1996, Ser. No. 597,045

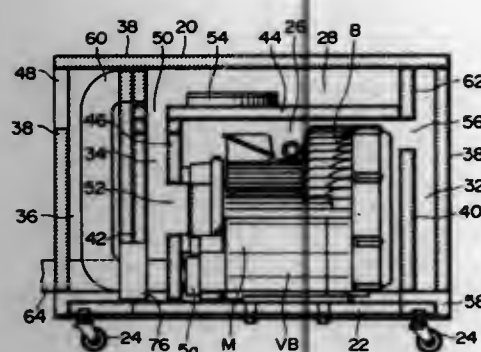
Claims priority, application Japan, Feb. 20, 1995, 7-030417

Int. Cl.⁶ F04B 39/00

U.S. Cl. 417—312

15 Claims

1. A blower muffling apparatus which houses a blower comprising a blower body on one side of an electric motor in the axial direction and a cooling fan on the other side of said motor and having an intake port and a discharge port in a lower portion thereof on the side of said cooling fan, said blower muffling apparatus comprising:
a blower chamber for housing said blower therein,



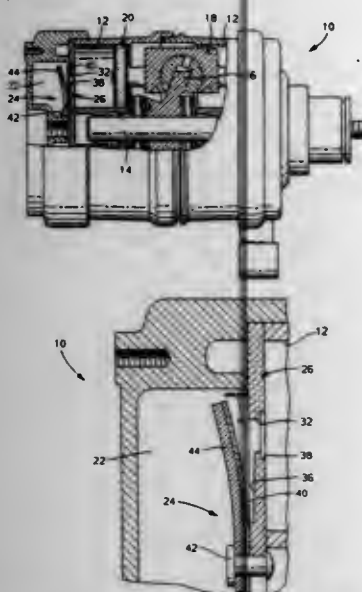
an exhaust chamber positioned adjacent said blower chamber on the side of the blower body of said blower, communicating with said blower chamber, and having an exhaust port, a muffling passage chamber disposed adjacent said blower chamber in the axial direction of said blower, and having one end communicating with said exhaust chamber and the other end communicating with the discharge port of said blower through a flexible exhaust duct, and a duct accommodating chamber for accommodating said flexible exhaust duct therein, each of said chambers being surrounded by a sound-absorbing material.

5,672,053
COMPRESSOR REED VALVE WITH VALVE PLATE CHANNEL

Nick George Sabha, Youngstown, N.Y., assignor to General Motors Corporation, Detroit, Mich.
Filed Apr. 3, 1995, Ser. No. 416,123
Int. Cl.⁶ F04B 13/10

U.S. Cl. 417—569

3 Claims



1. In a refrigerant compressor having a piston and cylinder bore separated from a refrigerant cavity by a valve plate having a port therethrough and with a pressure differential existing across said valve plate, and in which reverse flow across said port is prevented by an elongated, cantilevered reed valve element located on cavity side of said valve plate that passively opens and closes said port by bending resiliently away from a surface of said valve plate and back about a hinge point that is offset from said port, the improvement comprising:

a channel recessed below the surface of said valve plate and extending from said port toward said reed valve hinge point, generally coextensive with said reed valve element, and inter-

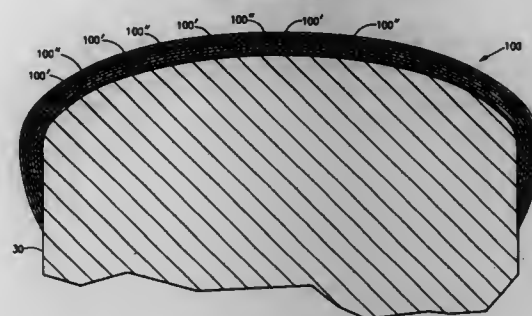
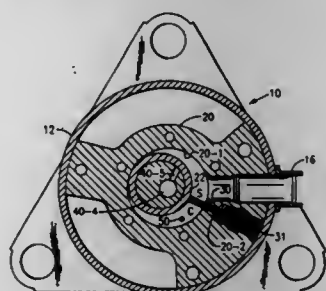
secting the edge of said port, whereby the resistance to flow across said port is reduced and the effective opening height of said reed valve element is effectively increased, creating a more efficient flow through said port.

5,672,054
ROTARY COMPRESSOR WITH REDUCED LUBRICATION SENSITIVITY

Clark V. Cooper, Glastonbury, Conn.; Paul J. Bushnell, Syracuse, and Martin M. Mertell, East Syracuse, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.
Filed Dec. 7, 1995, Ser. No. 568,788
Int. Cl.⁶ F04C 18/356

U.S. Cl. 418—63

7 Claims

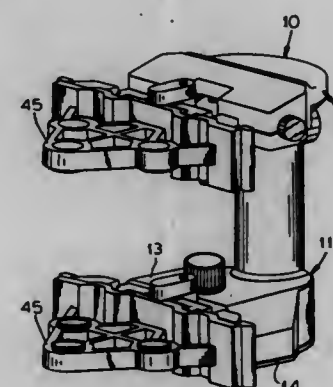


1. A high side rotary compressor for compressing HFC refrigerant which is lubricated by polyol ester oil lubricant comprising: shell means having a first end and a second end; cylinder means containing pump means including a vane and a piston coacting with said cylinder means to define suction and compression chambers; said cylinder means being fixedly located in said shell means near said first end and defining with said first end a first chamber which has an oil sump containing said oil lubricant; first bearing means secured to said cylinder means and extending towards said oil sump; second bearing means secured to said cylinder means and extending towards said second end; motor means including rotor means and stator means; said stator means fixedly located in said shell means between said cylinder means and said second end and axially spaced from said cylinder means and said second bearing means; eccentric shaft means supported by said first and second bearing means and including eccentric means operatively connected to said piston; said rotor means secured to said shaft means so as to be integral therewith and located within said stator so as to define therewith an annular gap; suction means for supplying gas to said pump means; discharge means fluidly connected to said shell means; said vane having a tip coacting with said piston; said tip having a diamond-like-carbon coating thereon made up of a series of alternating hard and lubricious layers whereby the coefficient of friction between said tip and piston is reduced and said tip has reduced wear even in the absence of sufficient oil lubricant as compared to a tip without said diamond-like-coating.

5,672,055
DENTAL ARTICULATOR AND METHOD
Ioannis Koutavas, 5-9 Vaphelochoriou Street, GR-114 76 Athens, Greece
Division of Ser. No. 331,937, Oct. 31, 1994, Pat. No. 5,531,595, which is a continuation-in-part of Ser. No. 50,070, Apr. 27, 1993, Pat. No. 5,380,199. This application Jan. 3, 1996, Ser. No. 582,387
Claims priority, application Greece, Jul. 17, 1991, 910100316
Int. Cl.⁶ A61C 11/00

U.S. Cl. 433—60

2 Claims



1. A method of determining positioning of a lower jaw cast and an upper jaw cast with a dental articulator, the method comprising the steps of:

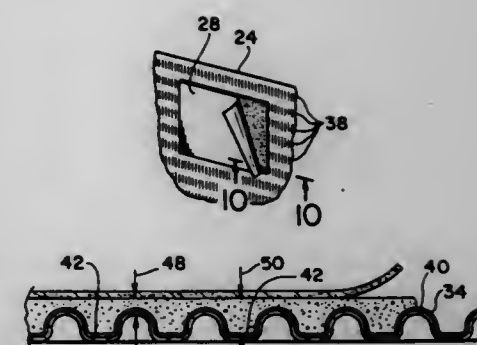
- casting into a lower jaw cast a tongue of a disposable preformed lower plastic holder having a plurality of formations along a plate of the holder from which the tongue projects;
- casting an upper jaw cast with an upwardly and rearwardly open recess;
- mounting the lower jaw cast upon a lower metal bracket bar of a dental articulator by sliding the plate of the lower holder over mating formations on the lower metal bracket bar;
- mounting on an upper metal bracket bar of the dental articulator a disposable preformed upper plastic holder having a plurality of formations along a plate of the upper holder from which another tongue projects;
- positioning the upper jaw cast above the lower jaw cast and in alignment therewith while receiving the other tongue in the recess;
- thereafter filling the recess with a hardenable material to embed the other tongue therein and hardening the material to anchor the upper jaw cast to the upper holder and
- shifting a head of the dental articulator carrying the upper metal bracket bar vertically relative to a base of the dental articulator carrying the lower bracket bar, and locking the head in an adjusted vertical position;
- tilting the upper metal bracket bar about a horizontal axis relative to the head; and
- swinging the upper metal bracket bar about an axis perpendicular to the horizontal axis and against a spring force.

5,672,056
EMBOSSED DENTAL BIB WITH REDUCED-SIZE ADHESIVE MEANS
Sheldon Fisher, 10715 Springdale Ave., Sante Fe Springs, Calif. 90670; Paul Allen Orofino, and Richard Allen Orofino, both of 10 Ranick Rd., Hauppauge, N.Y. 11788
Filed Jun. 3, 1996, Ser. No. 657,348
Int. Cl.⁶ A41D 13/00; A41B 13/10

U.S. Cl. 433—137

1 Claim

1. Improvements for a dental bib with adhesive means thereon for adhesive attachment to a patient, said improvements comprising a rectangular two-ply bib construction of a water impervious plastic outwardly facing ply and a pulp tissue inwardly facing ply,



an embossment pattern embodied in said two ply construction consisting of alternately spaced apart horizontally oriented raised surfaces bounding therebetween correspondingly alternately spaced apart horizontally oriented recesses, and in each upper left and right corner of said bib pulp tissue ply a rectangularly shaped site for an adhesive not exceeding one inch in length and three quarters of an inch in width, a deposit of adhesive in an amount filling said recesses at said adhesive site and of an excess amount forming a layer in covering relation over said raised surfaces, whereby each said rectangularly shaped adhesive site is effective for establishing an adhesive attachment to said patient due to the availability of said adhesive from said recesses.

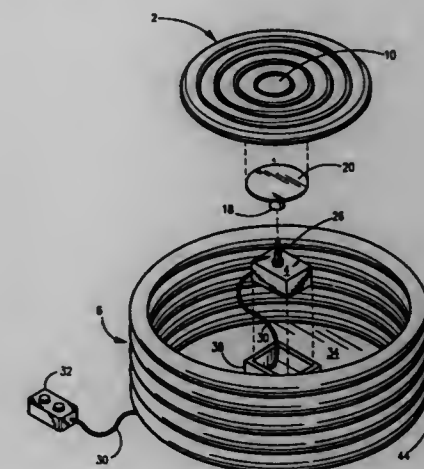
5,672,057
SPIN ART DEVICE HAVING INFLATABLE COMPONENTS

Robert W. Engel, 548 N. Hollyburne La., Thousand Oaks, Calif. 91360

Filed Sep. 20, 1996, Ser. No. 717,065
Int. Cl.⁶ G09B 11/00; B05C 11/08

U.S. Cl. 434—84

4 Claims



1. A spin art device comprising: a splash container having closed sides and bottom and an open top, said splash container comprising a floor and an inflatable peripheral sidewall extending generally upwardly therefrom; an electrical motor having an upwardly projecting shaft, said motor being positioned on said floor generally centrally within said splash container; an inflatable platen having a substantially horizontal upper surface for supporting thereon a workpiece for decoration, and; means for mounting said platen to said shaft of said motor such that said platen rotates with said shaft.

5,672,058

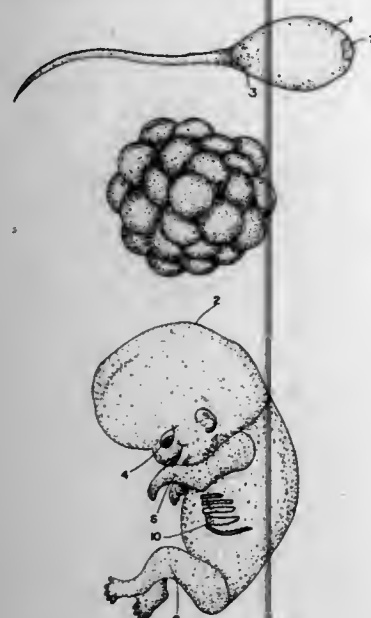
HUMAN PRE-NATAL DEVELOPMENT DOLLS

Jeffrey L. Casement, P.O. Box 903, La Veta, Colo. 81055, and
Lisa E. Malloy, 2128 C. Ravenglass Pl., Raleigh, N.C. 27612
Continuation-in-part of Ser. No. 352,873, Dec. 12, 1994, abandoned. This application Jul. 1, 1996, Ser. No. 674,132

Int. Cl.⁶ G09B 23/28

U.S. Cl. 434—267

18 Claims



1. A set of dolls for play or educational purposes, comprising a plurality of dolls comprising at least one doll for portraying a human gamete or at least one doll for portraying a human zygote, and at least one doll for portraying a human embryo, each of said plurality of dolls having a differing exterior appearance from others of said plurality of dolls, having differing exterior appearances sufficient to portray a human pre-natal development sequence from gamete stage prior to fertilization through progressively different states of development during human pregnancy at a set of points prior to full term.

5,672,059

ORTHOPAEDIC HUMAN SKELETAL DEMONSTRATION AIDS

Oliver Browne-Wilkinson, 34 Newburgh Road, London W3 6DQ, England

Filed Mar. 18, 1996, Ser. No. 617,169

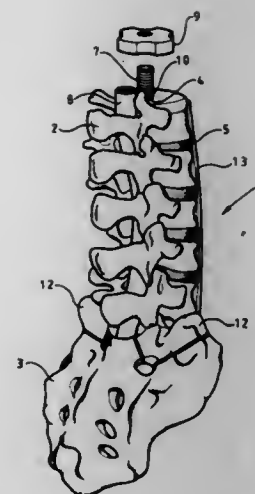
Claims priority, application United Kingdom, Mar. 20, 1995, 9505578; Jan. 18, 1996, 9601003

Int. Cl.⁶ G09B 23/28

U.S. Cl. 434—274

14 Claims

1. An orthopaedic human skeletal demonstration aid for demonstrating surgical orthopaedic techniques, the aid consisting of a facsimile of at least part of a human vertebral column including a plurality of vertebral elements simulating the external appearance of human vertebrae, and a plurality of intervertebral disk elements disposed intermediate the vertebral elements, the vertebral elements and intervertebral disk elements being provided with central apertures and being releasably secured together by an elongate flexible element extending through the apertures, wherein said aid may be flexed without returning to an original shape.



5,672,060

APPARATUS AND METHOD FOR SCORING NONOBJECTIVE ASSESSMENT MATERIALS THROUGH THE APPLICATION AND USE OF CAPTURED IMAGES

David D. S. Poor, Meadowbrook, Pa., assignor to Meadowbrook Industries, Ltd., Delran, N.J.

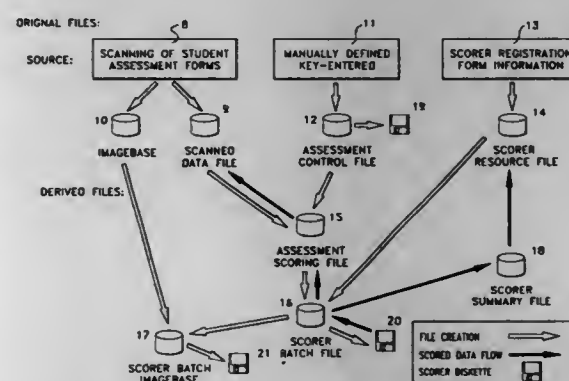
Continuation of Ser. No. 911,663, Jul. 8, 1992, abandoned.

This application Nov. 28, 1994, Ser. No. 345,214

Int. Cl.⁶ G06K 9/00; 9/60

U.S. Cl. 434—322

25 Claims



1. A method of electronically displaying to a human scorer an image of handwritten nonobjective assessment materials recorded by a test taker in an assessment area of an assessment form, and recording a score entered by the scorer, comprising the steps of: providing an assessment form having thereon at least one assessment area; recording in an electronic file information identifying the test taker; recording in an electronic file information identifying the assessment form; capturing from the assessment form a digitized image of said assessment materials recorded in the at least one assessment area; storing said digitized image in an electronic image file; recording in an electronic file information to locate said stored image of said assessment materials; selectively displaying electronically said stored image of said assessment materials but not said information identifying the test taker on a computer screen for scoring by the scorer; and recording in an electronic file a score entered by the scorer for the stored digitized image of the assessment materials.

5,672,061

Patent Not Issued For This Number

5,672,062

ELECTRICAL CONNECTORS

Richard Jay Lindeman, Rancho Viejo, Tex., assignor to Labinal Components and Systems, Inc., Bensenville, Ill.

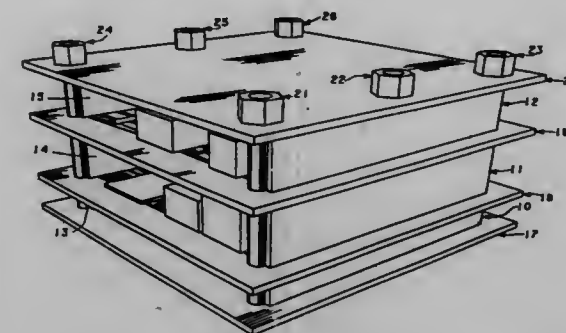
Continuation of Ser. No. 647,865, Jan. 30, 1991, abandoned.

This application May 11, 1994, Ser. No. 241,663

Int. Cl.⁶ H01R 9/09

U.S. Cl. 439—66

10 Claims



1. A method of providing connections between conductors of a plurality of stacked circuit boards to provide paths for signal propagation between circuits on said boards having a certain characteristic impedance, the steps of providing for installation between each board and a board adjacent thereto a connector including support means arranged to receive and support compressively resilient and electrically conductive signal-propagating interconnect means for pressure engagement of opposite ends of the signal-propagating interconnect means with conductive pads of the circuit boards, providing such signal-propagating interconnect means in openings through said support means, providing ground conductor means in the support means having portions in adjacent relation to the signal-propagating interconnect means, providing ground connection means for connecting the ground conductor means to ground conductors of interconnected circuit board circuits, providing insulating means of dielectric material included in the support means for supporting the signal-propagating interconnect means within the openings therein and in electrically insulated relation to adjacent portions of the ground conductor means, and providing configuration and characteristics of the ground conductor means and the insulating means in relation to each signal-propagating interconnect means such as to obtain a certain characteristic impedance which matches the characteristic impedances of the circuits of the circuit boards interconnected by each signal-propagating interconnect means.

5,672,063

Patent Not Issued For This Number

5,672,064

STIFFENER FOR ELECTRICAL CONNECTOR

Daniel B. Provencher, Weare, N.H.; Philip T. Stokoe, Attleboro, Mass., and David M. McNamara, Amherst, N.H., assignors to Teradyne, Inc., Boston, Mass.

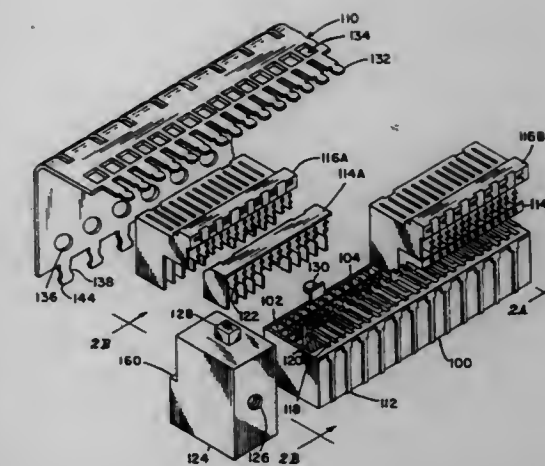
Filed Dec. 21, 1995, Ser. No. 576,028

Int. Cl.⁶ H01R 9/09

U.S. Cl. 439—79

9 Claims

1. A modular connector assembly comprising:



a) a stiffener having a first surface and a second surface at a right angle with the first surface, the first surface having a first plurality of holes therethrough formed at evenly spaced intervals and the second surface including a plurality of projections formed at evenly spaced intervals; and
b) a modular connector element comprising:
i) an insulative housing having at least one hub extending therefrom in a first direction, the hub extending into one of the first plurality of holes in the first surface of the stiffener;
ii) a plurality of slots having openings facing the first direction, with at least some of the plurality of projections from the second surface of the stiffener extending into the slots; and
iii) a plurality of signal contacts running through the insulative housing.

5,672,065

GROUND ROD CONNECTING DEVICE

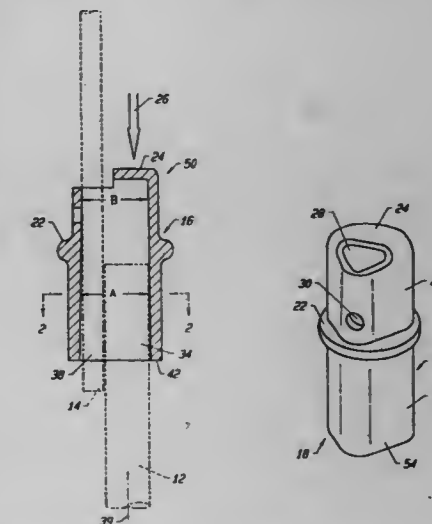
Robert R. Womack, 15864 Ridge Rd., Sutter Creek, Calif. 95685

Filed Apr. 22, 1996, Ser. No. 635,585

Int. Cl.⁶ H01R 4/66

U.S. Cl. 439—100

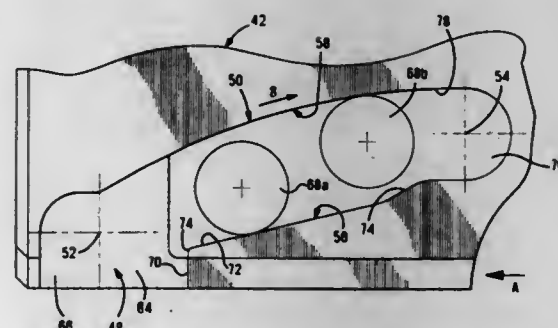
5 Claims



1. A device for connecting a ground rod to an electrical conductor comprising:
a. a unitary sleeve having a first open chamber for accommodating the ground rod, and a second open chamber for accommodating an electrical conductor, said first and second open chambers each including a mouth, said mouth of said first open chamber facing said mouth of said second open chamber.

ber, said unitary sleeve further including an edge portion having an impact surface said sleeve being constructed of a material possessing greater flexibility than the ground rod and electrical conductor;

b. contacting means for urging the ground rod into engagement with the electrical conductor upon the application of a force to said impact surface of said unitary sleeve, said contacting means comprising said first and second open chambers each including a transverse dimension and a dimension extending orthogonally relative to said transverse dimension, the sum of said transverse dimensions of said first and second open chambers tapering along said dimension extending orthogonally relative to said transverse dimension.

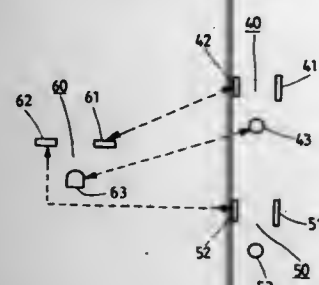


ment effecting de-mating displacement, the camming lug is driven along a second camming surface where the second camming surface is a curved path profiled to provide the least de-mating displacement at the start of the de-mating linear movement of the camming slide.

5,672,066
ELECTRIC TRANSFORMER
Peter Yeung, 4251, Francis St., Vancouver B.C., Canada
Filed Jan. 16, 1996, Ser. No. 587,022
Int. Cl.⁶ H01R 13/652

U.S. Cl. 439—107

2 Claims



1. An electrical transformer having a housing with a receiving space therein, said housing comprising a back plate provided with an upper set of prongs and a lower set of prongs, said upper set of prongs having a first prong, a second prong and a first ground prong, said lower set of prongs having a third prong, a fourth prong and a second ground prong, said housing further comprising a front plate provided with a first set of inlets having a first inlet, a second inlet and a ground inlet, said first inlet being electrically connected with said second prong of said upper set of prongs, said second inlet being electrically connected with said fourth prong of said lower set of prongs and said ground inlet being electrically connected with said first ground prong of said upper set of prongs.

5,672,067
ELECTRICAL CONNECTOR HAVING A MATING SLIDE WITH CUSTOMIZED CAMMING SLOT
Jürgen Ryll, Egelsbach, and Michael Schwäger, Mörfelden, both of Germany, assignors to The Whitaker Corporation, Wilmington, Del.

Filed Dec. 20, 1995, Ser. No. 580,003
Claims priority, application United Kingdom, Jan. 10, 1995, 9500374

Int. Cl.⁶ H01R 13/62
U.S. Cl. 439—157

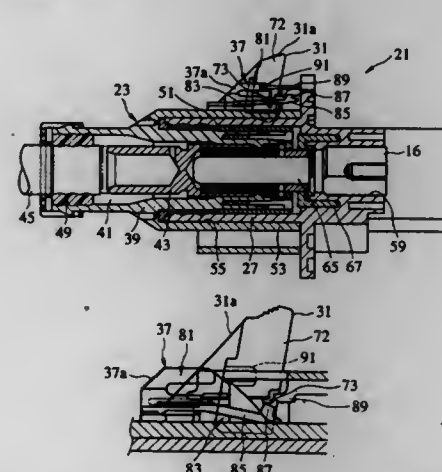
7 Claims

1. An electrical connector for mating with a mating connector, wherein the electrical connector comprises a camming slide incorporated therein that cooperates with the mating connector to draw the connectors together, wherein response to mating displacement of the camming slide that is a linear movement transverse to the mating displacement, a camming lug is driven within a camming slot and in response to de-mating displacement of the camming slide that is a linear movement opposite the linear movement for mating the camming lug is driven oppositely within the camming slot, where in response to the linear movement of the camming slide effecting the mating displacement, the camming lug is driven along a first camming surface and in response to the linear move-

5,672,068
LEVER-JOINT TYPE CONNECTING STRUCTURE
Shinichi Tsuchiya, and Shigeo Mori, both of Shizuoka-ken, Japan, assignors to Yazaki Corporation, Tokyo, Japan
Filed Mar. 1, 1996, Ser. No. 609,243
Claims priority, application Japan, Mar. 3, 1995, 7-043852
Int. Cl.⁶ H01R 13/62

U.S. Cl. 439—157

14 Claims



1. A lever-joint type connecting structure, comprising:
a male connector having a first housing provided with a first terminal accommodating chamber in which a female terminal is accommodated;
a female connector having a fitting hood part for fitting said male connector therein and a second housing formed integral with said fitting hood part, said second housing having a terminal accommodating chamber in which a male terminal for engagement with said female terminal is accommodated;
a joint lever rotatably attached to one of said male connector and said female connector, said joint lever having arc guide grooves formed so as to extend along a rotating direction of said joint lever;
projections formed on the other of said male connector and said female connector, said projections being adapted for insertion into said guide grooves, respectively, by a rotation of said joint lever so as to fit said male connector into said female connector; and
fit detecting member means for detecting a fitting condition between said male connector and said female connector, said fit detecting member means being arranged on one of said male connector and said female connector so as to be engaged

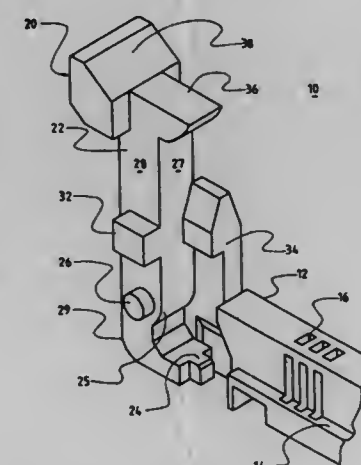
able therewith both in a temporary engagement position and in a formal engagement position thereof;
wherein, in fitting said male connector into said female connector, said fit detecting member means is released from an engaged condition in the temporary engagement position by a rotation of said joint lever; and
wherein, when said fit detecting member means is in the formal engagement position, said fit detecting member means operates to prevent said joint lever from being rotated.

5,672,069
CONNECTOR WITH EJECTOR
Lee-Ming Cheng, Cupertino; Caesar Chen, Fountain Valley, both of Calif.; Gwon-Jung Tseng, Tu-Chen; Tsun Shen Shao, Pan-Chao, both of Taiwan, and Edmond Choy, Union City, Calif., assignors to Hon Hai Precision Ind. Co., Ltd., Taipei, Taiwan

Continuation-in-part of Ser. No. 558,967, Nov. 13, 1995, Pat. No. 5,558,528. This application Jul. 1, 1996, Ser. No. 673,070
Int. Cl.⁶ H01R 13/62

U.S. Cl. 439—160

11 Claims

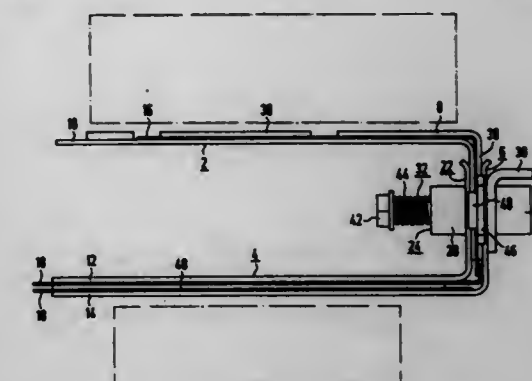


1. A card edge connector comprising:
an insulative elongated housing defining a central slot for receiving a card therein;
a plurality of passageways positioned on two sides of the slot for receiving a corresponding number of contacts therein;
a pair of cavities formed on two opposite ends of the housing, at least one of said cavities receiving an ejector therein;
a pair of retention bars positioned adjacent each of the cavities;
at least one ejector including a tall main body having a kicker section extending horizontally toward the central slot at a bottom portion thereof and a locking peg extending horizontally toward the central slot, opposite to the kicker section in a vertical direction, at a top portion of the main body, wherein said ejector further includes a pair of stopper blocks laterally extending from two side surfaces of the main body, and each stopper block is substantially always located outside said cavity whenever the locking peg of said ejector either locks or unlocks the card.

5,672,070
PLUG CONNECTION FOR TWO PAIRS OF BUSBARS
Rudolf Weiss, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, München, Germany
PCT No. PCT/DE94/00136, § 371 Date Aug. 23, 1995, § 102(e) Date Aug. 23, 1995, PCT Pub. No. WO94/19845, PCT Pub. Date Sep. 1, 1994
PCT Filed Feb. 10, 1994, Ser. No. 507,484
Claims priority, application Germany, Feb. 23, 1993, 9302586 U

Int. Cl.⁶ H01R 4/60
U.S. Cl. 439—213

11 Claims

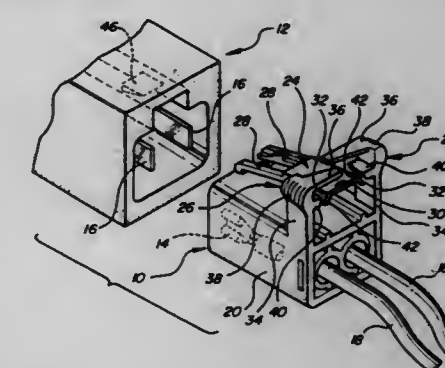


1. A plug connection for busbars comprising:
a first busbar pair having an end formed as a plug;
a second busbar pair having an end formed as a socket for receiving the plug; and
a clamping device for providing an adjustable clamping force on the socket, wherein the clamping device includes two clamping members, an insulating member and at least two tension members.

5,672,071
ELECTRICAL CONNECTOR WITH GUARDED LATCH
Scott Joseph Ceru, Farmington Hills, Mich., assignor to Yazaki Corporation, Tokyo, Japan
Filed Dec. 18, 1995, Ser. No. 574,075
Int. Cl.⁶ H01R 13/627

U.S. Cl. 437—353

12 Claims



1. An electrical connector including a body and latching means attached to the body, the latching means movable from a latched position to an unlatched position by application of a release force to the latching means, the electrical connector characterized in that: first and second discrete latch guards are disposed on the body and have an undeflected condition wherein they substantially encircle the latching means to thereby obstruct contact with the latching means, the first and second latch guards comprising respective first and second discrete side guards extending from the body on respective first and second opposite sides of the latching means and respective first and second discrete top

guards extending from the first and second side guards and substantially toward one another into proximity with the latching means, the first and second side guards being urged from the undeflected condition toward one another to a release condition and at least one of the side guards including projecting means for contacting the latching means to apply the release force thereto when the side guards are urged to the release condition to thereby apply the release force to the latching means.

5,672,072

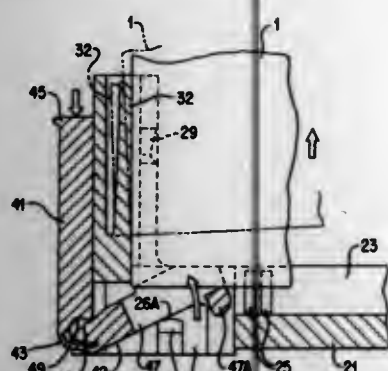
CIRCUIT BOARD ELECTRICAL CONNECTOR

Tatsuya Arai, and Yutaka Ichimura, both of Tokyo, Japan, assignors to Hirose Electric Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 355,172, Dec. 8, 1994, abandoned.
This application Aug. 13, 1996, Ser. No. 695,953
Claims priority, application Japan, Dec. 16, 1993, 5-072337 U

U.S. Cl. 439—377

Int. Cl.⁶ H01R 3/64

5 Claims



1. A circuit board electrical connector comprising:
 - a holding section;
 - a receiving recess provided in said holding section for receiving an edge portion of a circuit board;
 - a pair of guiding arms extending upwardly from opposite ends of said holding section and each having a C-shaped cross-section to provide a hollow cavity therein and define a pair of receiving slots to receive opposite side portions of said circuit board for guiding said circuit board in a direction of thickness of said circuit board; and
 - a pair of guide plates each extending upwardly from a base to a top of said guiding arms within said hollow cavity and having an elastic property for making sliding contact with opposite side faces of said circuit board to guide said circuit board in a widthwise direction of said circuit board.

5,672,073

CONNECTOR HAVING ENGAGEMENT DETECTING DEVICE

Norio Matsumura; Sakai Yagi; Masanori Tsuji; Keishi Jinno, all of Shizuoka-ken, and Takahito Yoneda, Isehara, all of Japan, assignors to Yazaki Corporation, Tokyo, and Nissan Motor Co., Ltd., Yokohama, both of Japan
Continuation-in-part of Ser. No. 429,881, Apr. 27, 1995, Pat. No. 5,618,201. This application Jun. 13, 1996, Ser. No. 663,534

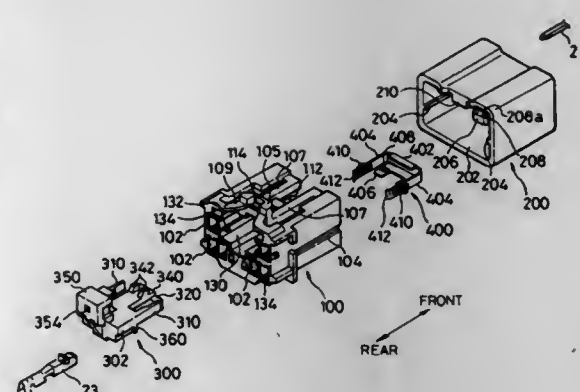
Claims priority, application Japan, Jun. 14, 1994, 6-131765; Jun. 13, 1995, 7-146509

U.S. Cl. 439—489

Int. Cl.⁶ H01R 39/00

9 Claims

1. A connector having an engagement detecting device, comprising:



- a first connector housing (100) for housing a plurality of first connector terminals (23);
- a second connector housing (200) for housing a plurality of second connector terminals (21) mated with the first connector terminals, and engaged with said first connector housing;
- a slider (300, 300A) inserted into said first connector housing in two stages of a half engagement position and a full engagement position; and
- a short-circuit spring (400) disposed within said first connector housing, for shorting electrically two adjacent mated connector terminals (23, 21) when said slider is inserted into said first connector housing to the half engagement position, but disconnecting electrically the same two adjacent mated connector terminals when said second connector housing (200) is engaged with said first connector housing (100) and thereafter said slider is further inserted into said first connector housing from the half engagement position to the full engagement position.

5,672,074

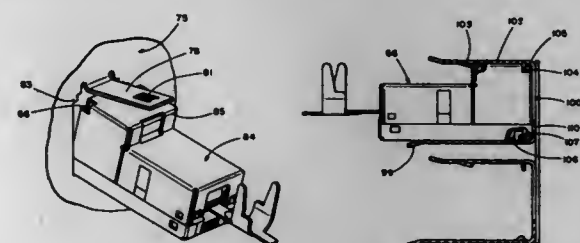
CONNECTOR MOUNTING RECEPTACLES

Dale A. Block, Schererville, Ind.; Karl E. Falkstrom, Arlington Heights, Ill.; Kris B. Lindley, Mokena, Ill., and Michael J. McGrath, Homewood, Ill., assignors to Panduit Corp., Tinley Park, Ill.

Filed Jun. 22, 1995, Ser. No. 493,439
Int. Cl.⁶ H01R 13/60

U.S. Cl. 439—540.1

7 Claims



1. A receptacle assembly, comprising:
 - a connector mounting receptacle having an aperture with spaced apart first and second edges for receiving and mounting a connector, including a resilient connector engaging latch formed adjacent the first edge, a connector engaging tooth formed adjacent the second edge and spaced apart lateral stops formed adjacent the latch in lateral corners of the aperture; and
 - a connector having a slot means formed adjacent a first edge of a front face of the connector for engaging the tooth formed on the second edge of the aperture and spaced apart corner slots formed in adjacent corners of the front face of the connector, inset from the front face of the connector and disposed to receive and engage the lateral stops of the connector mounting receptacle when the connector is latched to the receptacle.

5,672,075

ROUND TERMINAL-RECEIVING CONNECTOR

Toshiro Maejima, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

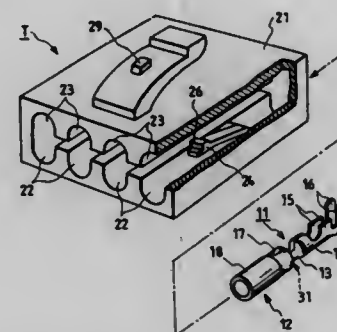
Filed Jul. 28, 1995, Ser. No. 508,691

Claims priority, application Japan, Aug. 4, 1994, 6-183616

Int. Cl.⁶ H01R 13/40

U.S. Cl. 439—595

6 Claims



1. A connector, comprising:
 - a connector housing;
 - a terminal insertion hole formed in said connector housing;
 - a retaining member disposed in said terminal insertion hole;
 - a terminal including a wire connecting portion for clamping a wire thereto and a terminal connecting portion for mating with another terminal, said terminal being received into said terminal insertion hole;
 - a neck portion formed between said wire connecting portion and said terminal connecting portion;
 - a step portion defined by a wall traversing the difference in diameter between said terminal connecting portion and said neck portion;
 - a cavity formed along said wall; and
 - an extruding portion formed at a distal end of said retaining member and shaped so as to closely fit into said cavity, wherein said extruding portion retains said terminal inside said insertion hole, and wherein when a pulling force in a withdrawing direction is exerted on said terminal, said extruding portion enters said cavity to be locked therewith.

5,672,076

SHIELDED CONNECTOR

Shigemitsu Inaba, and Hisaharu Katoh, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan
Continuation of Ser. No. 383,226, Feb. 3, 1995, abandoned.

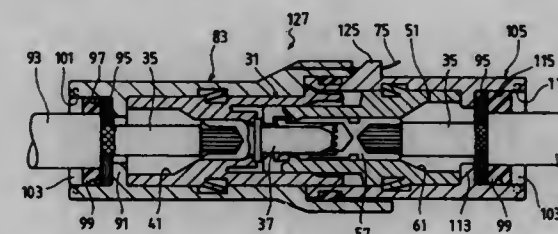
This application Jan. 16, 1997, Ser. No. 784,311

Claims priority, application Japan, Feb. 3, 1994, 6-011769

Int. Cl.⁶ H01R 9/03

U.S. Cl. 439—610

4 Claims



1. A shielded connector which can be connected in an unshielded state, said connector comprising:
 - a female inner connector and a male inner connector which accommodate terminals;
 - a female outer housing which is electrically conductive and comprises means for connecting a shielding braid of a

shielded cable, whose core wires are connected to the terminals of said female inner connector, to said female outer housing;

a male outer housing which is electrically conductive and comprises means for connecting another shielding braid of another shielded cable, whose core wires are connected to the terminals of said male inner connector, to said male outer housing; and

electrically conductive fixing means for fixedly coupling said male outer housing to said female outer housing so that said male outer housing is electrically connected to said female outer housing and for fixedly coupling said male inner connector to said female inner connector in an unshielded state in which said male and female inner connectors are connected to each other without also fixedly coupling said male and female outer housings.

5,672,077

LIGHT BULB SOCKET STRUCTURE HAVING A WATERTIGHT FEATURE

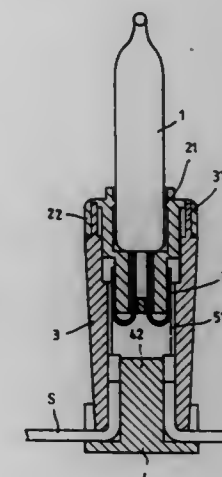
Shou Jing Wang, 8-2, Pai Tea Fen, 1 Ling, Pai Tea Li, and Sheng Yea Tai, 2F, No. 2, Lane 86, Hsin Kang Street, both of Chupei City, Hsinchu Hsien, Taiwan

Filed Dec. 26, 1995, Ser. No. 577,005

Int. Cl.⁶ H01R 17/00

U.S. Cl. 439—619

3 Claims



1. A light bulb socket structure having a waterproof feature, comprising a light bulb, a light bulb holder, a light bulb seat, and a watertight end cap, wherein said light bulb holder is coaxially provided with a hole around which there is provided an annular flange on a top portion of said holder, said annular flange being dimensioned to closely embrace an outer periphery of said light bulb for a watertight effect and has an elastic skirt around an outer periphery of said light bulb holder;

said light bulb seat being provided on a top portion thereof with an engaging shoulder that allows said light bulb holder to be assembled thereon with said engaging shoulder abutting against an underside portion of said skirt to produce a watertight joint and is further provided with a groove on each of two opposite sides of a lower portion thereof; and,

said watertight end cap being capable of receiving the lower portion of said light bulb seat and also has a groove formed on each of two opposite sides thereof corresponding to said grooves on said light bulb seat to provide a passage way for electrical wires to extend therethrough, said end cap having a central portion formed with a joining seat which protrudes into an interior space of said light bulb seat as said end cap is attached to said light bulb seat to secure the electrical wires in position and to achieve a watertight effect.

5,672,078

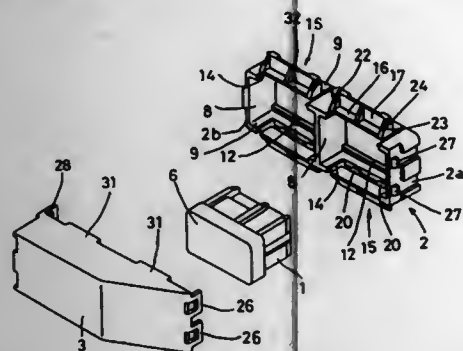
CONNECTOR

Makoto Fukamachi, and Hajime Kawase, both of Yokkaichi, Japan, assignors to Sumitomo Wiring Systems, Ltd., Japan
Filed Aug. 2, 1995, Ser. No. 510,492

Claims priority, application Japan, Aug. 22, 1994, 6-221033; Aug. 25, 1994, 6-225959

Int. Cl.⁶ H01R 13/502
U.S. Cl. 439-701

13 Claims



1. An electrical connector assembly comprising a frame defining at least one aperture, an electrical connector removably received within an aperture of the frame and having a lead protruding from the rear thereof, and a removable cover for the frame, said cover being engageable with and coextensive with said frame to cover said lead, said frame and connector including respective abutment surfaces to limit insertion of said connector in the aperture, said assembly further including a clamping member integral with the frame and engageable with said connector to retain said connector in the frame, and said cover being further engageable with said clamping member in the closed condition and adapted to prevent movement of said clamping member from the closed condition to the open condition.

5,672,079

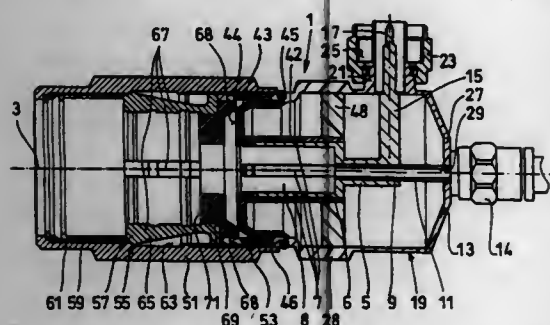
COAXIAL CONNECTOR FOR MANUFACTURING A COAXIAL HIGH FREQUENCY CABLE

Hans-Detlef Leppert, and Karl Schulze-Buxloh, both of Mönchengladbach, Germany, assignors to Alcatel Kabel AG & Co., Germany

Filed Sep. 26, 1995, Ser. No. 534,968
Claims priority, application Germany, Oct. 12, 1994, 44 36 342.7

Int. Cl.⁶ H01R 9/05
U.S. Cl. 439-578

5 Claims



1. A coaxial connector for a coaxial high frequency cable having an external conductor which concentrically surrounds and is spaced from a tubular internal conductor having at least one optical waveguiding element therein, the coaxial connector comprising:
(a) an internal contact part concentric with a longitudinal axis of the coaxial connector and adapted to establish electrical contact with the internal conductor of the coaxial high frequency cable, the internal contact part defining a passage hole con-

centric with the longitudinal axis of the coaxial connector and through which the at least one optical wave guiding element located in the tubular internal conductor of the high frequency cable can exit from the coaxial connector;

- (b) a plug-in element electrically connected to the internal contact part and positioned at an angle with respect to the longitudinal axis of the coaxial connector; and
(c) a ferrule terminal adapted to be electrically connected to the external conductor of the high frequency cable and at least partially surrounding the plug-in element with a space therebetween.

5,672,080

WATER BICYCLE

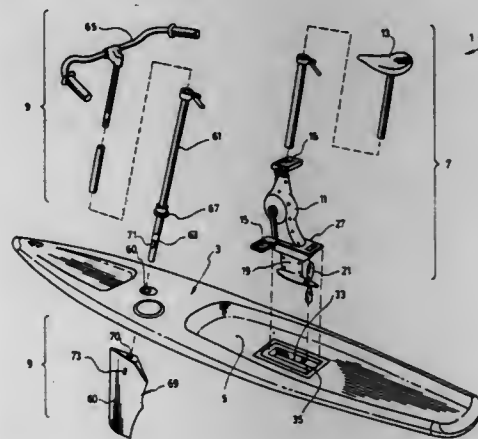
André Gauthier, Sherbrooke, Canada, assignor to Surfbike Products Inc., Sherbrooke, Canada

Filed Oct. 8, 1996, Ser. No. 728,265

Int. Cl.⁶ B63H 16/20

U.S. Cl. 440-27

7 Claims



1. In a water bicycle comprising:
an elongated floatation board having a bow, a central portion and a stern;
a propulsion and seat unit including an upper body portion, a seat fixed on top of said upper body portion, foot pedals connected to a crank gear fixed into said upper body portion below the seat for use by a person sitting on said seat, a lower body portion, a propeller operatively mounted onto the lower body portion, coupling means for operatively connecting the crank-gear to the propeller, and positioning means including a mounting flange protecting outwardly from the unit between the upper and lower body portions thereof;
means defining an opening in the central portion of the board through which the lower body portion and propeller may pass, said opening being sized to snugly receive said positioning means and including a recess defining a surrounding edge surface on top of the board, which is sized to receive the mounting flange of said positioning means;
means for releasably connecting the propulsion and seat unit to the board after insertion of said positioning means within the opening made in said board;
a steering unit including a vertical shaft having a top end and a bottom end, a handle bar extending transversally on top of the shaft, a retaining ring radially projecting from said shaft at a distance from its bottom end, a rudder, and means for releasably connecting the rudder to the bottom end of the shaft; and
means defining a bore in the central portion of the board at a distance forwards from the opening, said bore being sized to receive the bottom end of the shaft which is rotatably retained therein by means of the retaining ring;
the improvement wherein:
the rudder comprises a fixation hole for receiving the bottom end of the shaft;

5,672,082

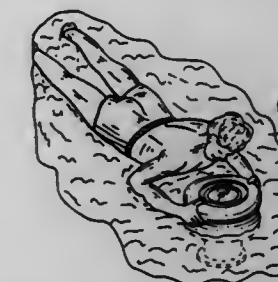
FLOATING UNDERWATER VIEWING DEVICE

Emanuel Binder, 33 Steven Dr., Englewood Cliffs, N.J. 07632
Filed Jun. 28, 1996, Ser. No. 672,690

Int. Cl.⁶ B63C 11/00

U.S. Cl. 441-135

5 Claims



the means for releasable connecting the rudder to the bottom end of said shaft includes a resilient locking tab radially projecting from the shaft close to the bottom end of the shaft and a transversal through-hole which is made in the rudder so as to intersect the fixation hole and in which the locking tab gets snapped and may be released upon application of an external pressure;
the positioning means of the propulsion and seat unit has a pair of opposite sides; and
the means for releasable connecting the propulsion and seat unit to the board includes:
a rigid tab forming part of said means defining an opening, said rigid tab being positioned and sized to retain the flange of the propulsion and seat unit onto the surrounding edge surface adjacent one of said opposite sides of the positioning means;
another resilient locking tab located at the other opposite side of the positioning means for snapping said other opposite side to the means defining an opening after full insertion of the positioning means within said opening and positioning of the flange within the recess defining the surrounding edge mounting surface; and
an access opening provided adjacent to the other opposite end of the positioning means to give access to the resilient locking tab and allow release of the same
whereby, in use, connection of said rudder to said shaft is easy to carry out after the bottom end of said shaft has been inserted into the bore in the board and connection of said propulsion and seat unit to the board is very quick and easy to carry out.

5,672,081

SURF FIN FIXING SYSTEM

Brian Alan Whitty, Elanora, Australia, assignor to Fin Control Systems Pty. Limited, Mona Vale, Australia

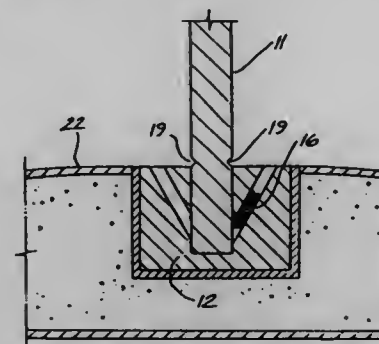
Continuation of Ser. No. 273,743, Jul. 12, 1994, Pat. No. 5,464,359, which is a continuation-in-part of Ser. No. 25,656, Mar. 3, 1993, Pat. No. 5,328,397. This application Nov. 6, 1995, Ser. No. 554,554

Claims priority, application Australia, Mar. 9, 1992, PL6973; Nov. 2, 1992, PL5226

Int. Cl.⁶ B63B 1/00

U.S. Cl. 441-79

3 Claims



1. A surf craft including a body with a fixing element embedded therein, said fixing element being of material of greater strength than that of the surf craft body and having a fixing cavity therein, a fin attached to the surf craft, said fin having a pair of lateral surfaces and an end surface, the end surface of the fin abutting against the lower surface of the body in the region of said fixing element, the fin having a fixing formation extending from its end surface, said formation being engaged within the cavity of said fixing element by releasable means laterally engaging said formation, said surf craft body being covered by a skin of fibre-reinforced plastics, a cavity provided in said body between the inner end of said fixing element and the skin of the craft on the side of the craft opposite the fin, said cavity being filled with a hardenable material.

5,672,083

FABRICATION OF FLAT PANEL DEVICE HAVING BACKPLATE THAT INCLUDES CERAMIC LAYER

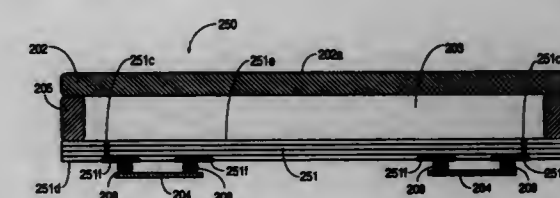
Christopher J. Curtin, Cupertino; Anthony P. Schmid, Solana Beach, and Paul A. Lovol, Saratoga, all of Calif., assignors to Candescant Technologies Corporation, San Jose, Calif.

Division of Ser. No. 81,913, Jun. 22, 1993. This application Jun. 7, 1995, Ser. No. 483,221

Int. Cl.⁶ H01J 9/26

U.S. Cl. 445-25

31 Claims



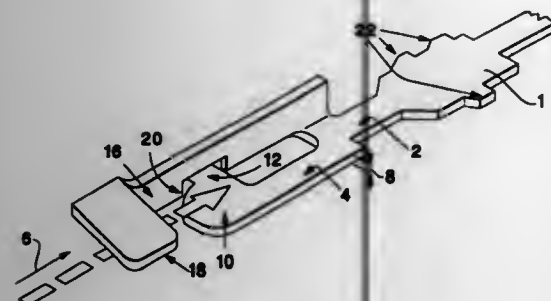
1. A method which comprises the following steps for manufacturing a flat panel device:
combining a plurality of layers, including a ceramic first layer, to form a laminated structure, the ceramic comprising zero shrinkage tolerance ceramic;
firing the laminated structure to convert the layers into an integral backplate substrate, at least part of which constitutes a backplate; and
fabricating a flat panel structure that comprises (a) the backplate, (b) a faceplate connected to the backplate to form a sealed enclosure, (c) means for producing light, and (d) means for controlling the light-producing means.

5,672,084
HIGH DENSITY CONNECTOR RECEPTACLE
 Steven Feldman, Huntingdon, Pa., assignor to Elco Corporation, Huntingdon, Pa.

Filed Mar. 29, 1995, Ser. No. 413,170
 Int. Cl.⁶ H01R 1/22

U.S. Cl. 439—852

16 Claims



1. An electrical socket contact which is connectable to a pin contact by insertion movement of the pin contact into said socket contact in an insertion direction, said socket contact comprising:
 - a body portion having elements for securing said socket contact in an opening in a receptacle housing so that said body portion is fixed in position in the receptacle;
 - a first beam having a proximal end cantilevered to said body portion and a distal end spaced a distance from said proximal end in a direction away from said body portion and parallel to the insertion direction;
 - a second beam having a proximal end cantilevered to said distal end of said first beam and a distal end spaced a distance from said proximal end of said second beam in a direction away from said first beam and parallel to the insertion direction;
 - a first contact element located at said distal end of said second beam;
 - a support arm having a proximal end secured to said proximal end of said second beam and a distal end spaced a distance from said proximal end of said second beam in a direction away from said first beam and parallel to the insertion direction; and
 - a second contact element located at said distal end of said support arm, wherein
- said first and second beams are both flexible in a first direction transverse to the insertion direction and during insertion of a contact pin into said socket, the pin moves the contact elements away from one another in the first direction, and said contact further comprises preloaded means coupling said second beam to said support arm for flexing said second beam when there is no contact pin in said contact socket.

5,672,085
METHODS OF MAKING AN IMPROVED X-RAY TUBE CATHODE CUP ASSEMBLY
 Bruce Alan Knudsen, Amsterdam, N.Y., and Clyde Leonard Briant, Barrington, R.I., assignors to General Electric Company, Schenectady, N.Y.

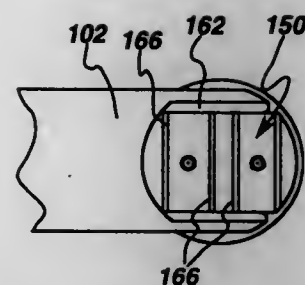
Division of Ser. No. 311,988, Sep. 26, 1994, Pat. No. 5,498,185.
 This application Nov. 13, 1995, Ser. No. 556,472

Int. Cl.⁶ H01J 9/18

U.S. Cl. 445—28

3 Claims

1. A method of making an insulator member for assembly in the cathode cup of an x-ray tube, the method comprising the steps of: placing a ceramic in a mold, the mold having means for forming apertures in the ceramic material; removing the ceramic from the mold; curing the ceramic;



inserting a filament holding tube into each aperture of the resulting cured ceramic; and
 operatively securing holding tabs to the ceramic, the holding tabs and the ceramic being connected by a metal to ceramic seal.

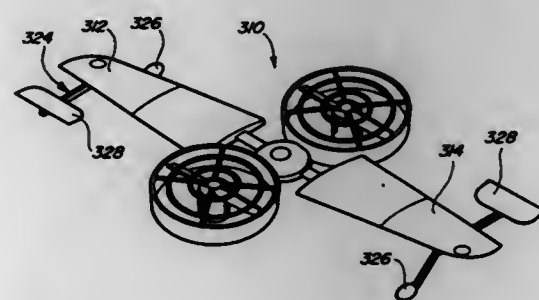
5,672,086
AIRCRAFT HAVING IMPROVED AUTO ROTATION AND METHOD FOR REMOTELY CONTROLLING SAME
 Don Dixon, 2282 Plumgrove, West Bloomfield, Mich. 48324

Continuation-in-part of Ser. No. 344,288, Nov. 23, 1994. This application Jun. 7, 1995, Ser. No. 486,956

Int. Cl.⁶ A63H 27/127; 27/00

U.S. Cl. 446—37

18 Claims



1. A toy aircraft consisting essentially of:
 - a main body portion including an extended central hub member having a plurality of wings equally spaced about a central axis of rotation extending therefrom;
 - said wings being pivotal about an axis for changing of the pitch angle in response to rotation of the wings;
 - a power source carried by the aircraft;
 - at least one means for controlling the flight of the aircraft selected from remotely controlling the aircraft by a remote control means or providing said aircraft with an on-board preprogrammed control means for controlling the aircraft;
 - at least one motorized propulsion unit interconnected with said power source; and
 - at least first and second propeller assemblies interconnected to and powered by said at least one motorized propulsion unit, said first and second propeller assemblies being driven for rotation in a normally horizontal plane where the propeller assemblies are mounted to adjacent ends of the extended hub member, said first and second propeller assemblies each including a plurality of blades;
- whereby rotation of the blades of said first and second propeller assemblies provides a primary source of lift to the aircraft directly from air displaced by said blades in a first direction and a secondary source of lift to the aircraft from the rotation of said blades in a second direction about said central axis of rotation.

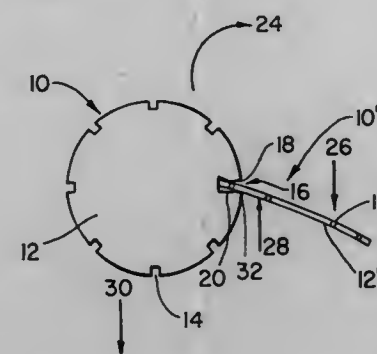
5,672,087
UTILITY MODEL OF LAUNCHABLE AND ASSEMBLEABLE PIECES
 Fabian De La Paz Rizo, Mexico City, and Gabriel Martinez Ordóñez, Cuautitlan, both of Mexico, assignors to Sabritas, S.A. DE C.V., Mexico City, Mexico

Filed Feb. 2, 1996, Ser. No. 595,700
 Claims priority, application Mexico, Mar. 10, 1995, 95087

Int. Cl.⁶ A63B 65/10

U.S. Cl. 446—46

4 Claims



1. An assembly and launching toy comprising a plurality of similar disk-like pieces made of a resilient material, each having a perimeter and a plurality of joining slots extending from the perimeter towards the center of the piece, the slots being of a width to frictionally engage a joining slot of another piece and retain the pieces in a joined condition, so that desired structures can be assembled by so joining an arbitrary number of pieces; each piece also having at least one undercut launching slot of larger dimensions than the joining slots, extending from the perimeter towards the center of the piece, said undercut launching slot having four adjacent edge surfaces, a first pair of the four edge surfaces being perpendicular to one another and forming a fulcrum where one of said edge surfaces meets the perimeter, and a second pair of the four edge surfaces being V-shaped, forming a point so that bottom edge surface of the second pair of edge surfaces diverges from said point to increase the width of the undercut launching slot in a direction towards the center of the piece and a top edge surface of the second pair of edge surfaces diverges from said point toward the perimeter, whereby a perimeter edge of a second game piece pivots on said fulcrum and is retained in the launching slot by said bottom diverging edge surface when a user inserts the perimeter edge of the second game piece into said launching slot and applies a force to flex the second game piece for launching, and whereby said top and bottom diverging edge surfaces are disposed at a sufficient distance from the opposing perpendicular edge surface to allow the launching slot to disengage without friction the perimeter edge of the second game piece upon release for launch.

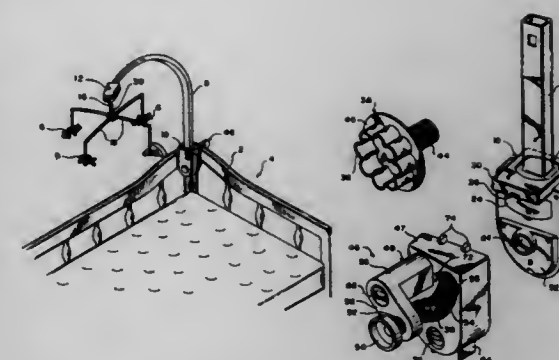
5,672,088
INFANT TOY WITH UNIVERSAL MOUNTING MEANS
 Stephen P. Chininis, Norcross, Ga., assignor to Kids II, Inc., Alpharetta, Ga.

Filed Feb. 16, 1995, Ser. No. 389,594
 Int. Cl.⁶ A63H 33/00; A47D 15/00; A47B 96/00

U.S. Cl. 446—227

28 Claims

1. A toy assembly which is mountable on a variety of infant furniture pieces including cribs which have a plurality of vertical slats, said toy assembly comprising:
 - a housing which supports the toy and has a first clamping surface thereon which is vertical;
 - an infant's toy attached to and supported by said housing;
 - a clamping assembly which has opposed clamping surfaces and is removably mountable on the housing, said toy being connected by said housing to said clamping assembly;
 - said clamping assembly including a base, a mechanism which is mounted on said base, and a pressure pad which is one of said



opposed clamping surfaces and is operatively connected to and moved by said mechanism; said mechanism being operable to move said pressure pad into frictional engagement with part of an infant furniture piece to clamp said clamping assembly to an infant furniture piece;

means for simultaneously engaging a plurality of vertical slats of an infant furniture piece, said means being a pressure knob which is mountable on said housing in lieu of said clamping assembly, said pressure knob having a pressure surface which faces toward the first clamping surface of said housing and is wide enough to engage simultaneously a plurality of slats, a threaded shaft removably connecting said pressure knob to said housing and being operable to pull the first clamping surface against said slats, said threaded shaft being positionable between slats of an infant furniture piece where said pressure surface of the pressure knob bears against said slats.

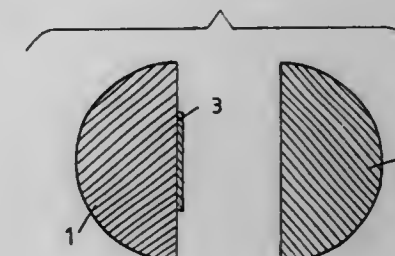
5,672,089
MARBLE
 Antonio Piera Bermejo, Maduixar, 30, Barcelona, Spain, 08023

Filed Jun. 12, 1996, Ser. No. 662,073

Claims priority, application Spain, Jun. 14, 1995, 9501690 U

U.S. Cl. 446—243

4 Claims



1. A marble comprising:
 - a ball of transparent material having an equatorial plane, said ball being comprised of two hemispheres, each having a flat surface along said equatorial plane, and said two hemispheres being welded together, and
 - a paper sheet held inside said ball at said equatorial plane and sandwiched between said two hemispheres, said sheet having at least one picture on one side and a score on another other side thereof.

5,672,090

EQUINE-SHAPED TOY FIGURE

Dexter Chih-Teh Liu, Portsmouth, R.I., assignor to LCD International L.L.C., Newport, R.I.

Filed Nov. 22, 1995, Ser. No. 561,633

Int. Cl.⁶ A63H 1/00

U.S. Cl. 446-268

12 Claims



1. A toy which comprises:
 - a hollow figure of equine-shape;
 - at least a first hoof of the hollow figure that is light transmissive;
 - a light-emitting source mounted inside the figure so as to illuminate the first hoof when the light-emitting source is illuminated;
 - a battery power source within the hollow figure;
 - a wiring circuit within the figure electrically connecting the battery power source and the light-emitting source; and
 - a motion switch interposed in the wiring circuit with the battery power source and the light-emitting source, the motion switch being oriented sufficiently front-to-rear in the hollow figure to effect opening and closing of the switch at least as the figure is rocked in forward and rearward directions.

5,672,091

POLISHING APPARATUS HAVING ENDPOINT DETECTION DEVICE

Tsutomu Takahashi, Yokohama; Keiichi Tohyama, Kawasaki, and Tamami Takahashi, Yamato, all of Japan, assignors to Ebara Corporation, Tokyo, Japan

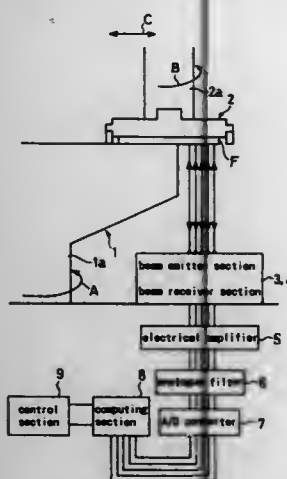
Filed Dec. 22, 1995, Ser. No. 577,536

Claims priority, application Japan, Dec. 22, 1994, 6-336422

Int. Cl.⁶ B24B 49/00; 51/00

U.S. Cl. 451-6

12 Claims



1. A polishing apparatus having a turntable, top ring means for pressing an object to be polished onto said turntable during polishing of a surface of the object, and an endpoint detection means for

detecting an endpoint for stopping polishing of the surface of the object, said endpoint detection means comprising:

- beam emitting means for projecting light beams onto an exposed portion of the surface of the object being held by said top ring means;
- beam receiving means for receiving reflected beams reflected from the exposed portion of the surface; and
- endpoint judging means for determining a current surface condition of the surface from analysis of said reflected beams, said endpoint judging means comprising an electrical amplifier for amplifying analogue electrical signals received by said beam receiving means, analogue signal filtering means for filtering noise from the thus amplified analogue electrical signals, analogue-to-digital conversion means for converting said amplified analogue electrical signals to digital signals of surface data, computing means for computing an absolute value of a difference between an initial surface data of the surface in an initial unpolished state and current surface data and for comparing said absolute value with a predetermined threshold value to obtain comparison data, and controlling means for controlling operation of said polishing apparatus based on said comparison data.

5,672,092

GRINDING MACHINE

Paul Berberich, Frankfurt am Main, Germany, assignor to NAXOS-UNION Schleifmittel- und Schleifmaschinenfabrik AG, Langen, Germany

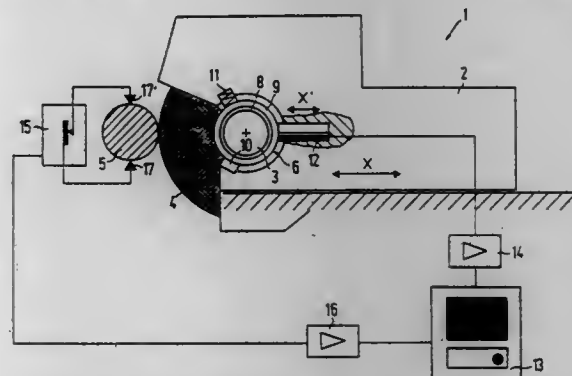
Filed Aug. 26, 1996, Ser. No. 702,930

Claims priority, application Germany, Aug. 26, 1995, 195 31 506.5

Int. Cl.⁶ B24B 49/00

U.S. Cl. 451-10

20 Claims



1. A grinding apparatus for grinding a workpiece mounted on a workpiece stock, the workpiece defining a fixed longitudinally extending axis, said apparatus comprising:
 - grinding shaft stock means;
 - a grinding shaft, said grinding shaft defining a longitudinally extending shaft axis;
 - bearing means movably disposed on said stock means for rotatably supporting said grinding shaft for rotation about said shaft axis, said bearing means supporting said shaft relative to the workpiece such that said shaft axis is at least generally coplanar with the workpiece axis;
 - adjustment means for adjusting the orientation of said shaft relative to the workpiece, said adjustment means being movably disposed between at least a portion of said bearing means and said stock means and acting on said bearing means to move said shaft relative to said workpiece when a changing electrical potential is applied thereto, said adjustment means comprising at least a first piezoelectric actuator; and
 - means for selectively applying at least one electrical potential to said adjustment means whereby changes in said electrical potential induce movement of said piezoelectric actuator within the plane defined by said shaft axis and the workpiece axis.

5,672,093

SPECIMEN LOAD CONTROL MECHANISM FOR AUTOMATIC POLISHING APPARATUS

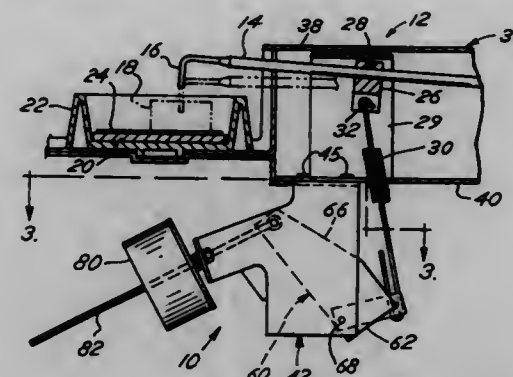
Chester G. DuBois, Zion, Ill., assignor to Buehler, Ltd., Lake Bluff, Ill.

Filed Apr. 21, 1995, Ser. No. 426,820

Int. Cl.⁶ B24B 21/00

U.S. Cl. 451-14

12 Claims



1. In an automatic polishing machine of the type for polishing specimens for purposes of microstructural analysis, said machine including a housing, a polishing member on the housing having a flat polishing surface over which a specimen is moved during a polishing operation, and a specimen drive member supported on said housing and having a portion of said drive member engageable with a specimen holder for moving the same over said polishing surface, power means for operating said drive member, and a load member connected to said drive member for applying a controlled load on said drive member and on said specimen holder to press said specimen down against said polishing surface, the improvement comprising, in combination, a microprocessor-controlled stepper motor mounted to said housing and connected through a plurality of mechanical means to said load member for loading the (later) latter, (whereby), said stepper motor having a threaded rod extending through it which is moved axially in either direction through operation of said stepper motor, and said threaded rod being connected through said mechanical means to said load member, the number of pulses said stepper motor (will control) controlling the magnitude of said controlled load, whereby consistent controlled loads may be applied even when the specimens to be polished are of different heights.

5,672,094

CENTRIFUGAL DRY BARREL FINISHING MACHINE

Kazutoshi Nishimura, Niwa-gun; Masatomo Watanabe, Hashima, and Mikitoshi Hiraga, Iwakura, all of Japan, assignors to Sintobator, Ltd., Nagoya, Japan

Filed May 22, 1996, Ser. No. 651,331

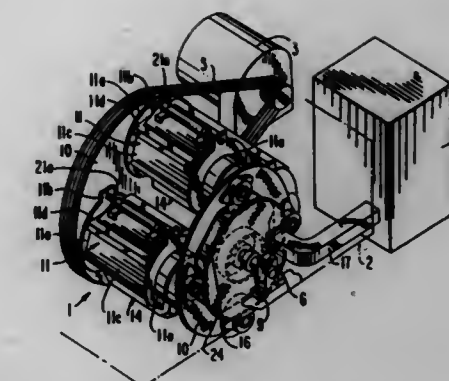
Claims priority, application Japan, May 23, 1995, 7-123936

Int. Cl.⁶ B24B 31/00

U.S. Cl. 451-32

6 Claims

1. A centrifugal dry barrel finishing machine for finishing workpieces, said machine comprising:
 - a plurality of barrel pots, each of said barrel pots having an axis of rotation and a mass inside, said mass comprising dry media and at least one workpiece;
 - means for rotating said barrel pots about their respective axes of rotation and for revolving said barrel pots about an axis of revolution for finishing said at least one workpiece during flow of said mass in the barrel pots, wherein each of said plurality of barrel pots further comprises:
 - an air-intake part and
 - an air and dust exhaust part that prevents said at least one workpiece and the dry media from passing through said exhaust part and allows air received through said air-intake part and any dust produced during finishing to pass through said exhaust part;



- a dust collector; and
- a connector device for connecting said exhaust part to said dust collector such that each barrel pot is rotatable and revolvable relative to said dust collector.

5,672,095

ELIMINATION OF PAD CONDITIONING IN A CHEMICAL MECHANICAL POLISHING PROCESS

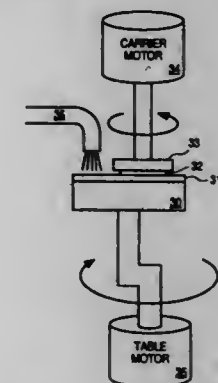
Seichi Morimoto, Beaverton, and Ebrahim Andideh, Portland, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Sep. 29, 1995, Ser. No. 536,570

Int. Cl.⁶ B24B 1/00

U.S. Cl. 451-41

26 Claims



1. A method of polishing a film formed over a semiconductor substrate comprising the steps of:
 - a) forcibly pressing the substrate against an abrasive pad such that the film is placed in contact with the pad, the pad having a diameter which is less than approximately two times a diameter of the substrate;
 - b) introducing an abrasive slurry comprising ceria onto the pad; and
 - c) rotating the pad with respect to the substrate to polish the film at an etch rate.

5,672,096

INFLATABLE TOOL

Robert P. Amarosa, Sr., Durham, and Peter J. Amarosa, Greenland, both of N.H., assignors to R. P. Abrasives & Machine, Inc., Rochester, N.H.

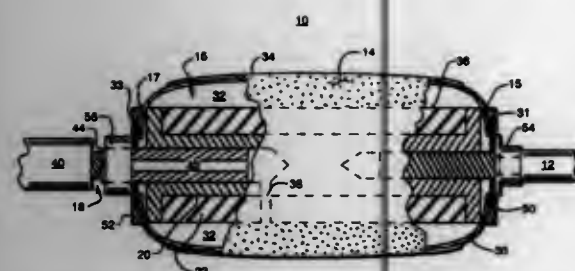
Filed May 22, 1996, Ser. No. 652,326

Int. Cl.⁶ B24B 9/02

U.S. Cl. 451-504

23 Claims

1. An inflatable tool, comprising:
 - a core having a first core end and a second core end, said core including an inner core portion and an elastomeric outer core portion disposed over said inner core portion; and



an inflatable bladder disposed over said elastomeric outer core portion and sealably fixed to said core at said first core end and said second core end, said inflatable bladder forming a chamber between said inflatable bladder and said elastomeric outer core portion in an inflated state, wherein said elastomeric outer core portion provides a resilient support surface for said inflatable bladder.

5,672,097

ABRASIVE ARTICLE FOR FINISHING

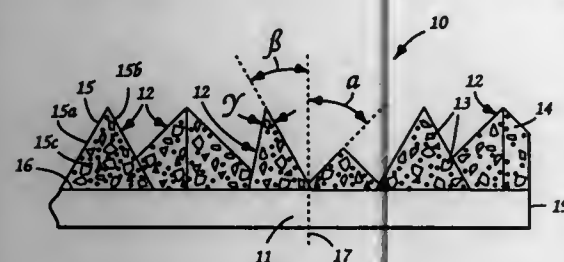
Timothy L. Hoopman, River Falls, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation of Ser. No. 120,300, Sep. 13, 1993, abandoned.

This application Dec. 5, 1995, Ser. No. 567,723

Int. Cl.⁶ B24D 11/04

U.S. Cl. 451—526

16 Claims



1. An abrasive article comprising a backing having a major surface having deployed in fixed position thereon first and second three-dimensional abrasive composites, each of said composites comprising abrasive particles dispersed in a binder and having a substantially precise shape defined by a substantially distinct and discernible boundary which includes substantially specific dimensions, wherein said first abrasive composite has a first precise shape having specific first dimensions and said second abrasive composite has a second precise shape having second specific dimensions, wherein each of said abrasive composites has a boundary defined by at least four planar surfaces wherein adjacent planar surfaces of one composite meet at an edge to define an angle of intersection therebetween, wherein at least one angle of intersection of said first abrasive composite is different from all of the angles of intersection of said second composite.

5,672,098

APPARATUS FOR TRANSFERRING SLAUGHTERED POULTRY FROM A FIRST SUSPENSION CONVEYER TOWARDS A SECOND SUSPENSION CONVEYER

Antonius Jozef Veraart, Oostzaan, Netherlands, assignor to Machinefabriek Meyn B.V., Oostzaan, Netherlands
Filed Mar. 28, 1996, Ser. No. 623,467

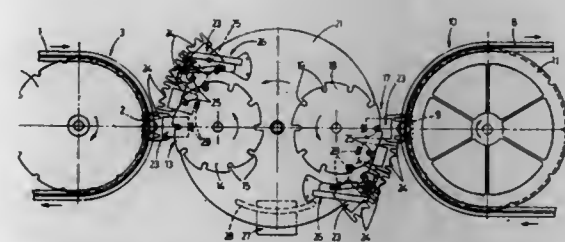
Claims priority, application Netherlands, Apr. 4, 1995, 1000029

Int. Cl.⁶ A22C 18/00

U.S. Cl. 452—182

10 Claims

1. An apparatus for transferring poultry from a first conveyor device to a second conveyor device wherein the conveying velocities of the first and second conveyor devices may vary, comprising:



a first conveyor device and a supply station contiguous with and driven in synchronization with said first conveyor device;
a second conveyor device and a discharge station contiguous with and driven in synchronization with said second conveyor device;

a transfer unit operably disposed between said first suspension conveyor and said second suspension conveyor for transferring poultry from said first conveyor device and said supply station to said discharge station and said second conveyor device, said transfer unit further comprising a receiving station driven in synchronization with said supply station, and a delivery station driven in synchronization with said discharge station, said transfer unit further comprising a transfer track connecting said receiving station and said delivery station; transfer devices configured with said transfer unit and movable along said transfer track between said receiving station and said delivery station, said transfer device comprising poultry carrier devices;

said transfer unit comprising a moving transfer support defining said transfer track, said transfer devices carried by said transfer support; and

a non-obstructed portion defined along said transfer track wherein said transfer support drivingly engages with said transfer devices so that there is substantially no relative movement between said transfer devices and said transfer support, and an obstructed portion defined along said transfer track comprising an obstructing device configured to drivingly disengage said transfer support from said transfer devices so that there is relative movement between said transfer devices and said transfer support.

5,672,099

METHOD FOR COLLECTING CONVEYOR SUSPENSION HANGERS, SUSPENSION HANGER COLLECTING APPARATUS AND SUSPENSION HANGER RETURN APPARATUS

Munenori Takamagari, and Yoshito Harada, both of Hiroshima, Japan, assignors to Fukutome Meat Packers, Ltd., Hiroshima, Japan

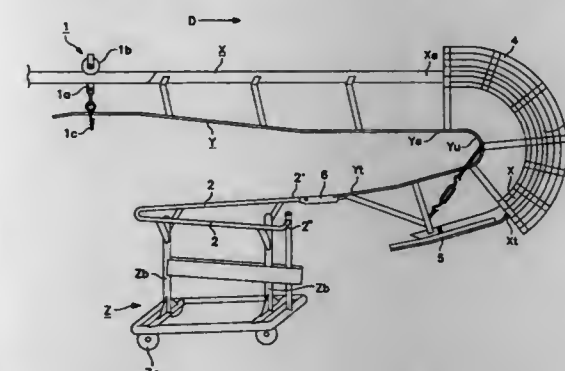
Filed Apr. 18, 1996, Ser. No. 634,908

Claims priority, application Japan, Apr. 19, 1995, 7-119101

Int. Cl.⁶ A22C 15/00

U.S. Cl. 452—187

9 Claims



1. A method for collecting conveyor suspension hangers which is characterized by the fact that:

5,672,101

SOLAR OPERATED VENT COVER

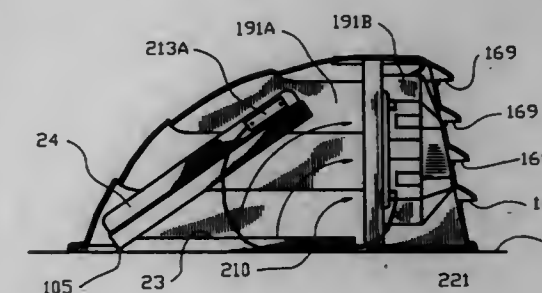
Allen C. Thomas, 4510 W. Alva, Tampa, Fla. 33614

Continuation of Ser. No. 11,132, Jan. 29, 1993, which is a continuation-in-part of Ser. No. 877,732, May 4, 1992, abandoned, which is a continuation-in-part of Ser. No. 659,937, Feb. 25, 1991, Pat. No. Des. 330,415. This application Dec. 13, 1994, Ser. No. 355,439

Int. Cl.⁶ B60J 7/08

U.S. Cl. 454—136

7 Claims



5,672,100

METHOD FOR SUSPENDING LIVE POULTRY BY THE LEGS AND AN APPARATUS, CATCHING MEANS AND SLAUGHTER SHACKLE FOR CARRYING OUT THE METHOD

Holger Hjort Nielsen, Kirke Hyllinge; Torben Brandt Sørensen, Ullerslev; Ole Brødsgaard, Svendborg; Verner Trygved Jensen, Herlev, and Arne Knudsen, Stenstrup, all of Denmark, assignors to Poultex A/S, Denmark

PCT No. PCT/DK94/00083, § 371 Date Aug. 31, 1995, § 102(e) Date Aug. 31, 1995, PCT Pub. No. WO94/19957, PCT Pub. Date Sep. 15, 1994

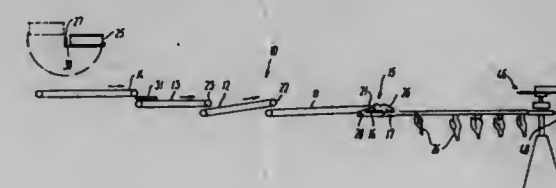
PCT Filed Feb. 28, 1994, Ser. No. 530,257

Claims priority, application Denmark, Mar. 1, 1993, 0224/93

Int. Cl.⁶ A22C 21/00

U.S. Cl. 452—188

20 Claims



1. A method of suspending live poultry by their legs comprising: placing the poultry individually one-by-one on a first running conveyor device having a downstream terminal end and running in a longitudinal conveying direction to move the poultry individually one-by-one in the longitudinal conveying direction in standing or sitting positions with the feet of the poultry on the conveyor device;

conveying the poultry to the downstream terminal end of the first conveyor device and dropping the poultry over said terminal end towards a lower position;

providing at least a second running conveyor device having an upstream area running in a longitudinal conveying direction located at least in part at said lower position, and conveying the poultry dropped towards said second conveyor device in the conveying direction of the second conveyor device; and incidental to said last conveying step, catching the legs of individual dropped poultry by a mechanical catching device and suspending the poultry by their legs in an inverted position by said catching device while conveying the poultry onwards away from the first conveyor device.

1. An improved solar operated ventilator cover for covering an aperture disposed in a horizontal surface with an air vent cap pivotally mounted relative to the horizontal surface between an opened position to allow air flow through the aperture and a closed position for inhibiting air flow through the aperture, the cover having sidewall means and a top surface with a cover opening defined within the sidewall means, and means for affixing the cover to the horizontal surface;

the improvement comprising:

an internal wall extending between the sidewall means and the top surface for defining a first chamber and a second chamber with said first chamber being disposed adjacent the cover opening;

an orifice defined in said internal wall for enabling the flow of air between said first and said second chambers;

an electric motor having a motor shaft with a fan blade secured thereto;

means for securing said electric motor relative to said orifice for positioning said fan blade proximate said orifice;

a rechargeable battery disposed within the cover;

a photovoltaic cell secured to the top surface of the cover for converting solar irradiation into electrical power;

electrical connecting means connecting said photovoltaic cell to said rechargeable battery for enabling said photovoltaic cell to charge said rechargeable battery during impingement of solar irradiation upon said photovoltaic cell;

a disconnect switch connecting said rechargeable battery to said electric motor;

said disconnect switch mounted on the air vent cap for movement with the air vent cap between the open position and closed position;

said disconnect switch automatically closing for connecting said rechargeable battery to said electric motor when the air vent cap is pivoted into the opened position to provide an air flow through the aperture; and

said disconnect switch automatically opening for disconnecting said rechargeable battery from said electric motor when the air vent cap is pivoted into the closed position when the aperture is obstructed by the air vent cap.

5,672,102 DUST REDUCTION SYSTEM FOR ELECTRONIC ENCLOSURES

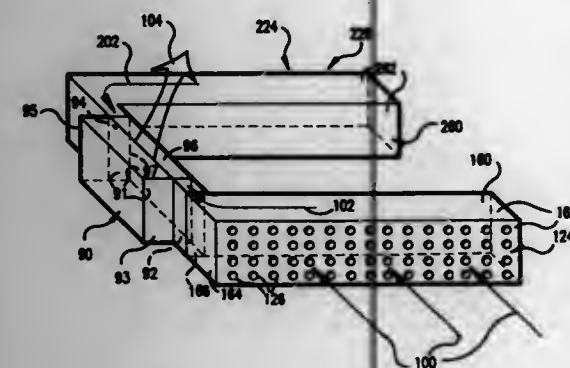
Stephen D. Herald, Huntsville, Ala., assignor to Toshiba America Information Systems, Inc., Irvine, Calif.

Filed Aug. 21, 1996, Ser. No. 701,129

Int. Cl.⁶ H05K 7/20

U.S. Cl. 454-184

4 Claims



wherein said structural configuration of said links and said locking dogs in combination causes said locking force to be augmented by centrifugal force effects acting through said links and locking dogs.

5,672,113

CYLINDRICAL BOOT FIXING PORTION OF RESIN BOOT WITH ANNULAR EXTERIOR CONVEX PORTION
Shin Tomogami, Shizuoka-ken; Masuo Takaki, Itami; Yoshikazu Fukumura; Takeshi Ikeda, both of Iwata, and Kenji Terada, Shizuoka-ken, all of Japan, assignors to NTN Corporation, Osaka, Japan

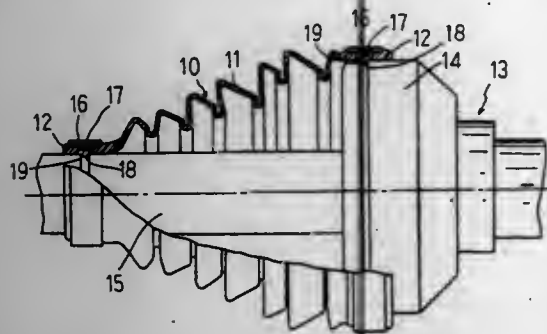
Continuation of Ser. No. 216,458, Mar. 23, 1994, abandoned.
This application Jun. 17, 1996, Ser. No. 665,350

Claims priority, application Japan, Sep. 28, 1993, 5-240883;
Sep. 28, 1993, 5-240884; Nov. 30, 1993, 5-299195

Int. Cl. F16D 3/14

U.S. Cl. 464—175

4 Claims



1. A resin boot comprising a cylindrical boot fixing portion at an end thereof adapted to be fixed in position to a mating member by a boot band having a cylindrical inner surface, said boot fixing portion having an outer periphery on which the boot band is fitted, and an inner periphery fitted on an outer periphery of the mating member, said outer periphery of said boot fixing portion being provided with an annular convex portion disposed adjacent to an annular groove formed on the outer periphery of the mating member, wherein during a pre-tightening state, said annular convex portion projects radially outwardly from said outer periphery of said boot fixing portion, and said inner periphery of said boot fixing portion is substantially out of direct contact with the annular groove to define a pre-tightened annular groove cavity between said inner periphery of said boot fixing portion and the annular groove, and wherein during a tightening state, said inner periphery of said boot fixing portion is displaced radially inward by a tightening force of the boot band exerted on said annular convex portion to cause said inner periphery to firmly engage with the annular groove, said annular convex portion being displaced radially inwardly to conform with the cylindrical inner surface of the boot band.

5,672,114

GUIDING DEVICE FOR PUTTING PRACTICE
Wan-Chun Tu, Changhua City, Taiwan, assignor to Taitung Sports Goods Co., Changhua City, Taiwan

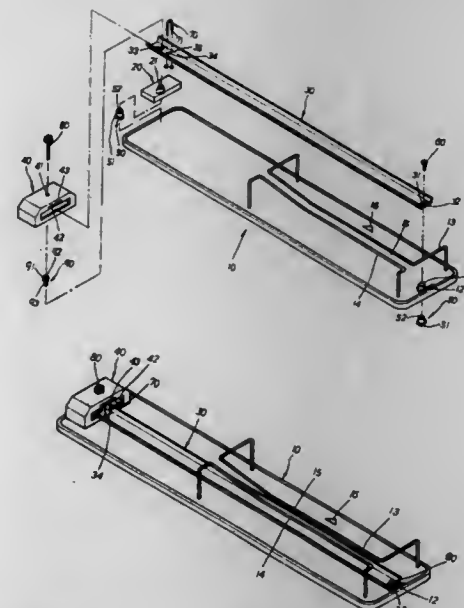
Filed Dec. 10, 1996, Ser. No. 762,860

Int. Cl. A63B 69/36

U.S. Cl. 473—164

1 Claim

1. A guiding device for putting practice, comprising a base plate, a pad, a golf ball supporting plate, a cover member, two screw sleeves, one small bolt, one large bolt, an inverted U-shaped fending rod, and an engaging sleeve wherein



the base plate, having a two-stage through hole at the front end and a measuring scale with a scale mark defined thereon in front of the two-stage through hole, is provided with left and right guiding frames raising slightly upwardly at the rear section to form a guide way therebetween for the golf club to pass therethrough at the top front end and a triangular golf sign indicating the position of the golf ball at one side of the top front end thereof;

the pad has a two-stage through hole at the middle, section; the golf ball supporting plate forming a grooved rail with two flanges tilting sectionally upwardly at both sides has first elongated oval slot with a first triangular mark disposed in front thereof at the front end and a second elongated oval slot with a second triangular mark disposed in front thereof and two through holes disposed at both sides of said mark at the rear end;

the cover member has a round hole at the top middle section and a transverse elongated slot at one lateral surface; the transverse elongated slot is provided with a measuring scale having a scale mark defined thereon above the slot thereof; the inverted U-shaped fending rod has two ends, each provided with minute threads at the lower section;

the engaging sleeve has an abutting flange extended at the top, outer threads disposed at the peripheral surface, and inner threads disposed at the interior wall; while each of the screw sleeves has an engaging flange extended at the bottom and inner threads disposed at the interior wall;

whereby the two screw sleeves are engaged upwardly with the two two-stage through holes disposed at the front end of the base plate and the top middle section of the pad respectively; the pad is fixed by a fastening means at the rear end of the base plate; the inverted U-shaped fending rod is engaged with the golf ball supporting plate by passing both ends thereof through the through holes of the golf ball supporting plate and fixing both ends thereof by screws; the large adjusting bolt is adapted to pass the round hole of the cover member and is screwed to the engaging sleeve; the golf ball supporting plate is then led through the transverse elongated slot of the cover member and the engaging sleeve passed through the second elongated oval slot of the golf ball supporting plate with the abutting flange of the engaging sleeve abutting against the elongated oval slot and the outer thread of the engaging sleeve engaging with the inner threads of the screw sleeve engaged with the two-stage through hole of the pad; and the small adjusting bolt is adapted to pass the first elongated oval slot, abutting at the top against the slot thereof and joining at the bottom to the inner threads of the screw sleeve engaged with the two-stage through hole of the base plate; whereby the device can effectively train a player to improve the putting skill with the golf ball bounced back automatically for

repeated use, and the golf ball supporting plate can also be adjusted left or right to meet the need of different users.

5,672,115

GOLF SWING TRAINING DEVICE AND METHOD
Richard D. Sanchez, 18910 SW 93rd Ave., Miami, Fla. 33157, and Gunther H. Steen, 1632 S. Bayshore Ct., Villa No. 1, Miami, Fla. 33133, assignors to Richard D. Sanchez, and Gunther H. Steen, both of Miami, Fla.

Filed Aug. 23, 1996, Ser. No. 702,263

Int. Cl. A63B 69/36

U.S. Cl. 473—216

25 Claims



1. A golf swing training device for a golfer comprising: a position sensing unit having a taut, movable cord attached to a hip of the golfer, said position sensing unit including means for generating forward, rearward and fore-strike position signals based upon corresponding forward and rearward optimal positions of the hip and an excessive forward position of the hip for said fore-strike position signal; a tee mounted on a tee platform; and a visual and audio response unit on said platform and coupled via a communications link to said position sensing unit, said communications link carrying said forward, rearward and fore-strike position signals between said response unit and said position sensing unit, said visual and audio response unit including a plurality of visual indicators respectively activated by said forward and rearward position signals and including an audio alarm activated by said fore-strike position signal.

5,672,116

APPARATUS FOR SWINGING A GOLF CLUB
Jennifer Bryan, 16747 Kehrs Mill Estates Dr., Clarkson Valley, Mo. 63005; Justin Herman, 336 Hunter Glenn Ct.; Laura Hordesky, 353 Hunters Glen Ct., both of Ellisville, Mo. 63011; Colleen Nolan, 138 Chippenham La., Clarkson Valley, Mo. 63005; Mike Pincus, 2237 Stonebriar Ridge Dr., Chesterfield, Mo. 63017; Nathan Reinhardt, 2206 Samuel Stuart Ct., and Erin Tilley, 2212 Kehrs Glen Ct., both of Clarkson Valley, Mo. 63005

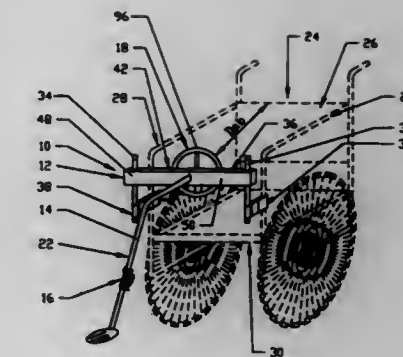
Filed Aug. 30, 1996, Ser. No. 705,712

Int. Cl. A63B 53/00

U.S. Cl. 473—229

20 Claims

1. An apparatus for assisting a disabled person play golf, said apparatus comprising a frame, said frame adapted to releasably connect to a handicap device; a rod having proximal and distal ends, said rod rotatably mounted to said frame; a golf club holder connected to said rod distal end, said golf club holder adapted to releasably engage a golf club head; and an actuator, said actuator connected to said rod proximal end for turning said rod thereby swinging said golf club head.



5,672,117

ARTICULATED PUTTER WITH SIGHTING DEVICE

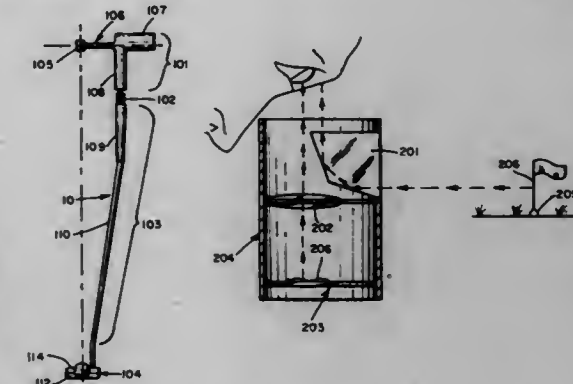
Ather R. Dar, 98-831A, Kaonoai St., Alea, HI. 96701

Filed Feb. 15, 1996, Ser. No. 601,929

Int. Cl. A63B 69/36; 53/16

U.S. Cl. 473—232

9 Claims



1. A golf ball putting club comprising in combination: a stationary handle; a sighting device mounted on said stationary handle; a hinge; a swingable portion mounted to said stationary handle by said hinge; a mounting bracket attached to the end of said swingable portion remote from said hinge; a head, having a face and an alignment mark perpendicular to said face formed in the top of said head, said head mounted on said mounting bracket so that under the condition of the user placing said face against said ball, viewing through said sighting device and adjusting the position of said stationary handle so that said alignment mark is coincident with a user selected target displayed in said sighting device, the face of said head is aligned perpendicular to said target whereby the user may move said swingable portion through a preselected arc around said hinge and release or push said swingable portion to impart a force to said ball along the line of sight selected through said sighting device.

5,672,118

GOLF SWING TRAINER

Paul Robbie, 19123 Hamlin St., #6, Reseda, Calif. 91335

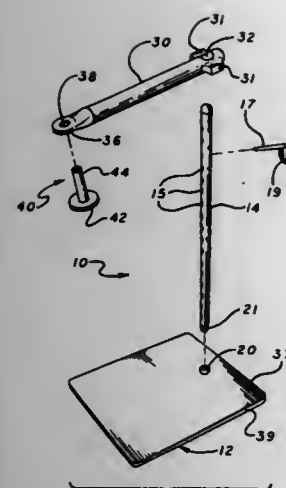
Filed May 13, 1996, Ser. No. 647,574

Int. Cl. A63B 69/36

U.S. Cl. 473—257

5 Claims

1. A golf swing trainer comprising a support plate, an elongated vertical shaft having an upper end and a lower end, said vertical shaft extending vertically from said support plate at its lower end, a generally horizontal shaft having a first end and a second end extending from said vertical shaft, said horizontal shaft slidably



mounted on said vertical shaft at its first end whereby said horizontal shaft is capable of rotating in a horizontal plane about said vertical shaft and sliding along said shaft vertically, means for fixing said horizontal shaft at selected vertical positions along said vertical shaft without restricting the horizontal rotation of said horizontal shaft whereby said horizontal shaft may be moved between a lower position proximate said support plate and a higher position proximate the upper end of said vertical shaft, and means including a flexible tee associated with said horizontal shaft for supporting a golf ball proximate the second end of said horizontal shaft so that a golf ball may be hit off said tee.

5,672,119

Patent Not Issued For This Number

5,672,120

GOLF CLUB HEAD

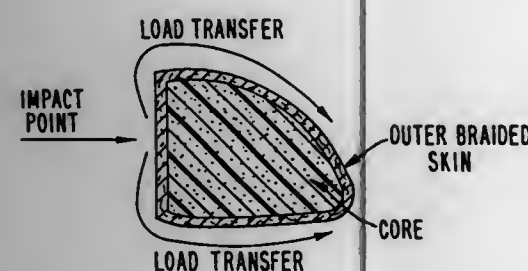
Stan L. Ramirez, 7005 Santa Rita Ct., Fort Worth, Tex. 76133, and Louis P. Spartin, P.O. Box 16704, Ft. Worth, Tex. 76162, assignors to Specialty Materials and Manufacturing Inc.; John E. Carbaugh, Jr., both of Rosslyn, Va.; Stan L. Ramirez, and Louis P. Spartin, both of Fort Worth, Tex.

Filed May 12, 1995, Ser. No. 440,258

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473-347

21 Claims

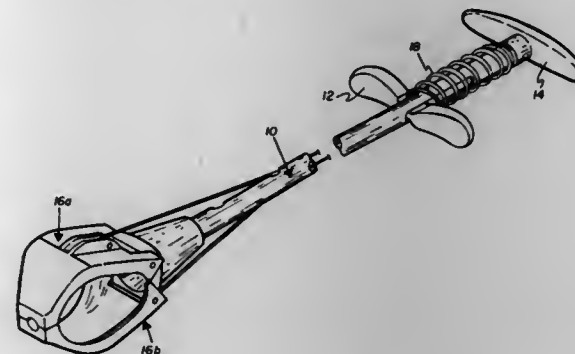


1. A golf club head comprising a central core having an outer surface, a tensioned continuous fiber extending around said outer surface at least a single time, and an external resin layer which covers said central core and said continuous fiber.

5,672,121
APPARATUS FOR POSITIONING A GOLF BALL ON A
TEE AND FOR RETRIEVING GOLF BALLS AND TEES
Leroy J. Miller, 4521 Altura, NE., Albuquerque, N. Mex. 87110
Filed Apr. 29, 1996, Ser. No. 639,635
Int. Cl.⁶ A63B 57/00

U.S. Cl. 473-386

3 Claims



1. An apparatus for positioning a golf ball on a tee and for retrieving golf balls and tees, which comprises in combination:
 - a. an elongated hollow shaft having an upper end and a lower end, said shaft having a first slot therein located in the vicinity of the upper end thereof and a second slot therein located in the vicinity of the lower end thereof;
 - b. a base having a free end and an attached end, the attached end thereof being attached to the lower end of said hollow shaft;
 - c. a first jaw member having a concave inner portion adapted to receive said golf ball and an outer portion, one end of said first jaw member being pivotally attached to said base in the vicinity of the free end thereof, said first jaw member further having a tapered portion adapted to receive the head and a portion of the shank of said golf tee located in the vicinity of the end thereof away from the pivoted end;
 - d. a second jaw member having a concave inner portion adapted to receive said golf ball and an outer portion, one end of said second jaw member being pivotally attached to said base in the vicinity of the free end thereof, said second jaw member further having a tapered portion adapted to receive the head portion and a portion of the shank of said golf tee located in the vicinity of the end thereof away from the pivoted end, said first jaw member and said second jaw member being disposed such that the concave inner portions thereof are opposing;
 - e. a fixed handle attached to the upper end of said shaft;
 - f. an inner shaft adapted to slidably move inside of said hollow shaft, said inner shaft having an upper end and a lower end;
 - g. a first jaw-actuating member attached at one end thereof to the lower end of said inner shaft, said first jaw-actuating member exiting said hollow shaft through the second slot therein, the other end thereof being pivotally attached to the outer portion of said first jaw member;
 - h. a second jaw-actuating member attached at one end thereof to the lower end of said inner shaft, said second jaw-actuating member exiting said hollow shaft through the second slot therein on the opposite side thereof from said first jaw-actuating member, the other end thereof being pivotally attached to the outer portion of said second jaw member;
 - i. a movable handle attached to the upper end of said inner shaft through the first slot in said hollow shaft; and
 - j. a coil spring for providing force between said hollow shaft and said inner shaft, whereby said golf ball is stably held against said tee by the action of said first jaw member and said second jaw member such that said tee can be inserted into the ground with said golf ball thereon when said movable handle is permitted to respond to said coil spring and said fixed handle is moved in the direction of the ground, said golf ball remaining thereon when said first jaw member and said second jaw member are caused to pivot away from one another by moving said movable handle against the action of said coil spring toward said fixed handle.

5,672,122

ADJUSTABLE GOLF TEE

Paul G. Strong, Hidden Hills, Calif., assignor to Poly-Tainer, Inc., Simi Valley, Calif.

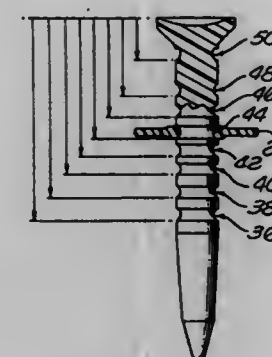
Continuation of Ser. No. 498,035, Jul. 3, 1995, abandoned.

This application Nov. 22, 1996, Ser. No. 755,242

Int. Cl.⁶ A63B 57/00

U.S. Cl. 473-398

9 Claims



1. Apparatus for positioning a golf ball at a selectable plurality of heights, each of said heights being the optimum position for contact with the hitting surface of at least one of a predetermined array of golf clubs, said apparatus comprising, in combination:

- a) a generally cylindrical elongated member;
- b) said member having a cup at one end for receiving a golf ball and being tapered at the opposed end for insertion into a playing surface;
- c) said member being symmetrical about an axis joining said opposed ends;
- d) a disk-like member including a bevelled central aperture and a substantially circular offset internal aperture whose diameter exceeds that of said elongated member;
- e) said elongated member including a plurality of circumferential notches spaced unevenly along said axis, each of said notches being arranged to receive said bevelled central aperture of said disk-like member, whereby said member can act as a stop that determines the height of said cup above a playing surface; and
- f) each of said notches being located at a position along said elongated member selected in relation to the height of the hitting surface of at least one of said predetermined golf clubs so that said golf ball can be optimally positioned with respect to the hitting surface of said golf club.

5,672,123

WATER MAT ACTIVITY WITH PUDDLES AND SPRAY ACTION

Elliot Rudell, Torrance, and Joseph Cernansky, Palos Verdes Estates, both of Calif., assignors to Elliot A. Rudell, Torrance, Calif.

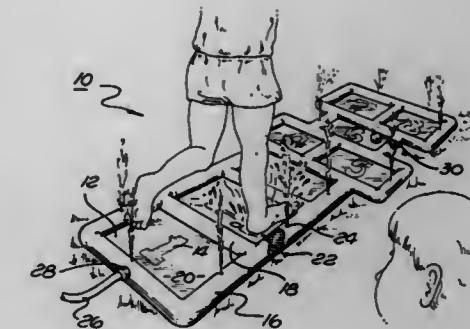
Filed Dec. 12, 1995, Ser. No. 571,199

Int. Cl.⁶ A63B 67/00

U.S. Cl. 473-414

5 Claims

1. A water game, comprising:
 - a mat; and,
 - a wall that is attached to said mat to create a plurality of reservoir compartments which retain a fluid, wherein said wall includes an inner passage which contains the fluid and a plurality of apertures that allow fluid to flow from said inner passage into said reservoir compartments.



5,672,125
FLAT-FOLDING PITCHER'S PRACTICE CAGE
 Charles Edward Ross, 2414 Lakeside Dr., Centralia, Ill. 62801
 Filed Sep. 14, 1995, Ser. No. 527,934
 Int. Cl.⁶ A63B 69/00

U.S. Cl. 473-421

11 Claims



1. A pitcher's practice cage comprising:
 a fabric enclosure including at least top, side and rear walls,
 external fixed-position structure including a pair of longitudinal
 spaced-apart base members and one inverted U-shaped member
 having its lower ends rigidly-mounted on and substantially
 perpendicular to said base members,
 external folding-structure including at least one inverted
 U-shaped member having its lower ends mounted hingedly on
 said base members at one side of said rigidly-mounted member,
 said folding structure positionable angularly in a range
 from a first position wherein said hinge-mounted U-shaped
 member is close and parallel to said rigidly-mounted member
 to a second position wherein said hinge-mounted U-shaped
 member is angularly spaced from said rigidly-mounted member,
 means to secure forward edges of said fabric enclosure to said
 rigidly-mounted member and to suspend said rear wall of said
 enclosure from at least one said hinge-mounted U-shaped
 member,
 whereby when said hinge-mounted U-shaped member is positioned
 at said first position, said fabric enclosure and said
 rigidly-mounted member and said hinge-mounted U-shaped
 member structure constitute a substantially flat, readily-stored
 assembly, and when said hinge-mounted U-shaped member is
 positioned at said second position, said fabric enclosure further
 comprises an open front.

5,672,126

Patent Not Issued For This Number

5,672,127
BASEBALL GLOVE TRAINING DEVICE
 Lisa M. Danz, 3193 Wayside Plz. #34, Walnut Creek, Calif.
 94596

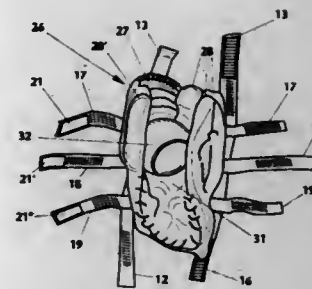
Filed Jan. 3, 1995, Ser. No. 368,295

Int. Cl.⁶ A63B 43/02

U.S. Cl. 473-458

9 Claims

1. An apparatus for training a sports glove to assume a desired
 shape, including:
 first means for releasably circumscribing and compressing an
 upper portion of the sports glove;
 second means for releasably circumscribing and compressing a
 medial portion of the sports glove;
 third means for releasably circumscribing and compressing a
 lower portion of the sports glove;
 longitudinal means for joining said first, second, and third means
 in spaced apart relationship;



said first means including an upper lateral strap formed of
 resilient elastic material and means for joining opposed ends
 of said upper lateral strap in length adjustable fashion to form
 a closed loop about said upper portion of the sports glove;
 said second means including a medial lateral strap formed of
 resilient elastic material and means for joining opposed ends
 of said medial lateral strap in length adjustable fashion to form
 a closed loop about said medial portion of the sports
 glove;
 said third means including a lower lateral strap formed of
 resilient elastic material and means for joining opposed ends
 of said lower lateral strap in length adjustable fashion to form
 a closed loop about said lower portion of the sports glove;
 said longitudinal means including a pair of longitudinal straps
 extending in spaced apart relationship and intersecting said
 first, second, and third lateral straps, and means for joining
 said longitudinal straps and said lateral straps at each intersection
 therebetween; and,
 fastener means joined to like upper and lower ends of said
 longitudinal straps to releasably join said like upper and lower
 ends in length adjustable fashion in closed upper and lower
 end loops.

5,672,128

ELECTRONIC AUTOMATED GAME LINE

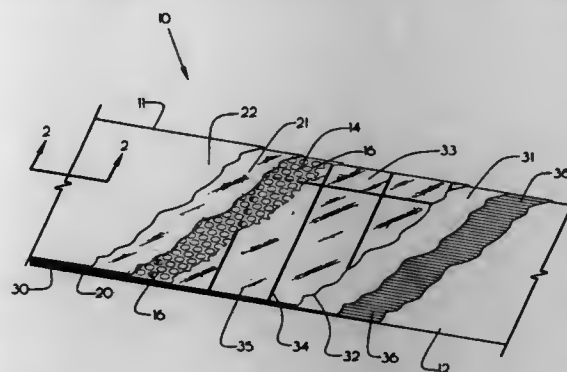
Byron C. Conn, Inman, S.C., assignor to JAB Technologies, Inc., Inman, S.C.

Filed Sep. 17, 1996, Ser. No. 714,251

Int. Cl.⁶ A63B 61/00

U.S. Cl. 473-467

14 Claims



1. An electronic switch device for detecting physical contact
 with a surface, comprising in combination:
 a. a top layer having a top layer conductive side;
 b. a bottom layer having a bottom layer non-conductive backing
 with a bottom layer conductive side adhered to said bottom
 layer non-conductive backing;
 c. an insulating layer sandwiched between said top layer and
 bottom layer so that said top layer conductive side faces said
 bottom layer conductive side, said insulating layer having a
 plurality of contact holes through which said top layer conductive
 side makes contact with said bottom layer conductive
 side when sufficient force is applied to said top layer;

d. at least one conductive trace adhered to said bottom layer
 non-conductive backing of said bottom layer opposite said
 bottom layer conductive side;
 e. a bottom protective layer adhered to and protecting said
 conductive trace;
 f. a means for electrically connecting said conductive trace to
 said bottom layer conductive side;
 g. a means for receiving an electrical signal from said conductive
 trace when said top layer conductive side makes contact
 with said bottom layer conductive side through said plurality
 of contact holes of said insulating layer.

5,672,129

GAME FOR PROJECTING A PROJECTILE WITH A STICK AND COUPLING MEMBERS FOR RELEASABLY ATTACHING THE PROJECTILE TO THE STICK

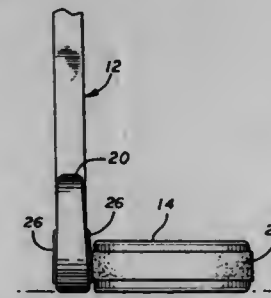
Raymond Earl Fisher, Torrance, Calif.; Elliot Rudell, 1619 Gramercy Ave., Torrance, Calif. 90501, and George T. Foster, Long Beach, Calif., assignors to Elliot Rudell, Torrance, Calif.

Filed Nov. 15, 1996, Ser. No. 751,178

Int. Cl.⁶ A63B 67/00

U.S. Cl. 473-471

8 Claims



1. A method for a player to play a game of hockey on a playing
 surface, comprising the steps of:

- providing a stick which has a hook material on a blade, and a projectile that has a loop material;
- holding said stick by the player;
- moving said stick across the playing surface so that said stick is adjacent to said projectile, wherein said loop material becomes attached to said hook material of said stick; and,
- moving said stick to separate said projectile from said stick.

5,672,130

BASKETBALL GOAL

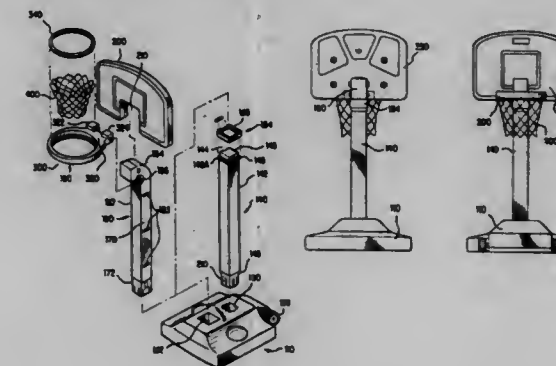
Timothy P. O'Connell, East Aurora, and Mark A. Strayer, Orchard Park, both of N.Y., assignors to Fisher-Price, Inc., East Aurora, N.Y.

Filed Aug. 15, 1996, Ser. No. 698,369

Int. Cl.⁶ A63B 63/08

U.S. Cl. 473-483

11 Claims



6. A basketball goal comprising,
 a support post having an upper end having a backboard retaining
 lug and a backboard support surface, and a support recess
 below said upper end having first and second contoured
 surfaces with a detent ridge therebetween;
 a hoop with a flange, said flange having opposing first and
 second recess engaging lugs, each said lug having a back-
 board pivot post on an outer edge thereof, and a peripheral
 surface for engaging said first and second contoured surfaces
 of said support recess, said first and second recess engaging
 lugs further comprising a notch therebetween for coopera-
 tively engaging said detent ridge; and
 a backboard having a back surface for engaging said backboard
 retaining lug and a lower edge with a support notch having an
 inner surface for engaging said backboard support surface,
 said support notch further comprising opposing pivot recesses
 for engaging said backboard pivot posts.

9. A height adjustable support system for a basketball goal,
 comprising,

a base having an upper surface, a first support socket disposed in
 said upper surface, and a lower support post projecting
 upwardly from said upper surface and having a shaft with a
 hollow bore;
 a goal support post having a shaft with a lower end engageable
 with said first support socket and slidably receivable in said
 bore of said lower support post and an upper end engageable
 with the basketball goal
 whereby said upper end of said backboard support post is
 disposed at a first height when said goal support post is
 engaged with said first support socket and is disposed at a
 second height, greater than said first height, when said back-
 board support post is disposed in said lower support post.

11. A basketball goal comprising;
 a circular hoop comprising a short cylinder having upper and
 lower ends and an interior flange in a plane perpendicular to
 said cylinder and between said upper and lower ends, and
 a circular net retention hoop onto which the upper loops of a
 basketball net are threadably engaged, said net retention hoop
 fixedly engaging said interior flange to retain said net on said
 circular hoop.

5,672,131

ELECTRONIC PADDLE GAME

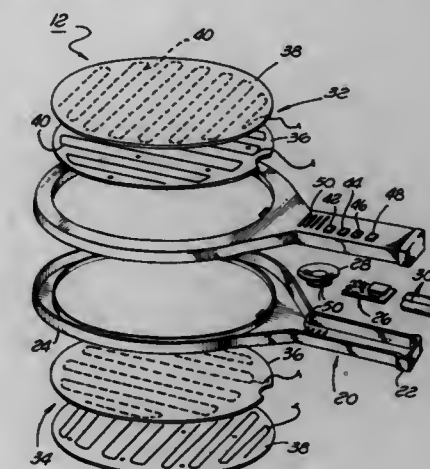
Ian Osborne, Gardena; Elliot Rudell, Torrance, and Roger Gardner, Lomita, all of Calif., assignors to Elliot A. Rudell, Torrance, Calif.

Filed Dec. 23, 1996, Ser. No. 771,853

Int. Cl.⁶ A63B 49/00

U.S. Cl. 473-527

19 Claims



1. A toy paddle that can be manipulated to strike an object,
 comprising:
 a paddle;

a first pressure sensor that senses when the object strikes said paddle;
 a second pressure sensor that senses when the object strikes said paddle;
 a game circuit that is coupled to said first and second pressure sensors, and which compares a pattern of the object striking said paddle with a sequence and provides an output signal when said pattern does not match said sequence; and,
 an indicator that is activated by said output signal of said game circuit.

5,672,132

CONTINUOUSLY VARIABLE TRANSMISSION REGULATION PROCESS

Manfred Schwab, Tettnang, Germany, assignor to ZF Friedrichshafen AG, Friedrichshafen, Germany
 PCT No. PCT/EP94/02372, § 371 Date Jan. 22, 1996, § 102(e)
 Date Jan. 22, 1996, PCT Pub. No. WO95/03191, PCT Pub. Date Feb. 2, 1995

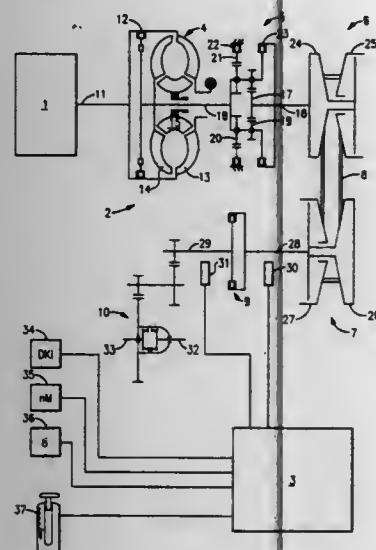
PCT Filed Jul. 19, 1994, Ser. No. 586,641

Claims priority, application Germany, Aug. 23, 1993, 43 24 810.0

Int. Cl.⁶ B60K 41/22; F16D 48/02

U.S. Cl. 474—8

7 Claims



1. A regulation process for a continuously variable transmission (2) which has a first pair of tapered discs on an input shaft and a second pair of tapered discs on an output shaft (6 and 7) and a slip clutch (9) protecting the variable transmission from torque shock loads and overload being situated between said second pair of tapered discs (7) and an output side of said variable transmission, said process comprising the steps of:

determining, during operation of said continuously variable transmission (2), an actual slip torque of said clutch (9) by lowering a pressure level of the clutch from a first level (p1) to a second level (p3) which is reached when a presettable speed difference between an input and output of the clutch is detected by means of two speed sensors; and
 comparing the pressure level difference (p1 minus p3) with a characteristic operating pressure curve to establish a correction value used for adjusting said characteristic curve and securing the transmission against torque shock loads.

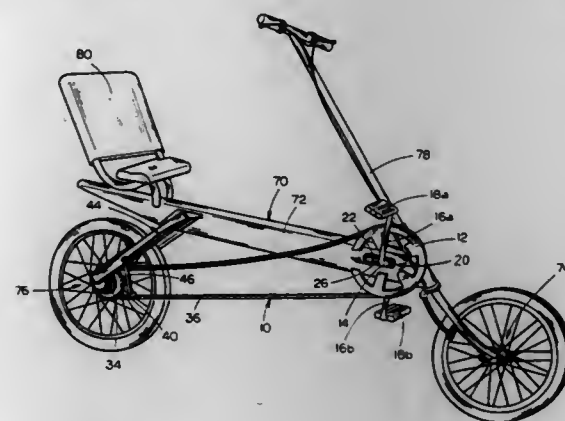
5,672,133

BICYCLE GEARING SYSTEM

Tom Eden, 5116 Pine St., Omaha, Nebr. 68106
 Filed Oct. 9, 1996, Ser. No. 728,149
 Int. Cl.⁶ F16H 59/00

U.S. Cl. 474—81

11 Claims



1. In combination:

a wheeled vehicle having a frame and front and rear wheels rotatably mounted thereon; and
 a gearing system comprising:

a movable bottom bracket movably mounted on said frame of said wheeled vehicle, said bottom bracket movable between at least one forward position and at least one rearward position, said bottom bracket free of securement means operative to immovably fix said bottom bracket in one position;

a pedal axle rotatably mounted in said bottom bracket and extending transversely to said frame;

crank means mounted on said pedal axle for rotating said axle; at least one front circular gear sprocket mounted on, generally perpendicular to and concentric with said pedal axle;

at least two rear circular gear sprockets each having a different diameter, each mounted concentrically with one another adjacent said rear wheel on one of said rear wheels and said frame generally parallel with said front gear sprocket, said rear gear sprockets operatively connected to said rear wheel for transference of rotational force thereto;

chain means extending between said front gear sprocket and a selected one of said rear gear sprockets for transferring rotational force applied to said crank means and said front gear sprocket to said selected one of said rear gear sprockets thereby rotating said rear wheel;

a rear derailleur means mounted on said frame generally adjacent to and forward of said rear gear sprockets, said rear derailleur means operative to engage said chain means and shift said chain means transversely relative to said frame such that said chain means is moved to engage a different rear gear sprocket thereby shifting gears;

said chain means being of a size such that when said bottom bracket is in said forward position, said chain means is tensioned thereby retaining said chain means on said front gear sprocket and a selected one of said rear gear sprockets, and when said bottom bracket is in said rearward position, said chain means is detensioned; and

said gearing system operative to shift gears upon said movable bottom bracket being moved to one of said rearward positions thereby detensioning said chain means, said rear derailleur means operative to shift said chain means transversely relative to said frame such that said chain means engages a different selected one of said rear gear sprockets, said movable bottom bracket being moved forwardly thereby retensioning said chain means and retaining said chain means on said different selected one of said rear sprockets.

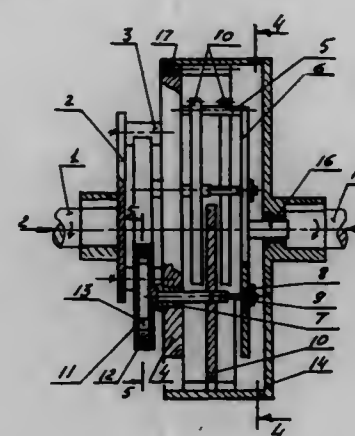
5,672,134

SHMELKIN'S PLANETARY FLUID DYNAMIC COUPLING

Mark Shmelkin, P.O. Box 1003, Nesher, 20306, Israel
 Filed Sep. 26, 1995, Ser. No. 534,075
 Int. Cl.⁶ F16H 47/12; 47/04

U.S. Cl. 475—111

4 Claims



1. A planetary fluid dynamic coupling comprising:

(A) a drive shaft,
 (B) a driven shaft,
 (C) a ring gear fixedly secured to said driven shaft,
 (D) a compound carrier including:

(1) a drive flange fixedly secured to said drive shaft,
 (2) a carrying disc with first, second and third bosses, the carrying disc being fixedly secured to said drive flange through said first bosses,
 (3) a supporting disc fixedly secured to said carrying disc through said second bosses,

(E) planetary elements mounted on said carrying and supporting discs and including:

(1) journal bearings fixedly secured to said carrying and supporting discs,
 (2) axles freely rotating in said journal bearings,
 (3) planetary gears fixedly secured to said axles and engaged with said ring gear,
 (4) hermetically sealed hollow drums adapted for containing liquid, each drum having a plurality of radial blades fast therewith and equally spaced around its internal periphery, the drums being fixedly secured to the ends of said axles and partly filled with a fluid, the fluid in said drums being subjected to inertial forces when said planetary element is in motion and generating a torque on said blades of said drums which is transmitted onto said planetary gears through said axles and therefrom onto said ring gear, i.e. said driven shaft,

(F) an overrunning coupling placed between said third bosses of said carrying disc and said ring gear for preventing said driven shaft from rotating at an angular velocity higher than that of said drive shaft.

5,672,135

CONTROLLER FOR PLANETARY DIFFERENTIAL TYPE REDUCTION GEAR DEVICE

Tomoyuki Hamada, Mie, Japan, assignor to Teijin Seiki Co., Ltd., Osaka, Japan

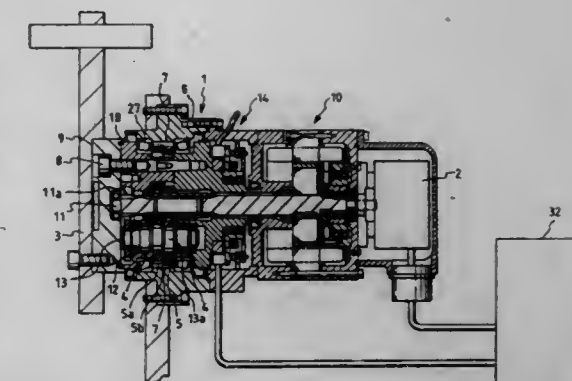
Filed Dec. 5, 1995, Ser. No. 567,640

Claims priority, application Japan, Dec. 31, 1994, 6-338364
 Int. Cl.⁶ H02K 47/04; G05B 1/06

U.S. Cl. 475—149

8 Claims

1. A controller for a planetary differential type reduction gear device which receives a driving force from a motor at an input side, reduces speed of the driving force through a planetary differ-



ential type reduction gear train and transmits the driving force thus speed-reduced to an output side, said controller comprising:

an output rotation detector, provided on a back side of the output side of said planetary differential type reduction gear device and having a code plate integrated on said output side of said planetary differential type reduction gear device, for detecting the driving force thus speed-reduced through said planetary differential type reduction gear train; and

control means for controlling the driving force to be applied to said input side of said planetary differential type reduction gear device on the basis of the driving force thus detected by said output rotation detector.

5,672,136

BALANCE BEAM AUTOMATICALLY ADJUSTING TORQUES TRANSLATOR (STEPLESS VARIABLE TRANSMISSION)

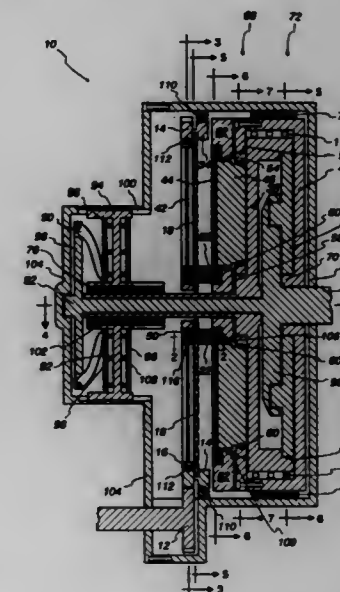
Grover C. Hunt, Jr., Northbrook, Ill., assignor to Hunts' Serendipity, Inc., Northbrook, Ill.

Filed Jan. 29, 1996, Ser. No. 593,272

Int. Cl.⁶ F16H 3/74

U.S. Cl. 475—255

10 Claims



1. A power transfer device transferring power from a source to a workload in a manner providing a continuum of intermediate ratios between its highest RPM ratio and lowest RPM ratio limits, comprising:

a means for aligning and supporting said power transfer device elements while allowing power input and power output,
 a means for providing a fulcrum and a balance beam positioned and held for receiving power and passing it to divergent ratio power tracks,

- a means for providing and holding said divergent ratio power tracks in a manner such that said tracks will with inverse portionality be receiving a determined range of said power from said balance beam,
- a means for receiving said power from said source and passing it to said fulcrum,
- a means for holding said fulcrum and its power transfer at a determined range continuum of points along said balance beam,
- a means for holding said balance beam that allows it to be continuously receiving said power from said fulcrum and passing it to said power tracks,
- a means for controlling said power tracks reactions to the power forces,
- a means for receiving said power forces from said power tracks and passing said power to said workload.

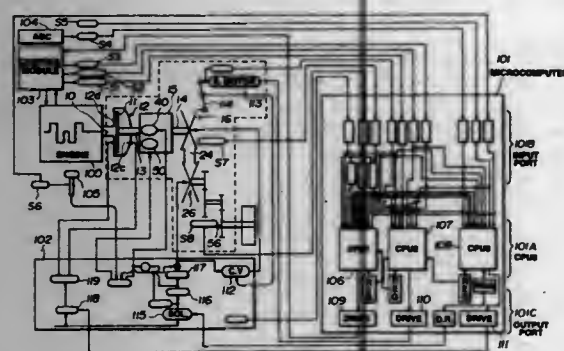
5,672,137
CONTROL APPARATUS FOR CONTINUOUSLY
VARIABLE TRANSMISSION MOUNTED IN
AUTOMOTIVE VEHICLE

Kazutaka Adachi, Yokohama; Shigeru Ishii, Atsugi, and Hideki Sudo, Machida, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Apr. 24, 1996, Ser. No. 637,069
Claims priority, application Japan, Apr. 24, 1995, 7-098712
Int. Cl.⁶ B60K 41/12

U.S. Cl. 477-45

10 Claims



1. A control apparatus for an automotive vehicle, comprising:
- a continuously variable transmission, including a gear shift ratio varying mechanism and whose gear shift ratio is continuously controlled according to an operating variable of said gear shift ratio varying mechanism, said gear shift ratio varying mechanism being so arranged and constructed as to continuously vary the gear shift ratio of the continuously variable transmission according to a gear shift ratio command value;
 - a first sensor which is so arranged and constructed as to detect a vehicle driving condition of the vehicle in which the continuously variable transmission is mounted;
 - a second sensor which is so arranged and constructed as to detect an actual gear shift ratio of the continuously variable transmission; and
 - a control unit having:
 - a target gear shift ratio calculating block for calculating a target gear shift ratio on the basis of the detected vehicle driving condition;
 - a dynamic characteristic estimating block for estimating a predetermined dynamic characteristic for each instantaneous gear shift ratio of the continuously variable transmission;
 - a disturbance compensator which is so arranged and constructed as to calculate a disturbance compensation output as functions of the actual gear shift ratio and of either the gear shift ratio command value or the operating variable of the gear shift ratio varying mechanism;
 - a gear shift ratio control constant calculating block for calculating a control constant of each instantaneous gear shift ratio

of the continuously variable transmission so as to achieve a target dynamic characteristic using the estimated dynamic characteristic;

- a first gear shift ratio command calculating block for calculating a first gear shift ratio command value from the target gear shift ratio, the actual gear shift ratio, and the control constant of the corresponding instantaneous gear shift ratio; and
 - a second gear shift ratio command calculating block for subtracting the disturbance compensation output of the disturbance compensator from the first gear shift ratio command value so as to derive and output the gear shift ratio command value,
- and the control apparatus further comprising:
- a gear shift ratio control block for adjustably controlling the operating variable of the gear shift ratio varying mechanism as the function of the output gear shift ratio command value.

5,672,138

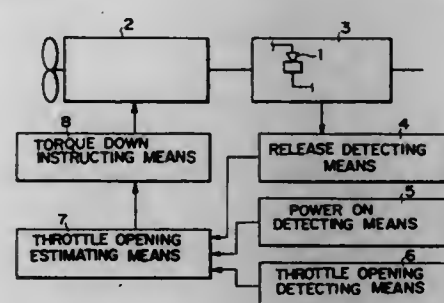
CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

Tsuyoshi Mikami, Toyota; Hidehiro Oba, Numazu, and Nobuaki Takahashi, Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Feb. 26, 1996, Ser. No. 606,849
Claims priority, application Japan, Mar. 3, 1995, 7-070671
Int. Cl.⁶ B60K 41/04

U.S. Cl. 477-111

10 Claims



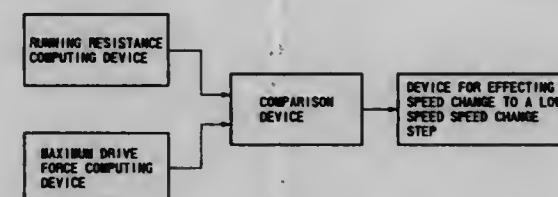
1. A control system for an automatic transmission having a plurality of gear stages, which is capable of generating a torque down signal for reducing an output torque of an engine connected to the automatic transmission when a one-way clutch for setting a given gear stage is changed from disengaged state to engaged state in non-shift condition of the automatic transmission, comprising:
- a release detecting means for detecting disengagement of said one-way clutch;
 - a power-on detecting means for detecting change in an operation of said engine from driven mode to drive mode;
 - a throttle opening detecting means for detecting a throttle opening of said engine;
 - a throttle opening estimating means for estimating a second throttle opening when a predetermined time has elapsed from the time at which the operation of the engine is changed from driven mode to drive mode, on the basis of a first throttle opening detected when the operation of the engine is changed from driven mode to drive mode; and
 - a torque down instructing means for generating a torque down signal for reducing said output torque of the engine in case said estimated second throttle opening is not less than a predetermined reference value.

5,672,139
DRIVE FORCE CONTROLLER FOR AN AUTOMATIC
TRANSMISSION

Masanobu Horiguchi, Kanagawa-ken, Japan, assignor to Unisia Jecs Corporation, Kanagawa-ken, Japan
Filed Aug. 25, 1995, Ser. No. 519,284
Int. Cl.⁶ F16H 59/48

U.S. Cl. 477-120

7 Claims



1. A control apparatus for an automatic transmission for controlling speed change by referring to a shift pattern map on the basis of vehicle speed and engine load to select a speed change step, comprising:

- running resistance computing means for computing current running resistance;
- maximum drive force computing means for computing the maximum drive force for a current speed change step based on at least the engine load corresponding to the current vehicle speed on a down-shift line in the shift pattern map from a current speed change step to a speed change step on a lower speed side;
- comparison means for comparing said running resistance and said maximum drive force; and
- means for effecting speed change from a current speed change step to a speed change step on a lower speed side according to results of the comparison, when said maximum drive force is less than said running resistance.

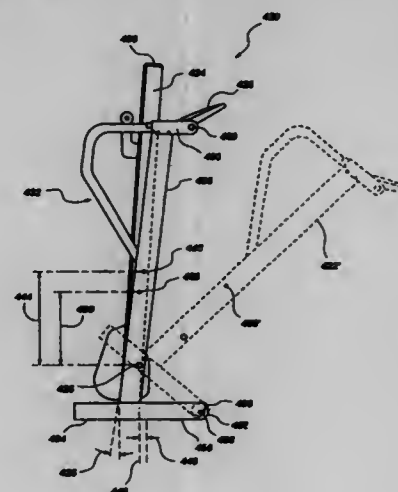
5,672,140

REORIENTING TREADMILL WITH INCLINATION
MECHANISM

Scott R. Watterson; William T. Dalebout, both of Logan, and Rodney L. Hammer, Lewiston, all of Utah, assignors to Icon Health & Fitness, Inc., Logan, Utah
Filed Jan. 30, 1996, Ser. No. 593,798
Int. Cl.⁶ A63B 22/02

U.S. Cl. 482-54

38 Claims



1. A treadmill comprising:
- support structure having feet means for positioning on a support surface and having an upright structure extending upwardly from said feet means;

174-444 O.G.-97-9: QL3

a tread base having a frame that includes a front, a rear, a left side, a right side and an endless belt positioned between said left side and said right side, said frame being connected to said support structure to be moveable about an axis of rotation between a first position in which said endless belt is positioned for operation by a user positioned thereon and a second position in which said rear of said frame is positioned toward said support structure, said tread base having a mass with a center of gravity, said mass being arranged to position said center of gravity relative to said axis of rotation to stably retain said tread base in said second position; and

inclination means connected to said frame and having rear feet means movably attached to said frame proximate said rear of said frame for positioning and supporting said tread base on a support surface in said first position, said inclination means being operable to move said rear feet means relative to said frame to vary the inclination of said tread base relative to a support surface.

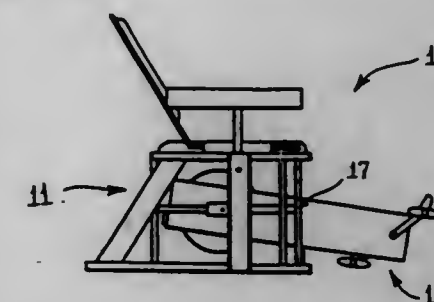
5,672,141

ADJUSTABLE CYCLING APPARATUS

Gary Lawrence Johnston, P.O. Box 183, Cowarts, Ala. 36321
Continuation of Ser. No. 274,286, Jul. 13, 1994, abandoned, which is a continuation of Ser. No. 131,396, Oct. 5, 1993, Pat. No. 5,342,261. This application Sep. 21, 1995, Ser. No. 531,938
Int. Cl.⁶ A63B 23/05

U.S. Cl. 482-57

6 Claims



1. An adjustable cycling apparatus which comprises:
- a structural frame unit comprising a rigid frame, an adjustable seat mounted on said rigid frame and having a back support means moveable along said rigid frame in a generally horizontal direction, and an assembly support;
 - a pedal mechanism assembly unit having a pedal assembly and a resistance means, said resistance means having a rotatable member, wherein said assembly unit is coupled to said assembly support of said structural frame unit to be pivoted in either the upward or downward direction, the point of pivot of said assembly unit being the axis of rotation of said rotatable member of said resistance means, such that said pedal assembly of said pedal mechanism assembly unit may be positioned at various locations;
- whereby said pedal assembly of said apparatus may be engaged by the feet of the user, so that the user may participate in defined lower body exercise routines while in a seated position.

5,672,142

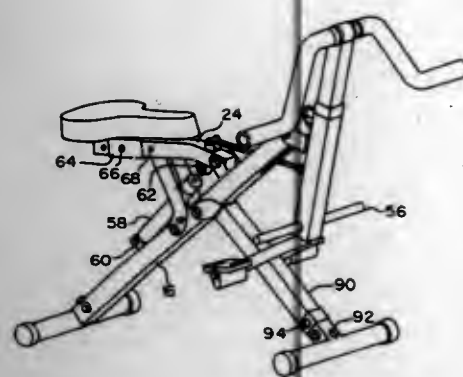
FOLDABLE EXERCISE DEVICE

Tien-Lai Wu, 58, Ma Yuan West Street, Taichung, Taiwan
Filed May 3, 1996, Ser. No. 642,801
Int. Cl.⁶ A63B 69/06

U.S. Cl. 482-96

27 Claims

1. An foldable exercise device comprising:
- elongated rear support structure having a rear floor engaging portion, said rear support structure being constructed and



structure and (2) the lower portion of said lever structure and said seat support structure to be moved beyond the range of the operative movements thereof into a storage position disposed generally alongside said rear support structure.

5,672,143

EXERCISE STATION FOR LEG EXERCISES

A. Buell Ish, III, Redmond, Wash., assignor to Vectra Fitness, Inc., Redmond, Wash.

Continuation-in-part of Ser. No. 597,522, Feb. 2, 1996. This application Jul. 12, 1996, Ser. No. 679,079
Int. Cl.⁶ A03B 23/04

U.S. Cl. 482-99

21 Claims

arranged to extend upwardly and forwardly of said rear floor engaging portion when the latter is disposed in operating relation in contact with a floor surface,

front support structure having a front floor engaging portion, said front support structure being pivotally coupled to said rear support structure at a coupling location so as to be disposed in operative relation in a position extending downwardly and forwardly of the coupling location to the front floor engaging portion in operating relation in contact with the floor surface,

each of said rear and front floor engaging portions having an extent sufficient to engage the floor surface at laterally spaced portions when disposed in operating relation to provide stability to the rear and front support structures when in operative relation,

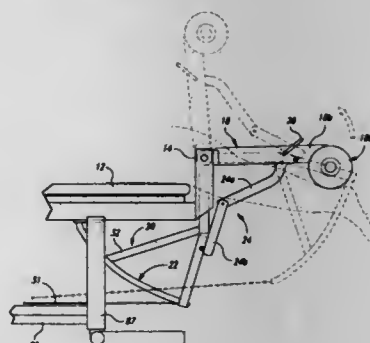
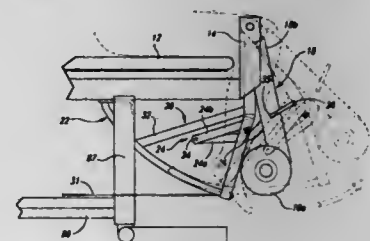
a seat support structure pivotally coupled to said rear support structure at a pivot location so as to be disposed in operative relation in a position extending rearwardly from the pivot location, said seat support structure having a seat fixedly mounted thereon in a position spaced from the pivot location thereof,

said seat support structure being constructed and arranged to be moved in said operative relation in opposite directions about its pivot location so that the seat moves arcuately upwardly and downwardly with the seat support structure within a range of operative movements between a lower limiting position wherein said seat is spaced above said rear support structure therebelow and an upper limiting position spaced above said lower limiting position,

an elongated lever structure pivotally connected to said rear support structure at a connection location so as to be disposed in operative relation in a position forwardly of the pivot location of said seat support structure, said lever structure in said operative relation having an upper portion extending upwardly from the connection location and a lower portion extending downwardly from the connection location,

said lever structure including foot supports coupled to the lower portion thereof, and a handlebar coupled to said upper portion of said lever structure and disposed forwardly of said seat, said lever structure being constructed and arranged to be moved in opposite directions about its connection location within a range of operative movements corresponding to the range of operative movements of said seat support structure, and

a connecting link structure pivotally connected between said lever structure and said seat support structure, said connecting link structure being constructed and arranged such that when said lever structure is moved about its connection location by a person seated on said seat by hand and foot movements on said handlebar and foot supports respectively, said seat support structure pivots about its pivot location within said range of operative movements so that the upwardly arcuate movements of said seat away from said lower limiting position are resisted by the weight of the person seated on said seat, said structures and the interconnection therebetween being constructed and arranged to permit (1) said front and rear support structures to be pivoted relative to one another about said coupling location into a storage position wherein said front support structure is generally alongside said rear support



1. An exercise station comprising:

a support frame;

a load unit and an exercise unit swing-mounted on said support frame for relative swinging movement, said exercise unit having first and second exercise positions for performing respective first and second exercises each causing swinging of said exercise unit in the same exercising direction; and

said load unit having different positions relative to said exercise unit when said exercise unit is in its first and second exercise positions;

a linkage constantly interconnecting said units such that when said exercises are performed, swinging movement of said exercise unit in said exercising direction causes like swinging movement of said load unit, said linkage having an extended condition when said first exercise is performed and having a folded position when said second exercise is performed whereby said load unit has said different positions relative to said exercise unit.

5,672,144

SLANT-BOARD EXERCISING DEVICE

Edward M. Hulme, 310 Maple St., Woonsocket, R.I. 02895

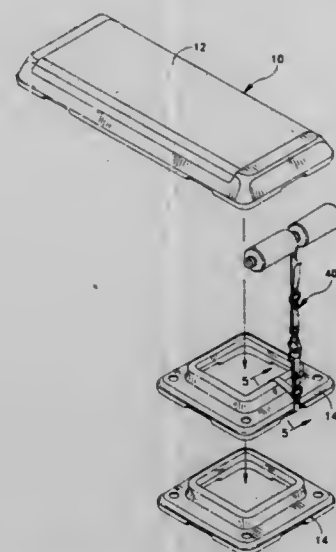
Filed May 15, 1995, Ser. No. 440,834

Int. Cl.⁶ A63B 26/00

U.S. Cl. 482-140

3 Claims

1. A kit for forming a slant board exercising device consisting of a step board and a knee restraint, said step board in turn comprising a pair of separate end supports adapted for longitudinal spacing from each other and a platform adapted for support by said supports and in turn adapted for longitudinally spanning the space between said supports, said knee restraint having opposed first and



second ends with said first end including means for attachment to at least one of said end supports and the second end having means for simultaneously contacting upper surface portions of the exerciser's lower thighs when the exerciser downwardly reclined upon said platform with said platform in turn supported at one end thereof by at least one of said end supports, said platform having a flat upper surface and a lower concave surface including end pockets for receiving the support portions of said end supports, said end supports having upper portions defined by an upstanding boss and said end portions further including lower concave surfaces forming a secondary pocket wherein said end supports interfit with each other with the boss of the lowermost first end supported extending into and received by the secondary pocket of the second end support positioned thereabove and the boss of the second end support received by the pocket of the step board end proximal thereto wherein both of said end supports are in superposed relationship to each other and in turn support said one end of said platform, said knee restraint including an elongated flexible strap terminating at its upper end in a transversely oriented bar adapted to span the exerciser's lower thighs with the proximal strap portion passing between the exerciser's knees and further including a loop at the lower strap end, said loop encircling a portion of at least one of said end supports which in turn are interfitted with each other and are positioned at said one end of said platform for connection thereto, said loop having the same orientation as said strap and both said loop and said strap having adjustment means for adjusting the loop size and the strap length respectively, said knee restraint being of two-piece construction wherein the bar terminates at the end of one piece and the loop terminates at an end of the other piece and the two pieces are joined centrally by means of a ring and snap fastener.

5,672,145

TOOL CAROUSEL

Andrew Roy Pollington, and Harish Mandalia, both of Leicester, England, assignors to Bridgeport Machines Inc., Bridgeport, Conn.

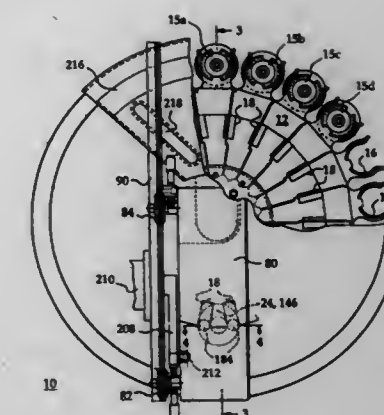
Filed Jun. 27, 1996, Ser. No. 670,163

Int. Cl.⁶ B23Q 3/157; A47F 5/05

U.S. Cl. 483-59

19 Claims

1. A tool carousel comprising: a carousel-wheel mounted on a shaft of the tool carousel; a series of holders mounted to, and distributed around the periphery of, the carousel-wheel, to hold respectively a series of individually removable tools; and a series of carousel-locator formations, distributed at intervals around the carousel-wheel and coaxing with powered indexing means, whereby the carousel-wheel can be rotated, or indexed, to any desired rotational position corresponding to a selected one of said tools; characterised in that the carousel-wheel of the tool carousel



5,672,146

EAF DUST TREATMENT

Jay Aota, Kanata, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by the Minister of Energy, Mines and Resources Canada, Ottawa, Canada

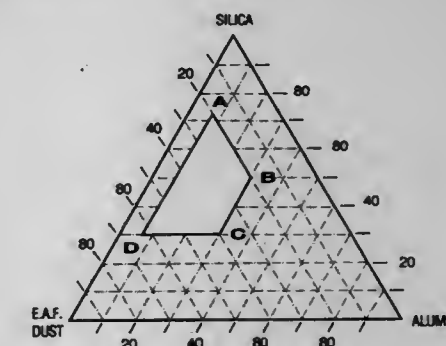
Filed Dec. 27, 1994, Ser. No. 363,929

Claims priority, application Canada, Dec. 1, 1994, 2137090

Int. Cl.⁶ B09B 3/00

U.S. Cl. 588-256

17 Claims



1. A process for the low temperature vitrification of a metal oxide containing waste material comprising the steps of:
(i) forming a powder composition containing from 20% to 63% by weight waste material; from 30% to 73% by weight silica; and from 7% to 30% by weight alumina;
(ii) adding to the composition sufficient water to form a substantially homogenous mass;
(iii) transferring the homogenous mass to a furnace;
(iv) heating the homogenous mass in the furnace for a sufficient time and to a temperature of less than about 1,300° C. to cause vitrification; and
(v) recovering the vitrified product in the form of a fired clinker.

5,672,147

Patent Not Issued For This Number

5,672,148

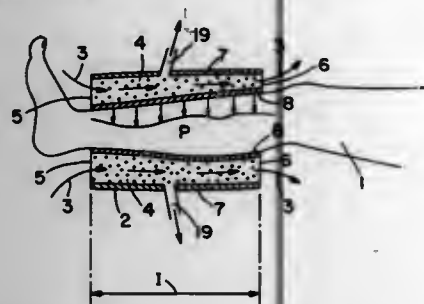
HYDRAULIC DEVICE FOR LYMPHATIC DRAINAGE AND MASSAGE OF THE HUMAN BODY

Daniel Maunier, 16, La Crémade, Le Tholonet, France, 13100
PCT No. PCT/FR92/01112, § 371 Date Sep. 19, 1994, § 102(e)
Date Sep. 19, 1994, PCT Pub. No. WO93/10739, PCT Pub.
Date Jun. 10, 1993

PCT Filed Nov. 30, 1992, Ser. No. 244,315
Claims priority, application France, Dec. 6, 1991, 91 15473
Int. Cl.⁶ A61H 7/00; 19/00

U.S. Cl. 601—148

5 Claims



1. A hydraulic device for lymphatic drainage and massage of a part of the human body, the device comprising:

an enclosure formed from a limb-facing inside wall and an outside wall and having a defined volume, said enclosure having at least one fluid inlet and outlet, each of which is in communication with said volume, said enclosure capable of covering and conforming to only a specific said part of the body wherein a fluid is continuously flowed throughout its entire defined volume in a flow direction desired for achieving said drainage and massage, said fluid having an initial pressure and flow rate when introduced into said inlet of said device, said flow rate through said enclosure being determined as a function of the cross-sectional volume flowing through the enclosure and of a fluid friction against the walls of said enclosure along which it circulates, wherein said outside wall is semi-rigid in order to modify a cross-section of the inside volume of the enclosure through which the fluid flows at a given point;

said device further including a plurality of pressure sensors disposed inside and along a length of said enclosure, said sensors connected to a common external central unit that compares a sensed pressure with a set of reference pressure values that have been previously determined as a function of a desired type of massage, and whereby said central unit can control the flow rate and the pressure of the fluid at the inlet to the enclosure in order to obtain said reference values.

5,672,149

CLAVICLE BANDAGE

Hans Grundel, Lübeck, Germany, assignor to Schutt & Grundel Orthopädietechnik GmbH, Lübeck, Germany
Filed Feb. 21, 1996, Ser. No. 603,532

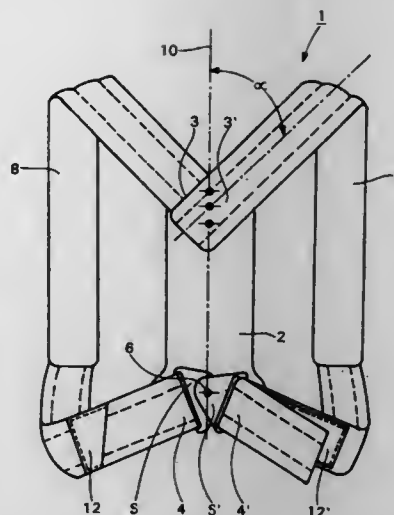
Claims priority, application Germany, Feb. 21, 1995, 195 05 854.2

Int. Cl.⁶ A61F 5/01

U.S. Cl. 602—19

9 Claims

1. A clavicle orthotic device comprising an oblong support element (2), two bands (8, 8') which are adjustable in length and made of an essentially non-elastic material, the bands being attached at their respective first ends (3, 3') in an upper region of the support element (2), and being detachably fastened at their respective second ends (4, 4') in a lower region of the support element (2), and two buckles (5, 5') pivotally attached to the support element for pivotally fastening the second ends about a pivot point (6) on the support element, the support element (2) having a plurality of holes (7) in its upper region, the first ends (3, 3') of the bands being fastened with attachment means that are adjustable in height to at least one of the plurality of holes on the



support element (2), and the support element (2) being constructed as an oblong plate element made of a firm, flexible material having an essentially T-shape, whereby a long leg (9) of the T-shape will run in a direction from caudal toward cranial region of a patient who wears the clavicle orthotic device.

5,672,150

WRIST BRACE WITH PALM SUPPORT

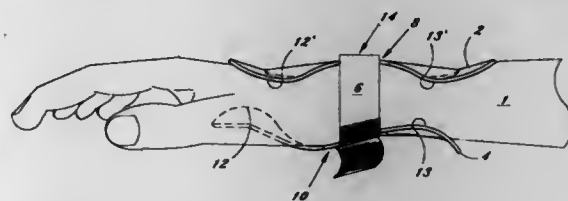
Michael F. Cox, 10135 Lexington Estates Blvd., Boca Raton, Fla. 33428

Filed Jul. 2, 1996, Ser. No. 674,717

Int. Cl.⁶ A61F 5/058; 5/37

U.S. Cl. 602—21

10 Claims



1. A brace for supporting a user's wrist comprising:

an elongated top member having a first end, a second end and an arched portion located between said first end and said second end, said arched portion adapted to be positioned on top of a bending point of a user's wrist and arched away from the bending point along the length of said elongated top member; an elongated bottom member having a first end, a second end and an arched portion located between said first end and said second end, said arched portion adapted to be positioned on bottom of the bending point of a user's wrist and arched away from the bending point along the length of said elongated bottom member; and

means for attaching said top member on top of a user's wrist and said bottom member on bottom of a user's wrist; said means for attaching being movably connected between said first end and said second end of said top member, said means for attaching being movably connected between said first end and said second end of said bottom member;

wherein said means for attaching forcibly clamps said top member and said bottom member on a user's wrist thereby immobilizing a user's wrist.

5,672,151

INTRAPALMAR ORTHOSIS

Jose Calderon-Garcidueñas, Paris #17 Col. Mirador 64070, Monterrey, Nuevo Leon, Mexico

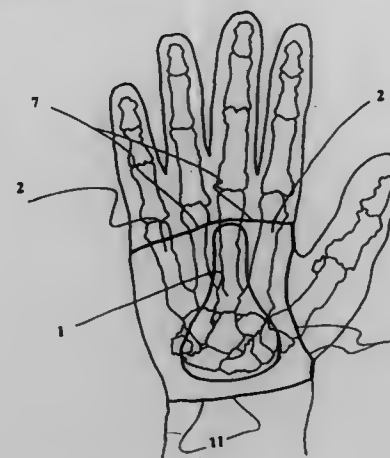
Continuation of Ser. No. 572,012, Dec. 14, 1995, abandoned.

This application Jan. 13, 1997, Ser. No. 785,155

Int. Cl.⁶ A61F 5/00

U.S. Cl. 602—21

4 Claims



1. An intrapalmar orthosis to protect and give palmar region stability and support to the osseous carpus region of a hand without limiting normal movement of fingers and thumb of the hand or normal wrist movement during manual work, comprising in combination:

a flexible gauntlet shaped and sized to fit only around the palmar region of the hand terminating short of the fingers and wrist and apertured for slipping over the thumb, thereby to permit unimpeded movement of the fingers and wrist, and

a semi-flexible palmar splint adapted to fit only over the carpus palmar region retained in said gauntlet and shaped with a carpus region from which extends a metacarpus tongue for following, covering and supporting dorsal and palmar contours of the hand in a rest position of the hand and to provide firm pressure on the palmar face of the carpus when the hand is doing manual work,

said metacarpus tongue leaving fingers free to move and having a palmar center structure serving as a support center on the orthosis at a mechanic center of the hand, whereby protection and support is given to reduce instability of the osseous carpus and to reduce pain induced from said instability while doing manual work while introducing little interference with normal functions of the hand.

5,672,152

HINGE FOR AN ORTHOPEDIC BRACE HAVING AN ADJUSTABLE RANGE OF ROTATION

Bradley R. Mason, Olivenhain, and Jeffrey T. Mason, Escondido, both of Calif., assignors to Breg, Inc., Vista, Calif.

Filed Nov. 28, 1995, Ser. No. 563,659

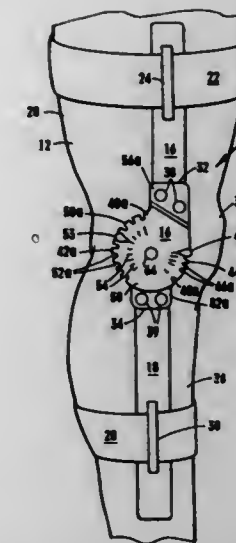
Int. Cl.⁶ A61F 5/01

U.S. Cl. 602—26

22 Claims

1. A hinge for an orthopedic brace comprising:

a first member having a first peripheral edge;
a second member having a second peripheral edge;
a pivotal connector connecting said first and second members;
a notch formed in said first peripheral edge;
a limiting face formed in said second member;
a stop selectively positionable in said notch and engageable with said limiting face upon rotation of said second member relative to said first member;
a biasing assembly biasing said stop radially inward from said first peripheral edge; and



a biasing anchor positioned radially inward from said first peripheral edge, wherein said biasing assembly engages said stop and said biasing anchor, thereby connecting said stop to said biasing anchor and biasing said stop radially inward from said peripheral edge, and further wherein said biasing assembly comprises a slidable member engaging said stop and a spring elastically engaging said slidable member and said biasing anchor such that said stop is rotatable and elastically radially displaceable relative to said first member.

5,672,153

MEDICAL PROBE DEVICE AND METHOD

Ronald G. Lax, Grassvalley, and James A. Baker, Palo Alto, both of Calif., assignors to Vidamed, Inc., Menlo Park, Calif.

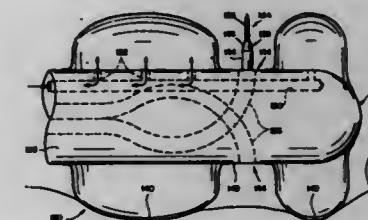
Continuation-in-part of Ser. No. 929,638, Aug. 12, 1992, abandoned, and Ser. No. 12,370, Feb. 2, 1993, Pat. No. 5,370,675.

This application Sep. 26, 1994, Ser. No. 311,814

Int. Cl.⁶ A61B 17/39

U.S. Cl. 604—22

59 Claims



1. A medical probe device for medical treatment of tissue at a treatment site through a natural body opening defined by a wall, comprising an elongate guide housing having proximal and distal extremities and having a passageway therein extending from the proximal extremity to the distal extremity along a longitudinal

axis, a stylet mounted in the guide housing and having proximal and distal extremities, a handle mounted on the proximal extremity of the guide housing, means mounted on the proximal extremity of the guide housing and connected to the stylet for causing advancement of the stylet through the passageway, the distal extremity of the guide housing being in communication with the passageway and permitting the distal extremity of the stylet to be advanced out of the passageway sidewise at an angle with respect to the longitudinal axis into the tissue, the stylet including a conductive radio frequency electrode and a layer of insulating material coaxially disposed on the conductive radio frequency electrode so that a predetermined portion of the conductive radio frequency electrode is exposed in the tissue and the layer of insulating material protects the wall and expandable balloon means mounted on the guide housing for engaging the wall.

5,672,154

METHOD AND APPARATUS FOR CONTROLLED INDIVIDUALIZED MEDICATION

Rudolf Vallentin Sillén, Ronneby, and Göran Wessberg, Upsala, both of Sweden, assignors to MiniDoc i Uppsala AB, Upsala, Sweden

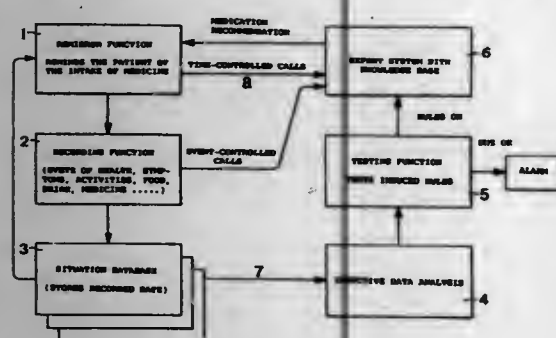
PCT No. PCT/SE93/00708, § 371 Date Feb. 27, 1995, § 102(e) Date Feb. 27, 1995, PCT Pub. No. WO94/06088, PCT Pub. Date Mar. 17, 1994

PCT Filed Aug. 27, 1993, Ser. No. 387,943

Claims priority, application Sweden, Aug. 27, 1992, 9202460 Int. Cl.⁶ A61M 31/00

U.S. Cl. 604—50

20 Claims



1. A method for determining a patient-specific medication regimen, comprising the steps of:
 - recording a first type of patient-specific information, including a type of medicine, a dosage, and a point of time in a database each time a patient ingests medicine;
 - recording a second type of patient-specific information describing a state of health of the patient at predetermined intervals in the database;
 - performing an inductive analysis of the patient-specific information recorded in the database to generate patient-specific proposed medication rules based on detected relationships between the patient's intake of medicine and the patient's state of health;
 - comparing the patient-specific proposed medication rules with one or more predetermined thresholds for approval, and storing approved rules; and
 - recalling the approved rules to decide whether medication is desired based on the patient's current state of health and, if so, a recommended type of medicine and a recommended dosage.

5,672,155

FLUID TRANSFER APPARATUS

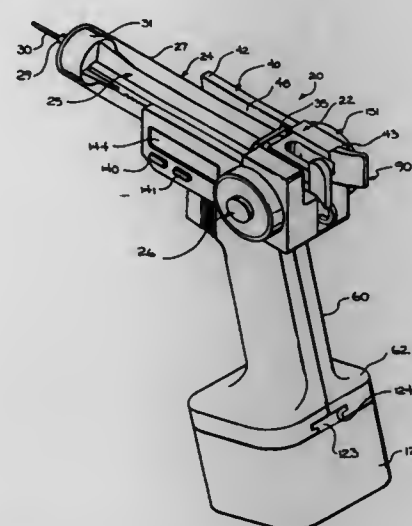
Robert Q. Riley, 6835 E. Sheena Dr., Scottsdale, Ariz. 85254, and Thomas J. Aksamit, 3222 E. Oregon Ave., Phoenix, Ariz. 85018

Filed Jun. 14, 1996, Ser. No. 662,226

Int. Cl.⁶ A61M 5/24

U.S. Cl. 604—154

22 Claims



1. A fluid transfer apparatus comprising:
 - a syringe having a barrel for holding fluid;
 - a plunger receivable within said barrel;
 - a body for holding said syringe;
 - a drive assembly having a power source, said drive assembly for actuating said plunger in a fill operation and a dispense operation;
 - control means for selectively controlling said drive assembly in a plurality of selectable modes of operation; and
 - sensor means for controlling the amount of current supplied to said drive assembly during operation thereof for inhibiting a fluid pressure within said barrel from exceeding a predetermined fluid pressure level during said dispense operation, and for controlling the amount of current supplied to said drive assembly during operation thereof for inhibiting a vacuum within said barrel from exceeding a predetermined vacuum level during said fill operation.

5,672,156

DEVICE TO AVOID TWISTS IN ANKLES

Antonio Jose Jimenez Ramos, Ronda de Sobradriel, No. 29 C-Purque del conde de Orgaz, Madrid, Spain

Filed Jun. 26, 1995, Ser. No. 494,849

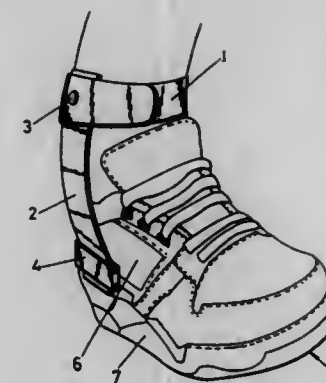
Claims priority, application Spain, Jun. 24, 1994, 9401387

Int. Cl.⁶ A61F 5/00; A43B 7/20

U.S. Cl. 602—27

5 Claims

1. A device for preventing twisted ankles comprising:
 - a shoe having a sole and an upper;
 - strap means, separate from said shoe, for encircling a leg above an ankle;
 - a substantially rigid sheet, an end of which is pivotally connected to said strap means; and
 - a box attached to said shoe which receives said rigid sheet therein.



5,672,157

LUMBAR TRACTION APPARATUS

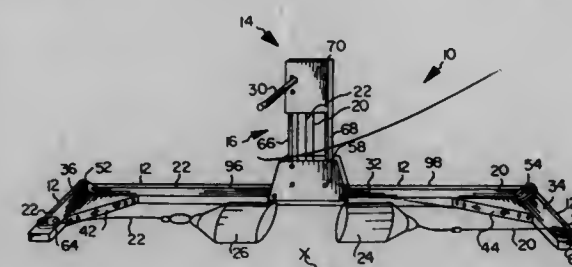
Shawn Gallagher, 375 Glendening Rd., Orange Park, Fla. 32073, and Timothy Brunelle, 4365 Cedar Rd., Orange Park, Fla. 32065

Filed Nov. 9, 1994, Ser. No. 336,515

Int. Cl.⁶ A61F 5/00

U.S. Cl. 602—32

20 Claims



20. A lumbar traction apparatus for applying traction to the back of a patient, comprising:
 - a frame structure including a connecting segment having two ends and arm segments, each segment attached to one of the ends of the connecting segment,
 - a winch support structure extending above said frame structure and mounted centrally on the connecting segment,
 - a winch assembly having hand crank means mounted on said winch support structure,
 - two harnesses for wrapping around the torso of the patient, tensioning cords extending from said winch assembly each to one of said two harnesses,
 - such that rotating said hand crank means on said winch assembly gathers both said cords and thereby pulls said harnesses apart to create traction in the back of the patient,
 - wherein said winch support structure has a base, additionally comprising first guide pulleys attached to said connecting segment at said base of said winch support structure, second guide pulleys attached to the ends of said connecting segment, and third guide pulleys secured to said arm segments, wherein said tensioning cords extend from said winch assembly to said first guide pulleys, then said cords extend in opposite directions along said connecting segment to said second guide pulleys, and said cords extend from said second guide pulleys along said arm segments to said third guide pulleys, and each connect to one of said harnesses.

5,672,158

CATHETER INTRODUCER

Yosuka Okada, Morimachi Ichimyya, and Munchito Kurimoto, Asaba-cho, both of Japan, assignors to Sherwood Medical Company, St. Louis, Mo.

PCT No. PCT/US93/00437, § 371 Date Jul. 6, 1994, § 102(e) Date Jul. 6, 1994, PCT Pub. No. WO93/13822, PCT Pub. Date Jul. 22, 1993

PCT Filed Jan. 5, 1993, Ser. No. 90,098

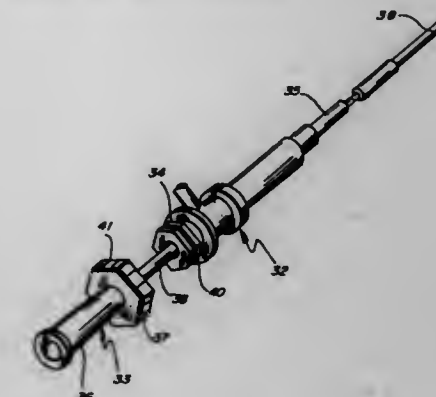
Claims priority, application Japan, Jan. 7, 1992, 4-000161 U; Jan. 29, 1992, 4-002826 U

Int. Cl.⁶ A61M 5/00

U.S. Cl. 604—164

15 Claims

1. A catheter introducer comprising:



- a sheath section having distal and proximal end portions.
- a generally cylindrical sheath hub formed on said proximal end portion of said sheath section, said sheath hub including an outer circumference and a longitudinal passageway extending therethrough;
- a generally elongate and tubular sheath member formed on said distal end portion of said sheath section, a longitudinal passageway extending therethrough and said passageway extending in flow communication with said passageway of said sheath hub;
- a dilator member having distal and proximal end portions thereof and said dilator member being operatively associated with said sheath member in use;
- a generally cylindrical dilator hub formed on said end portion of said dilator member, said dilator hub including a flange means extending from a distal portion thereof and said flange being sized to receive at least a portion of said sheath hub therewith; and
- means for locking said sheath hub on said dilator hub wherein said means for locking includes at least one protrusion and at least one channel and one of said at least one protrusion and at least one channel is formed on said outer circumference of said sheath hub and the other of said at least one protrusion and at least one channel is formed on said flange member, said at least one protrusion and said at least one channel being formed to interlock such that rotational and longitudinal movement of said sheath hub and said dilator hub is prevented when said at least one protrusion and said at least one channel are interlocked and said at least one protrusion and said at least one channel are sized and oriented to unlock when a lateral force is applied to said dilator hub with respect to said sheath hub to release said sheath hub from said dilator hub.

5,672,159

MEDICAL TUBING SUPPORT

Nancy J. Warrick, 300 N. 130th St., Seattle, Wash. 98133

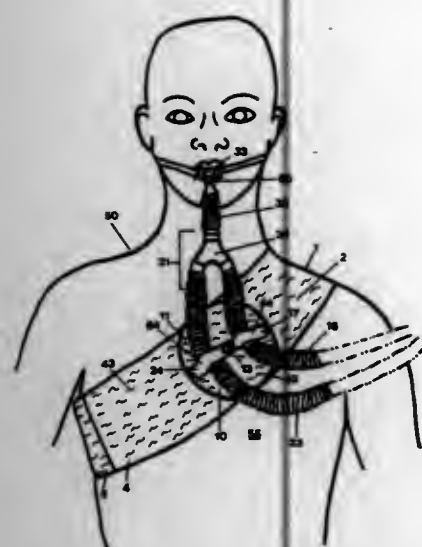
Filed Sep. 30, 1996, Ser. No. 724,212

Int. Cl.⁶ A61M 5/32

U.S. Cl. 604—179

9 Claims

1. A medical tubing support, comprising:



- a. a harness strap capable of being selectively attached around a portion of patient;
- b. a detachable pad capable of being selectively attached to said harness strap;
- c. at least one adjustable strap pivotally attached to said detachable pad, said adjustable strap capable of being wrapped around an object to hold said object on said detachable pad; and,
- d. a fixing means disposed between said detachable pad and said adjustable strap to selectively fix said adjustable strap in position on said detachable pad.

5,672,160

MEDICAL DEVICES

Roland J. Österlind, Hoeganaes, and Ulf H. Wahlberg, Helsingborg, both of Sweden, assignors to The BOC Group plc, Windlesham, England

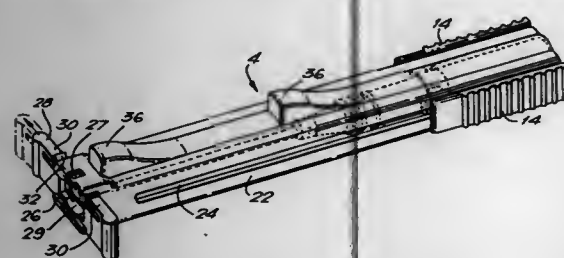
Filed Jan. 19, 1996, Ser. No. 588,644

Claims priority, application United Kingdom, Jan. 21, 1995, 9501218.3

Int. Cl.⁶ A61M 3/00

U.S. Cl. 604—263

5 Claims



1. A medical device comprising a hollow needle having a sharpened distal end for piercing the skin of a patient, a housing for containing said needle and having a distal end, means for moving said needle longitudinally relative to said housing, said moving means being employed to extend said needle from said distal end of said housing to a needle extended position for use with the patient and to retract said needle after use back within the housing to a needle protected position, a door located outside said housing, said door having an aperture and mounted for sliding movement immediately adjacent the distal end of said housing to move between a first position in which said needle can pass through said aperture in said door to said needle extended position and a second position where said needle cannot pass through said aperture in said door and said needle is prevented from movement from said needle protected position.

5,672,161

NEEDLE ASSEMBLY HAVING SINGLE-HANDEDLY ACTIVATED NEEDLE BARRIER

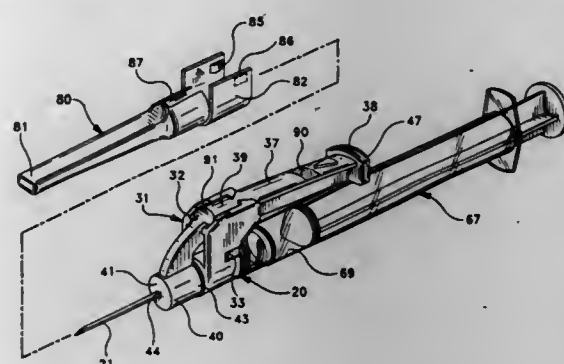
William J. Allen, Stratford, and Jeffrey A. Stein, Woodbridge, both of Conn., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Filed Sep. 20, 1996, Ser. No. 717,384

Int. Cl.⁶ A61M 5/32

U.S. Cl. 604—263

20 Claims



1. A needle assembly having a single-handedly activatable needle barrier comprising:

a needle cannula having a proximal end, a distal end, and a lumen therethrough defining a longitudinal axis;

a needle hub having an interior cavity terminating at an open proximal end of said hub, said hub connected to said needle cannula so that said lumen is in fluid communication with said interior cavity;

a guide element connected to said needle hub having a retaining groove therethrough;

an elongate barrier arm having a proximal end and a distal end, said distal end of said barrier arm including a barrier element having a distal end, a proximal end and a needle passageway therethrough having a longitudinal axis, said barrier arm positioned within said groove of said guide element and said needle cannula positioned at least partially within said barrier element, said barrier arm being movable from at least a first retracted position wherein said distal end of said cannula passes completely through said barrier element so that said distal end of said needle cannula is exposed, to a second extended position wherein said barrier element surrounds said distal end of said cannula to prevent incidental contact with said distal end of said cannula;

locking means for preventing the movement of said barrier arm from said second extended position, said locking means being activated by movement of said barrier arm into said second extended position, said locking means including said distal end of said barrier arm defining a distal longitudinal axis and said proximal end of said barrier arm defining a proximal longitudinal axis, said barrier arm being configured so that said distal longitudinal axis and said proximal longitudinal axis are at an obtuse angle with respect to each other and when said proximal end of said barrier arm is in said groove said needle passageway longitudinal axis is misaligned with said needle cannula longitudinal axis; and

finger contact surface on said barrier arm for applying digital pressure to said barrier arm to move said barrier arm into said second extended position.

5,672,162

CLOSURE DELIVERY SYSTEM

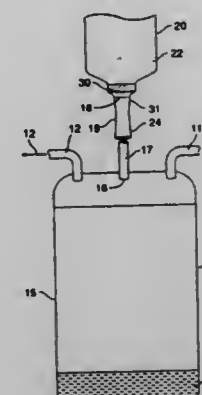
Hal P. Smith, Powder Springs, Ga., assignor to Isolysor Co., Inc., Norcross, Ga.

Continuation-in-part of Ser. No. 347,944, Dec. 1, 1994, Pat. No. 5,584,825. This application Apr. 11, 1995, Ser. No. 421,422

Int. Cl.⁶ A61M 1/00; A61B 19/00

U.S. Cl. 604—319

9 Claims



1. A system for the introduction of a fluid to an internal volume of a suction canister, said system including a suction canister having sidewalls and a top, said top having ports configured therein, a first of said ports being connected to tubing which is, in turn, capable of being in communication with an internal body cavity of a human patient and second port being connected to a vacuum source for creating a vacuum within said suction canister, at least one additional port being a fluid introduction port, said fluid introduction port comprising a substantially circular opening, said circular opening being surrounded by a cylindrical duct extending outwardly from said top, said system further comprising a fluid-containing vessel, said fluid-containing vessel having a tubular extending dispensing port sized to pass over and capture said cylindrical duct when said fluid-containing vessel is positioned over and in contact with said suction canister, said fluid-containing vessel further having a fluid reservoir having a hole configured therein and being segregated from said tubular extending dispensing port by a substantially circular membrane, said membrane being scored so as to rupture by said cylindrical duct upon the application of nominal pressure exerted upon said fluid-containing vessel when said tubular extending dispensing port is positioned over and in contact with said suction canister.

5,672,163

OSTOMY POUCH WITH INTERVENING MEMBRANE AND SUPERABSORBENT

Adolfo A. Ferrelra, Montgomery, N.J., and Gary E. Oberholtzer, Feasterville, Pa., assignors to Bristol-Myers Squibb Company, New York, N.Y.

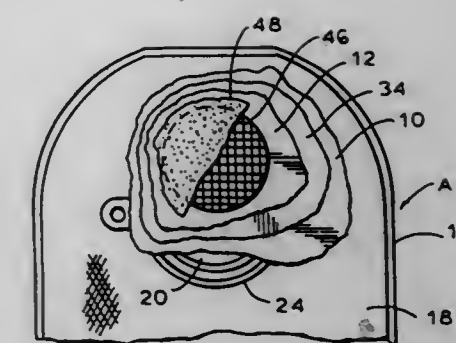
Filed Apr. 26, 1996, Ser. No. 639,873

Int. Cl.⁶ A61F 5/44

U.S. Cl. 604—333

7 Claims

1. An ostomy pouch for collecting waste from a stoma on a human body comprising first and second walls joined along at least a portion of their peripheries to define a waste receptacle, an inlet opening in said first wall, means for adhering the pouch to the body with the stoma aligned with said inlet opening, a gas vent hole in said second wall, a gas permeable and liquid-impermeable membrane interposed between said walls, dividing said receptacle into an inlet chamber and an outlet chamber, a filter member covering said vent hole, a first section of superabsorbent material covering said filter member for removing moisture and thereby retarding blockage of said filter and a second section of superabsorbent material situated within said outlet chamber and apart from



said filter member for removing moisture from said outlet chamber and thereby retarding blockage of said membrane by said second wall.

5,672,164

DISPOSABLE ABSORBENT ARTICLE HAVING AN EXTENDED SUBLAYER

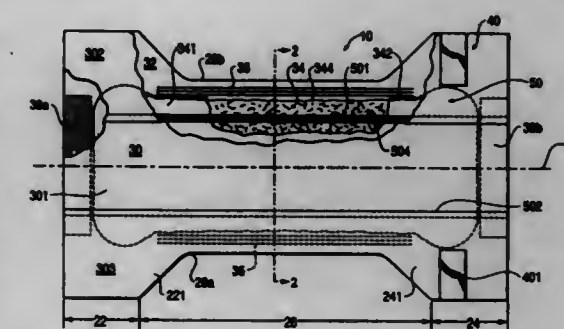
Patrick L. Crane, 140 Aspen Lake Dr., Newnan, Ga. 32063

Filed Jun. 7, 1995, Ser. No. 473,962

Int. Cl.⁶ A61F 13/15; 13/20

U.S. Cl. 604—378

11 Claims



1. A disposable absorbent article having a front waist region, a rear waist region and a crotch region, said absorbent article comprising:

a backsheet;

a topsheet associated with said backsheet;

an absorbent core disposed between said backsheet and said topsheet, said absorbent core having spaced side edges and end edges;

a front waist region;

a rear waist region;

a crotch region between said front and rear waist regions;

a pair of leg openings intermediate the front and rear waist regions;

leg elastics positioned adjacent said leg openings;

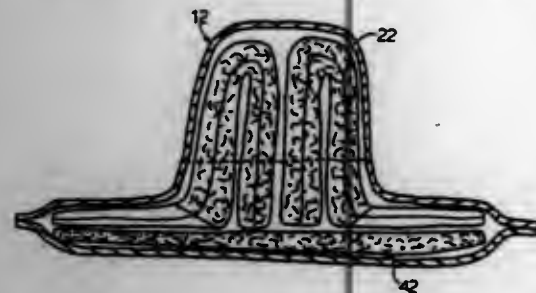
said topsheet further comprising a central panel and a pair of outboard panels, each of said outboard topsheet panels having a first portion and a second portion integrally formed with and extending from said first portion, said second portion comprising an upstanding waste containment flap attached to said central topsheet panel above said absorbent core; and

a sublayer positioned between said topsheet and said absorbent core, said sublayer having side edges extending beyond said side edges of said absorbent core, said side edges of said sublayer bonded to said backsheet between said side edges of said absorbent core and said leg elastics.

5,672,165
MENSTRUAL HYGIENE PRODUCT
 June Marian Belecky, 6-113 Elmwood Ave. East, London, Ontario, Canada, N6C 1J5, and Sonia Rosa Benetti, 489 St James Street, London, Ontario, Canada, N5W 3P4
 Continuation of Ser. No. 475,906, Jun. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 159,604, Dec. 1, 1993, abandoned, which is a continuation of Ser. No. 963,141, Oct. 19, 1992, abandoned. This application Jan. 6, 1997, Ser. No. 778,068

U.S. Cl. 604—383 Int. Cl. A61F 13/15

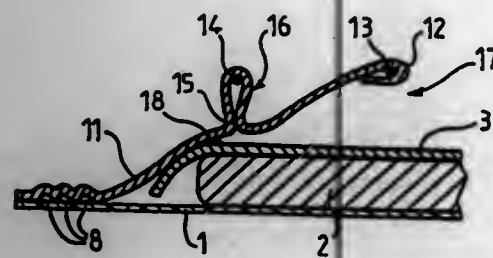
11 Claims



1. A feminine menstrual hygiene product comprising an absorbent pad having opposite sides, opposite ends, corners defined at intersections of the sides and ends, respectively, and a longitudinal extent greater than a transverse extent, said absorbent pad comprising layers of absorbent sheets in a thrice folded condition, said pad folded once longitudinally end to end, then folded once transversely side to side, and then folded once diagonally corner to corner, the portion of the pad on one side of the diagonal fold adjacent the longitudinal fold and transverse fold presenting a folded insert having a structural integrity from said folds for positioning within a labia and the portion of the pad on the other side of the diagonal fold presenting opposed panels extending orthogonally from said insert, said insert being fully positionable within a vestibule of a wearer to occlude menstrual fluids, and a covering encasing said absorbent pad.

5,672,166
DISPOSABLE ABSORBENT ARTICLE OF HYGIENE WITH DOUBLE LEAKPROOFING BARRIER AND PROCESS OF MANUFACTURE
 Philippe Vandemoortele, Lille, France, assignor to Peaudouce, Linselles, France
 PCT No. PCT/FR94/00857, § 371 Date Jan. 5, 1996, § 102(e) Date Jan. 5, 1996, PCT Pub. No. WO95/02381, PCT Pub. Date Jan. 26, 1995
 PCT Filed Jul. 8, 1994, Ser. No. 569,265
 Claims priority, application France, Jul. 12, 1993, 93 08566 Int. Cl. A61F 13/15 13/20

U.S. Cl. 604—385.2 16 Claims

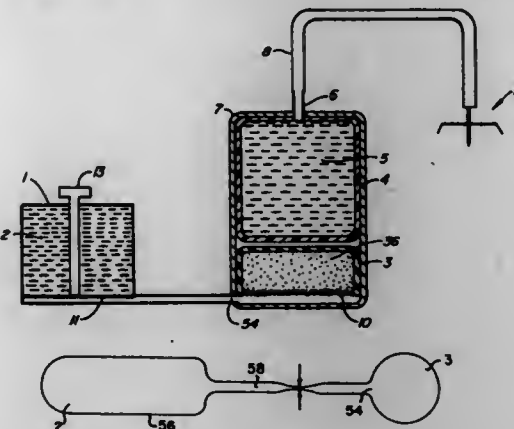


1. A disposable absorbent article of hygiene, such as a diaper or dressing for the incontinent, comprising:
 a liquid-imperious supporting sheet which has opposite lengthwise edges and transverse edges, each of the lengthwise edges

comprising an indentation defining a crotch region of a width narrower than two end regions of increased width;
 an absorbent pad secured to the supporting sheet and smaller in size than the supporting sheet;
 a liquid-permeable cover sheet of substantially rectangular shape, secured to the absorbent pad and of sufficient size to cover the absorbent pad at least in the crotch region;
 first lengthwise elastic members secured, in a stretched state, to the supporting sheet outside lengthwise edges of the pad;
 two side flaps made of flexible material, of substantially rectangular shape and of a length greater than a length of the pad and which are secured to the supporting sheet symmetrically in relation to a median lengthwise axis of the article;
 each of the flaps comprises an intermediate part of a length which is at least substantially equal to the crotch region and smaller than the length of the absorbent pad, joining together two end parts;
 the end parts of one of the flaps are joined to the end parts of another of the flaps along the median lengthwise axis;
 the intermediate parts of each of the flaps comprise an identical lengthwise fold of a length which is at least substantially equal to that of the crotch region pointing vertically towards an interior of the article and situated above the absorbent pad nearer to corresponding lengthwise edge of the absorbent pad than to the median lengthwise axis;
 second elastic members of a length which is at least substantially equal to that of the crotch region are secured, in a stretched state, to an inside of each of the lengthwise folds;
 each of the said flaps is secured to the cover sheet by a lengthwise connecting line situated substantially outside in relation to the lengthwise fold and above the pad in the crotch region;
 so that the opposite lengthwise edges of said intermediate parts of the flaps form together on a major part of their length a lengthwise opening of oblong shape above the absorbent pad, this opening forming a first peripheral leakproofing barrier and said folds forming a second leakproofing barrier situated outwardly with respect to said first barrier.

5,672,167
CONTROLLED RELEASE OSMOTIC PUMP
 Amulya L. Athayde, Mountain View; Rolf A. Faste, Stanford; C. Russell Horres, Jr., Del Mar, and Thomas P. Low, La Honda, all of Calif., assignors to Recordati Corporation, Allendale, N.J.
 Continuation-in-part of Ser. No. 115,506, Sep. 1, 1993, abandoned, which is a continuation of Ser. No. 526,120, May 21, 1990, Pat. No. 5,257,987. This application Apr. 15, 1994, Ser. No. 227,968
 Int. Cl. A61K 9/22

U.S. Cl. 604—892.1 25 Claims

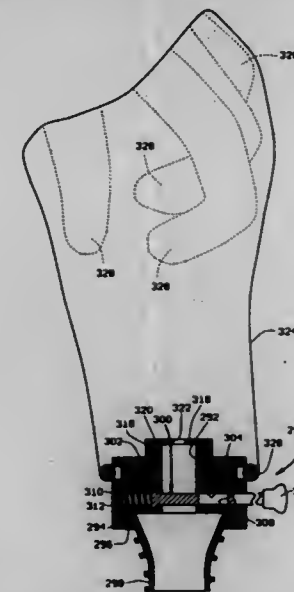


1. A pump comprising:
 a. a first pouch containing a liquid to be pumped and having an outlet;

b. a second pouch in pressure transmitting relationship to said first pouch;
 c. an integral power source comprising:
 a pressure generating means for generating pressure in said second pouch, comprised of an osmagent and a liquid permeant, wherein a driving fluid is produced when the liquid permeant contacts the osmagent;
 d. a housing containing said first and second pouches said housing being in restraining relationship to the aforesaid first and second pouch;
 e. an activating means for initiating the action of said pressure generating means comprising:
 a flexible tube fluidly coupling the liquid permeant which is to contact the osmagent with a semipermeable membrane when the flexible tube is in an open condition; and means for selectively retaining the tube in a closed condition thereby fluidly isolating the liquid permeant from the semipermeable membrane.

5,672,168
LAPAROSCOPIC ACCESS PORT FOR SURGICAL INSTRUMENTS OR THE HAND
 Roger A. de la Torre, 48 Dauphine Dr., Lake, St. Louis, Mo. 63367; James Stephen Scott, 131 Mulfield Crest Ct., St. Charles, Mo. 63304, and Janine C. Robinson, 101 Alameda Ave., Half Moon Bay, Calif. 94019
 Continuation-in-part of Ser. No. 319,986, Oct. 7, 1994, Pat. No. 5,653,705. This application Sep. 27, 1995, Ser. No. 534,835
 Int. Cl. A61B 19/00

U.S. Cl. 606—1 13 Claims

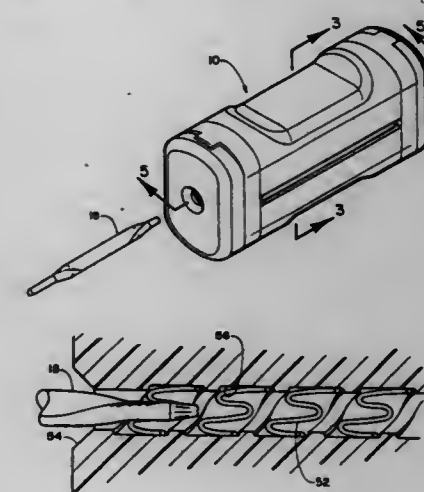


10. A surgical apparatus providing hand and surgical instrument access through a body tissue incision and providing a sealing closure of the incision, the apparatus comprising:
 an access port housing having a surface configured to be placed on the body tissue over the incision, the housing having an exterior dimensioned sufficiently large to surround the incision, the housing having an access opening extending through that provides access to the incision surrounded by the housing from outside the housing, and a valve element on the housing that is selectively opened providing access to the incision through the access opening and closed preventing access to the incision through the access opening;
 the valve element on the housing is manually operable from outside the housing to selectively open and close access to the incision through the access opening; and
 the valve element has a gate mounted on the housing for movement between first and second positions of the gate relative to the housing, and the gate has an inlet opening

positioned on the gate so that the gate blocks the access opening of the housing when the gate is in the first position, and the inlet opening is aligned with the access opening when the gate is in the second position.

5,672,169
STENT MOUNTING DEVICE
 Marcel A. E. Verbeek, Geleen, Netherlands, assignor to Medtronic, Inc., Minneapolis, Minn.
 Filed Apr. 10, 1996, Ser. No. 630,183
 Int. Cl. A61B 17/00

U.S. Cl. 606—1 12 Claims



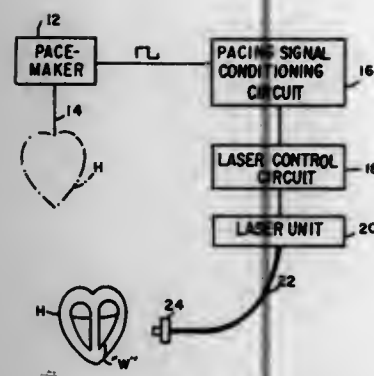
1. A device for crimping a stent onto a catheter delivery system which comprises:
 a generally tubular channel having a longitudinal axis and having a circumferential wall formed by four spaced longitudinal segments of four spaced blocks;
 retention means along said generally tubular channel for retaining a stent against said circumferential wall;
 entrance means at an end of said generally tubular channel for allowing a delivery system to be inserted into said generally tubular channel and be positioned at a predetermined position relative to said retention means;
 pressure application means for forcing said four spaced longitudinal segments toward said longitudinal axis to compress and crimp said stent against said delivery system to form a unitary delivery system and stent assembly; and
 elastic means engaging said four blocks for releasing said compression and expanding said channel to allow said delivery system and stent assembly to be removed from said channel through said entrance means.

5,672,170
LASER TRANSMYOCARDIAL REVASCULARIZATION ARRANGEMENT
 George E. S. Cho, Hopkinton, and Horace W. Furumoto, Wellesley, both of Mass., assignors to Cynosure, Inc., Bedford, Mass.

Filed Jun. 20, 1996, Ser. No. 666,251
 Int. Cl. A61B 5/06; A61N 1/362

U.S. Cl. 606—12 18 Claims

1. A pacemaker synchronized laser system for performing transmural myocardial revascularization of a beating heart, comprising:
 a laser device having a laser energy delivery conduit;
 an electronic pacemaker for connection to a heart to be treated, to control the cardiac rhythm of a heart to be treated; and
 a control circuit connected to both said pacemaker and to said laser device, to activate said laser device at specific predeter-



mined intervals, to permit said laser energy delivery conduit to ablate a portion of a wall of a heart being treated only during certain safe specific pacemaker controlled intervals.

5,672,171

APPARATUS AND METHOD FOR INTERSTITIAL LASER TREATMENT

W. Scott Andrus; Mark Polyak, and Sidney F. Hauschild, all of New York, N.Y., assignors to American Medical Systems, Inc., Minnetonka, Minn.

Filed Jun. 30, 1994, Ser. No. 268,358

Int. Cl.⁶ A61B 17/36

U.S. Cl. 606—15

7 Claims



1. An apparatus assembly for performing interstitial laser coagulation comprising, in combination, a delivery tool, a flexible cannula having a proximal end, a distal end, and outer and inner tubes which can be moved together and can slide axially with respect to each other, an actuator and a waveguide having a distal end and a proximal end, wherein the delivery tool comprises an elongated double lumen tube attached to a handle which includes a gripping portion and a rail wherein the double lumen tube is attached to one side of said gripping portion of the handle and the rail extends from a side of the gripping portion opposite to the double lumen tube, the double lumen tube comprises a first lumen adapted to receive and guide a viewing endoscope and a second lumen within which the flexible cannula and waveguide are accommodated longitudinally and which has a curved distal portion, the actuator comprises a slider with two flexible arms and a trigger, wherein the trigger has two sides which pivot in the slider between forward and backward fixed positions, each of which positions is fixed by snap means consisting of a bump on each side of the trigger and a cooperating hole on each flexible arm of the slider, the proximal end of the outer tube of the cannula being attached to the trigger and the proximal end of the inner tube of the cannula being attached to the slider so that movement of the trigger and slider produces corresponding movement of the outer and inner tube, respectively, the waveguide passing through a channel in the slider and into and through the inner tube of the cannula and a space between the waveguide and the inner tube defining a passageway for liquid to be delivered to the distal end of the waveguide.

5,672,172

SURGICAL INSTRUMENT WITH ULTRASOUND PULSE GENERATOR

Paul F. Zupkas, San Diego, Calif., assignor to Vros Corporation, San Diego, Calif.

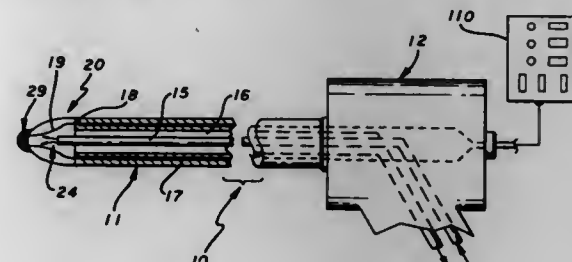
Continuation of Ser. No. 265,666, Jun. 23, 1994, abandoned.

This application Jun. 6, 1995, Ser. No. 468,717

Int. Cl.⁶ A61B 17/36

U.S. Cl. 606—20

13 Claims



1. A surgical instrument which comprises:

- (a) a rigid probe adapted for insertion into the body of a host and including integral means for manipulating the tissue of said host, wherein said probe comprises
 - (i) a shaft portion containing a plurality of passageways segregated from one another,
 - (ii) a first series of passageways defining an inlet channel for a refrigerant fluid through the shaft,
 - (iii) a second series of passageways defining an outlet channel for the refrigerant fluid through the shaft,
 - (iv) a sealed chamber formed at the tip of the shaft which communicates with both inlet and outlet channels,
 - (v) a handle portion connecting the passageways in the shaft to coupling means,
 - (vi) first coupling means for connecting the inlet channel to a source of refrigerating fluid,
 - (vii) second coupling means for connecting the outlet channel to a means for exhausting the refrigerating fluid,
 - (viii) third coupling means for connecting wires from the ultrasound transducer element to external electronics; and
- (b) a non-imaging ultrasonic transducer comprising means for operative connection to external imaging means, said transducer composed of a single ultrasound element adapted solely for transmitting or receiving a nondiscrete omnidirectional ultrasound signal, said transducer element operatively incorporated into said probe so as to provide means for locating and positioning said manipulation means within a space within the body of the host and to provide means for enhancing the visualization and identification of soft tissue manipulated by said manipulation means.

5,672,173

MULTIPLE ANTENNA ABLATION APPARATUS AND METHOD

Edward J. Gough, Menlo Park, and Alan A. Stein, Moss Beach, both of Calif., assignors to Rita Medical Systems, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 515,379, Aug. 15, 1995. This application Dec. 19, 1995, Ser. No. 576,436

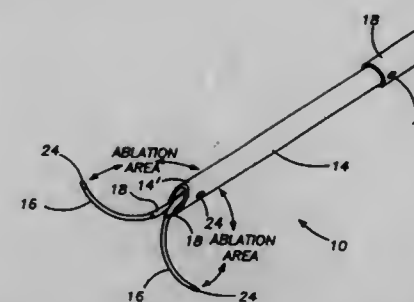
Int. Cl.⁶ A61B 17/39

U.S. Cl. 606—41

27 Claims

1. An ablation treatment apparatus, comprising:

- a multiple antenna device configured to be coupled to an energy source and including a primary antenna with a lumen, a distal end sufficiently sharp to pierce tissue and a longitudinal axis, and a secondary antenna including a distal portion and at least partially positioned in the primary antenna as the primary antenna is introduced through tissue, at least a part of the distal portion is configured to be deployed from the primary antenna in a lateral direction relative to the longitudinal axis at a selected tissue mass with at least one radius of curvature, at least a portion of a distal end of the secondary antenna is



constructed to be structurally less rigid than the primary antenna, and the primary antenna is constructed to be rigid enough to be introduced through tissue; and at least one cable coupling the multiple antenna device to the energy source.

5,672,174

MULTIPLE ANTENNA ABLATION APPARATUS AND METHOD

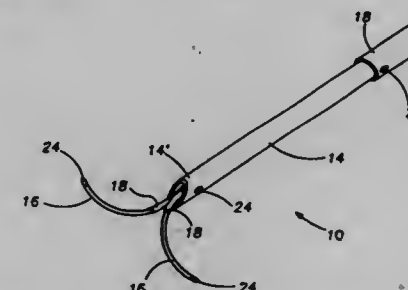
Edward J. Gough, Menlo Park, and Alan A. Stein, Moss Beach, both of Calif., assignors to Rita Medical Systems, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 515,379, Aug. 15, 1995. This application Jan. 16, 1996, Ser. No. 585,532

Int. Cl.⁶ A61B 17/39

U.S. Cl. 606—41

43 Claims



1. An ablation treatment apparatus, comprising:

- a multiple antenna device including a primary antenna with a lumen, a longitudinal axis, a distal end sufficiently sharp to pierce tissue and an energy delivery surface with a length L_1 , and a secondary antenna at least partially positioned in the primary antenna as the primary antenna is introduced through tissue and a secondary antenna distal portion deployable at a selected tissue site with an energy delivery surface of length L_2 that is at least equal to $\frac{1}{2} L_1$, wherein at least a portion of the secondary antenna has at least one radius of curvature when introduced from the primary antenna; and a cable coupled to the multiple antenna device.

5,672,175

DYNAMIC IMPLANTED SPINAL ORTHOSIS AND OPERATIVE PROCEDURE FOR FITTING

Jean Raymond Martin, 11 rue des Sources, 31170 Tournefeuille, France

Continuation of Ser. No. 196,319, Feb. 15, 1994, abandoned.

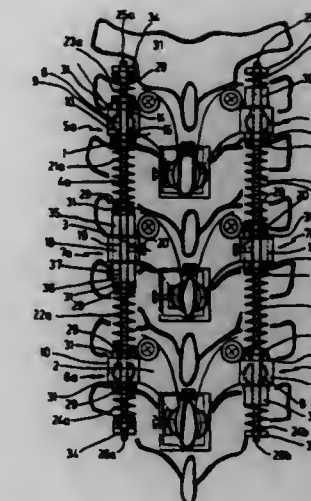
This application Feb. 5, 1996, Ser. No. 595,421

Int. Cl.⁶ A61B 17/56

U.S. Cl. 606—61

26 Claims

1. An implanted dynamic vertebral orthosis for adjusting the relative positions of spinal vertebrae with respect to a vertical axis comprising anchoring members for securing to the vertebrae and holding means connected to the anchoring members, said holding means including at least one curved holding rod which is flexible and elastic in bending and connected to said anchoring members



for anchoring at least two different vertebrae, and coupling means for connecting said holding rod to said anchoring members, wherein said coupling means comprises a first coupling member preventing all relative horizontal translational sliding movement of the vertebrae, while permitting relative longitudinal translational sliding movement along said vertical axis and relative rotational movement about said vertical axis of said holding means having elastic return means capable of exerting elastic return forces having predetermined orientation and magnitude between said anchoring members, for holding the vertebrae in a predetermined corrected position against natural deforming forces for reducing the overall forces exerted on the vertebrae.

5,672,176

ANCHORING MEMBER

Lutz Biedermann, Am Schiffersteig 8, D-78048 VS-Villingen, and Jürgen Harms, D-Maximilianstr. 5, D-76133 Karlsruhe, both of Germany

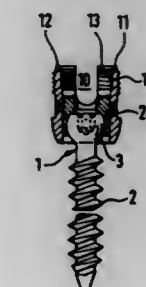
Filed Mar. 5, 1996, Ser. No. 611,991

Claims priority, application Germany, Mar. 15, 1995, 195 09 332.1

Int. Cl.⁶ A61B 17/70

U.S. Cl. 606—61

12 Claims



1. An anchoring member for connecting a rod with a bone, said anchoring member comprising a screw member having a threaded portion and a screw head with a spherical segment-shaped portion, a seat part receiving said screw head and said rod, said seat part having a first end, a second end opposite to said first end, an axis of symmetry passing through said first and second ends, a bore which is coaxial with said axis of symmetry for passing said threaded portion therethrough and has a first portion adjacent to said first end, said first portion having a substantially U-shaped cross-section with two free legs with an internal screw thread for receiving said rod therebetween, and a second portion adjacent to said second end, said second portion tapering towards said second end with a predetermined cone angle,

and a pressure member formed to embrace said screw head from its side opposite to said threaded portion and having an outer conical surface in a region laterally surrounding said screw head, said conical surface tapering towards said second end with a cone angle corresponding to said predetermined cone angle.

5,672,177

IMPLANTABLE BONE DISTRACTION DEVICE

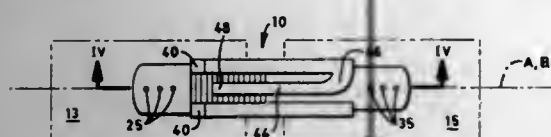
Edward B. Seldin, Cambridge, Mass., assignor to The General Hospital Corporation, Boston, Mass.

Filed Jan. 31, 1996, Ser. No. 594,157

Int. Cl.⁶ A61B 17/58

U.S. Cl. 606—71

8 Claims



1. An implantable device for distracting first and second bone segments, comprising:

- A. an elongated first plate extending along a first axis between first and second ends thereof, said first plate having an upper surface and a lower surface, and having means near said first end for affixing said first plate to said first bone segment whereby said lower surface of said first plate is adjacent to said first bone segment;
- B. an elongated second plate extending along a second axis between first and second ends thereof, said second plate having an upper surface and a lower surface, and having means near said first end for affixing said second plate to said second bone segment whereby said lower surface of said second plate is adjacent to said second bone segment;
- C. and means for positioning said first and second plates to be slidably engaged, with at least the portion of said first plate including said second end being adjacent to at least the portion of said second plate including said first end, whereby said first and second axes are substantially parallel, and whereby said first plate is movable with respect to said second plate in the direction of said first and second axes; wherein said upper surface of said first plate includes a plurality of parallel saw-tooth ridges extending transverse to said first axis, each of said ridges including a drive surface, said drive surface extending from, and being substantially perpendicular to, said upper surface of said first plate and facing said second end of said first plate, wherein said second plate comprises at least one resilient pawl extending from said first end of said second plate, said pawl being biased toward and engaging with one of said ridges, and wherein said second plate further comprises at least one resilient elongated ratchet arm having a proximal end extending from said first end of said second plate and a distal end extending toward and engaging with one of said ridges.

5,672,178

FIXATION PIN

Thomas D. Petersen, 9680 Alto Dr., La Mesa, Calif. 91941

Filed Jan. 5, 1996, Ser. No. 583,654

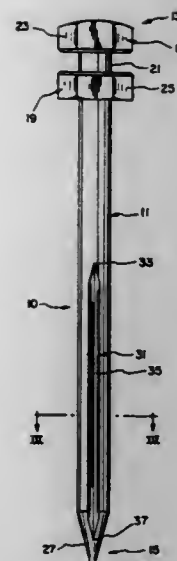
Int. Cl.⁶ A61B 17/56

U.S. Cl. 606—75

12 Claims

1. A fixation pin for fixing a bone cutting fixture in the performance of orthopaedic surgery, comprising:

- a) an elongated cylindrical body having a proximal end and a distal end;
- b) said proximal end having a head adapted to be struck to drive said pin into a bone;
- c) said distal end converging to a pointed end;



d) said body having at least one groove therein (1) having a maximum depth in a range of 10% to 30% of a diameter of a cross-section of said body and (2) said groove having an outwardly facing opening subtending from about 7% to about 17% of a circumference of said cross-section whereby, when said pin is driven into a bone, said at least one groove is sized and configured to deter rotation and retraction of said pin.

5,672,179

INTUBATION DEVICE HAVING STIFFENING MEMBER

Geoffrey C. Garth, Long Beach, and Charles A. Patterson, Westminster, both of Calif., assignors to Laerdal Medical Corporation, Wappingers Falls, N.Y.

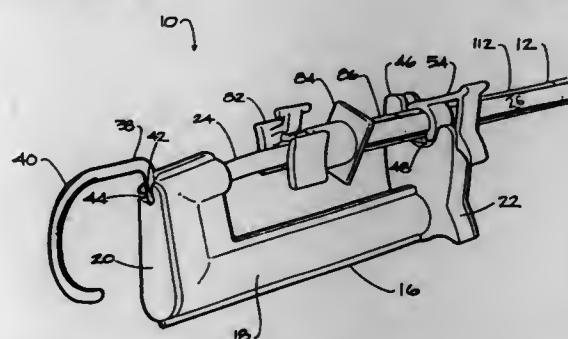
Division of Ser. No. 696,841, May 7, 1991, Pat. No. 5,163,941.

This application Apr. 22, 1992, Ser. No. 872,038

Int. Cl.⁶ A61M 16/00

U.S. Cl. 606—108

15 Claims



1. An intubation device for use with an endotracheal tube, the endotracheal tube having a distal end for insertion into a patient's trachea and a proximal end outside the patient, the device comprising:

- (a) a housing;
- (b) a flexible sheath having an open end connected to the housing and a closed, free end extending away from the housing, the sheath including a bore extending from the open end to a point adjacent to the closed, free end, the sheath being pliable and adapted to be inserted into an endotracheal tube; and
- (c) a stiffening member for insertion inside the bore of the sheath to increase the stiffness of the sheath, wherein the stiffening member is comprised of a ductile or malleable material such that the member may be bent and maintained at varying angles.

CHEMICAL

5,672,180

STORAGE STABLE 2-METHYL-1-NAPHTHOL COUPLERS

Mu-III Lim, Trumbull; Yuh-Guo Pan, Stamford; Linas R. Stasaitis, Fairfield, all of Conn., and John D. O'Donoghue, Rye Brook, N.Y., assignors to Clairol Incorporated, New York, N.Y.

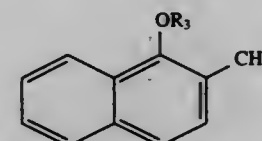
Continuation of Ser. No. 527,911, Sep. 14, 1995, Pat. No. 5,529,583. This application Apr. 15, 1996, Ser. No. 632,224

Int. Cl.⁶ A61K 7/13

U.S. Cl. 8—408

10 Claims

1. In an oxidative dye system for dyeing a keratin fiber wherein an oxidant is reacted with a composition containing a primary intermediate, a coupler or a coupler precursor, and a cosmetically acceptable vehicle therefor, the improvement which comprises the coupler or the coupler precursor is a compound having the formula IIa



wherein R₃ is —COOCH₃, —COCH₃ or —COCH₂CH₃.

5,672,182

DEVELOPER SYSTEM FOR BASE REACTABLE PETROLEUM FUEL MARKERS

Michael J. Smith, Newtown, Pa., assignor to United Color Manufacturing Inc., Newtown, Pa.

Continuation of Ser. No. 421,325, Apr. 13, 1995, abandoned.

This application Jul. 26, 1996, Ser. No. 686,408

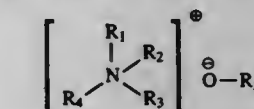
Int. Cl.⁶ C10L 1/22; 1/18

U.S. Cl. 44—349

29 Claims

1. A method of identifying a petroleum product containing a base reactable marker comprising:

- a) obtaining a sample of petroleum product containing a base reactable marker;
- b) adding to said sample a developing agent comprising a quaternary alkyl ammonium base of the following formula:



wherein R₁, R₂, R₃ and R₄ are the same or different alkyl or benzyl groups and R₅ is hydrogen or an alkyl group.

5,672,183

ANTI-STATIC ADDITIVES FOR HYDROCARBONS

John A. Schield, Chesterfield, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Jul. 1, 1996, Ser. No. 674,076

Int. Cl.⁶ C10L 1/18; 1/22

U.S. Cl. 44—386

52 Claims

1. A composition having increased electrical conductivity, comprising a liquid hydrocarbon and an anti-static amount of a hydrocarbon soluble copolymer of an alkylvinyl monomer and a cationic vinyl monomer, wherein the copolymer has an alkylvinyl monomer unit to cationic vinyl monomer unit ratio of from about 1:1 to about 10:1, the copolymer having an average molecular weight of from about 800 to about 1,000,000.

5,672,184

PULSE DETONATION DEVICE FOR COAL GASIFICATION

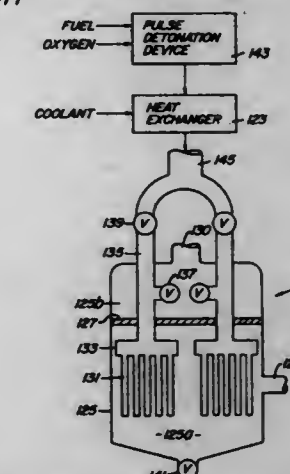
Louis G. Hunter, Jr., Fort Worth, Tex., assignor to Lockheed Corporation, Fort Worth, Tex.

Continuation-in-part of Ser. No. 265,384, Jun. 24, 1994, Pat. No. 5,579,633. This application Dec. 15, 1994, Ser. No. 356,156

Int. Cl.⁶ C10J 3/70

U.S. Cl. 48—77

18 Claims



U.S. Cl. 29—623.5

31 Claims

1. A method for manufacturing a hardened lead storage battery electrode comprising the steps of:

- preparing an electrolyte by using raw material selected from the group consisting of lead, waste material containing lead, and desulfured lead storage battery electrolyte paste to form an HBF₄ solution containing lead and lead compounds selected from the group consisting of PbO, Pb(OH)₂ and PbCO₃;
- mixing solids into said electrolyte;
- electrolytically depositing lead onto a plurality of electrically conductive surface regions of a cathode in a vessel containing said electrolyte mixed with said solids and forming an electrochemical cell consisting of said cathode, said electrolyte solution and a Cu/Ta/Pt anode by producing a current through said electrolyte solution between said cathode and said anode having a current density of from approximately 100 to about 2000 A/m²;
- maintaining said solids mixed in said electrolyte while electrolytically depositing lead and vigorously agitating said electrolyte solution by introducing air into said vessel through an apertured plate in a bottom of said vessel; and
- selecting a shape of said electrically conductive surface regions for producing a selected coupled shape of said lead storage battery electrode on said electrically conductive surface regions simultaneously with the electrolytic lead deposition.

1. In a method of gasifying coal wherein coal within a gasifier having a gasifier chamber containing a bed of coal is converted to fuel gases by partial combustion, the improvement comprising:

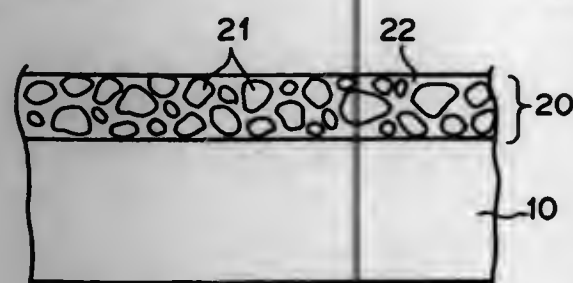
providing at least one gasifier pulse detonation device which has a combustion chamber with an open discharge end; communicating the discharge end of the gasifier pulse detonation device to the gasifier chamber within the bed of coal; injecting a discrete gaseous fuel mixture into the combustion chamber, and igniting the fuel mixture to create a detonation wave which discharges from the discharge end, then repeating the injection and ignition of the gaseous fuel mixture at a selected frequency to produce high energy hot exhaust pulses; and directing the pulses from the gasifier pulse detonation device into the bed of coal in the gasifier to enhance movement within the bed of coal to improve the conversion of coal into gases.

5,672,185

ABRASIVE MEMBER

Katsumi Ryoke, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Apr. 26, 1996, Ser. No. 639,947
Claims priority, application Japan, Apr. 27, 1995, 7-103930
Int. Cl.⁶ B24D 3/34
U.S. Cl. 51—295

5 Claims



1. An abrasive member comprising:
a substrate;
an abrasive layer overlaid upon the substrate and comprising a binder and abrasive grains dispersed therein;
wherein the abrasive grains contain aluminum oxide grains having a non-zero sodium content, as calculated in terms of NaO, of at least 0.05% and at most 0.1% by weight, and wherein a grain diameter of α -crystal grains is at most 5 μ m.

5,672,186

METHOD OF MAKING AN ABRASIVE ARTICLE

Jason A. Chesley, Hudson, Wis.; Donald R. Bell, White Bear Township, Ramsey County, Minn.; Harold E. Rude, Roseville, Minn.; William F. Sheffield, Oakdale, Minn.; David F. Slama, Vadnais Heights, Minn., and Alan N. Stephens, Warwickshire, United Kingdom, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Division of Ser. No. 181,193, Jan. 13, 1994, Pat. No. 5,505,747.
This application Mar. 13, 1996, Ser. No. 615,126
Int. Cl.⁶ B24D 11/00
U.S. Cl. 51—297

32 Claims

1. A method of making an abrasive article, comprising the steps of:
a) providing an abrasive sheet having first and second major surfaces, the first major surface including means for abrading a surface;
b) applying a plurality of hooking stems to a first major surface of a base sheet by the application of a flowable polymeric organic material with a gravure roll;
c) shaping each hooking stem so as to have an included distal end angle of less than approximately 90 degrees to thereby provide each stem with a hooking portion to enable the hooking stem to releasably hook an opposed engaging structure;

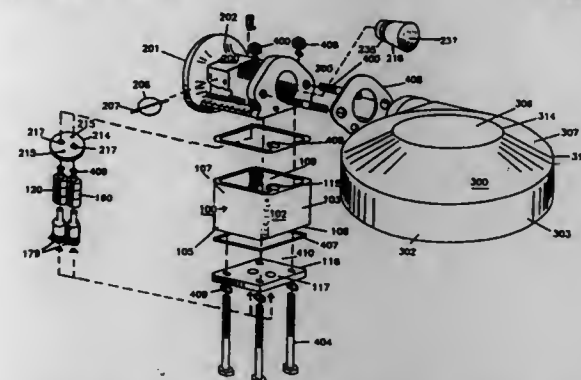
d) bonding a second major surface of the base sheet to the second major surface of the abrasive sheet; and
e) orienting the hooking stems such that individual hooking stems are oriented in at least two directions, respectively.

5,672,187

CYCLONE VORTEX SYSTEM AND PROCESS

Howard P. Rock; Kelly P. Rock, both of Salt Lake City, Utah, and Grant R. Wood, Bellingham, Wash., assignors to Cyclone Technologies Inc., Salt Lake City, Utah
Continuation-in-part of Ser. No. 461,444, Jun. 5, 1995, Pat. No. 5,512,216, which is a continuation of Ser. No. 346,257, Nov. 23, 1994, Pat. No. 5,472,645. This application Apr. 29, 1996, Ser. No. 639,153
Int. Cl.⁶ F02M 29/06
U.S. Cl. 55—257.4

79 Claims



1. A method of preparing a gas-phase fluid, comprising the steps of:
(a) introducing a two-phase fluid into a flow path, said flow path including a flow pressure increasing duct;
(b) spinning the fluid in said flow pressure increasing duct to create a spinning column of fluid containing aerosol particles;
(c) subjecting said spinning column to rapid differentials in pressure and changes in velocity;
(d) continuously delivering air tangentially to said spinning column to accelerate said spinning column and to create vortical turbulence interfaces with said spinning column thereby subjecting said aerosol particles to shear forces and internal particle pressures for converting the aerosol particles into a gas-phase fluid; and
(e) withdrawing said gas-phase fluid thus created while retaining any remaining aerosol particles therein,
wherein lighter aerosol particles are continuously converted to a gas-phase fluid while heavier aerosol particles are progressively diminished in size as the aerosol particles are subjected to said shear forces and differential particle pressures.

5,672,188

HIGH CAPACITY FILTER MEDIA

Kyung-Ju Choi, Jefferson, Ky., assignor to AAF International, Louisville, Ky.
Filed May 28, 1996, Ser. No. 653,789
Int. Cl.⁶ B01D 39/16; 46/12
U.S. Cl. 55—485

19 Claims

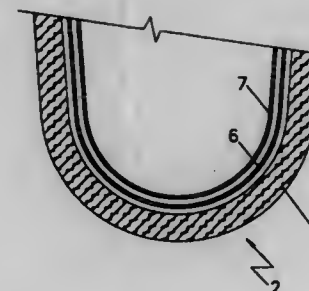
1. A composite filter arrangement of fibrous layers of filter media for removing particulate matter from a fluid stream comprising:
an upstream first layer having upstream and downstream faces of a mixture of preselected fiber filter media components, said first upstream layer being of preselected thickness with said fiber components being of preselected fiber diameter to provide a first preselected fluid permeability and;
at least a second successive intermediate layer of polymeric fibers of filter media of preselected thickness and fiber diam-

5,672,190

POOL SEPARATION MELT FURNACE AND PROCESS

Anthony F. Litka, Hanover; Jamie A. Woodroffe, North Reading; Victor Goldfarb, Swampscott; Andrew W. McClaine, Lexington, and Kevin J. Keane, Brookline, all of Mass., assignors to Gas Research Institute, Chicago, Ill.
Continuation of Ser. No. 189,197, Jan. 31, 1994, abandoned.
This application Jun. 26, 1995, Ser. No. 494,500
Int. Cl.⁶ C03B 5/16; 3/00; 5/00
U.S. Cl. 65—134.1

14 Claims



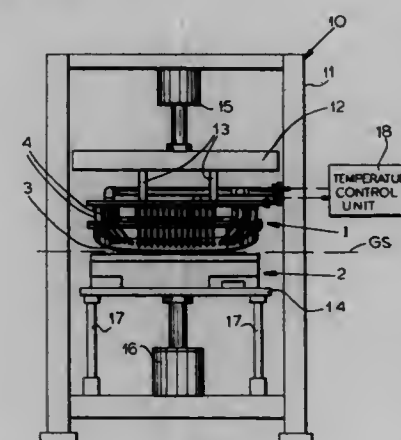
eter to provide a second preselected fluid permeability, each of said layers having a substantially equal terminal pressure drop thereacross.

5,672,189

GLASS BENDING PRESS APPLICATION

Dieter Funk, Witten; Dieter Bruns, Rheinberg; Rolf Wenning, Bocholt, and Walter Brans, Recklinghausen, all of Germany, assignors to Flachglas Aktiengesellschaft, Furth, Germany
Filed Apr. 12, 1995, Ser. No. 422,500
Claims priority, application Germany, Apr. 15, 1994, 44 12 747.2
Int. Cl.⁶ C03B 11/12; 23/03
U.S. Cl. 65—29.19

15 Claims



voir chamber, said accelerating step being performed with sufficient force to integrate and dissolve the particulate batch materials into the molten pool while repelling and separating the combustion gas to produce circulation of the molten pool.

5,672,191 FORCED CONVECTION HEATING APPARATUS AND PROCESS FOR HEATING GLASS SHEETS THEREWITHIN

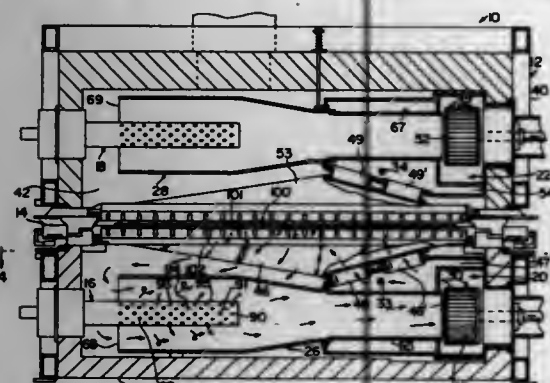
Kenneth R. Kormanyos, Sylvania, Ohio, assignor to Gas Research Institute, Chicago, Ill.

Filed Jun. 20, 1994, Ser. No. 263,649

Int. Cl.⁶ C03B 29/08

U.S. Cl. 65—273

15 Claims



1. A forced convection heating apparatus for heating glass sheets, wherein the glass sheets each have a top surface and a bottom surface, the forced convection heating apparatus comprising:

- a housing having an interior region, having at least first and second portions,
- including means for supporting the glass sheet in a substantially horizontal manner, including at least one solid support member for supporting the sheet in said substantially horizontal manner;
- means for conveying a glass sheet through the interior region of the housing;
- first and second gas burner means operably associated with the first and second portions of the interior region of the housing, respectively, for producing hot combustion gases;
- first means for distributing, and, in turn, impinging, at least a portion of the hot combustion gases from the gas burner means to the bottom surface of a glass sheet within the interior region of the housing, operably associated with the first gas burner means and disposed within the first portion of the interior region;
- second means for distributing, and, in turn, impinging, at least a portion of the hot combustion gases from the gas burner means to the top surface of the glass sheet within the interior region of the housing, operably associated with the second gas burner means and disposed within the second portion of the interior region;
- the first and second means for distributing hot combustion gases being operably configured for operation substantially completely independently of each other;
- first means for controlling impingement velocity of the hot combustion gases into contact with the bottom surface of the glass sheet within the interior region of the housing operably disposed within the first portion of the interior region; and
- second means for controlling the impingement velocity of the hot combustion gases into contact with the top surface of the glass sheet within the interior region of the housing, operably disposed within the second portion of the interior region, the first and second control means being operable and, in turn, controllable, independent of each other; and
- means for facilitating the direction of a portion of the hot combustion gases which, after impingement against the glass

sheet has become spent working fluid, back toward the gas burner means for mixing with the hot combustion gases.

5,672,192 METHOD OF MAKING OPTICAL FIBER USING A PLASMA TORCH FIBER-DRAWING FURNACE

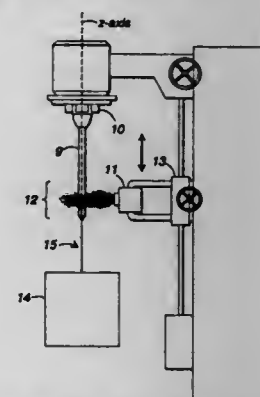
James William Fleming, Jr., Westfield, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 30, 1996, Ser. No. 655,580

Int. Cl.⁶ C03B 37/027

U.S. Cl. 65—391

5 Claims



1. A method of making an optical fiber from an optical fiber preform, comprising the steps of:
providing an optical fiber preform having a longitudinal axis;
rotating said preform about said longitudinal axis;
directing onto said preform a plasma torch which is reciprocated parallel to said axis over a limited region of said preform to define a heated drawing region; and
drawing optical fiber from said heated drawing region.

5,672,193 PRODUCTION APPARATUS FOR PRODUCING AN OPTICAL FIBER CABLE

Yukio Kohmura, Chiba; Yoshinori Ishida, Ichihara, and Takashi Hibino, Urawa, all of Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

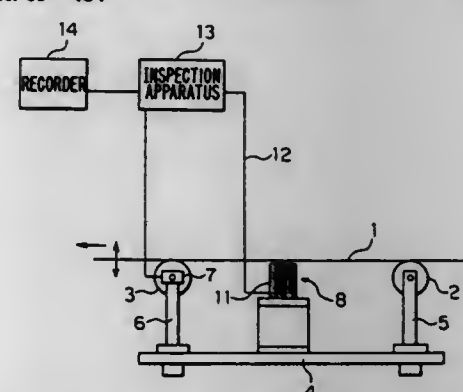
Continuation of Ser. No. 390,817, Feb. 16, 1994, abandoned, which is a continuation of Ser. No. 120,740, Sep. 14, 1993, abandoned, which is a division of Ser. No. 707,744, May 30, 1991, Pat. No. 5,262,726. This application Nov. 17, 1995, Ser. No. 558,224

Claims priority, application Japan, May 30, 1990, 2-140332; Apr. 12, 1991, 3-108733; Apr. 12, 1991, 3-108734

Int. Cl.⁶ C03B 37/023

U.S. Cl. 65—484

11 Claims



1. A production apparatus for producing an optical fiber cable including an optical fiber having a core and a cladding, and a coating, said production apparatus comprising:

a drawing furnace for drawing an optical fiber preform and forming said optical fiber having said core and said cladding;
a reaction furnace, which has introduced in it a hermetic coating forming material gas and said optical fiber drawn from said drawing furnace, wherein said reaction furnace produces a thermal decomposition reaction which precipitates decomposed reaction products of said material gas on the surface of said cladding of said introduced optical fiber, to form an electroconductive hermetic coating;
an eddy current generation and detection sensor arranged near said hermetic coating to generate and detect an eddy current in said hermetic coating;
a high frequency power source for generating a high frequency current which is applied to said eddy current generation and detection sensor and is of a frequency sufficiently high for causing said eddy current generation and detection sensor to generate said eddy current in said hermetic coating;
an average magnetization-intensity changing means for applying said high frequency current from said high frequency power source to said eddy current generation and detection sensor while changing an average magnetization-intensity caused by said high frequency current having a frequency of the current lower than the high frequency of said high frequency current; means for calculating an electrical resistance of said hermetic coating from said eddy current detected by said eddy current generation and detection sensor; and
control means for adjusting at least one hermetic coating forming condition and the adjusting by said control means being based on the electrical resistance from said electrical resistance calculating means.

5,672,194 METHOD AND APPARATUS FOR EXTRACTING PRECIOUS METALS FROM THEIR ORES AND THE PRODUCT THEREOF

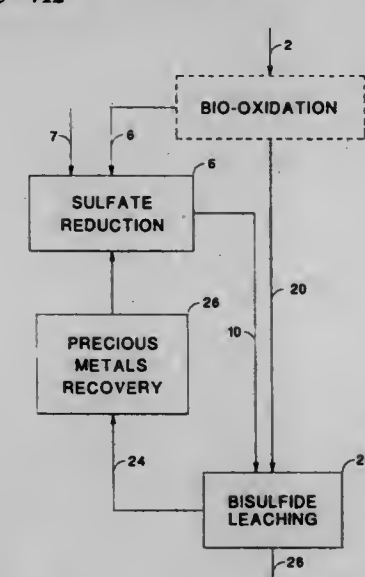
Robert M. Hunter; Frank M. Stewart, and Tamara Darsow, all of Bozeman, Mont., assignors to Yellowstone Environmental Science, Inc., Bozeman, Mont.

Continuation-in-part of Ser. No. 265,322, Jun. 24, 1994, Pat. No. 5,449,397. This application May 8, 1995, Ser. No. 436,726

Int. Cl.⁶ C22B 3/02; 3/18

U.S. Cl. 75—712

14 Claims



1. A method for extracting a precious metal from an ore comprising the steps of:
producing a leaching solution, said solution comprising dissolved hydrogen sulfide gas and bisulfide ions, and having a fugacity of hydrogen gas;
reducing the fugacity of hydrogen gas in said leaching solution by means of an oxyanion-reducing bacterium;

exposing said ore to said leaching solution; and
recovering said precious metal from said leaching solution.

5,672,195 PROCESS FOR THE SEPARATION OF MIXTURES OF OXYGEN AND OF NITROGEN EMPLOYING AN ADSORBENT WITH IMPROVED POROSITY

Serge Moreau, Velizy Villacoublay, and Christian Barbe, Fontenay Sous Bois, both of France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procédés Georges Claude, Paris Cedex, France

Filed Apr. 1, 1996, Ser. No. 625,346

Claims priority, application France, Jan. 16, 1996, 96 00409

Int. Cl.⁶ B01D 53/047

U.S. Cl. 95—96

19 Claims

1. Process for the separation of a mixture of oxygen and nitrogen into each of its constituents, which comprises: bringing the mixture, in an adsorption zone, into contact with a selective adsorbent for nitrogen, said adsorbent being an agglomerated zeolite exhibiting an Si/Al ratio lower than 5, a porosity of between 0.38 and 0.60, and a parameter a_k of at least 0.5 s^{-1} , said parameter a_k characterizing the kinetics of adsorption of nitrogen on said adsorbent in said adsorption zone in accordance with a Linear Driving Force model, wherein when the adsorbent is a zeolite containing lithium, the porosity ranges between 0.25 and 0.60.

5,672,196 PROCESS AND APPARATUS FOR THE SEPARATION OF GASES

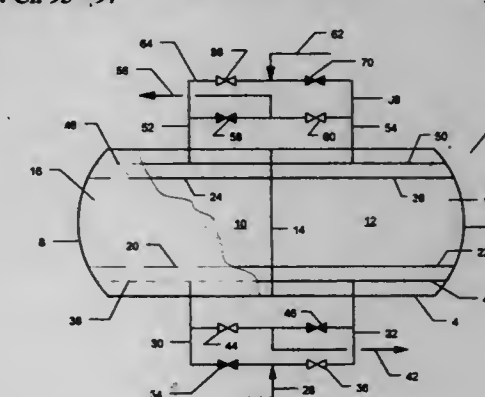
Divyanshu R. Acharya, Bridgewater, and Satish S. Tamhankar, Scotch Plains, both of N.J., assignors to The BOC Group, Inc., New Providence, N.J.

Filed Aug. 1, 1995, Ser. No. 510,115

Int. Cl.⁶ B01D 53/04

U.S. Cl. 95—97

32 Claims



1. A cyclic process for separating a first gas from a gas mixture containing said first gas and one or more other gases by concentration swing adsorption in first and second adjacent gas adsorption chambers that are separated by a first planar partition, and each of which contains an adsorbent which more strongly adsorbs said first gas than said one or more other gases comprising repeatedly performing in sequence the steps:

- (a) passing the gaseous mixture through said first adsorption chamber at an adsorption pressure in the range of about 1.05 to about 20 bara and an adsorption temperature in the range of about -50° to about 150° C. , thereby adsorbing said first gas from said gas mixture and producing a first gas-depleted nonadsorbed stream, while simultaneously passing a purge gas through said second adsorption chamber at a pressure in the range of less than about 1.05 to about 20 bara and a temperature in the range of about -50° to about 150° C. , thereby desorbing a first gas-enriched gas stream from the adsorbent contained in said second adsorption chamber, and

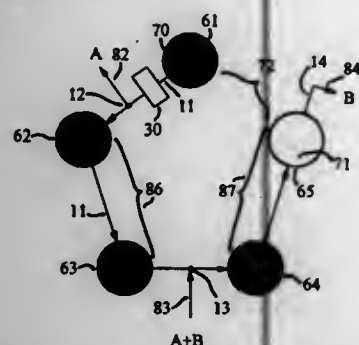
(b) passing the gaseous mixture through said second adsorption chamber at an adsorption pressure in the range of about 1.05 to about 20 bara and an adsorption temperature in the range of about -50° to about 150° C., thereby adsorbing said first gas from said gas mixture and producing a first gas-depleted nonadsorbed stream, while simultaneously passing a purge gas through said first adsorption chamber at a pressure in the range of less than about 1.05 to about 20 bara and a temperature in the range of about -50° to about 150° C., thereby desorbing a first gas-enriched gas stream from the adsorbent contained in said first adsorption chamber;

the difference in pressure between said first and second adsorption chambers at all times being below that at which stress failure occurs in said first planar partition.

5,672,197
GAS SEPARATION BY CONTINUOUS PRESSURE-SWING CHROMATOGRAPHY
Ronald D. Rothchild, 1 Leah La., Plainview, N.Y. 11803
Filed Oct. 11, 1995, Ser. No. 540,890
Int. Cl.⁶ B01D 53/047

U.S. Cl. 95—98

12 Claims



1. A process for separating a mixture of gaseous components in which an internal gas flow is pumped through a plurality of beds in fluid communication in a series, each bed containing a pressure-dependent adsorbent packing, said mixture including a most highly adsorbed component and a less highly adsorbed component, said process being cyclical in nature such that:

- at the beginning of a cycle all of said beds except the one in a most downstream position with respect to said internal gas flow are at operating pressure at which said packing is an effective and selective adsorbent for said mixture, and said most downstream position bed is at a lower pressure at which relatively little gas is adsorbed and,
- during said cycle, pumping gas from the most upstream of said beds to generate said internal gas flow and displace gas through said series in the downstream direction, withdrawing a first outlet flow of gas from a first outlet port in fluid communication with said most upstream bed, said first outlet flow consisting primarily of said most highly adsorbed component, and adding a feedstock flow of said mixture to said series of beds through an inlet port downstream from said first outlet port and separated from it by at least one bed, and withdrawing a second outlet flow from a second outlet port, said second outlet port being in fluid communication with the most downstream positioned bed in said series and separated from said inlet port by at least one bed, said second outlet flow consisting primarily of said less highly adsorbed component, such that,
- by the end of said cycle the pressure in said most downstream position bed is increased to said operating pressure while the pressure in said most upstream bed is reduced to said lower pressure and,
- at the end of said cycle, switching the positions of said ports among said plurality of beds such that each bed effectively advances upstream with respect to said internal gas flow by one position, except for said most upstream bed which is effectively moved to said most downstream position.

said series including at least one simulated moving chromatographic column, located between said inlet port and said first outlet port.

5,672,198
AQUEOUS INKS AND COATINGS CONTAINING MODIFIED CARBON PRODUCTS
James A. Belmont, Acton, Mass., assignor to Cabot Corporation, Boston, Mass.
Continuation-in-part of Ser. No. 356,660, Dec. 15, 1994, abandoned, and a continuation-in-part of Ser. No. 356,653, Dec. 15, 1994, Pat. No. 5,554,739. This application Dec. 14, 1995, Ser. No. 572,542
Int. Cl.⁶ C09D 11/02

U.S. Cl. 106—20 R

20 Claims

1. An aqueous ink composition comprising water and a modified carbon product having at least one organic group attached to the carbon wherein the organic group is substituted with an ionic or an ionizable group.

5,672,199
WATER-CONTAINING ANTISLIP COMPOSITION
Ralf Gossen, Duisburg; Bernhard Herfterkamp, Bottrop; Ludwig Bröhl, Duesseldorf; Horst Buxhofer, Erkrath, and Hermann Onusseit, Haan, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany
PCT No. PCT/EP94/03744, § 371 Date May 20, 1996, § 102(e) Date May 20, 1996, PCT Pub. No. WO95/14748, PCT Pub. Date Jun. 1, 1995
PCT Filed Nov. 11, 1994, Ser. No. 648,099
Claims priority, application Germany, Nov. 20, 1993, 43 39 642.9

Int. Cl.⁶ C09K 3/14

U.S. Cl. 106—36

26 Claims

1. An antislip composition comprising:
- (A) 10–60% by weight of at least one rosin or a derivative thereof;
 - (B) 2–20% by weight of at least one alcohol selected from the group consisting of monohydric alcohols and polyhydric alcohols;
 - (C) 2% to 20% by weight of a liquifying agent which is water-soluble or water-dispersible and comprises at least one compound selected from the group consisting of alkali metal alkyl benzenesulfonates containing up to 8 carbon atoms in the alkyl chain and alkaline earth metal alkyl benzenesulfonates containing up to 8 carbon atoms in the alkyl chain;
 - (D) 0 to 35% by weight of a propellant;
 - (E) 0 to 10% by weight of a water-soluble polymer; and
 - (F) water.

5,672,200
PIGMENT PREPARATION AND ITS USE
Dieter Heinz, Heppenheim; Heinz Mohr, Speyer, and Joachim Weitzel, Darmstadt, all of Germany, assignors to Merck Patent Gesellschaft Mit Beschränkter Haftung, Darmstadt, Germany
Filed Dec. 26, 1995, Ser. No. 579,635
Claims priority, application Germany, Dec. 27, 1994, 44 46 456.8

Int. Cl.⁶ C09D 17/00; 11/02; 5/36

U.S. Cl. 106—403

19 Claims

1. A pigment composition comprising one or more luster pigments, a metaphosphosphate compound and spherical particles having a particle size of 1–30 µm.

5,672,201
COMPOSITE PIGMENTARY MATERIAL
Leslie Ainsley Simpson, Normanby; Keith Robson, Whitesmock; David Trevor Knight, Northallerton, and Ronald Brown, Stockton, all of England, assignors to Tioxide Group Services Limited, United Kingdom
Filed Mar. 5, 1996, Ser. No. 611,300
Claims priority, application United Kingdom, Mar. 11, 1995, 9504962

Int. Cl.⁶ C04B 14/20

U.S. Cl. 106—447

27 Claims

1. A process for the preparation of a structured composite pigmentary material comprising forming an aqueous dispersion of uncoated particles of pigmentary titanium dioxide, said dispersion having a pH value such that the particles of titanium dioxide have a surface charge, subjecting the dispersion to the effects of cross-flow filtration, continuing the cross-flow filtration until the dispersion contains more than 50 per cent by weight titanium dioxide and subsequently mixing said dispersion with a dispersion of chemically distinct particles having a surface charge of opposite sign to the charge on the titanium dioxide particles under conditions such that the mixing does not produce a reversal of the sign of the surface charge on one of the particulate materials, thereby forming a composite pigmentary material in which titanium dioxide particles are held in association with chemically distinct particles as a result of said surface charges.

5,672,202
PIGMENT COMPOSITIONS
John Andrew Stirling, Glasgow; Carol Jean Farnocchi, Erskine, and Edward James Anderson, Kilbarchan, all of Scotland, assignors to Ciba-Geigy Corporation, Tarrytown, N.Y.
Filed Aug. 13, 1996, Ser. No. 696,217
Claims priority, application United Kingdom, Aug. 18, 1995, 9516929

Int. Cl.⁶ C09B 27/00

U.S. Cl. 106—496

16 Claims

1. A diarylide pigment composition which contains a long chain aliphatic primary amine having 10 to 30 carbon atoms, an ethylene polyamine of the formula



where n is 1 to 5; and a propylene triamine of the formula



or



where R is a long chain alkyl group having 10 to 24 carbon atoms.

5,672,203
SET RETARDED CEMENTING COMPOSITIONS AND METHODS
Jiten Chatterji, Duncan; Rickey L. Morgan, and Garland W. Davis, both of Comanche, all of Okla., assignors to Halliburton Company, Duncan, Okla.
Filed Aug. 7, 1996, Ser. No. 693,743
Int. Cl.⁶ C04B 24/12

U.S. Cl. 106—808

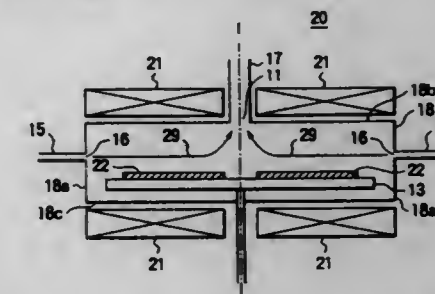
22 Claims

1. A set retarded cement composition comprising: a hydraulic cement; sufficient water to form a pumpable slurry; and an alkanolamine salt present in the cement composition in an amount in the range of from in excess of 1.1% to about 10% by weight of dry cement therein.

5,672,204
APPARATUS FOR VAPOR-PHASE EPITAXIAL GROWTH
Hitoshi Habuka, Gunma-ken, Japan, assignor to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan
Filed Apr. 25, 1996, Ser. No. 637,576
Claims priority, application Japan, Apr. 27, 1995, 7-127122
Int. Cl.⁶ C30B 35/00

U.S. Cl. 117—204

7 Claims



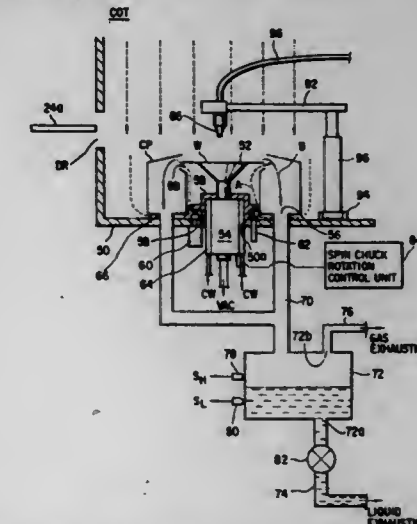
1. An apparatus for a vapor-phase epitaxial growth of a thin film comprising:

- a reaction vessel of a flat shape;
- gas supply means for feeding a source gas from a peripheral part of said reaction vessel;
- a susceptor for holding a semiconductor single crystal substrate(s) substantially horizontally;
- heating means;
- a reaction gas outlet means provided in a central part of an upper wall of said reaction vessel;
- wherein said reaction vessel is formed in the shape of a flat cylinder; and
- said gas supply means comprises a plurality of gas supply inlets adapted to feed the source gas in a circular direction of said reaction vessel.

5,672,205
COATING APPARATUS
Akihiro Fujimoto, and Yasuhiro Sakamoto, both of Kumamoto-ken, Japan, assignors to Tokyo Electron Limited, Tokyo, and Tokyo Electron Kyushu Limited, Tosu, both of Japan
Filed Sep. 25, 1995, Ser. No. 533,396
Claims priority, application Japan, Sep. 29, 1994, 6-259154
Int. Cl.⁶ B05C 11/02; B05B 13/02

U.S. Cl. 118—52

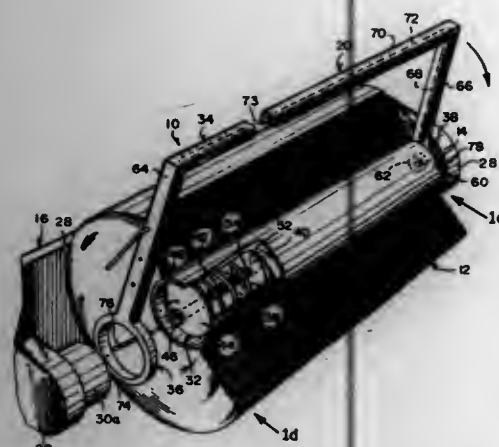
13 Claims



1. A processing apparatus using a solution, comprising: means for holding an object to be processed, said means rotating with the object placed thereon; a ring-shaped cup situated at an outer side of said object holding means;

processing solution supply means provided above said object for supplying a processing solution on a surface of said object; discharging means provided below said ring-shaped cup for discharging, as a waste solution, together with air in said cup, processing solution portions scattered around when said processing solution is supplied on the surface of said object; and storage means connected to said discharge means for storing said waste solution and said gas discharged from said discharge means and for separating said waste solution and said gas from each other therein.

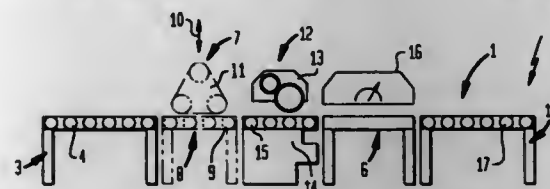
5,672,206
MOISTENING DISPENSER FOR A ROLL OF PAPER SHEETS
 Tom Gorman, 320 Bayview Ave., E. Patchogue, N.Y. 11772
 Filed Oct. 11, 1995, Ser. No. 541,105
 Int. Cl.⁶ B05C 5/00
 U.S. Cl. 118—320



1. A moistening dispenser for a roll of paper sheets having a hollow core, said dispenser comprising:

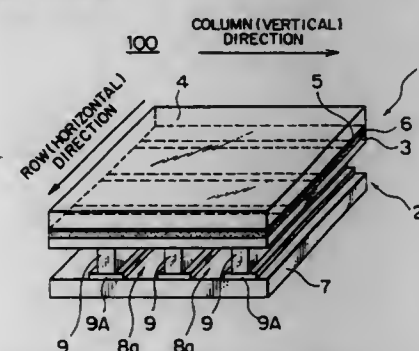
- a holder to be attached to a wall, said holder having means for retaining the hollow core of the roll of paper sheets in a rotatable manner, said retaining means comprising a base member attached to a wall, a pair of spaced legs projecting out from said base member, and a pair of stub shafts, each stub shaft projecting sideways at a right angle from one side of a leg and parallel to said base member and facing each other to engage the opposite ends of and for supporting the hollow core of the roll of paper sheets;
- means built into the retaining means of said holder for applying a predetermined amount of liquid directly onto a paper sheet on the roll just before the paper sheet is removed from the roll; and
- said liquid applying means comprising a canister pump for holding the liquid removably positioned within the hollow core of said roll of paper sheets, means for spraying said sheet of paper comprising a generally U-shaped spray arm with first and second side portions and a crossbar portion connecting a first end of each side portion spaced from and spanning said roll of paper with said first and second side portions pivotally mounted in an inverted manner onto said stub shafts, means at the second end of said first side portion of said spray arm for operating said canister pump when said spray arm is pulled down, and means at the second end of said second side portion of said spray arm fluidly connected to said canister pump for receiving liquid from said canister pump when said spray arm is pulled down, said crossbar portion and second side portion of said spray arm having interconnected passageways with said crossbar having a plurality of spaced spray holes facing said roll of paper for spraying said paper when said spray arm is pulled down.

5,672,207
APPARATUS FOR APPLICATION OF A COLOR COAT TO A WORKPIECE
 Horst-Dieter Oechler, Lemgo, Germany, assignor to Firma Theodor Hymmen, Bielefeld, Germany
 Filed Oct. 23, 1995, Ser. No. 547,101
 Claims priority, application Germany, May 22, 1995, 295 08 265 U
 Int. Cl.⁶ B05C 1/00
 U.S. Cl. 118—681 26 Claims



1. Apparatus for color coating and manipulating a workpiece of wood plastic material or metal, comprising:
 a coating means for applying a coat of paint onto a workplace; at least one further treatment unit positioned upstream or downstream of said coating means for treating the workpiece; conveyor means for shuttling the workpiece through said coating means and said treatment unit at least in one forward run and at least in one return run in a single operative plane, said conveyor means including a table equipped with driven rollers;
 control means for operating said coating means said treatment unit and said conveyor means commensurate with a preselected program between an operational position and an idle position during shuttling of the workpiece; and
 a lifting unit positioned upstream of the coating means for movement of a workplace to be treated from an upper idle position to a disposition upon said table, said lifting unit being constructed in form of spikes that are vertically adjustable in unison for movement between a lower position in which the spikes are positioned between roller of said table and an upper position for receiving the workpiece.

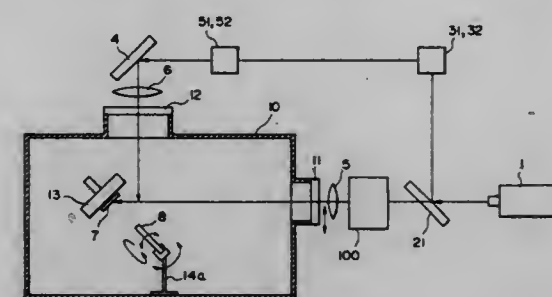
5,672,208
PLASMA DISCHARGE APPARATUS
 Tetsuya Morita, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan
 Filed Aug. 23, 1995, Ser. No. 518,310
 Claims priority, application Japan, Aug. 24, 1994, 6-199635; May 12, 1995, 7-114927
 Int. Cl.⁶ C23C 16/00
 U.S. Cl. 118—723 E 12 Claims



1. A plasma discharge apparatus, comprising:
 a pair of substrates for forming a discharge space; and
 an ionizable gas sealed in the discharge space, said ionizable gas being a mixed gas comprising neon plus 10 to 30 percent by volume of an element selected from the group consisting of argon, krypton, and xenon, said mixed gas comprises neon plus 10 to 30 percent by volume of argon, 1 to 5 percent by volume of krypton, and 1 to 5 percent by volume of xenon.

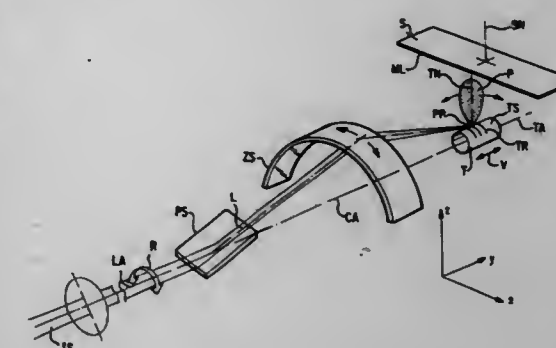
5,672,209
 Patent Not Issued For This Number

5,672,210
METHOD AND APPARATUS FOR MANUFACTURING SUPERCONDUCTING COMPONENTS VIA LASER ABLATION FOLLOWED BY LASER MATERIAL PROCESSING
 Akihiro Moto; Tatsuoki Nagaishi, and Hideo Itozaki, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
 Filed Aug. 22, 1995, Ser. No. 517,957
 Claims priority, application Japan, Aug. 26, 1994, 6-225709
 Int. Cl.⁶ C23C 14/00; H01L 39/24
 U.S. Cl. 118—726 8 Claims



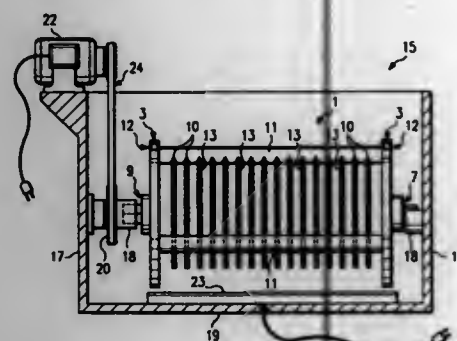
1. An apparatus for manufacturing a superconducting device which has a superconductor film of a complex oxide superconducting compound, said apparatus comprising:
 (i) means defining a chamber,
 (ii) a target holder for holding a target including a complex oxide superconducting compound;
 (iii) a substrate holder for holding a substrate contained within said chamber,
 said substrate holder including a heater for heating the substrate held by said substrate holder, and means for moving said substrate holder between a first substrate position and a second substrate position,
 wherein a surface of the substrate held by said substrate holder, on which surface the superconductor film is deposited, faces toward and is generally parallel to a surface of the target held by said target holder when said substrate holder is in said first substrate position, and
 wherein the surface of the substrate held by said substrate holder is perpendicular to a laser beam via a second optical path when said substrate holder is in said second substrate position;
 (iv) a laser beam source for supplying said laser beam;
 (v) a first entrance window and a second entrance window for said chamber;
 (vi) a first optical path from said laser beam source through said first entrance window to the target held by said target holder, said first optical path being used for laser ablation processing to form a complex oxide superconducting compound layer on the substrate; and
 (vii) said second optical path being from said laser beam source through said second entrance window to the substrate held by said substrate holder, said second optical path being used for laser patterning of the complex oxide superconducting compound layer formed using said first optical path to form desired superconducting devices.

5,672,211
APPARATUS FOR DEPOSITING A THIN LAYER ON A SUBSTRATE BY LASER PULSE VAPOR DEPOSITION
 Hermann Mai, Wallstrasse 21, 01067 Dresden; Reiner Dietsch, Fr.-Hegel-Strasse 19, 01187 Dresden, and Klaus Schubert, Schulstrasse 1, 01728 Possendorf, all of Germany
 Division of Ser. No. 478,861, Jun. 7, 1995, Pat. No. 5,578,350, which is a continuation of Ser. No. 230,792, Apr. 21, 1994, abandoned, which is a continuation-in-part of Ser. No. 838,816, Mar. 25, 1992, abandoned. This application Aug. 2, 1996, Ser. No. 691,568
 Claims priority, application Germany, Jul. 3, 1990, H01L/342 455 4; Jul. 3, 1990, H01L/342 456 2; Jun. 27, 1991, PCT/DE91/00533
 Int. Cl.⁶ C23C 14/00 22 Claims



1. Apparatus for depositing a layer on a substrate by laser pulse vapor deposition, comprising:
 a target which has a longitudinally extending target axis and a curved target surface extending at least partially around the target axis;
 a laser beam source for projecting a pulsed laser beam; first and second mirrors disposed in series between the laser beam source and the curved target surface, said first and second mirrors being arranged to deflect the laser beam from the first mirror to the second mirror to the curved target surface where a plasma plume of target material is produced in response to the laser beam impinging on the curved target surface; and
 a substrate positioned adjacent the target such that a coating surface of the substrate is substantially parallel to said target axis and such that the plasma plume applies a coating layer of target material to the coating surface;
 wherein said first mirror has a planar reflective surface which is rotatable about a first mirror axis, which said first mirror axis is in the planar reflective surface and is obliquely inclined with respect to the target axis,
 wherein said second mirror has a reflective second mirror surface means which is either movable along an arc or configured as the arc, said arc extending at least partially circumferentially around the target axis, and
 wherein means are provided for rotating said first mirror in successive angular steps about the first mirror axis so as to move the laser beam along successive points on said arc, said laser beam being deflected from said successive points by said second mirror surface means to impinge upon respective corresponding successive points on said curved target surface, said corresponding successive points being located on a target surface arc which extends through a central point of said curved target surface located nearest said coating surface, said target surface arc being disposed in a plane which is perpendicular to said target axis and which contains said central point, said laser beam impinging upon each of said corresponding successive points to produce a respective plasma plume of target material which propagates in a substantially radial direction from said target to said coating surface in order to produce a constant thickness of plasma plume coating over the coating surface of the substrate.

5,672,212
ROTATIONAL MEGASONIC CLEANER/ETCHER FOR WAFERS
 James T. Manos, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
 Continuation of Ser. No. 269,717, Jul. 1, 1994, abandoned.
 This application Nov. 25, 1996, Ser. No. 755,690
 Int. Cl.⁶ B08B 3/08; 3/12
 U.S. Cl. 134—1.3

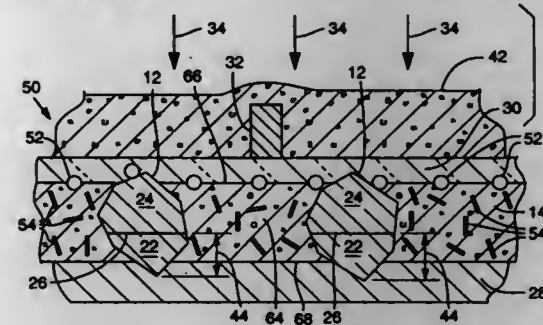


1. A method for processing semiconductor wafers, comprising the steps of:
 providing a tank having sides attached to a bottom;
 providing a wafer carrier loaded with semiconductor wafers for processing, said wafer carrier having supports for holding a plurality of wafers to be processed, said supports securely holding said semiconductor wafers at the edges of said wafers;
 providing support means within said tank for holding said wafer carrier inside said tank so that said wafer carrier can rotate freely about an axis;
 providing rotation means coupled to said wafer carrier for causing said wafer carrier to rotate about its axis within said tank while said wafers are securely held within said wafer carrier; rotating said wafer carrier and said wafers within said tank while processing said wafers, thereby exposing all areas of said wafers equally during said processing;
 providing a megasonic transducer within said tank;
 directing megasonic energy at said wafer carrier and said wafers while said wafers are rotating;
 providing a solution for performing a desired operation on said wafers disposed in said tank;
 immersing said wafers in said solution while said wafers are being rotated, and simultaneously exposing said wafers to megasonic energy from said megasonic transducer, wherein said step of providing a solution comprises the steps of:
 providing spray and fill nozzles disposed within said tank; and
 filling said tank with a cleaning solution using said spray and fill nozzles.

5,672,213
LIQUID ENZYME COMPOSITIONS CONTAINING AROMATIC ACID DERIVATIVES
 Bahram Asgharian; Ronald P. Quintana, and Bor-Shyue Hong, all of Arlington, Tex., assignors to Alton Laboratories, Inc., Fort Worth, Tex.
 Filed Aug. 18, 1995, Ser. No. 515,732
 Int. Cl.⁶ C11D 7/42
 U.S. Cl. 134—42

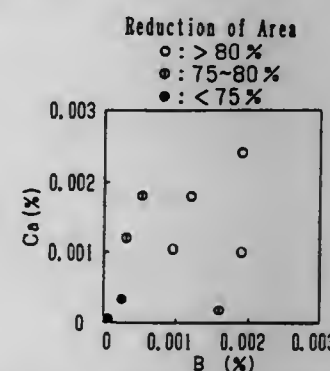
1. A liquid protease composition for cleaning contact lenses comprising an enzyme in an amount effective to clean the lens; 0.01–5.0% w/v of an aromatic acid derivative; 30–70% w/v of at least one polyol selected from the group consisting of: propylene glycol, ethylene glycol, sorbitol, mannitol, and polymeric polyols having a molecular weight ranging from 200–1000 daltons; and water.

5,672,214
CONCRETE SOLAR CELL
 John R. Arthur, Corvallis; Robert K. Graupner, Portland; Tyrus K. Monson, Corvallis; James A. Van Vechten, Corvallis, and Ernest G. Wolff, Corvallis, all of Oreg., assignors to State of Oregon, acting by and through the State Board of Higher Education on behalf of Oregon State University, Corvallis, Oreg.
 Continuation-in-part of Ser. No. 166,307, Dec. 10, 1993, Pat. No. 5,415,700. This application May 15, 1995, Ser. No. 441,451
 Int. Cl.⁶ H01L 31/0384; 31/04
 U.S. Cl. 136—250



1. A concrete solar cell, comprising:
 a cementitious layer having first and second major surfaces;
 a photovoltaic material embedded in the cementitious layer and extending beyond the first and second major surfaces;
 plural fibers in contact with and reinforcing the cementitious layer;
 a first electrically conductive material juxtaposed to the first major surface and electrically contacting the photovoltaic material; and
 a second electrically conductive material that transmits a portion of incident light, the second electrically conductive material being juxtaposed to the second major surface and electrically contacting the photovoltaic material.

5,672,215
DUPLEX STAINLESS STEEL EXCELLENT IN CORROSION RESISTANCE
 Shigeki Azuma, Kobe, and Kazuhiro Ogawa, Nishinomiya, both of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan
 PCT No. PCT/JP95/02524, § 371 Date Jul. 24, 1996, § 102(e) Date Jul. 24, 1996, PCT Pub. No. WO96/18751, PCT Pub. Date Jun. 20, 1996
 PCT Filed Dec. 14, 1995, Ser. No. 682,596
 Claims priority, application Japan, Dec. 16, 1994, 6-312284
 Int. Cl.⁶ C22C 38/42
 U.S. Cl. 148—325



1. A highly corrosion-resistant duplex stainless steel having a chemical composition: 0.05 to 2.0% Si, 0.1 to 4.0% Mn, 1.0 to 4.0% Ni, 20.0 to 26.0% Cr, over 1.0 to 3.0% Cu, 0.002 to 0.05%

Al, 0.10 to 0.40% N, 0.05 to 0.50% the sum of at least one of V, Ti and Nb, and the balance of Fe and unavoidable impurities, impurity contents being 0.05% or less C, 0.03% or less P and 0.005% or less S;

wherein the duplex stainless steel has Ni_{bal} value expressed by the following Equation (1) in the range of –11.0 to –8.0:

$$Ni_{bal} = Ni_{eq} - 1.1 \times Cr_{eq} + 8.2 \quad (1)$$

where

$$Ni_{eq} = Ni(\%) + 0.5 \times Cu(\%) + 30 \times (C(\%) + N(\%)) \quad (2)$$

$$Cr_{eq} = Cr(\%) + 1.5 \times Si(\%) + Mo(\%) + W(\%) \quad (3)$$

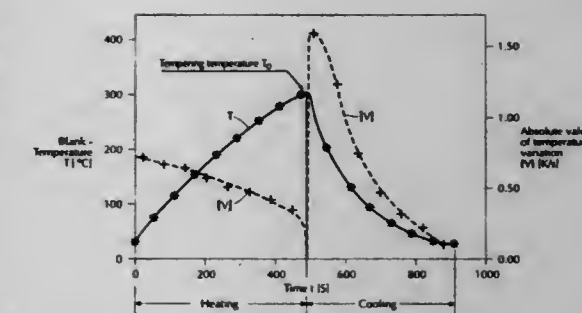
5,672,216
DISTORTION FREE HEAT TREATED METAL STAMPINGS
 John I. Robic, 17 Clydesdale Cir., Brampton, Ontario, Canada, L6Y 3R4
 Filed Oct. 13, 1994, Ser. No. 322,555
 Int. Cl.⁶ B32K 31/02
 U.S. Cl. 148—527



1. A method of producing a sheet metal part comprising the steps of:
 (a) placing a pair of overlying metal sheets in a press and simultaneously forming said metal sheets to a desired shape;
 (b) heat treating said formed metal sheets so as to increase the mechanical properties of said formed metal sheets and distort said formed metal sheets from said desired shape;
 (c) clamping said formed heat treated metal sheets together so as to bend said distorted metal sheets back to said desired shape; welding said clamped heat treated metal sheets together to produce said part with said metal sheets with said desired shape.

5,672,217
METHOD FOR PRODUCING MACHINE ELEMENTS OF STEEL
 Frank Hengerer, Schwebheim, Austria, and Johann Volkmuth, Niederlauer, Germany, assignors to SKF GmbH, Schweinfurt, Germany
 Continuation of Ser. No. 667,028, Mar. 8, 1991, abandoned.
 This application Apr. 8, 1992, Ser. No. 865,674
 Claims priority, application Germany, Mar. 9, 1990, 40 07 487.0
 Int. Cl.⁶ C21D 9/40

1. A method for producing rolling bearing rings of martensitically hardened rings of rolling bearing steel 100 Cr 6 comprising:
 (a) heating said rings from room temperature to a tempering peak temperature exceeding up to about 100° K. the tempering temperature of about 230° C. conventionally used for said 100 Cr 6 steel, each said ring being steadily upheated in said heating step during a time satisfying the ratio (t/d) of between about 50 and 210, wherein t is the heating time in seconds and d is the wall thickness of the rings in millimeters, and then,



(b) cooling the rings immediately after reaching said peak temperature to room temperature to attain a hardness of 45 to 65 HRC in said rings.

5,672,218
METHOD OF STRAIGHTENING METAL BARS HAVING EXTREMELY LOW LEVELS OF RESIDUAL STRESS AFTER STRAIGHTENING OPERATIONS ARE COMPLETED
 Jon S. Schumacher, Fort Wayne, Ind., assignor to Slater Steels Corporation, Fort Wayne, Ind.
 Filed Jun. 24, 1996, Ser. No. 669,215
 Int. Cl.⁶ C21D 9/08; B21D 3/00
 U.S. Cl. 148—597

1. A method of straightening a metal bar having a longitudinal axis, comprising the steps of:
 (a) straightening the metal bar by transporting the metal bar between a pair of rollers at a first straightening pressure;
 (b) removing an outer layer portion of the straightened metal bar in order to provide the metal bar with a reduced diameter and a substantially circular cross-section;
 (c) straightening the metal bar by transporting the metal bar between a pair of rollers at a second straightening pressure, wherein the second straightening pressure is less than the first straightening pressure.

5,672,219
PRINTING MIXTURE CONTAINING NO TOXIC MATERIALS, AND CARTRIDGE PERCUSSION PRIMER EMPLOYING SUCH A MIXTURE
 Sergio Rinaldi, Livorno, and Francesco Tallini, Campo Tizzoro, both of Italy, assignors to Europa Metalli - Sezione Difesa Se.Di. S.p.A., Florence, Italy
 Continuation of Ser. No. 500,165, Jul. 11, 1995, abandoned.
 This application Sep. 20, 1996, Ser. No. 718,290
 Claims priority, application Italy, Jan. 5, 1994, T094A0578
 Int. Cl.⁶ C06B 33/00

1. A priming mixture containing no toxic metal containing compounds, including no Pb, Ba, Sb compounds, and comprising at least one primary explosive; an oxidizing agent; and at least one reducing agent; wherein said oxidizing agent consists essentially of stannic oxide SnO_2 .

5,672,220 METHOD OF PRODUCING A LAMINATED ELECTRONIC DEVICE

Nagato Omori; Yukio Hamaji; Yoshiaki Mori, and Yukio Sakabe, all of Nagaokakyo, Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Continuation of Ser. No. 68,214, May 17, 1993, abandoned.

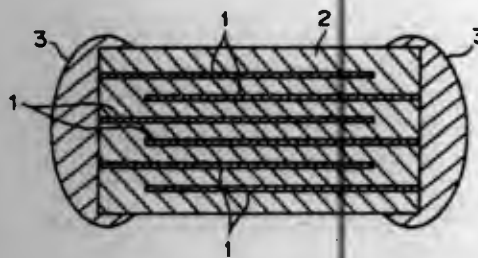
This application Apr. 23, 1996, Ser. No. 636,685

Claims priority, application Japan, May 28, 1992, 4-135467

Int. Cl.⁶ C04B 37/00

U.S. Cl. 156—89

7 Claims



1. A method of producing a laminated electronic device, comprising the steps of:

laminating together ceramic green sheets having inner electrodes comprising a base metal thereon, wherein at least some of the green sheets are made from a sintered mixture of PbO, MgCO₃, Nb₂O₅, TiO₂ and ZnO to form a laminate; sintering the laminate in a mixed gas which contains carbon dioxide with a purity of at least 99.9% and carbon monoxide with a purity of at least 99.9%, as its main constituents, and which further contains hydrogen and oxygen, and wherein a supply of at least one of the hydrogen and oxygen is regulated to control a density of oxygen in the mixed gas.

5,672,221 GAP-SETTING APPARATUS FOR A GLASS PANEL

Shigeyuki Takagi, Toyohashi, Japan, assignor to Sintokogio, Ltd., Japan

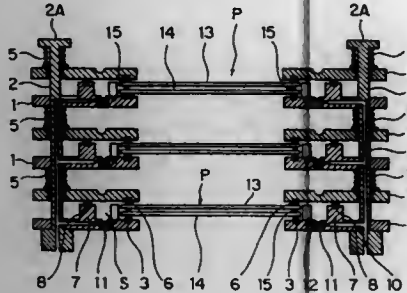
Filed Jul. 6, 1995, Ser. No. 499,018

Claims priority, application Japan, Jul. 8, 1994, 6-180620

Int. Cl.⁶ G02F 1/1339

U.S. Cl. 156—109

5 Claims



1. An apparatus for setting a gap of a glass panel having a pair of glass substrates having on inner surfaces thereof transparent electrodes and a thermoset resin, comprising:

an annular immovable plate to support the glass panel; a first annular gasket disposed on an upper surface of an inner peripheral part of the immovable plate so as to sealingly support the glass panel at the bottom of an outer peripheral part thereof; a plurality of studs to support the immovable plate at an outer circumferential part thereof; a flexible and annular movable plate disposed above the immovable plate and slidably mounted on the studs; the movable plate being biased by springs engaging the top of the movable plate toward the immovable plate;

a second annular gasket disposed on the bottom of the movable plate at an inner peripheral part thereof so as to press the upper surface of the glass panel at an outer peripheral part thereof;

a third annular gasket disposed outward of the first gasket and between the movable and immovable plates so as to define a sealed chamber in association with the first and second gaskets, the movable and immovable plates, and the glass panel to be placed between the first and second gaskets, the third gasket being positioned at a level such that a distance between the bottom of the second gasket and the upper surface of the first gasket before the glass panel is placed between the first and second gaskets is smaller than the thickness of the glass panel when the bottom of the biased movable plate is pressed against the third gasket; and a suction pipe to communicate with the chamber.

5,672,222

NEEDED NONWOVEN FABRIC

Paul William Eschenbach, Moore, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Continuation of Ser. No. 526,076, Sep. 11, 1995, abandoned,

which is a continuation of Ser. No. 719,019, Jun. 21, 1991,

abandoned, which is a continuation-in-part of Ser. No.

618,977, Nov. 28, 1990, abandoned, which is a continuation-

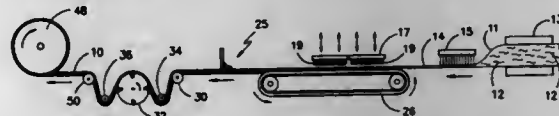
in-part of Ser. No. 603,434, Oct. 26, 1990, abandoned. This

application Aug. 26, 1996, Ser. No. 702,853

Int. Cl.⁶ D04H 1/04; 11/04

U.S. Cl. 156—148

5 Claims



1. A method of providing a nonwoven fabric comprising: blending staple length low melt nylon 6 fibers with staple length low melt nylon 12 fibers to form a blend of low melt staple fibers; blending the blend of low melt staple fibers with at least one higher melt staple fiber and forming them into a batt; needling the batt of blended fibers; subjecting the needled batt of fibers to a second needling to form loops in one surface thereof, subjecting the needled batt of fibers to a temperature above the melting temperatures of the low melt fibers but below the temperature of the high melt fiber for a period of time and allowing the low melt fibers to cool to provide a cohesive nonwoven fabric.

5,672,223

METHOD OF RECYCLING IMAGE-DEPOSITED RECORDING MATERIAL, AND RECORDING MATERIAL FOR USE WITH THE RECYCLING METHOD

Shigeaki Kimura, and Hiroshi Kitazawa, both of Mishima, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Feb. 16, 1996, Ser. No. 603,085

Claims priority, application Japan, Feb. 17, 1995, 7-053409

Int. Cl.⁶ B41M 5/40; B44C 1/165

U.S. Cl. 156—234

6 Claims

4. A recording material comprising a surface portion, at least part of which comprises a paper layer comprising cellulose fibers and capable of bearing thereon images formed by a thermofusible or thermosetting ink, with said image-bearing surface portion of said recording material having a contact angle (cosθ) in the range of -0.6 to 0.8 when a liquid with a surface tension of 40 mN/m is placed dropwise on said surface portion of said recording material, and

wherein said surface portion of said recording material comprises a sizing agent having a contact angle (cosθ) of -0.6 to 0.8 when a liquid with a surface tension of 40 mN/m is placed dropwise on a film prepared by drying said sizing agent.

5,672,224

PEEL-BACK RE-SEALABLE MULTI-PLY LABEL

Thomas R. Kaufmann, Birchrunville, Pa., assignor to Beckett Corporation, Llonville, Pa.

Continuation of Ser. No. 260,226, Jun. 14, 1994, abandoned,

which is a continuation-in-part of Ser. No. 156,574, Nov. 19,

1993, Pat. No. 5,389,415, which is a continuation of Ser. No.

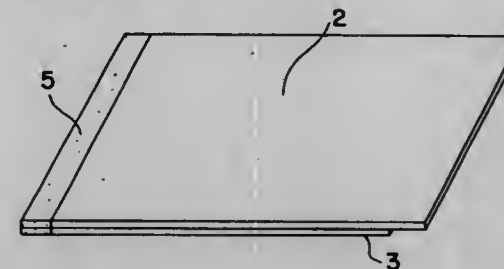
961,864, Oct. 15, 1992, Pat. No. 5,264,265. This application

Jun. 27, 1995, Ser. No. 495,267

Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—257

17 Claims



1. A method for making a peel-back resealable multi-ply label, the multi-ply label having a hinged top ply overlaying a bottom ply for automatic reclosure of the label, the method comprising the steps of:

(a) die-cutting a notch in a bottom ply having an upper side and an underside;

(b) removing waste material from the die-cut notch;

(c) bonding an underside of a flexible, resilient top ply at a first edge to the upper side of the notched bottom ply with permanent adhesive to form a spring hinge, the spring hinge allowing opening of the top ply to expose the upper side of the bottom ply, the spring hinge also providing for automatic reclosure of the top ply over the bottom ply;

(d) cutting the bonded bottom ply and top ply to form a final shape of the label, the top ply having a peel tab extending outwardly from a second edge of the top ply opposite the first edge and a peel tab area overlying the notch in the bottom ply.

5,672,225

METHOD FOR ENGRAVING THREE DIMENSIONAL IMAGES

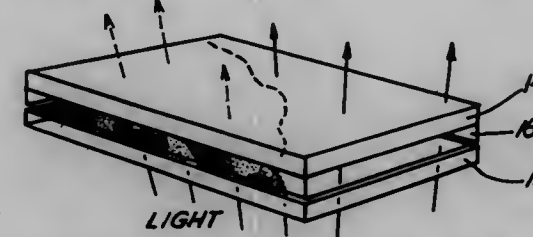
John R. Cowan, Oakfield House, Campbeltown, Argyll (PA28 6PH), Scotland

Filed Sep. 11, 1995, Ser. No. 526,432

Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—275.5

11 Claims



1. A method of making a shotblast resist capable of producing a smoothly graduated, three dimensional engraving in a substrate, comprising:

providing an image which is desired to be engraved in three dimensional fashion into a substrate;

preparing a transparency of said desired image, wherein said transparency has varying levels of tone that represent the varying levels of depth required in the desired image;

providing a resist film having a photosensitive resist layer and a base layer;

processing the resist film to impart a three dimensional version of the desired image onto the resist layer, said processing step including the steps of:

exposing the resist layer to a radiation source that is directed through both the transparency and the base layer into the resist layer for a specific quantity of exposure, whereby the varying levels of tone of the transparency result in controlled differential exposure of the resist layer to the radiation source, whereby said differential exposure to the radiation source results in variable thickness hardening of specific areas of the resist layer according to the various levels of light to which it is exposed;

processing the resist layer to remove unhardened areas of the top layer, thereby resulting in smoothly varying levels of thickness in the resist layer that correspond to a three dimensional version of the desired image.

5,672,226

PROCESS OF FORMING MULTILAYER CIRCUIT BOARDS

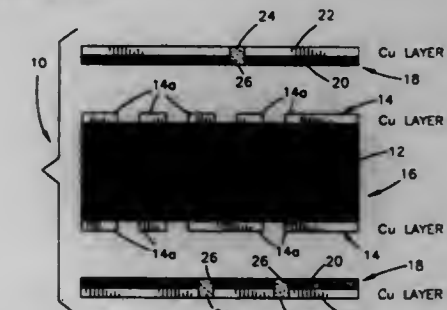
Joan Sharon Deardorf, Novlesville, Ind., assignor to Delco Electronics Corporation, Kokomo, Ind.

Filed Oct. 11, 1995, Ser. No. 541,002

Int. Cl.⁶ H05K 3/36

U.S. Cl. 156—288

15 Claims



1. A process for forming a multilayer laminated circuit board, the process comprising the steps of:

providing a first dielectric layer bonded to a first conductive foil to form a first ply, and a second dielectric layer bonded to a second conductive foil to form a second ply;

forming vias through the first and second dielectric layers and through the first and second conductive foils;

filling the vias with a conductive material such that the conductive material electrically contacts the first and second conductive foils; and then

laminating the first and second plies to opposing surfaces of a clad core laminate comprising a dielectric core between a pair of conductive claddings, the first and second plies being laminated to the clad core laminate such that the first and second dielectric layers overlay the pair of conductive claddings, the conductive material within the vias electrically contacting the pair of conductive claddings of the clad core laminate.

5,672,227

RESIN TRANSFER MOLDING PROCESS FOR MAKING COMPOSITE PIPE

Chang-Hsuan Chin, c/o Hung Hsing Patent Service Center P.O. Box 55-1670, Taipei, Taiwan

Filed Dec. 18, 1995, Ser. No. 575,673

Int. Cl.⁶ B29C 61/02; B32B 1/10; B65H 81/06

U.S. Cl. 156—295

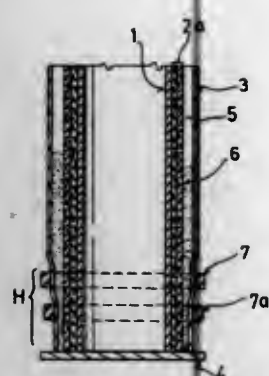
1 Claim

1. A resin transfer molding process for making composite pipe comprising the steps of:

a. disposing a preform on a mandrel;

b. jacketing a heat-shrinkable sleeve over the preform disposed on the mandrel, wherein an annular gap is maintained between the sleeve and the preform to form a buffer chamber in the annular gap;

c. filling a thermosetting resin into the buffer chamber through an inlet port of the buffer chamber, then sealing the inlet port



and gravitationally levelling and setting the resin in the buffer chamber to form a resin pool in the buffer chamber;

d. thermally shrinking the heat-shrinkable sleeve by heating the sleeve with a heating means, said heating occurring in a heating zone comprising an upper portion and a lower portion, said heating zone movable from a lower portion of the sleeve adjacent to the inlet port of the buffer chamber towards an upper portion of the sleeve, whereby upon heating of the sleeve, the sleeve is shrunk to boost the resin in the resin pool to flow centripetally and upwardly to homogeneously penetrate the resin into the preform to impregnate the preform and to force bubbles existing in the resin and preform upwardly to vent and remove the bubbles therefrom; and

e. heating and curing the resin at a hardening temperature of the resin to harden the resin impregnated preform disposed on the mandrel and then removing the sleeve to form a composite pipe; wherein

the step of thermally shrinking the heat-shrinkable sleeve includes providing a first fastening ring fastened on said sleeve adjacent to the upper portion of said heating zone to limit an upward resin flow and to enhance centripetal resin flow, and providing a second fastening ring fastened on said sleeve adjacent to the lower portion of the heating zone for keeping a constant diameter of the pipe, said heating zone and said heating means moving upwardly along said sleeve to thermally shrink said sleeve.

5,672,228

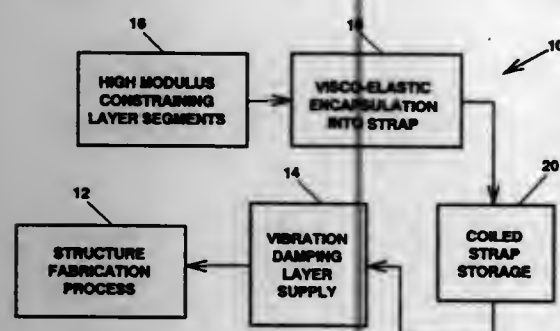
VIBRATION-DAMPING OF STRUCTURAL PRODUCTS
Aleksander B. Macander, Rockville, Md.; Thomas N. Tinley, Oakton, Va., and Steven S. Chiu, Gaithersburg, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 19, 1995, Ser. No. 530,391

Int. Cl. F04B 1/34

U.S. Cl. 156—324

9 Claims



1. In combination with a method for fabrication of a structural product including formation of a surface thereon and application of a vibration-damping layer to said surface, the improvement residing in the steps of: forming said vibration-damping layer as an elongated strap having constraint segments therein encapsulated within a flexible coating prior to said formation of the surface

on the structural product during fabrication thereof; storing the elongated strap in a coiled condition accommodated by flexure of said flexible coating; and supplying the structural product during said fabrication thereof with the elongated strap for application to said surface by uncoiling of the strap from storage in said coiled condition.

5,672,229

SOLVENT-FREE TWO-COMPONENT POLYURETHANE REACTIVE ADHESIVES AND THEIR USE FOR PRODUCING SANDWICH-TYPE INTERIOR PANNELLING FOR VEHICLES

Eberhard König, Leverkusen; Uwe Fritz Gronemeyer, Kürten, and Dirk Wegener, Monheim, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 345,882, Nov. 28, 1994. This application Nov. 6, 1995, Ser. No. 553,940

Claims priority, application Germany, Nov. 29, 1993, 43 40 561.4

Int. Cl. C09J 4/00

U.S. Cl. 156—331.4

1 Claim

1. A method for producing a sandwich structure suitable for interior panneling for vehicles comprising

(1) coating two or more flat substrates with a solvent-free two-component polyurethane reactive adhesive consisting essentially of

(A) a polyisocyanate component based on diphenylmethane diisocyanates,

(B) a polyol component having an overall OH value of 300 to 600, said polyol component being a mixture of

(B1) 60 to 90 wt. % of difunctional and trifunctional polyethers having an OH value of 28 to 600 obtained by reacting ethylene oxide and/or propylene oxide with glycols and with trihydric alcohols,

(B2) 0 to 15 wt. % of polyesters possessing OH groups and having an OH value of 200 to 300,

(B3) 5 to 20 wt. % of glycols having a molecular weight of 62 to 200,

(B4) 1 to 2 wt. % of water, and

(B5) 0.5 to 3 wt. % of activators, the quantities of components (B1) to (B5) being relative to the total amount of polyol component and totalling 100 wt. %, and optionally

(C) additives, wherein component (A) and component (B) are present in proportionate amounts such that the isocyanate index is 120 to 250; and

(2) pressing together the coated flat substrates to produce the sandwich structure.

5,672,230

CENTRAL MANAGEMENT SYSTEM OF WET CHEMICAL STATIONS

Heung-soo Park, Seoul, and Hee-sun Chae, Suwon, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Sep. 1, 1995, Ser. No. 522,958

Claims priority, application Rep. of Korea, May 11, 1995, 95-11625

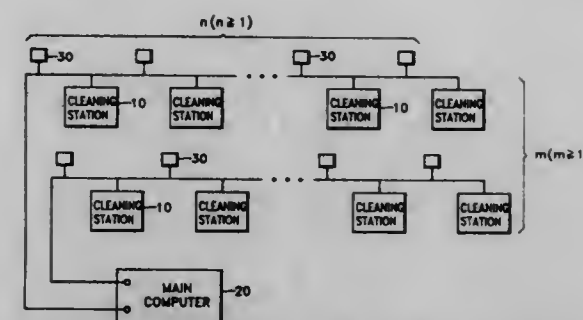
Int. Cl. B44C 1/00

U.S. Cl. 156—345

12 Claims

1. A central management system for wet chemical cleaning stations, comprising:

a plurality of wet chemical cleaning stations each having a liquid bath, filter, pump and at least one sensor for sensing a process variable thereof; and



a main computer connected to said plurality of wet chemical cleaning stations for displaying, storing and processing data sensed by any one of said at least one sensor and totally managing said data.

5,672,231

METHOD AND APPARATUS FOR REMOVING LABEL FROM A CONTAINER

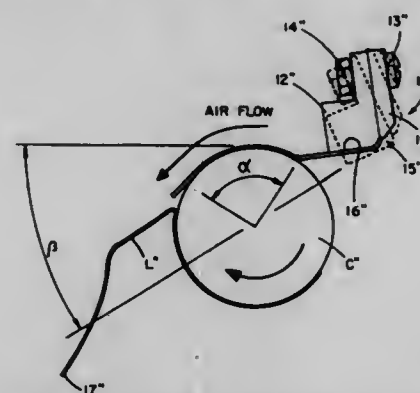
Daniel N. Willkens, Freeville, N.Y., and Neal D. Turner, Brackney, Pa., assignors to Brandt Technologies, Inc., Windsor, N.Y.

Filed Mar. 22, 1995, Ser. No. 408,576

Int. Cl. B32B 35/00

U.S. Cl. 156—344

2 Claims



1. A method of removing a label from a container which includes a cylindrical surface, the label having a leading edge and a trailing edge, said method comprising the steps of:

a) rotating the container; and

b) blowing air such that the air impacts the container at a location upstream of the leading edge of the label and follows the cylindrical surface toward the leading edge of the label so as to meet the leading edge of the label as the container rotates, thereby to remove the label from the container, wherein said air blowing step includes blowing air so as to be incident non-tangentially with respect to the cylindrical surface of the container and then follow around the cylindrical surface of the rotating container to meet the leading edge of the label.

5,672,232

APPARATUS FOR PRODUCING TUBULAR PRODUCTS FROM NONWOVEN FIBERS

Robert A. Clack, Sun Prairie, Wis., assignor to Clack Corporation, Windsor, Wis.

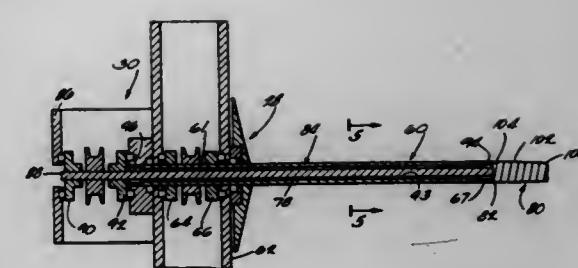
Division of Ser. No. 48,281, Apr. 14, 1993, Pat. No. 5,366,576. This application Sep. 27, 1994, Ser. No. 312,717

Int. Cl. B37B 1/10

U.S. Cl. 156—429

20 Claims

1. A system for forming tubular products from nonwoven fibers, said system comprising:



A. a rotatable mandrel on which a tube is produced by depositing nonwoven fibers on said mandrel and which has a distal axial end; and

B. a roller which has a surface 1) which presents helical threads, 2) which engages a peripheral surface of said tube, and 3) which draws said tube axially off from said mandrel, wherein an axis of rotation of said mandrel and an axis of rotation of said roller extend in the same direction.

5,672,233

APPARATUS FOR FORMING HOLLOW TUBE FLEXIBLE TAPE

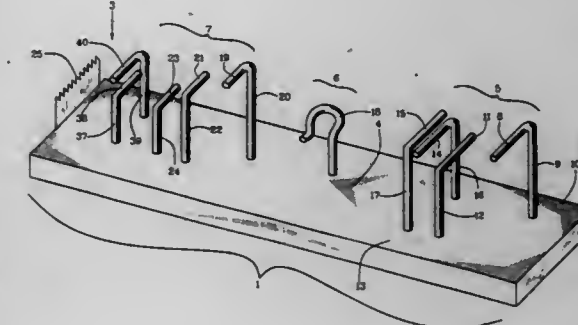
Richard D. Hall, 3912 Pine Rail Cir., Valdosta, Ga. 31602

Continuation-in-part of Ser. No. 413,351, Mar. 30, 1995, abandoned. This application Dec. 8, 1995, Ser. No. 569,571

Int. Cl. B29D 23/00; B32B 1/00

U.S. Cl. 156—466

31 Claims



25. A tube-tape-forming apparatus for forming tubular tape having overlapping seams, comprising:

a tube-forming base having a feed end, a cut-off end, an operative side, an edge and a mounting side, the operative side being intermediate the feed end and the cut-off end of the tube forming base, the mounting side having a lower end, the lower end connected to the edge of the tube-forming base;

a half-fold means extending from the operative side at a predetermined distance from the feed end of the tube-forming base;

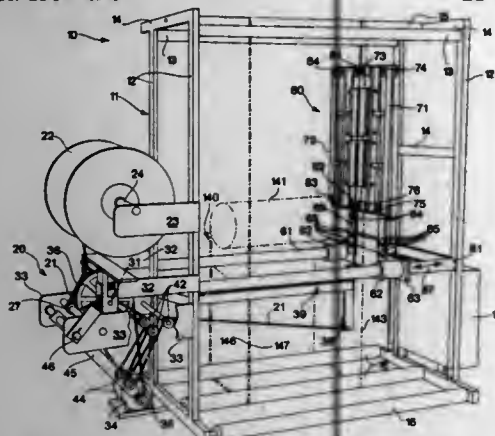
a transition-fold means extending from the operative side proximate a center portion of the tube-forming base; and

a full-fold means extending from the operative side at a predetermined distance from the cut-off end of the tube-forming base, the full-fold means having a full-fold guide on the tube-forming base, the full-fold guide having a U-shaped slot, whereby the looped-folded tape traveling from the transition-fold means is in sliding contact through the U-shaped slot with the full-fold guide to form a full-folded tape having overlapping seams, and

a compression guide extended from the mounting side and positioned between the full-fold guide and the cut-off end for compressing together the full-folded tape overlapping seams.

5,672,234
ZIPPER FUSING MACHINE FOR ATTACHING ZIPPER MATERIAL TO A PLASTIC WEB
 Larry M. Rodenstein, Newton; Bradley G. Glines, Plymouth, and Theodore Amell, Brockton, all of Mass., assignors to Park-Alr Corporation, Brockton, Mass.
 Filed Apr. 28, 1995, Ser. No. 430,879
 Int. Cl.⁶ B30B 5/06; 15/34

U.S. Cl. 156—494 21 Claims



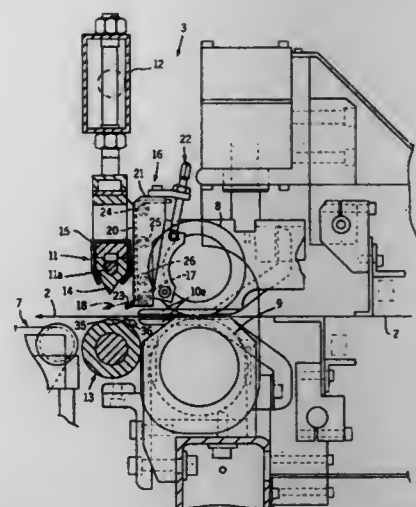
1. A machine for continuously fusing a plastic zipper material between opposed sides of a length of a folded plastic bag film material, the folded plastic bag film material including a folded edge and an open edge extending along the length thereof and having a width between the folded edge and the open edge, the machine comprising:

- a frame having opposing first and second sides;
- a plurality of guide rollers mounted on the frame in a longitudinal direction between the first and second sides, the guide rollers being arranged to guide the folded plastic bag film material from a roll through a vertical plane within the frame with the width of the folded plastic bag film material extending across the frame in the longitudinal direction;
- a fusing mechanism mounted on the frame and movable in the longitudinal direction for alignment with a selected vertical fuse path in the vertical plane between the opposed sides of the folded plastic bag film material; and
- a zipper supply mechanism mounted on the frame to feed the zipper material along the fuse path,
- the fusing mechanism including a pair of endless belts, each belt having a vertical leg disposed parallel to and closely spaced from an outer face of one of the opposed sides of the folded plastic bag film material, the belts being disposed on opposite sides of the fuse path,
- the fusing mechanism further including heaters and coolers disposed closely adjacent the vertical legs of the belts for continuously fusing the zipper material to the opposed faces of the folded plastic bag film material disposed in the fuse path and then cooling the fused zipper material and the film material.

5,672,235
PLASTIC FILM STRIPPER APPARATUS AND METHOD FOR HEATED SEALING APPARATUS
 Giles R. Blaser, Green Bay; William J. Greely, Sobieski, both of Wis., and Shagn V. Hanley, Iron Mountain, Mich., assignors to Amplas, Inc., Green Bay, Wis.
 Filed Oct. 5, 1995, Ser. No. 539,807
 Int. Cl.⁶ B32B 31/18; B31B 37/60; 49/04

U.S. Cl. 156—497 16 Claims

1. A film web control apparatus for stabilizing the leading edge of plastic web in a seal bar unit having a reciprocating element, said element having a heated tip adapted to engage said web and sever a portion therefrom, comprising a cooling plate unit adapted to be mounted adjacent said seal bar unit and having a cooling source coupled thereto, said plate unit having a bottom end located

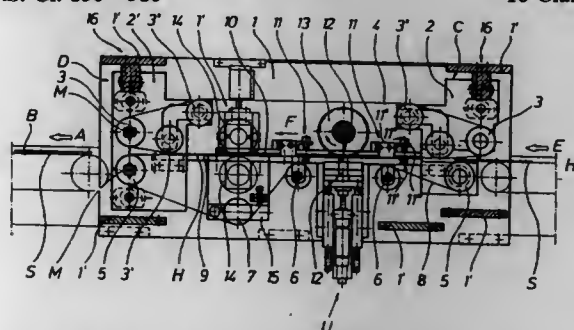


immediately above the web path, said plate unit having an elongated fluid passageway unit at the lower end of said plate, said passageway having a plurality of discharge openings directed outwardly therefrom and directed across the path of said heating element immediately above the web plane for directing a fluid stream over the heated tips and engaging web to prevent operative lifting of the leading edge of the severed web.

5,672,236
DEVICE FOR PRODUCING SEPARATOR POCKETS FOR ELECTRICAL ACCUMULATOR PLATES
 Helmut Frey, Ferlach, Austria, assignor to Jungfer Ges.m.b.H., Freistritz, Austria
 PCT No. PCT/AT94/00004, § 371 Date Apr. 8, 1996, § 102(e) Date Apr. 8, 1996, PCT Pub. No. WO94/17984, PCT Pub. Date Aug. 18, 1994

PCT Filed Jan. 21, 1994, Ser. No. 500,986
 Claims priority, application Austria, Feb. 3, 1993, A 186/93
 Int. Cl.⁶ B32B 31/16

U.S. Cl. 156—510 10 Claims

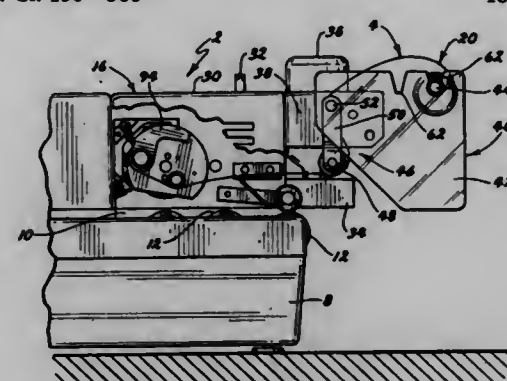


1. An apparatus for making separator envelopes for electrical battery plates, comprising:
 machine frame means comprising substantially planar feed path means having an input end and an output end;
 ultrasonic welding means positioned on said feed path means intermediate said input and output ends for ultrasonically welding to each other superposed opposite margins of polymeric web means individually folded over a plurality of battery plates;
 means for continuously feeding said folded web means with said battery plates therebetween along said feed path with said opposite margins aligned in parallel therewith through said ultrasonic welding means, said feeding means comprising:
 first and second pairs of endless belt means extending between said input and output ends and positioned in parallel to each other on opposite sides of said feed path, one of said belt means of each of said first and second pairs being positioned above and the other of said belt means of said first and second pairs being positioned below said feed path;

means for aligning said first and second pairs of endless belt means with said opposite margins of folded web means; and
 means for driving said endless belt means in synchronism.

5,672,237
POSTAGE STAMP APPLICATOR
 Bruce W. Whiteford, 8024 Northern Dr., Minneapolis, Minn. 55427, and Larry R. Whiteford, 1015 16th Ave. SE., Minneapolis, Minn. 55414
 Filed May 23, 1995, Ser. No. 447,618
 Int. Cl.⁶ B65C 9/00; B43M 3/00

U.S. Cl. 156—566 18 Claims



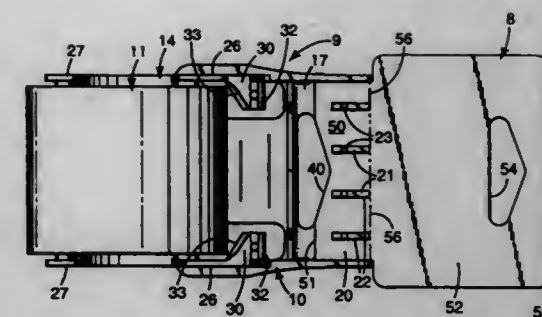
1. A postage stamp applicator for a mailing machine having means for automatically advancing individual envelopes along a predetermined path and a driven member which rotates one turn each time an envelope passes through the machine, the applicator comprising:

- (a) a housing with a drive shaft rotatably mounted therein, the housing having means for engaging the housing to the mailing machine during use of the postage stamp applicator;
- (b) a stamp applicator drum affixed to the drive shaft for rotation therewith and further positioned so that an outer surface of the stamp applicator drum is brought into engagement with envelopes advancing along the path;
- (c) means for mounting a perforated coil of stamps on the housing for rotation about an axis with the free end of the coil passing through the housing to the stamp applicator drum;
- (d) drive means for producing for each turn of the driven member an oscillating rotary movement of the drive shaft to thereby cause the stamp applicator drum to oscillate in a first rotary direction and then back in a second rotary direction opposed to the first direction in a complete cycle of oscillation for each turn of the driven member;
- (e) metering means carried on the stamp applicator drum receiving the free end of the coil of the stamps in engagement therewith for moving a predetermined number of stamps outwardly of the stamp applicator drum during each cycle of oscillation; and
- (f) means associated with the stamp applicator drum for severing the stamps advanced from the stamp applicator drum during each cycle of oscillation to allow the advanced and severed stamps to be applied to the outwardly directed surface of the advancing envelopes.

5,672,238
HANGER SHEET AND TAPE DISPENSER COMBINATION
 Bruce E. Samuelson, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Filed Jul. 12, 1995, Ser. No. 501,300
 Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—579 8 Claims

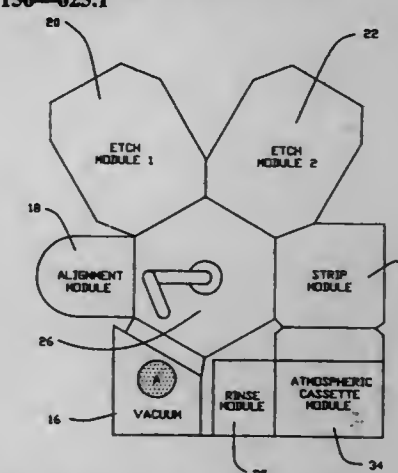
1. In combination:
 a tape dispenser comprising



a frame molded of polymeric material comprising a blade support portion,
 a cutting blade having a cutting edge adapted to transversely cut tape, and
 blade attachment means engaged between said cutting blade and said blade support portion of said frame for securing said cutting blade to said frame; and
 a hanger sheet having first and second opposite ends, a first end portion adjacent said first end and a second portion adjacent said second end having an opening adapted to receive a peg in a sales display area to hang the tape dispenser from the peg, said blade support portion comprising a dispenser wall having an inner surface, and a plurality of spaced projections from said inner surface having generally coplanar distal end surfaces,
 said first end portion of said hanger sheet having openings receiving said projections with said first end portion of said sheet around and extending between the openings that receive said projections, and
 said attachment means mounts said blade along said distal end surfaces with said first end portion of said hanger sheet between said cutting blade and said inner surface, said hanger sheet not being separable from said dispenser without separating parts of said hanger sheet.

5,672,239
INTEGRATED SEMICONDUCTOR WAFER PROCESSING SYSTEM
 Stephen Paul DeOrnellas, Santa Rosa, Calif., assignor to Tegal Corporation, Petaluma, Calif.
 Filed May 10, 1995, Ser. No. 438,261
 Int. Cl.⁶ H01L 21/30

U.S. Cl. 156—625.1 17 Claims



1. A method adapted for treating a semiconductor wafer in an integrated wafer processing apparatus which comprises:
 (a) a central vacuum chamber;
 (b) an etch module connected to said central vacuum chamber;
 (c) a strip module connected to said central vacuum chamber;
 (d) a rinse module, accessible to said strip module and not accessible to said central vacuum chamber;

- (e) a first transfer device that can transfer the semiconductor wafer between said rinse module and said strip module; and
(f) a second transfer device located in said central vacuum chamber that can transport the semiconductor wafer among said central vacuum chamber, said etch module, and said strip module;

the method comprising the steps of:

- (g) removing a material on said semiconductor wafer in said etch module of said apparatus;
(h) transferring the semiconductor wafer with said first and second transfer devices from said etch module through said central vacuum chamber and through said strip module to said rinse module;
(i) rinsing said semiconductor wafer in the rinse module of said apparatus subsequent to said removing step in the etch module;
(j) transferring the semiconductor wafer back in said strip module; and
(k) removing a mask material on the semiconductor wafer in said strip module of said apparatus; and
(l) transferring the semiconductor wafer back to the rinse module; and
(m) rinsing the semiconductor wafer in said rinse module subsequent to said mask removal step.

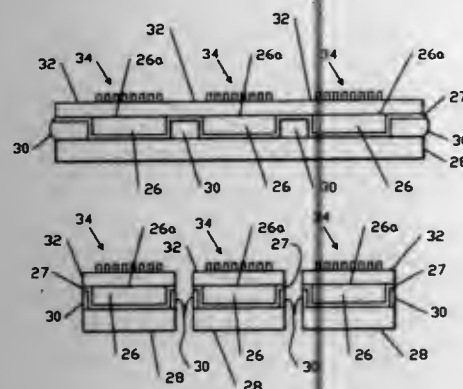
5,672,240 METHODS FOR FORMING SMOOTH DIAMOND-BASED MESA STRUCTURES

Brian R. Stoner, Chapel Hill; Joseph S. Holmes, Jr., Sanford; David L. Dreifus, Cary, all of N.C.; Scott R. Sahaida, Phoenix, Ariz.; Roy E. Fauber, Chapel Hill, N.C.; Michelle L. Hartsell, Plano, Tex., and Dean Malta, Cary, N.C., assignors to Kobe Steel USA Inc., Research Triangle Park, N.C.

Division of Ser. No. 514,656, Aug. 14, 1995, Pat. No. 5,652,436. This application Jun. 5, 1996, Ser. No. 658,467
Int. Cl.⁶ H01L 21/00; B44C 1/22

U.S. Cl. 156—631.1

10 Claims



1. A method for forming a diamond-based structure comprising the steps of:
providing a sacrificial substrate having a face;
forming a plurality of spaced apart diamond mesas on said face of said sacrificial substrate, wherein each of said spaced apart diamond mesas has a respective interfacial surface adjacent said sacrificial substrate and a respective growth surface opposite said interfacial surface; and
bonding said growth surface of each of said spaced apart diamond mesas to a transfer substrate.

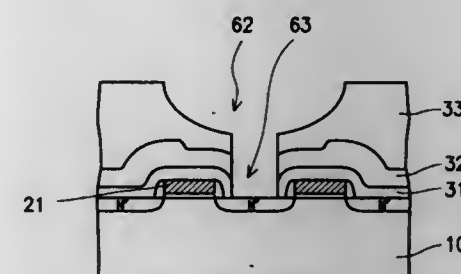
5,672,241 METHOD OF FORMING METAL CONTACT HOLES IN SEMICONDUCTOR FABRICATION

Yu-Chung Tien, Toulou, and Chieh-Lin Huang, Hsinchu, both of Taiwan, assignors to Winbond Electronics Corporation, Taiwan

Filed Jun. 12, 1996, Ser. No. 662,137
Int. Cl.⁶ H01L 21/768

U.S. Cl. 156—643.1

8 Claims



1. A method for forming at least a metal contact hole through at least a dielectric layer on a substrate, comprising the steps of:

- (1) coating a photoresist layer over the dielectric layer and then forming an opening in the photoresist layer at a position over where the metal contact hole is to be formed;
(2) performing a wet isotropic etching process on the dielectric layer through the opening so as to form a first recess portion in the dielectric layer;
(3) performing a dry isotropic etching process on the dielectric layer through the opening and the first recess portion so as to extend the first recess portion, forming a second recess portion;
(4) conducting a dry anisotropic etching process on the dielectric layer through the opening and the second recess portion so as to form a third recess portion that extends from the bottom of the second recess portion to a surface of the substrate, wherein the second recess portion and the third recess portion in combination form the metal contact hole; and
(5) removing the photoresist layer.

5,672,242 HIGH SELECTIVITY NITRIDE TO OXIDE ETCH PROCESS

Jang Jen, San Jose, Calif., assignor to Integrated Device Technology, Inc., Santa Clara, Calif.

Filed Jan. 31, 1996, Ser. No. 594,930
Int. Cl.⁶ H01L 21/3105

U.S. Cl. 156—662.1

5 Claims

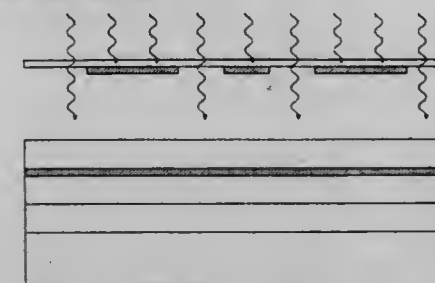
1. A method for etching away portions of a nitride layer without significantly etching away an underlying oxide layer in a semiconductor device, said method comprising the steps of:
electrically biasing said semiconductor device at between approximately 100 and 300 volts; and
providing Freon and Oxygen gases at first and second flow rates, respectively, wherein said flow rates are approximately 1:1, over a top surface of said nitride layer to remove said nitride layer at a rate of approximately 200 Å/min and to remove said oxide layer at a rate of approximately 40 Å/min.

5,672,243 ANTIREFLECTION COATING FOR HIGHLY REFLECTIVE PHOTOLITHOGRAPHIC LAYERS COMPRISING CHROMIUM OXIDE OR CHROMIUM SUBOXIDE

Liang-Choo Hsia, Taipei, and Thomas Chang, Hsinchu, both of Taiwan, assignors to Mosel Vitelic, Inc., Hsinchu, Taiwan
Filed Nov. 28, 1995, Ser. No. 563,526
Int. Cl.⁶ H01L 21/3105

U.S. Cl. 156—659.11

24 Claims



1. A photolithographic process for creating a pattern on a reflective layer disposed on a substrate comprising the steps of:

- forming an antireflective layer on the reflective layer, said antireflective layer comprising chromium oxide/suboxide wherein said antireflective layer has a stoichiometric ratio of chromium atoms to oxygen atoms between about 1:1 and about 4:1 Cr:O;
forming a patterned photoresist layer on said antireflective layer; and
forming a pattern in said antireflective layer and said reflective layer according to said patterned photoresist layer.

5,672,244 HIGH TEMPERATURE DEINKING METHOD USING AN ALKYLENE OXIDE ADDUCT

Hironichi Takahashi, and Koji Hamaguchi, both of Wakayama, Japan, assignors to Kao Corporation, Tokyo, Japan

Filed May 9, 1995, Ser. No. 437,383

Claims priority, application Japan, May 10, 1994, 6-096283
Int. Cl.⁶ D21C 5/02

U.S. Cl. 162—5

14 Claims

1. In a deinking method of feed waste papers, a high temperature deinking method for deinking feed waste papers wherein said waste papers comprise magazines and newspapers at a weight ratio of magazine to newspaper of from 5/95 to 60/40, a deinking agent containing an alkylene oxide adduct of an oil or fat, wherein said alkylene oxide adduct comprises ethylene oxide and propylene oxide added at a molar ratio of ethylene oxide to propylene oxide of from 1/1 to 5/1, and having a cloud point of 45° to 90° C. is added at least in one of the steps of the deinking process, and the flotation is effected at a temperature of from 40° to 80° C.

5,672,245 RECYCLING OF KNOTS IN A CONTINUOUS PROCESS FOR COOKING CHEMICAL PULP

Elisabeth Andtbacka; Stig Andtbacka, and Anders Bergqvist, all of Karlstad, Sweden, assignors to Kvaerner Pulpning Technologies Aktiebolag, Sweden

PCT No. PCT/SE94/01135, § 371 Date Nov. 6, 1995, § 102(e) Date Nov. 6, 1995, PCT Pub. No. WO95/23257, PCT Pub. Date Aug. 31, 1995

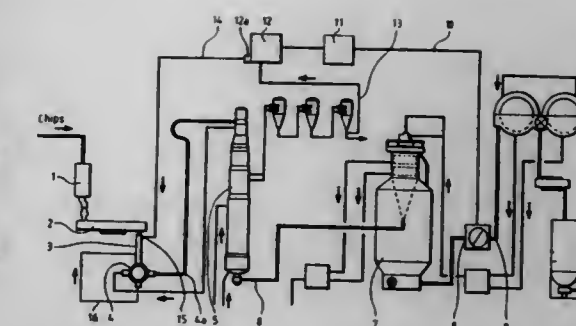
PCT Filed Nov. 28, 1994, Ser. No. 530,350

Claims priority, application Sweden, Feb. 23, 1994, 9400616
Int. Cl.⁶ D21C 3/24; 9/00

U.S. Cl. 162—17

22 Claims

1. A process for the continuous cooking of chemical pulp, comprising the steps of:



- feeding wood chips into a chip chute positioned on top of a high pressure feeder;
passing the chips from said high pressure feeder into a downstream, pressurized continuous digester housing, wherein said digester housing comprises a vertical, elongate digester having a top and a bottom, into the top of which digester said chips are fed and from the bottom of which digester cooked pulp is fed out;
defibrating and washing said cooked pulp;
screening said defibrated and washed pulp, such that an accepted flow of pulp and a rejected flow of pulp are obtained, wherein said rejected flow comprises principally of knots;
feeding said accepted flow onwards for continued treatment; and
returning said rejected flow to said chip chute without passing through a chip bin or a steaming vessel.

5,672,246 INCREASING THE CAPACITY OF A RECOVERY BOILER BY WITHDRAWING SOME OF THE EXHAUST GASES FROM THE FURNACE SECTION

Keijo Raak, Varkaus, Finland, assignor to Ahlstrom Machinery Oy, Helsinki, Finland

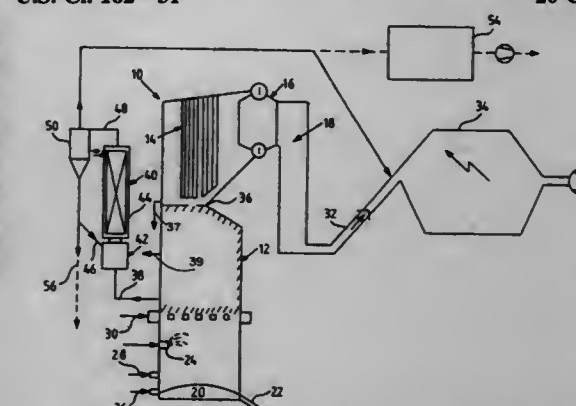
PCT No. PCT/FI95/00424, § 371 Date Apr. 1, 1996, § 102(e) Date Apr. 1, 1996, PCT Pub. No. WO96/05366, PCT Pub. Date Feb. 22, 1996

PCT Filed Aug. 10, 1995, Ser. No. 624,408

Claims priority, application Finland, Aug. 10, 1994, 943694
Int. Cl.⁶ D21C 11/12; F22B 33/02

U.S. Cl. 162—31

20 Claims



1. A method of treating waste liquors from cellulose pulping processes to recover energy and chemicals therefrom, using a recovery boiler having a furnace section in which exhaust gases are generated and which move away from the furnace section in a path, and heat recovery surfaces located downstream of the furnace section in the path of exhaust gas movement from the furnace section, said method comprising the steps of:

- (a) injecting waste liquor into the furnace section of the recovery boiler at a first location, and combusting the waste liquor in the furnace to generate heat and exhaust gases;
(b) dividing the exhaust gases into first and second streams;
(c) passing the first stream into association with the heat recovery surfaces of the recovery boiler, and then discharging the first stream from the recovery boiler; and

(d) withdrawing the second stream from the recovery boiler at a second location between the first location and the heat recovery surfaces.

5,672,247
**CONTROL SCHEME FOR RAPID PULP
DELIGNIFICATION AND BLEACHING**

George Pangalos, Plainsboro, N.J.; Ronald A. Falcone, Jr.; William L. Mayo, both of Chesapeake, Va., and Gregory J. Bosch, Yardville, N.J., assignors to Union Camp Patent Holding, Inc., Wayne, N.J.

Filed Mar. 3, 1995, Ser. No. 399,717
Int. Cl.⁶ D21C 1/00

U.S. Cl. 162—65

16 Claims

1. A coupled control method for controlling a continuous ozone bleaching process for paper pulp to a desired degree of bleaching, which comprises:

- adding feed ozone at a desired amount to the pulp;
- passing the pulp continuously into and out of a bleaching reactor;
- measuring ingoing pulp brightness between successive ingoing pulp K number measurements; and
- adjusting the quantity of feed ozone required to reach a desired degree of bleaching in response to the measured brightness and K number values.

5,672,248
METHOD OF MAKING SOFT TISSUE PRODUCTS

Greg Arthur Wendt, Neenah, Wis.; Kai F. Chiu, Brandon, Mich.; Mark Alan Burazin; Theodore Edwin Farrington, Jr., both of Appleton, Wis., and David Alan Heaton, Woodstock, Ga., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Continuation-in-part of Ser. No. 226,640, Apr. 12, 1994, abandoned. This application Feb. 6, 1995, Ser. No. 384,304

Int. Cl.⁶ D21H 27/02

U.S. Cl. 162—109

32 Claims



1. An uncreped throughdried tissue sheet having substantially uniform density, a basis weight of from about 10 to about 70 grams per square meter, a Wet Compressed Bulk (WCB) of about 4.5 or greater, an Absorbent Capacity of about 9 grams per gram or greater, a cross-machine direction stretch of about 9 percent or greater and from about 5 to about 300 protrusions per square inch having a height relative to the surface plane of the sheet, as measured in an uncalendered state of about 0.005 inch or greater and which correspond to elongated machine-direction knuckles on the throughdrying fabric.

5,672,249
**PROCESS FOR INCLUDING A FINE PARTICULATE
FILLER INTO TISSUE PAPER USING STARCH**

Kenneth Douglas Vinson; John Paul Erspamer; Charles William Neal, all of Cincinnati, Ohio; Jonathan Andrew Ficke, Lawrenceburg, Ind., and Jeffress Paul Halter, Jackson, Tenn., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 3, 1996, Ser. No. 627,157
Int. Cl.⁶ D21H 17/69

U.S. Cl. 162—111

22 Claims

1. A process for incorporating a fine non-cellulosic particulate filler into a creped tissue paper, said process comprising the steps of:

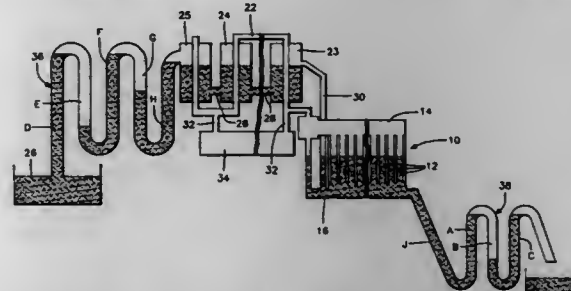
- contacting an aqueous dispersion of a non-cellulosic particulate filler with an aqueous dispersion of starch,
 - mixing the aqueous dispersion of starch-contacted filler with papermaking fibers forming an aqueous papermaking furnish comprising starch-contacted filler and papermaking fibers,
 - contacting said aqueous papermaking furnish with a flocculant,
 - forming an embryonic paper web from the aqueous papermaking furnish on a foraminous papermaking clothing,
 - removing water from said embryonic web to form a semi-dry papermaking web,
 - adhering the semi-dry papermaking web to a Yankee dryer and drying said web to a substantially dry condition,
 - creping the substantially dry web from the Yankee dryer by means of a flexible creping blade, thereby forming a creped tissue paper;
- wherein said particulate filler comprises from about 1% to about 50% of the total weight of said creped tissue paper, said particulate filler selected from the group consisting of clay, calcium carbonate, titanium dioxide, talc, aluminum silicate, calcium silicate, alumina trihydrate, activated carbon, calcium sulfate, glass microspheres, diatomaceous earth, and mixtures thereof; and
- wherein said starch comprises from about 0.01% to about 5% by weight based on the weight of said particulate filler.

5,672,250
SEAWATER SOLAR DESALINATION SYSTEM
Huseln Ambadar; Zantar Ambadar, and Zeky Ambadar, all of Seuseupan 13 Clawi, Bogor, Indonesia

Filed Aug. 30, 1995, Ser. No. 521,431
Int. Cl.⁶ B01D 3/00; 3/42

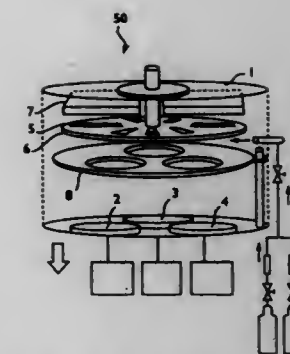
U.S. Cl. 202—169

8 Claims



1. A solar desalination or distillation system comprising a solar heat collector panel for receiving tainted water and converting the tainted water into steam by solar radiation, a steam flow pipe leading out from the heat collector panel, primary cooling chamber means in heat exchange relation with the steam flow pipe for condensing steam flowing from the heat collector panel into fresh water, a fresh water tank connected to a bottom section of the steam flow pipe for receiving condensate from the steam flow pipe by gravity flow, the primary cooling chamber means comprising at least one water tank jacketing the steam flow pipe, said cooling chamber means having an inlet end and an outlet end, said inlet end connected to inlet air-lock regulator piping for introducing raw tainted water into the system, said outlet end being connected to

the heat collector panel for delivering make-up tainted water to the heat collector panel and outlet air-lock regulator piping connected to an extending below the heat collector panel for discharging excessively tainted water collected in the heat collector panel, whereby tainted water is caused to flow from the inlet air-lock regulator piping, through the primary cooling chamber means, to the heat collector panel and through the outlet air-lock regulator piping by pressure differentials created in the system by generation of steam in the heat collector panel, wherein said inlet air-lock regulator piping and said outlet air-lock regulator piping each comprises a plurality of vertically extending tubes interconnected in a serpentine arrangement for the formation of alternating water columns and air-lock pockets therein.



5,672,251
**METALLIC WIRING BOARD AND A METHOD FOR
PRODUCING THE SAME**

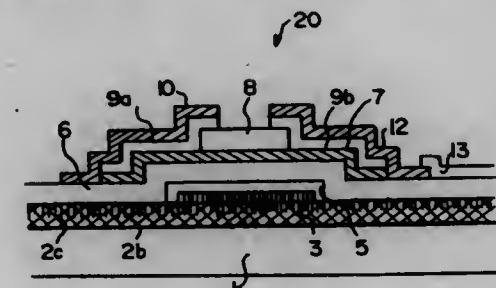
Masahito Goto, Tenri; Hiroshi Morimoto, Nara-ken; Yasunori Shimada; Takayoshi Nagayasu, both of Nara; Mitsunori Hirata, Tenri; Yoshitaka Hibino, Nara, and Tomohiko Yamamoto, Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 86,708, Jul. 7, 1993, Pat. No. 5,434,363. This application Mar. 23, 1995, Ser. No. 408,976

Int. Cl.⁶ C23C 14/34; 14/48; H01L 21/265; 21/02

U.S. Cl. 204—192.17

7 Claims



1. A method for producing a metallic wiring board comprising the steps of:

- implanting nitrogen on a surface of a substrate so as to form a nitrogen-doped layer;
- forming an α -Ta layer by a sputtering method on the surface where nitrogen is implanted, the α -Ta layer being formed as a result of being sputtered onto the surface where nitrogen is implanted;
- forming a metallic wiring by patterning the α -Ta layer; and
- forming an insulating film by an anodic oxidation of a surface of the metallic wiring, wherein the nitrogen-doped layer prevents ions of Ta included in the α -Ta layer from entering into the substrate.

5,672,252
**METHOD AND APPARATUS FOR FABRICATION OF
DIELECTRIC FILM**

Shigenori Hayashi, Nara; Kazuki Komaki, Osaka; Takeshi Kamada, Osaka; Masatoshi Kitagawa, Osaka; Takashi Deguchi, Shiga; Ryoichi Takayama, and Takashi Hirao, both of Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 159,522, Dec. 1, 1993. This application Jun. 15, 1995, Ser. No. 483,835

Claims priority, application Japan, Dec. 1, 1992, 4-321570; Dec. 1, 1992, 4-321572; Dec. 1, 1992, 4-321573; Dec. 10, 1992, 4-330270

Int. Cl.⁶ C23C 14/34

U.S. Cl. 204—192.22

13 Claims

1. A method for fabricating dielectric thin films formed of ABO₃ perovskite type composite compounds, which are composed of the

site A comprising at least one element from lead, barium, strontium and lanthanum, the site B comprising at least one element from titanium and zirconium, and oxygen, the method comprising the steps of:

- depositing thin films on a plurality of substrates with a deposition process using at least one multi-component material sputter target;
- stabilizing the crystal grains of said thin films with a stabilization process; and
- maintaining the temperature of said substrates at a temperature from about 550° C. to about 650° C., wherein the steps of depositing the thin films and of stabilizing the crystal grains of said thin films are repetitively performed on said substrates in a periodic, and alternating manner.

5,672,253
**APPARATUS FOR MAKING HEXAGONAL AND
PENTAGONAL MOLECULAR STRUCTURE WATER**
Gui Nan Hwang, Kyungsangnam-do, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

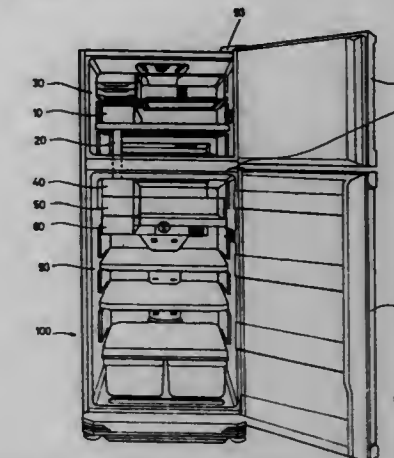
Continuation of Ser. No. 270,486, Jul. 5, 1994, abandoned.

This application Apr. 30, 1996, Ser. No. 641,266
Claims priority, application Rep. of Korea, Jul. 5, 1993, 12246/1993; Jul. 5, 1993, 12541/1993; Jul. 5, 1993, 12543/1993

Int. Cl.⁶ C25B 9/00; 15/08

U.S. Cl. 204—240

19 Claims



1. An apparatus for making hexagonal and pentagonal molecular structure water, comprising:

- a water reservoir disposed in a refrigerating chamber of a refrigerator for storing water;
- a hexagonal and pentagonal molecular structure water generating section for receiving the water from the water reservoir and for generating hexagonal and pentagonal molecular structure water by electrolysis of the water from the water reservoir;
- a hexagonal and pentagonal molecular structure water storing section for receiving and storing the hexagonal and pentagonal molecular structure water generated by the hexagonal and pentagonal molecular structure water generating section; and

a freezing container disposed in a freezing chamber of a refrigerator for receiving the hexagonal molecular structure water from the hexagonal molecular structure water storing section and for storing frozen hexagonal molecular structure water.

4. The apparatus of claim 1, wherein said hexagonal and pentagonal molecular structure water generating section includes a pushing protrusion disposed for opening a cock, a plate-shaped filter disposed at an intermediate position thereof, positive and negative pole plates disposed at both sides thereof, and hexagonal and pentagonal molecular structure water paths disposed at a lower portion thereof.

5,672,254 CONTACT ELEMENT FOR TRANSMITTING CURRENT TO A WORKPIECE FOR USE IN ELECTROCHEMICAL MATERIAL WORKING

Wolfgang Mauz, Leinfelden-Echterdingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
PCT No. PCT/DE95/01744, § 371 Date Aug. 8, 1996, § 102(e)
Date Aug. 8, 1996, PCT Pub. No. WO96/20804, PCT Pub. Date Jul. 11, 1996

PCT Filed Dec. 7, 1995, Ser. No. 687,609
Claims priority, application Germany, Jan. 3, 1995, 195 00 042.0

Int. Cl.⁶ B23H 1/00
U.S. Cl. 204—279

5 Claims



1. A contact element for transmitting current to a workpiece for use in electrochemical material working, said contact element having a contact carrier and a contact piece which is secured to the contact carrier and comes in contact with the workpiece during operation; and wherein the contact carrier is comprised of zirconium or a zirconium alloy; and the contact piece is a solid wafer which is welded to an end face of the contact carrier.

5,672,255 SPUTTERING DEVICE

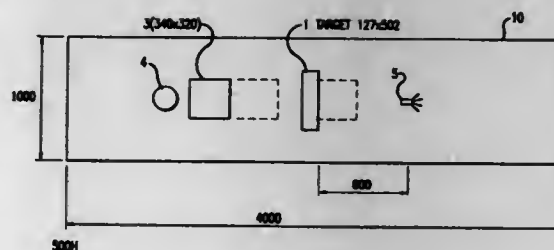
Isutomu Hamada, and Takehito Hikichi, both of Ebina, Japan, assignors to Fujl Xerox Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 428,015, Apr. 25, 1995, abandoned.
This application Apr. 8, 1996, Ser. No. 629,272
Claims priority, application Japan, May 27, 1994, 6-115610
Int. Cl.⁶ C23C 14/34; 14/56

U.S. Cl. 204—298.07

10 Claims

1. A sputtering device for coating a mobile substrate entering said device downstream and exiting upstream of said device, comprising:

a vacuum container having a gas exhausting portion;
a gas providing portion for providing inactive gas and reactive gas by means of at least one first gas inlet into said vacuum container, said at least one first gas inlet being provided upstream of said gas exhausting portion and providing gas away from said gas exhausting portion;



a target provided in said vacuum container between said at least one first gas inlet and said gas exhausting portion;
a diffusion interval from said target to said at least one first gas inlet, said diffusion interval having a length at least as great as a shortest distance between said target and the mobile substrate;

substrate supporting means for supporting the mobile substrate so that the mobile substrate faces said target as the mobile substrate travels a length of said vacuum container; and
a plasma producing portion to produce gas plasma near the mobile substrate,

wherein said reactive gas uniformly diffuses with said inactive gas within said diffusion interval, is made to be in a plasma state and reacts with sputtering particles scattered from said target to form a uniform film on a surface of said mobile substrate.

5,672,256 MULTI-ELECTRODE BIOSENSOR AND SYSTEM AND METHOD FOR MANUFACTURING SAME

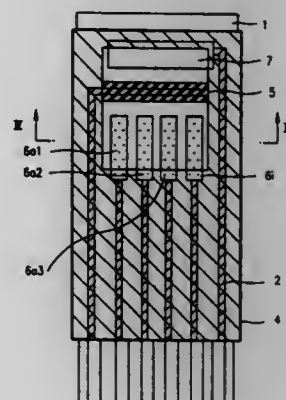
Hee-Jin Yee, Seoul, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed Dec. 8, 1995, Ser. No. 569,740
Claims priority, application Rep. of Korea, Dec. 8, 1994, 33335/1994

Int. Cl.⁶ G01N 27/26

U.S. Cl. 204—403

15 Claims



1. A multi-electrode biosensor comprising:

a substrate;
a plurality of working electrodes formed on the substrate, the plurality of working electrodes including at least two active working electrodes and an inert working electrode, wherein the active working electrode includes a bioactive material and the inert working electrode is bioinactive;
a counter electrode formed on the substrate; and
a reference electrode formed on the substrate.

5,672,257 ELECTROCHEMICAL METAL ANALYSIS

Stephen Birch, Bedford; John Bolbot, Bedfordshire; Eric D'Costa, Buckinghamshire, and Irving John Higgins, Bedfordshire, all of England, assignors to Cranfield Blotechnology Ltd., Bedfordshire, England

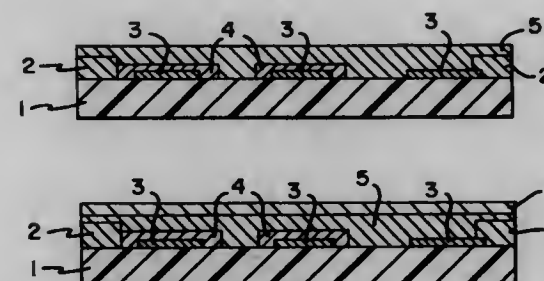
PCT No. PCT/GB94/01167, § 371 Date Sep. 8, 1995, § 102(e)
Date Sep. 8, 1995, PCT Pub. No. WO94/28401, PCT Pub. Date Dec. 8, 1994

PCT Filed May 27, 1994, Ser. No. 403,763
Claims priority, application United Kingdom, May 28, 1993, 9311035

Int. Cl.⁶ G01N 27/26

U.S. Cl. 204—413

12 Claims



1. An electrochemical metal analysis apparatus including a laminated electrode having a layer of mercury compound or salt supported thereon, further including a layer of permeable polymeric material in which mercury or a mercury compound or salt is dispersed, wherein the layer of permeable polymeric material includes an electrochemically inert insoluble particulate material.

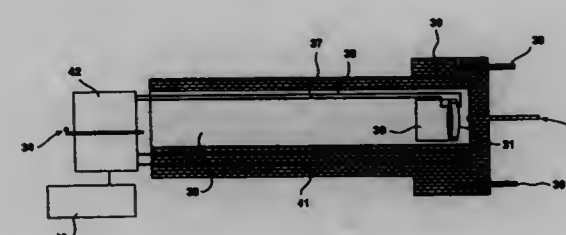
5,672,258 IMPEDANCE TYPE HUMIDITY SENSOR WITH PROTON-CONDUCTING ELECTROLYTE

Martha Greenblatt, Highland Park, N.J.; Shouhaa Feng, Changchun, China; Kandalam Ramanujachary, Maple Shade, N.J., and Pavel Shuk, Minsk, Belarus, assignors to Rutgers, The State University of New Jersey, New Brunswick, N.J.

Continuation-in-part of Ser. No. 79,237, Jun. 17, 1993, Pat. No. 5,393,404. This application Feb. 27, 1995, Ser. No. 395,412

Int. Cl.⁶ G01N 27/26; 27/406
U.S. Cl. 204—430

9 Claims



1. An impedance cell humidity sensor comprising:

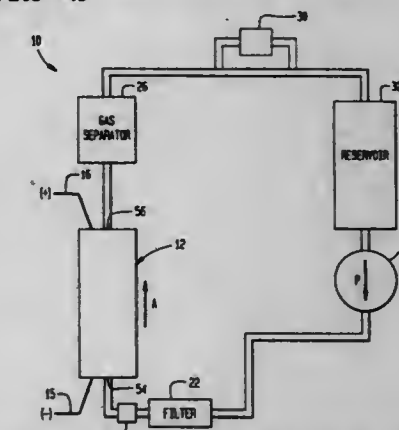
a substrate;
heating means affixed to one side of the substrate;
a pair of spaced apart electrodes affixed to the other side of the substrate;
a film of humidity sensitive material comprising a composite of $\text{HZr}_2\text{P}_3\text{O}_{12}$ and ZrP_2O_7 applied over and interconnecting the electrodes; and
a function generator for applying a low frequency across the sensor.

5,672,259 SYSTEM WITH ELECTROLYTIC CELL AND METHOD FOR PRODUCING HEAT AND REDUCING RADIOACTIVITY OF A RADIOACTIVE MATERIAL BY ELECTROLYSIS

James A. Patterson, 2074 20th St., Sarasota, Fla. 34234
Filed May 24, 1996, Ser. No. 653,194
Int. Cl.⁶ C25B 9/00; 15/08

U.S. Cl. 205—43

18 Claims



9. A method of producing heat and reducing radioactivity of a radioactive material by electrolysis in an aqueous media comprising the steps of:

A. providing an electrolytic cell including:
a non-conductive housing and an inlet and an outlet;
a first conductive porous grid positioned within said housing adjacent to said inlet;
a second conductive porous grid positioned within said housing spaced from said first conductive grid and adjacent to said outlet;
a plurality of conductive beads each including:
a non-conductive core;
a radioactive metallic actinide combined with, and forming a conductive surface over said non-conductive core;
B. circulating said aqueous media through said electrolytic cell;
C. passing an electrical current between said first and second grids when said aqueous media is circulating within said electrolytic cell;
D. removing heat from said aqueous media for use external to and separate from said electrolytic cell after said aqueous media exits said electrolytic cell through said outlet;
E. continuing to operate said cell in accordance with steps A, B, C, D until the radioactivity of said radioactive material is reduced.

5,672,260 PROCESS FOR SELECTIVE APPLICATION OF SOLDER TO CIRCUIT PACKAGES

Charles Francis Carey, Endicott; Kenneth Michael Fallon, Vestal; Voya Rista Markovich, Endwell; Douglas Oliver Powell, Endicott; Gary Paul Vlasak, Owego, and Richard Stuart Zarr, Apalachin, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

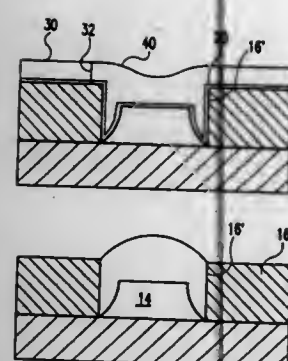
Continuation of Ser. No. 387,686, Feb. 13, 1995, Pat. No. 5,597,469. This application Apr. 17, 1996, Ser. No. 633,322
Int. Cl.⁶ H05K 3/34; C25D 5/02

U.S. Cl. 205—118

11 Claims

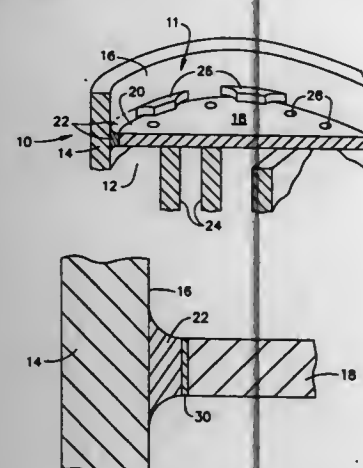
1. A method of forming a solder deposit on a solder wettable material including the steps of

electroplating solder materials onto portions of a conductive layer on at least surfaces of a first layer of non-solder wettable material having apertures therein and covering a portion of said solder wettable material, said portions of said conductive layer in said apertures in said first layer of non-solder wettable material being exposed during said electroplating by further apertures in a second layer of non-solder wettable material,



said further apertures having dimensions sized to define a volume of said solder material to be deposited by said electroplating, and reflowing solder materials away from a portion of said surfaces of said first layer of non-solder wettable material.

5,672,261
METHOD FOR BRAZING AN END PLATE WITHIN AN OPEN BODY END, AND BRAZED ARTICLE
 Gary E. Wheat; Robert E. McCracken, both of Madisonville, Ky., and Nicholas C. Palmer, Loveland, Ohio, assignors to General Electric Company, Cincinnati, Ohio
 Filed Aug. 9, 1996, Ser. No. 689,422
 Int. Cl.⁶ C25D 5/34; C23C 14/34; B23K 1/20; H01R 43/00
 U.S. Cl. 205—206 8 Claims

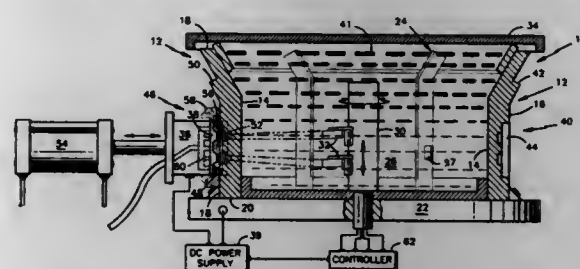


1. In a method for making an article which includes a body having a hollow interior and an open end comprising a wall of a Ni base superalloy which includes at least about 5 weight % total of at least one element selected from the group consisting of Al and Ti, the wall having an inner wall surface which defines at least a portion of the open end, and an end plate bridging at least a portion of the open end, the end plate including a plate rim shaped to match with at least a portion of the inner wall surface and brazed with the inner wall surface at a brazing temperature, the steps of: electrochemically removing material from the inner wall surface, with the inner wall surface connected as an anode, to remove oxides from the inner wall surface; preparing the plate rim for brazing to the inner wall surface by: a) removing surface and subsurface oxides at least from the rim; b) electroplating Ni at least on the rim; c) heating the electroplated Ni to diffuse the Ni at least into the rim; and, brazing the end plate to the inner wall surface at the rim at the brazing temperature.

5,672,262
METHODS AND ELECTROLYTE COMPOSITIONS FOR ELECTRODEPOSITING METAL-CARBON ALLOYS
 Christian E. Johnson, Middletown; David Lashmore, Frederick, and Elaine Soltani, Olney, all of Md., assignors to The United States of America, as represented by the Secretary of Commerce, Washington, D.C.
 Division of Ser. No. 107,883, Aug. 18, 1993, Pat. No. 5,415,763. This application Mar. 27, 1995, Ser. No. 411,191
 Int. Cl.⁶ C25D 3/00

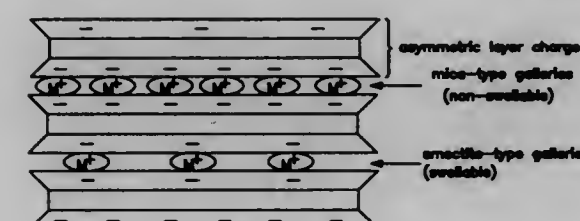
U.S. Cl. 205—255 21 Claims
 1. A method for electrodepositing a metal-carbon alloy coating on a substrate, comprising immersing the substrate in an aqueous electrolyte, and passing a sufficient current through the electrolyte to effect deposition of a metal-carbon alloy coating on the substrate, the aqueous electrolyte comprising from about 0.2 to about 0.6 mol/l of ions of metal selected from the group consisting of iron, nickel, nickel-tungsten mixture, and cobalt-tungsten mixture as a source of the metal in the deposit, greater than about 1.4 mol/l of an amidosulfonic acid or a salt thereof, ammonium ions, formic acid or a salt thereof as a source of carbon in the deposit, and water.

5,672,263
METHOD AND APPARATUS FOR ELECTROCHEMICALLY MACHINING A WORKPIECE
 David A. Raulerson, Palm Beach Gardens, and Brian J. Schwartz, Royal Palm Beach, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.
 Filed May 29, 1996, Ser. No. 654,942
 Int. Cl.⁶ B23H 3/00; 7/18; 7/32
 U.S. Cl. 205—641 15 Claims



1. A method for electrochemically machining a workpiece, comprising the steps of: providing a machine head, having an electrically conductive face; providing a sensor, for sensing a distance between a first surface and a second surface of the workpiece; positioning said electrically conductive face in close proximity to said first surface, leaving a substantially constant space therebetween; providing a pool of fluid in contact with said second surface of the workpiece; placing said sensor in communication with said pool; disposing an electrolytic fluid in said space between said electrically conductive face and said first surface; establishing a potential difference between the workpiece and said electrically conductive face, thereby causing charged particles of the workpiece to migrate from said first surface into said electrolytic solution at a rate; and sensing said distance between said first and second surfaces through said pool of fluid, said sensor providing a real-time signal representative of said distance.

5,672,264
METHODS OF USING STABLE SUPERGALLERY PILLARED CLAY COMPOSITIONS
 Thomas J. Pinnavaia, East Lansing, Mich., and Jingjie Guan, Beijing, China, assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.
 Division of Ser. No. 319,930, Oct. 7, 1994, Pat. No. 5,583,082.
 This application Jul. 1, 1996, Ser. No. 675,275
 Int. Cl.⁶ C10G 47/02
 U.S. Cl. 208—111 6 Claims



1. In a method for catalyzing a reaction selected from the group consisting of catalytic cracking, hydrocracking, reforming, oligomerization, alkylation, and isomerization, the improvement comprising:

contacting a feed stream with a pillared supergallery clay composition selected from the group consisting of a rectorite clay and those clays having an interstratified stacking sequence of layers selected from the group consisting of mica/smectites, illite/smectites, glauconite/smectites, chlorite/smectites, vermiculite/smectites, and kaolin/smectites containing a polymeric precursor of a metal oxide as a pillaring agent, wherein the composition has a basal spacing of 37.2 to 52 Å and an interlayer spacing of 17.6 to 32.4 Å at conditions effective to catalyze said reaction.

5,672,265
CATALYTIC REFORMING PROCESS WITH INCREASED AROMATICS YIELD
 Robert J. Schmidt, Barrington; John Joseph Jeanneret, Western Springs; Srikanth Raghuram, Buffalo Grove, and Beth McCulloch, Clarendon Hills, all of Ill., assignors to UOP, Des Plaines, Ill.
 Filed Aug. 15, 1994, Ser. No. 288,707
 Int. Cl.⁶ C10G 45/00; 45/10
 U.S. Cl. 208—142 17 Claims

1. An add-on process for increasing the yield of aromatic product from an existing catalytic reforming unit which upgrades a hydrocarbon feedstock at reforming conditions in a hydrogen circuit with a reforming catalyst to obtain a reformat, the add-on process comprising the steps of:

(a) processing the reformat in combination with an aromatics-enriched stream from step (b) in an adsorption separation zone to obtain an aromatic product stream and a recycle stream comprising normal and singly branched heptanes; and (b) converting the recycle stream in an aromatization zone within the reforming-process hydrogen circuit at dehydrocyclization conditions with an aromatization catalyst to obtain an aromatics-enriched stream which subsequently is processed according to step (a), said aromatization catalyst comprising a platinum group metal component and a non-acidic L-zeolite.

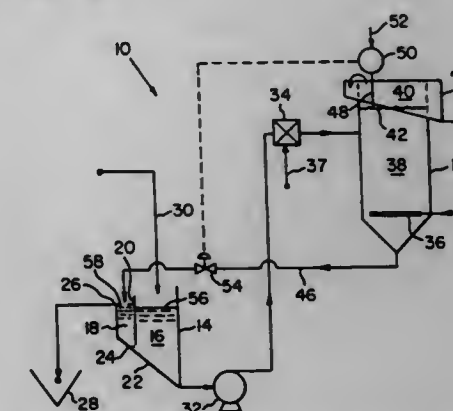
5,672,266
TREATMENT OF ORGANIC COMPOUNDS TO REDUCE CHLORINE LEVEL
 Matthew R. Sivik, Parma, and Mohamed G. Fahmy, Eastlake, both of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio
 Filed Oct. 13, 1995, Ser. No. 543,242
 Int. Cl.⁶ C10M 131/00; 147/00; C07C 17/38
 U.S. Cl. 208—262.1 18 Claims

1. A process for reducing the chlorine content of an organochlorine compound comprising: introducing into the organochlorine compound, at least one Lewis acid to form a mixture, and contacting the organochlorine compound with the Lewis acid in the mixture in the absence of elemental carbon for a sufficient amount of time to reduce the chlorine content of the organochlorine compound, said Lewis acid consisting of salts of zinc, magnesium, calcium, iron, copper, boron, aluminum, tin and titanium and mixtures thereof.

15. The product of the process of claim 1.
 16. A dispersant for lubricating oil compositions prepared by reacting the product of claim 15 with at least one polyamine or polyol or a mixture of at least one polyamine and at least one polyol.

18. A lubricating oil composition prepared by blending a major amount of oil of lubricating viscosity and a minor amount of the product of claim 16.

5,672,267
FLOTATION COLUMN WITH CONSTANT FEED ARRANGEMENT
 Nardus Terblanche, Kempton Park, South Africa, assignor to Multotec Cyclones (PTY) Limited, South Africa
 Filed Jun. 5, 1996, Ser. No. 658,280
 Claims priority, application South Africa, Jun. 6, 1995, 95/4638
 Int. Cl.⁶ B03B 1/00; B03D 1/02; 1/24
 U.S. Cl. 209—164 4 Claims



1. A method of separating particulate material including the steps of: introducing a supply of fresh feed into a fresh feed zone of a feed sump; discharging tailings from the flotation vessel into a tailings zone of the feed sump, the fresh feed zone being separated from the tailings zone by a partition having an opening, with part of the tailings discharged into the tailings zone entering the fresh feed zone through the opening; removing a substantially constant volume of feed from the feed sump to supply the substantially constant volume of feed to a first aerator, the substantially constant volume of feed removed from the feed sump comprising a mixture of fresh feed and part of the tailings, the remainder of the tailings being discharged from the tailings zone; aerating the substantially constant supply of feed in the first aerator;

introducing the substantially constant supply of aerated feed to a flotation vessel below a froth/liquid interface within the vessel, so that floatable particulate material entrained by air bubbles from the first aerator can float upwardly to the froth/liquid interface; and

introducing air into the liquid phase in the flotation vessel via a second aerator located below the level at which the aerated feed is introduced into the flotation vessel, so that floatable particulate material not entrained by air bubbles from the first aerator may be entrained by air bubbles from the second aerator as the air bubbles from the second aerator rise upwardly through the liquid phase to the froth/liquid interface.

5,672,268

FLUID TREATMENT APPARATUS

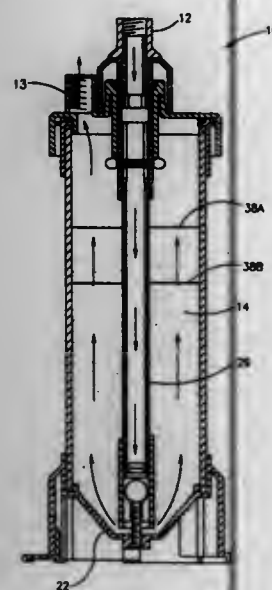
Tamir Mizrahi; Robert Brons; Gennady Shagas, all of Eilat, and Neil Marks, Pardesia, all of Israel, assignors to Red Sea Fish Pharm Ltd., Herzlia Pituach, Israel

Continuation-in-part of Ser. No. 415,795, Apr. 3, 1995, abandoned. This application May 15, 1996, Ser. No. 648,252

Int. Cl.⁶ A01K 63/04

U.S. Cl. 210—110

15 Claims



1. Fluid treatment apparatus operating with a reaction medium comprising:

- (a) an elongated vessel having a first end and a second end and containing said reaction medium, said first end constituting a deflector plate, said vessel formed with a fluid inlet port and a fluid output port both disposed toward said second end; and
- (b) an inlet tube having an inlet end in flow communication with said fluid inlet port and a discharge end providing an incoming flow of untreated fluid in a first direction against said deflector plate for reversal of flow thereby to an outgoing flow of fluid in a second direction opposite to said first direction passing through said reaction medium for treatment, the clearance between said discharge end and said deflector plate being selectively adjustable for controlling the flow of fluid through said vessel and maintaining the flow at a desired rate, means for externally adjusting said clearance during the continuous operation of the apparatus.

5,672,269

FILTER/PRESSURE RELIEF ASSEMBLY FOR AN ADHESIVE SUPPLY UNIT

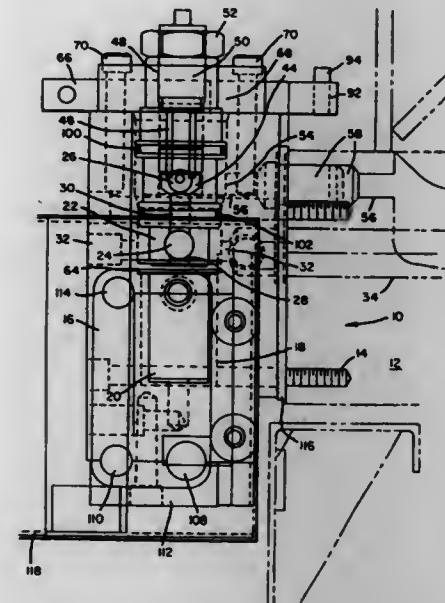
James B. White, Nashville, Tenn., assignor to Illinois Tool Works Inc., Glenview, Ill.

Filed Feb. 29, 1996, Ser. No. 610,087

Int. Cl.⁶ B01D 35/147

U.S. Cl. 210—130

20 Claims



1. A filter and pressure relief assembly for a fluid flow system, comprising:

- a source of pressurized fluid;
- a filter block having a cavity defined therein;
- a first fluid conduit fluidically connecting said source of pressurized fluid to said cavity of said filter block so as to supply said pressurized fluid from said source of pressurized fluid to said cavity of said filter block;
- a second fluid conduit fluidically connected to said cavity of said filter block so as to conduct said pressurized fluid from said cavity of said filter block to an applicator of said pressurized fluid;
- filter means disposed within said cavity of said filter block for filtering said pressurized fluid as said pressurized fluid flows from said first fluid conduit, through said filter means, and through said second fluid conduit to said applicator;
- filter plug means disposed within said filter block for maintaining said filter means within said filter block;
- a third fluid conduit, separate from said first fluid conduit, fluidically connecting said cavity of said filter block to said source of pressurized fluid for returning pressurized fluid to said source of pressurized fluid when the pressure of said pressurized fluid within said cavity of said filter block is greater than a predetermined pressure value; and
- pressure relief means interposed between said first and third conduits and movably disposed within said filter plug means blocks fluid flow between said first fluid conduit and said third fluid conduit whereby said pressurized fluid flows from said first fluid conduit to said second fluid conduit without flowing through said pressure relief means when the pressure level of said pressurized fluid is less than said predetermined pressure value, and a second position at which said pressure relief means permits fluid flow between said first fluid conduit and said third fluid conduit so as to reduce the pressure level of said pressurized fluid within said system by returning said pressurized fluid to said source of pressurized fluid when the pressure level of said pressurized fluid is greater than said predetermined pressure value.

5,672,270

APPARATUS FOR AEROBIC TREATMENT OF WASTE WATER

Toshiki Yoshimura, Saitama-ken, Japan, assignor to Able Co., Ltd., Saitama-ken, Japan

Continuation of Ser. No. 326,000, Oct. 19, 1994, abandoned.

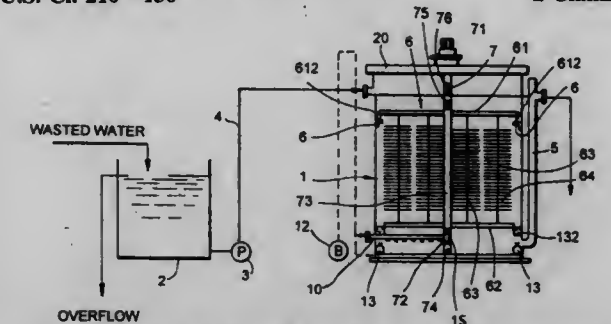
This application Apr. 12, 1996, Ser. No. 631,038

Claims priority, application Japan, Sep. 14, 1994, 6-219757

Int. Cl.⁶ C02F 3/06; 3/08

U.S. Cl. 210—150

2 Claims



1. An apparatus for aerobic biological treatment comprising a reactor having a prescribed height, a waste water feeding means for feeding waste water to be treated to the reactor, a treated water discharging means for discharging treated water from the reactor, a movable carrier holder for holding a carrier to which microorganisms easily adhere in such a manner that the carrier occupies approximately the entire plane within a given range of height of said reactor except an inner peripheral portion and a central portion of said reactor, a means for moving said carrier holder substantially continuously at a slow speed along a given track of rotation, an air jetting means for jetting cleaning air substantially continuously during movement of said carrier holder by said means for moving in an aerobic biological treatment operation for separating the microorganisms adhered to the carrier, said air jetting means being fixed beneath the carrier at a position along said track of rotation and linearly extending in the radial direction nearly perpendicular to the track, and an air diffusing means for supplying air to maintain the waste water to be treated in an aerobic atmosphere, said air diffusing means being provided at the inner peripheral portion and/or the central portion of the reactor.

5,672,271

COLLAPSIBLE POOL SKIMMER APPARATUS

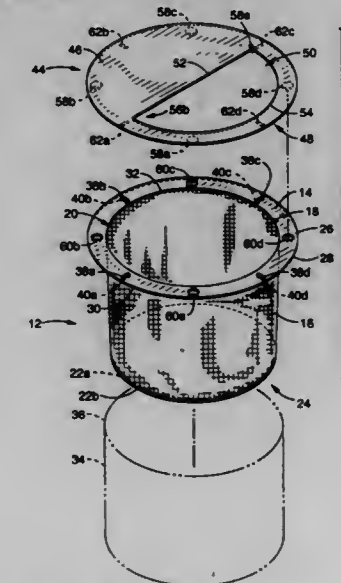
Terry Dye, 7190 Crail Ct., Citrus Heights, Calif. 95610

Filed Apr. 22, 1996, Ser. No. 636,325

Int. Cl.⁶ E04H 4/16

U.S. Cl. 210—169

19 Claims



1. A liquid skimmer apparatus, comprising:

- (a) a collapsible skimmer basket, said basket including an upper ring, said basket including a mesh bag depending from said upper ring, said bag having an opening adjacent said upper ring;
- (b) a weighted disk, said weighted disk attached to a bottom end of said mesh bag; and
- (c) a plurality of risers, said risers included on said upper ring, said risers defining an annular opening between said upper ring and a skimmer receptacle lip.

5,672,272

UNITARY PLASTIC FILTER PLATE INCLUDING EXPANDABLE SKINS AND PLASTIC FOAM CORE

William F. Baer, 1509 N. Darsey St., Simi Valley, Calif. 91065

Filed May 12, 1995, Ser. No. 440,104

Int. Cl.⁶ B01D 25/133

U.S. Cl. 210—231

3 Claims



1. A filter plate for use in a filter press to effect liquid-solid separation from a slurry, said filter plate comprising:

- a) a main peripherally extending continuous plastic molded frame having a hollow interior, said hollow interior being defined by a pair of parallel walls forming a pair of substantially planar peripheral sealing surfaces on opposite sides of said frame, and a peripheral edge wall joined to outer peripheral edges of said parallel walls for defining an imperforate peripheral edge of said filter plate;
- b) a pair of spaced-apart plastic skins respectively joined to inner peripheries of said pair of parallel walls and extending entirely across said frame and forming an interior space therebetween in communication with the interior of said frame, wherein each said skin includes an outer surface portion which is recessed inwardly toward a central plane of said plate with respect to an adjacent said sealing surface;
- c) a plastic foam core located in and substantially filling the hollow interior of said frame and the interior space between the skins and which permits expansion of the skins when a fluid is introduced into said foam core in said hollow interior and the interior space between the skins to thereby impose an additional pressure against the slurry and facilitate liquid-solid separation;
- d) tubular fitting means extending through the peripheral edge wall of said frame and terminating at an open end proximate an interior surface of said peripheral edge wall and within the hollow interior of said frame to enable introduction of a fluid into the foam core in the hollow interior of the frame and the interior space between the skins;
- e) drainage duct means disposed in said frame for defining a drainage duct, wherein said drainage duct extends through said sealing surfaces and said hollow interior and communicates with the recessed outer surface portions of said skins via drainage openings;
- f) slurry inlet means extending through said pair of skins and said interior space for defining a slurry inlet opening; and,

g) wherein said frame, skins, tubular fitting, drainage duct means, and slurry inlet means together constitute a single unitary structure formed of a plastic selected from the group consisting of polypropylene, high density polyethylene, and polybutadiene.

5,672,273

IN-LINE FILTER WITH FLANGE SEAL

Keith R. Ball, Piscataway, N.J., assignor to Technical Fabricators, Inc., Piscataway, N.J.

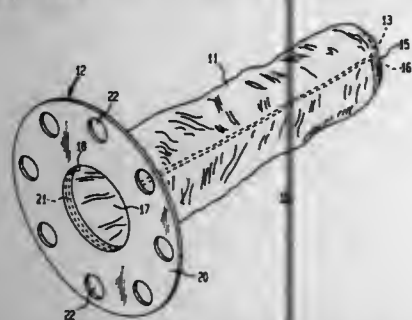
Continuation of Ser. No. 57,712, May 4, 1993, abandoned.

This application Dec. 28, 1994, Ser. No. 365,066

Int. Cl.⁶ B01D 35/02

U.S. Cl. 210—448

14 Claims



1. A filter arrangement configured to be used in a fluid conduit of the type formed of first and second conduit portions, each such conduit portion being of the type which is provided with a respectively associated one of first and second flange coupling portions, each flange coupling portion being of the type having a plurality of apertures therethrough in a respective predetermined aperture arrangement whereby the apertures of the respective first and second flange coupling portions register with one another for accommodating a respective plurality of coupling bolts through the apertures in registration, the filter arrangement comprising:

a filter formed of a permeable filter medium configured as a bag having an open first end and a closed second end;

flange seal means formed of an impermeable resilient material for forming a compression gasket seal and a support for the filter, said flange seal means further having:

a planar sealing gasket portion for forming a seal between the first and second flange coupling portions of the fluid conduits, when the first and second flange coupling portions apply a compressive sealing force to said planar sealing gasket portion of said flange seal means, and

an annular portion for communicating with said first end of said filter, said planar and annular portions being integrally formed, said substantially planar sealing gasket portion further being provided with a plurality of apertures therethrough arranged in the predetermined aperture arrangement; and

coupling means for coupling said first end of said filter securely to said annular portion of said flange seal means, said coupling means being in the form of a thread sewn through said permeable filter medium in the vicinity of said open first end thereof and said annular portion of said flange seal means.

5,672,274

ELECTRIC KETTLE WITH REMOVABLE FILTER

David K. Wheeler, Gananoque, Canada; Wong Hon Yuen, Hong Kong, Hong Kong, and John McGaw, Markham, Canada, assignors to Black & Decker Inc., Newark, Del.

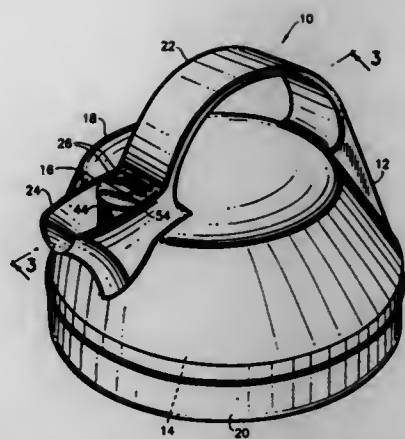
Filed Aug. 2, 1996, Ser. No. 692,034

Int. Cl.⁶ B01D 27/08; F25/02

U.S. Cl. 210—474

13 Claims

1. In an electric kettle having a housing with a pour spout, an electric heating element, and a filter removably connected to the housing at the pour spout, wherein the improvement comprises:



the filter having a frame with a top located at a top of the pour spout, the top of the frame being accessible by a user to remove the filter from the housing without the user having to move any other components of the kettle;

a connecting frame connected to the housing at the pour spout, the connecting frame having a receiving area with the filter removably located therein;

said connecting frame having a top section forming a conduit with the housing to a vent aperture in the housing; and said connecting frame is a one-piece member connected to the housing by a single fastener.

5,672,275

Patent Not Issued For This Number

5,672,276

PASSIVATED POROUS POLYMER SUPPORTS AND METHODS FOR THE PREPARATION AND USE OF SAME

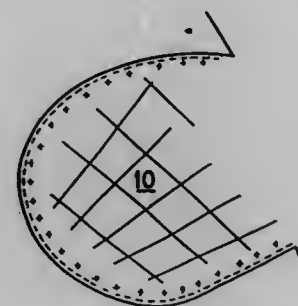
Pierre Girot, Paris, and Egisto Boschetti, Croissy sur Seine, both of France, assignors to BioSeptra Inc., Marlborough, Mass.

Division of Ser. No. 470,412, Jun. 6, 1995, Pat. No. 5,593,576, which is a division of Ser. No. 254,625, Jun. 6, 1994, Pat. No. 5,445,732, which is a continuation of Ser. No. 955,935, Oct. 5, 1992, abandoned, which is a continuation-in-part of Ser. No. 901,326, Jun. 19, 1992, abandoned. This application Oct. 1, 1996, Ser. No. 720,799

Int. Cl.⁶ B01D 15/08

U.S. Cl. 210—635

4 Claims



3. A chromatographic method for the separation of biological molecules comprising passing a sample containing a mixture of biological molecules through a column containing a passivated porous support comprising (i) a porous polymeric matrix having interior and exterior surfaces and innate hydrophobic groups that render said matrix susceptible to undesirable non-specific interaction with one or more biological molecules, and (ii) a polymer network derived from a passivation mixture comprising a main monomer, a passivating monomer different from said main monomer, and a crosslinking agent, said mixture having been allowed to come into intimate contact with said surfaces of said matrix such that on polymerization of said mixture said innate groups of said matrix become deactivated, resulting in the substantial elimination of said undesirable non-specific interaction, wherein said main monomer comprises a vinyl monomer having least one nonionic polar substituent.

5,672,277

EXTRACTION OF WATER FROM OIL

Steven C. Parker, Mission Viejo, and Robert M. Culbert, Manhattan Beach, both of Calif., assignors to Hydra-Tech Hydraulics, Inc., Carson, Calif.

PCT No. PCT/US92/03428, § 371 Date Oct. 17, 1994, § 102(e) Date Oct. 17, 1994, PCT Pub. No. WO93/22025, PCT Pub. Date Nov. 11, 1993

PCT Filed Apr. 24, 1992, Ser. No. 107,859

Int. Cl.⁶ B01D 15/00

U.S. Cl. 210—689

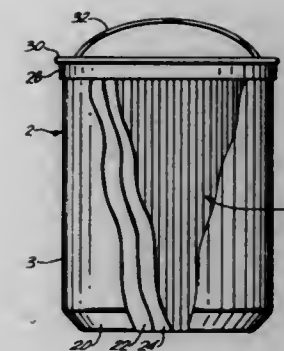
23 Claims

1. A water extraction element comprising:

a bag permeable to a liquid containing water having a closed bottom and an open top;

a bag support proximate the top of the bag; and

a water-sorbing material essentially fully covering an inner surface of the bag, at least a portion of the water-sorbing material being present in the bag in filaments which are



attached at upper ends thereof to the bag adjacent the bag support, which depend into the bag, and which are moveable relative to each other within the bag.

5,672,278

METHOD AND SYSTEM FOR SUPPRESSION OF FOAM OF WASTE STREAMS

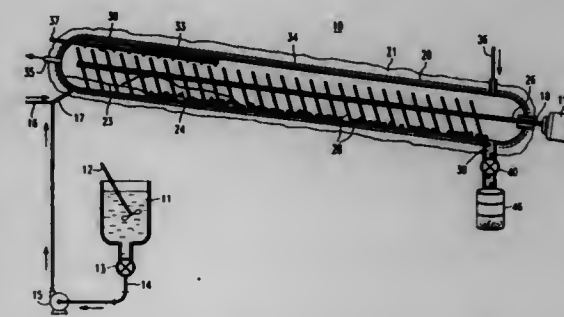
Terry R. Galloway, Berkeley, and Thomas J. Green, San Leandro, both of Calif., assignors to The Scientific Ecology Group, Inc., Oak Ridge, Tenn.

Filed May 5, 1995, Ser. No. 435,148

Int. Cl.⁶ B01D 19/04

U.S. Cl. 210—696

14 Claims



1. A method for the suppression of foams during the processing of streams containing waste materials which comprises

(a) introducing an additive powder into a waste stream comprising diammonium ethylenediaminetetraacetic acid at a concentration in the range of 0.5% to 20% by weight, said additive having the stability to withstand thermal and chemical degradation during the processing;

(b) processing said waste stream for a period of time at a temperature in the range of about 95° C. (203° F.) and about 760° C. (1400° F.), wherein a foam of said waste stream has the tendency of forming;

(c) suppressing the formation of said foam by at least a portion of said additive powder in the form of particles having a size in the range substantially less than 100 μm where the additive powder is suspended in the liquid cells between bubbles that make up the foam structure, where the particles act as ionic or polar sites to attract and neutralize surfactants creating foam, and any remaining portion of said additive being solubilized in the waste stream to such an extent that said particles do not coagulate and precipitate out of solution; and

(d) removing said waste containing a substantial reduction of foam.

5,672,279

METHOD FOR USING UREA HYDROCHLORIDE

R. Richard Sargent, Rome; Jeffrey Randolph Alender, Marietta, and Thomas Hudson Moss, III, Rome, all of Ga., assignors to Peach State Labs, Inc., Rome, Ga.

Continuation-in-part of Ser. No. 90,777, Jul. 12, 1993, abandoned, which is a division of Ser. No. 919,523, Jul. 24, 1992, Pat. No. 5,234,466. This application Apr. 25, 1994, Ser. No. 233,348

Int. Cl.⁶ C02F 5/12

U.S. Cl. 210—698

5 Claims

1. A method to solubilize calcium carbonate in aqueous suspensions or dispersions of calcium carbonate that includes adding to the suspensions or dispersions a sufficient amount of urea hydrochloride to convert the calcium carbonate to a water soluble salt, wherein a molar ratio of urea to hydrochloric acid approximately between 1:4 and 4:1 is used to form said urea hydrochloride.

5,672,280

MULTIPLE STAGE PRECIPITATION OF HEAVY METALS FROM ACIDIC AQUEOUS SOLUTION

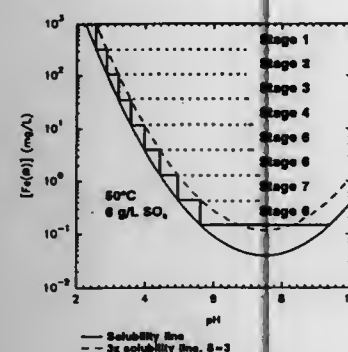
George P. Demopoulos, Outremont; Janice M. Zinck, and Peter D. Kondos, both of Ottawa, all of Canada, assignors to Her Majesty the Queen in right of Canada, as represented by the Minister of Natural Resources, and McGill University, both of Canada

Filed May 26, 1995, Ser. No. 452,000

Int. Cl.⁶ B01D 21/00

U.S. Cl. 210—709

9 Claims



1. A method of preparing a heavy metal hydroxide precipitate from an acidic aqueous solution containing more than 25% solids including ions of said heavy metal hydroxide, by upward adjustment of the pH of said acidic aqueous solution from a first lower level to a second higher level, said method comprising the steps of:

- determining the solubility curve of said heavy metal hydroxide;
- selecting a saturation ratio;
- plotting the solubility curve and a supersaturation curve at said saturation ratio;
- determining the incremental pH stages between said solubility curve and said supersaturation curve required to upwardly adjust the pH without exceeding said saturation ratio;
- adjusting the pH of the acidic aqueous solution upward from said first low level to said second higher level in said incremental pH stages thereby providing a sludge of metal hydroxide; and
- recycling all or part of said sludge of metal hydroxide through all or some of said incremental pH stages.

5,672,281

FLUID FILTERING APPARATUS AND METHOD

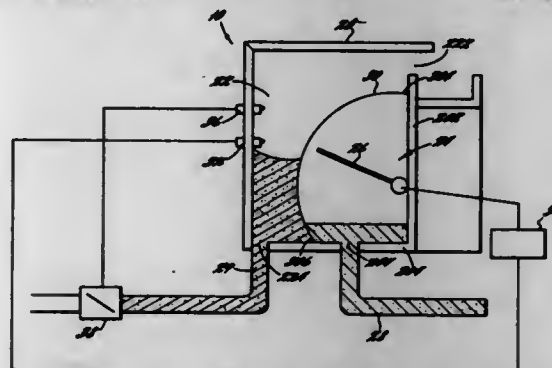
Ivey Lee Burns; William Glenn Ham, both of Orlando; Rory Dean Harvick, Clermont, and Charles Leroy Holzman, Jr., Orlando, all of Fla., assignors to Walt Disney World Co., Lake Buena Vista, Fla.

Filed Nov. 17, 1995, Ser. No. 560,477

Int. Cl.⁶ C02F 1/00; B01D 21/24

U.S. Cl. 210—744

20 Claims



1. An apparatus for separating an effluent into a filtered liquid component and a concentrated sludge component, the apparatus comprising:

- a chamber;
- a screen for filtering the effluent positioned to divide the chamber into a first compartment for concentrating sludge, the first compartment having an inlet for incoming effluent and a sludge outlet, and a second compartment for receiving filtered liquid, the second compartment having a liquid outlet, the screen curved in an arc extending away from the liquid outlet; and
- a spray arm pivotally mounted in the second compartment for arcuate motion conforming to the curvature of the screen for dispensing a fluid against the screen to dislodge sludge attached thereto, the spray arm having a distal dispensing end maintaining a spaced relation to the screen throughout the arcuate motion.

5,672,282

PROCESS TO PRESERVE SILVER METAL WHILE FORMING INTEGRATED CIRCUITS

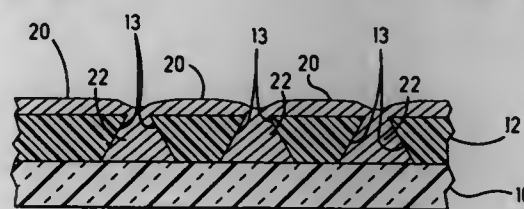
Percy Chinoy, Burlington, and Joel Goodrich, Westford, both of Mass., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Jan. 25, 1996, Ser. No. 591,063

Int. Cl.⁶ B44C 1/22; C23F 1/00

U.S. Cl. 216—41

10 Claims



1. A method of making an integrated circuit; said method entails:

- providing a substrate divided into a first area and a second area;
- applying a resist material upon said first area of substrate;
- applying a conductive metal composite comprising silver upon said resist and said second area of said substrate to a desired depth; and the method is characterized in the steps of:
- applying a high pressure force to said circuit to remove said metal overlaying said resist; and
- applying a benign stripping solution having the temperature of the solution raised to the highest temperature without degrading the stripper solution and said circuit is exposed to said stripper solution for one to five minutes.

5,672,283

APPARATUS AND METHOD FOR MAKING WELDED MESH FORMS

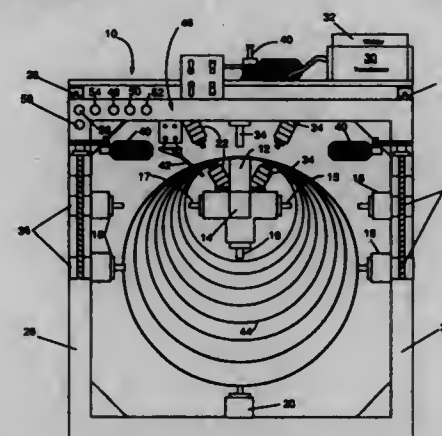
Daon Wall, 1569 S. Church, Paris, Tex. 75460

Filed Sep. 11, 1995, Ser. No. 526,640

Int. Cl.⁶ B23K 11/11; B21F 27/12; 31/00

U.S. Cl. 219—56

10 Claims



1. An apparatus for making welded mesh forms comprising:

- an adjustable forming means with a stationary center beam around which unwelded, unformed, prerolled wire mesh is placed;
- a means for releasably securing one loose edge of the unwelded, unformed, prerolled wire mesh to the adjustable forming means at the stationary center beam until clamped;
- more than one adjustable clamp means for sequentially, circumferentially clamping the unwelded, unformed, prerolled wire mesh around the adjustable forming means away from the stationary center beam so that a preselected diameter of the unwelded, unformed, prerolled wire mesh is formed; and
- a welding means, movably attached to the adjustable forming means, for welding the wire mesh at the stationary center beam after formed and while clamped.

5,672,284

METHOD OF MAKING ORTHOPAEDIC IMPLANT BY WELDING

Deva Devanathan, Warsaw; Steve Krebs; Steve T. Lin, both of Fort Wayne; James J. Morr, Leesburg, and Clarence M. Panchison, Warsaw, all of Ind., assignors to Zimmer, Inc., Warsaw, Ind.

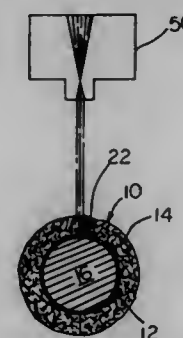
Division of Ser. No. 228,774, Apr. 18, 1994, Pat. No. 5,504,300.

This application Mar. 1, 1996, Ser. No. 609,210

Int. Cl.⁶ B23K 26/00

U.S. Cl. 219—121.64

3 Claims



1. A method of forming an orthopaedic hip stem prosthesis having an annular porous surface, the method comprising the steps of:

- providing an orthopaedic hip stem implant having a body including an elongated stem portion and a neck portion;
- providing a first porous pad having a solid surface and a porous surface and including terminal edges;

- forming the first porous pad to substantially conform to a portion of the implant body and stem;
- providing a second porous pad having a solid surface and a porous surface and including terminal edges;
- forming the second porous pad to substantially conform to a portion of the implant body and stem;
- positioning the first porous pad and the second porous pad about the implant such that terminal edges of the first and second porous pads are adjacent; and
- forming a weld bead along the terminal edges to weld the first porous pad to the second porous pad such that the weld bead does not contact the body of the implant.

5,672,285

LASER CASTING APPARATUS AND METHOD
Masaki Kondo, and Shigeki Maekawa, both of Moriguchi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

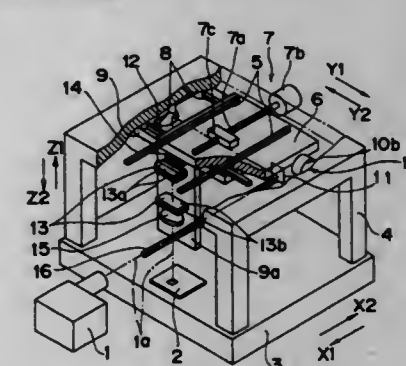
Filed Feb. 8, 1995, Ser. No. 385,675

Claims priority, application Japan, Feb. 9, 1994, 6-15230

Int. Cl.⁶ B23K 26/06

U.S. Cl. 219—121.78

20 Claims



1. A laser casting apparatus, comprising:

- a laser light source for outputting laser light;
- a beam forming means for decomposing the laser light from said laser light source into decomposed beams each having a predetermined shape and superposing the decomposed beams so as to form a superposed beam of laser light having a predetermined shape and a uniform energy distribution for casting on a work; and
- a phase disturbing means for disturbing the phase of the laser light output from said laser light source so that when said beam forming means superposes the decomposed beams and forms the superposed beam of laser light having a predetermined shape and a uniform energy distribution the generation of interference fringes in the energy intensity distribution of the laser light is avoided.

5,672,286

METHOD OF WELDING ALUMINUM DRIVE SHAFT COMPONENTS

Harold W. Seeds, 2110 Chevy Chase Blvd., Kalamazoo, Mich. 49008

Filed Aug. 5, 1996, Ser. No. 692,414

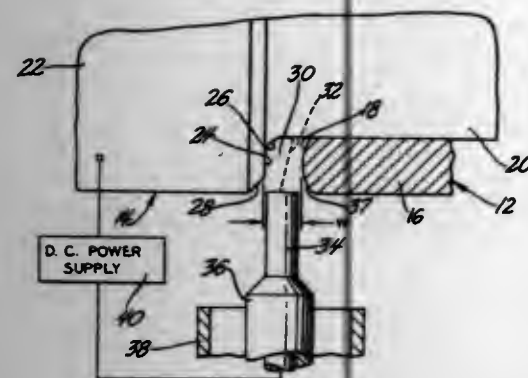
Int. Cl.⁶ B23K 9/09

U.S. Cl. 219—137 PS

15 Claims

1. A method of welding aluminum drive shaft components comprising the steps of:

- providing a torque tube having a hollow cylindrical end portion, providing a yoke having an annular end portion, pressing the hollow cylindrical end portion of the torque tube onto the annular end portion of the yoke to provide an assembly having a narrow annular slit, positioning a consumable aluminum based electrode adjacent the narrow annular slit,



forming an electric arc between the consumable aluminum based electrode and the assembly at the narrow annular slit, sustaining the electric arc with a pulsed high amperage direct current, and filling the narrow annular slit with aluminum based material from the consumable electrode in a single pass around the narrow annular slit to form a circumferential weld bead.

5,672,287

FLUX-CORED WIRE AND SOLID WIRE FOR ARC WELDING

Norio Masale; Tomoyuki Tachibana; Hiroyuki Shimizu; Kazuhiko Ito; Akira Matsuguchi, all of Fujisawa; Yoshikazu Sasa, Ibaraki, and Atsushi Furuya, Kobe, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Division of Ser. No. 421,252, Apr. 13, 1995, Pat. No. 5,550,348.

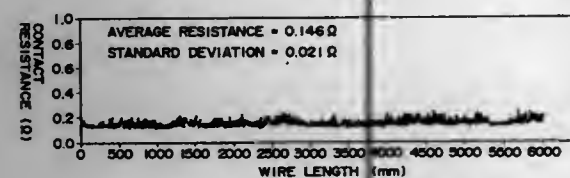
This application May 31, 1996, Ser. No. 655,858

Claims priority, application Japan, May 6, 1994, 6-94505; Jan. 5, 1995, 7-00401

Int. Cl.⁶ B23K 35/02

U.S. Cl. 219-145.22

9 Claims



1. A solid wire for arc welding wherein a specific surface area defined by the following equation is in the range of from 0.0005 to 0.05,

specific surface area equals $(S_a/S_m) - 1$

wherein S_m is an apparent surface area and S_a is a real surface area in a region to be measured on a surface of said wire, and wherein molybdenum disulfide is stuck on said surface of said wire in an amount of from about 0.001 to 0.5 g/m² and no plating is applied on said surface of said wire, and wherein lubricating oil is stuck on said surface of said wire in an amount of from about 0.01 to 0.5 g/m², and wherein an amount of matter stock on said surface of said wire is about 2.0 g/m² or less, and further wherein the concentration of oxygen in a surface area of said wire is in the range of from about 100 to 1,000 ppm, and the average concentration of oxygen in the wire is about 70 ppm or less.

2. A solid wire for arc welding wherein a specific surface area defined by the following equation is in the range of from 0.0005 to 0.05, specific surface area equals $(S_a/S_m) - 1$ wherein S_m is an apparent surface area and S_a is a real surface area in a region to be measured on a surface of said wire, and wherein molybdenum disulfide is stuck on said surface of said wire in an amount of from about 0.001 to 0.5 g/m² and no plating is applied on said surface of said wire, and wherein lubricating oil is stuck on said surface of said wire in an amount of from about 0.01 to 0.5 g/m², and wherein an amount of matter stock on said surface of said wire is about 2.0 g/m² or less, and further wherein the concentration of oxygen in a surface area of said wire is in the range of from about 100 to 1,000 ppm, and the average concentration of oxygen in the wire is about 70 ppm or less.

5,672,288

LIGHT SENSITIVE CONTROL FOR TOASTER

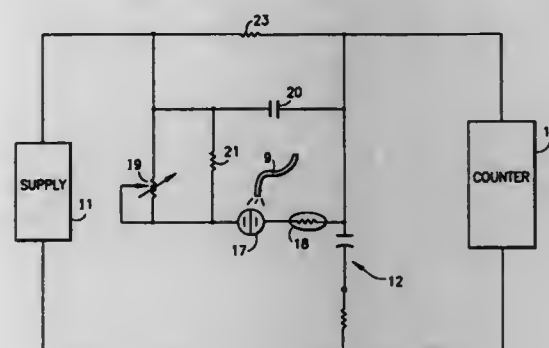
Duc Hoang Tran, Shelton, Conn., assignor to Black & Decker Inc., Newark, Del.

Filed Aug. 19, 1996, Ser. No. 700,180

Int. Cl.⁶ H05B 1/02

U.S. Cl. 219-502

7 Claims



1. In an appliance for toasting bread or other pastries by the energization of heater elements within a toasting compartment, a control system for controlling the duration of the toasting cycle comprising:

a power supply for converting line voltage to a low voltage suitable for providing power to the components of the control system;

an RC network connected to the power supply for generating an oscillating signal used to time the duration of the toasting cycle;

a counter connected to receive the oscillating signal and to generate a switching signal upon counting a predetermined number of oscillations;

a transistor switch connected to turn off the toasting cycle in response to the switching signal;

said RC network having a compensating circuit for varying the frequency of the oscillating signal further comprising:

a manually adjustable resistor for setting the duration of the toasting cycle by the operator;

a heat sensitive resistor responsive to the heat present in the toast compartment to increase the frequency of the oscillating signal;

a light sensitive resistor responsive to the light emitted from the energized heater elements to increase the frequency of the oscillating signal; and

means operatively associated with the heater elements to collect light emitted thereby and transmit said light to the light sensitive resistor.

5,672,289

HEATER CONTROL CIRCUIT

Michael J. O'Neill, Shoreham, Vt., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Jan. 11, 1996, Ser. No. 599,410

Int. Cl.⁶ H05B 1/02

U.S. Cl. 219-497

6 Claims

1. A control circuit for a differential scanning calorimeter comprising, in combination,

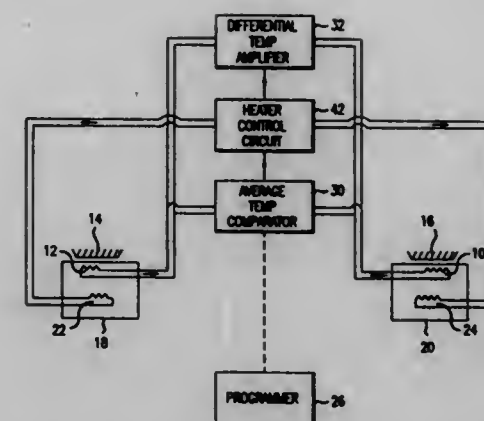
sample heater means, including means for generating a sample heater DC voltage;

reference heater means, including means for generating a reference heater DC voltage;

means for measuring a difference voltage between said sample heater DC voltage and said reference heater DC voltage;

means for measuring an average voltage of said sample heater DC voltage and said reference heater DC voltage; and

a heater control circuit including means for independently controlling said differential heater voltage in response to said



difference voltage and means for independently controlling said average heater voltage in response to said average voltage.

5,672,290

POWER SOURCE AND METHOD FOR INDUCTION HEATING OF ARTICLES

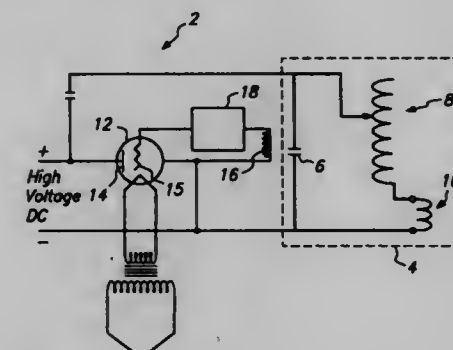
Philippe F. Levy, Belmont, Calif., and Yasuharu Fukushima, Yokohama, Japan, assignors to Raychem Corporation, Menlo Park, Calif.

Filed Mar. 13, 1995, Ser. No. 403,032

Int. Cl.⁶ H05B 6/06

U.S. Cl. 219-634

15 Claims



1. A method of heating an assembly by means of electromagnetic radiation, the assembly comprising:

(1) a composition which comprises:

(a) a host material which is not heated by electromagnetic radiation, and

(b) ferromagnetic particles which are dispersed in the host material and have a Curie temperature; and

(2) a lossy component which is composed of a material which can be heated by the electromagnetic radiation and which does not have a Curie temperature; said process comprising:

(A) exposing the assembly to electromagnetic radiation of a first power which heats the ferromagnetic particles and the lossy component to a first temperature, said first temperature being at or near the Curie temperature of the ferromagnetic particles, and

(B) immediately after step (A), exposing the assembly to electromagnetic radiation of a second power which heats the lossy component at a rate less than the radiation of the first power, the second power being such that the heat generated within the lossy component is approximately equal to heat lost from the assembly.

5,672,291

APPARATUS FOR ROTATING A TURNABLE OF A MICROWAVE OVEN AND VERTICALLY ADJUSTING THE TURNABLE BY A SINGLE MOTOR

Suk-Jin Han, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

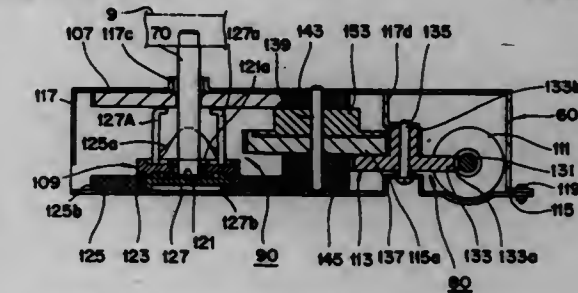
Filed Jun. 17, 1996, Ser. No. 664,665

Claims priority, application Rep. of Korea, Jun. 15, 1995, 95-13574 U; Apr. 25, 1996, 96-12984

Int. Cl.⁶ H05B 6/78

U.S. Cl. 219-753

11 Claims



1. A microwave oven comprising: a cooking chamber including a floor; a turntable fixed to an axle extending through the floor; a bi-directional motor having an output shaft; and a power transmitting mechanism connected between the motor and the axle for rotating the axle in response to rotation of the output shaft in a first direction, and for moving the axle vertically in response to rotation of the output shaft in an opposite second direction, the power transmitting mechanism including a gear operably connected to the axle for rotating the axle during rotation of the output shaft in the first direction.

5,672,292

SUPPORT FOR ADDITIONAL DISH IN A MICROWAVE OVEN

Domingo Villar Otero, Vigo, Spain, assignor to Plasticos de Galicia, S.A., Vigo, Spain

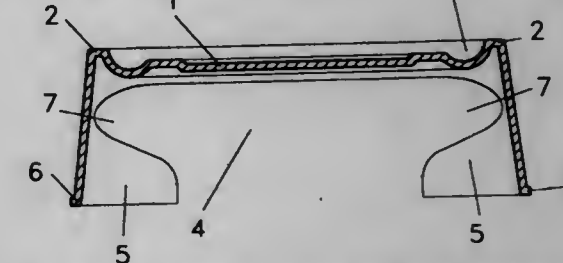
Filed Feb. 14, 1996, Ser. No. 601,135

Claims priority, application Spain, Feb. 15, 1995, 9500433 U

Int. Cl.⁶ H05B 6/78

U.S. Cl. 219-754

1 Claim



1. A microwave oven for cooking two foods simultaneously, comprising a rotating circular plate, a support (1) located above said rotating circular plate, said support (1) having a circular base, a perimetrical external strip (2) located above said circular base, said external strip forming a slot (3) with semicircular profile, said support having lateral walls, said lateral walls having four downwardly extending projections (5), said four projections forming two pairs of projections, the projections of each pair being diametrically opposite to the projections of another pair, said projections being diametrically arranged and diverging downwardly, said projections having ribs (6) at the lower end thereof, said projections having notches (7), said support (1) having an inner surface, said inner surface and said projections defining a space (4), one food being placed on said rotating plate and another food being located on said support, the food being located on said rotating circular plate being easily removed from said space.

5,672,293

HYDROFLUOROCARBON COMPOSITIONS

Barbara Haviland Minor, Elkton, Md.; Donald Bernard Blvens, Kennett Square, Pa., and Brooks Shawn Lunger, Newark, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 208,777, Mar. 11, 1994, Pat. No. 5,417,871. This application May 4, 1995, Ser. No. 435,108
Int. Cl.⁶ C09K 5/04; 3/30; C11O 1/50; C08J 9/14

U.S. Cl. 252-67 5 Claims

1. A maximum pressure azeotropic or azeotrope-like composition consisting essentially of 65-99 weight percent difluoromethane and 1-35 weight percent butane having a vapor pressure ranging from about 229.1 to about 246.8 psia when the temperature has been adjusted to about 25° C.

5,672,294

AZEOTROPE-LIKE COMPOSITIONS OF 1,1,1,3,3-PENTAFLUOROPROPANE AND HYDROCARBONS

Earl August Eugene Lund, deceased, late of West Seneca, by Hilde Lund, executrix; Robert Christian Parker, Hamburg, and Ian Robert Shankland, Williamsburg, all of N.Y., assignors to AlliedSignal Inc., Morris Township, N.J.

Filed Apr. 10, 1996, Ser. No. 630,239

Int. Cl.⁶ C09K 5/04; C11D 7/30; 1/50; C08J 9/14

U.S. Cl. 252-67 6 Claims

1. An azeotrope-like composition consisting essentially of 1,1,1,3,3-pentafluoropropane present in an amount from about 95 to about 40 weight percent and cyclopentane present in an amount from about 5 to about 60 weight percent and having a boiling point of 11.7°±1° C. at 745 mm Hg.

5,672,295

AMIDO PEROXYCARBOXYLIC ACIDS FOR BLEACHING

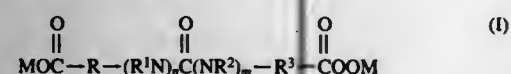
Richard Gerald Gary, West New York; John Richard Nicholson, Ramsey, both of N.J.; John Oakes, Winsford, Great Britain, and Jean Pekaar Wiley, Englewood, N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jul. 26, 1993, Ser. No. 96,879

Int. Cl.⁶ C01B 15/10

U.S. Cl. 252-186.42 6 Claims

1. A method for bleaching a substrate comprising applying to said substrate an effective amount to remove stain of an amido peroxyacid having the structure:



wherein:

R is selected from the group consisting of C₁-C₁₆ alkylene, C₅-C₁₂ cycloalkylene and C₆-C₁₂ arylene radicals;
R¹ and R² are selected from the group consisting of hydrogen, C₁-C₁₆ alkyl, C₅-C₁₂ cycloalkyl and C₆-C₁₂ aryl radicals;
R³ is selected from the group consisting of C₁-C₁₆ alkylene, C₅-C₁₂ cycloalkylene and C₆-C₁₂ arylene radicals;
n and m are integers whose sum is 1; and
M is selected from the group consisting of hydrogen, alkali metal, alkaline earth metal, ammonium and C₁₀ alkanolammonium cations and radicals.

5,672,296

POLARIZER FILMS COMPRISING WHOLLY AROMATIC LIQUID CRYSTALLINE POLYMERS AND DICHROIC DYES

Sunny S. Shen, Holmdel; Hyun Nam Yoon, New Providence, both of N.J., and Mohammad Mortazavi, Sunnyvale, Calif., assignors to Hoechst Celanese Corp., Somerville, N.J.

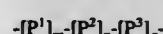
Filed Jun. 2, 1995, Ser. No. 460,288

The portion of the term of this patent subsequent to Jun. 2, 2015, has been disclaimed.

Int. Cl.⁶ C09K 19/52; 19/56; F21V 9/14; G02F 1/1335

U.S. Cl. 252-299.01 22 Claims

1. A polarizing film having a polarizing efficiency of at least 70% and comprising a blend of a film-forming, wholly aromatic thermotropic liquid crystal polymer and a dichroic dye, with said liquid crystal polymer being a polyester which comprises repeat units corresponding to the formula:



wherein P¹, P², and P³ represent monomeric moieties with P¹ being an aromatic hydroxy carboxylic acid, P² being an aromatic dicarboxylic acid, and P³ being a phenol, with m, n and q representing mole percent of the respective monomers ranging from 5-70 mole percent individually.

5,672,297

CONDUCTIVE COMPOSITE ARTICLES BASED ON EXPANDABLE AND CONTRACTIBLE PARTICULATE MATRICES

Zoya M. Soane, Piedmont, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 27, 1995, Ser. No. 549,539

Int. Cl.⁶ H01B 1/20; B32B 5/16

U.S. Cl. 252-511 27 Claims

1. A composite article comprising:
non-conductive polymeric particles, said polymeric particles being controllably expandable and contractible;
a solvent for suspending said polymeric particles, said solvent forming a gel-solvent matrix with said polymeric particles, wherein said polymeric particles and said solvent interact to cause said polymeric particles to expand or contract in response to one or more changes in environmental conditions, at least some of said solvent being absorbed by said polymeric particles when said polymeric particles expand, said absorbed solvent being expelled from said polymeric particles when said polymeric particles contract; and
conductive filler particles dispersed throughout said solvent, said conductive filler particles being too large to be absorbed by said polymeric particles
wherein the conductivity of the composite article changes depending on whether the non-conductive polymeric particles are in an expanded or contracted state, with the conductivity of the composite article being greater when the non-conductive polymeric particles are expanded and the composite article being essentially non-conductive when the polymeric particles are contracted.

5,672,298

ELECTRO-SENSITIVE COMPOSITION

Kazuya Edamura, Tokyo, and Yasufumi Otsubo, Chiba, both of Japan, assignors to Fujikura Kasei Co., Ltd., Tokyo, Japan

Division of Ser. No. 267,408, Jun. 29, 1994, Pat. No. 5,510,058, which is a division of Ser. No. 102,759, Aug. 6, 1993, Pat. No. 5,374,367. This application Jan. 29, 1996, Ser. No. 593,385

Claims priority, application Japan, Aug. 7, 1992, 4-211834; Aug. 27, 1992, 4-228947

Int. Cl.⁶ H01B 3/20; 3/24

U.S. Cl. 252-580 3 Claims

1. An electro-sensitive composition comprising
a) a fluoride compound shown in Formula (1)



in the Formula (1),

R₁ is H, F, Cl, Br, or I,

R₂ is COOH,

n is an integer in a range of 3-30, and

m is an integer in a range of 0-2; and

b) an electrically insulating medium capable of dissolving said fluoride compound when a voltage is applied thereto, wherein said electrically insulating medium is at least one compound selected from the group consisting of silicone oil, dioctylsebacate, phosphazene oil, partially hydrated triphenyl oil, completely fluorinated inert fluid, and trimellitate oil.

5,672,299

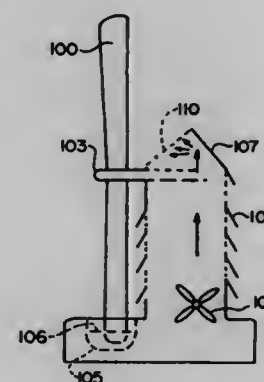
BEST HUMIDIFIER

Yousef Daneshvar, 21459 Woodfarm, Northville, Mich. 48167

Filed Jun. 7, 1995, Ser. No. 483,718

Int. Cl.⁶ B01F 3/04

U.S. Cl. 261-142 7 Claims



1. A humidifier comprising a base, including a container space for holding a supply of liquid water to be evaporated, an enclosure disposed on said base, hydrophilic material for absorbing liquid water and evaporating the absorbed water to the surrounding air, and means for conveying the liquid water from said container space to said hydrophilic material so that the liquid water from said container space can be absorbed by the hydrophilic material and evaporated to the surrounding air, said means for conveying the liquid water from said container space to said hydrophilic material comprising blades that are exterior of said enclosure, but rotatably mounted on said enclosure to be successively rotated through the container space, wherein the hydrophilic material is disposed on the blades, and including a fan that blows air from inside the enclosure onto the blades when the blades are out of the container space.

5,672,300

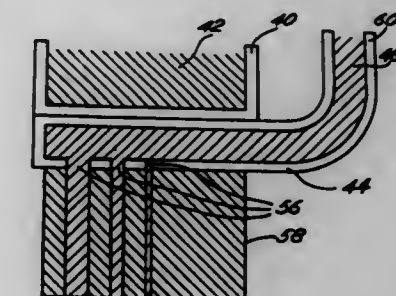
METHOD FOR STRIPING OR MARBLEIZING CAPSULES

Gregory A. Schurig, Clearwater, Fla.; Bud Bezaire, Kingsville; Michael Ratko, Windsor, both of Canada; Lawrence A. Baker, Tampa, Fla., and Robert Mikallian, Windsor, Canada, assignors to R. P. Scherer Corporation, Troy, Mich.

Filed Aug. 10, 1992, Ser. No. 927,604

Int. Cl.⁶ B29C 39/12; 47/04

U.S. Cl. 264-4 17 Claims



1. An apparatus for producing a patterned gelatin ribbon useful for forming patterned soft gelatin capsules comprising, a first spreader box adapted to hold a first flowable gelatin mass and a second spreader box adapted to hold a second flowable gelatin mass, the second gelatin mass being of a type that is visually distinct from the first gelatin mass, the second spreader box being positioned within the first spreader box such that an outer surface of the second spreader box and an inner surface of the first spreader box define a gap through which the first flowable gelatin mass may flow to form a base gelatin ribbon, the second spreader box having an opening through which the second flowable gelatin mass may flow onto a portion of the base gelatin ribbon to form the patterned gelatin ribbon.

5,672,301

METHOD FOR FABRICATING MICROPARTICLES IN EMULSION BY MODIFICATION OF THE CHEMICAL COMPOSITION OF THE DISPERSED PHASE AFTER EMULSIFICATION

Isabelle Orty, Lyons; Marie-Christine Levy, Reims, and Eric Perrier, Vienne, all of France, assignors to Coletica, Lyons, France

PCT No. PCT/FR93/00791, § 371 Date Feb. 21, 1995, § 102(e) Date Feb. 21, 1995, PCT Pub. No. WO94/04260, PCT Pub. Date Mar. 3, 1994

PCT Filed Aug. 4, 1993, Ser. No. 387,774

Claims priority, application France, Aug. 20, 1992, 92 10174
Int. Cl.⁶ B01J 13/02

U.S. Cl. 264-4.1 72 Claims

1. A process for the manufacture of microparticles comprising:
a) preparing an essentially homogenous solution of a substance or mixture of substances in a first solvent,
b) producing an emulsion of this homogenous solution in a dispersing liquid forming a continuous phase, in which said substance or said mixture of substances is essentially insoluble, and forming a disperse phase,
c) initiating a chemical or physicochemical reaction in the disperse phase by modification of the in situ chemical composition of said substance or said mixture or substances in the disperse phase by adding thereto an agent which is essentially insoluble in or immiscible with the continuous phase, under the conditions of addition, thereby modifying the physicochemical state of said disperse phase resulting in the insolubilization of the substance or mixture of substances in the disperse phase and the individualization of said microparticles, in the presence of the first solvent.

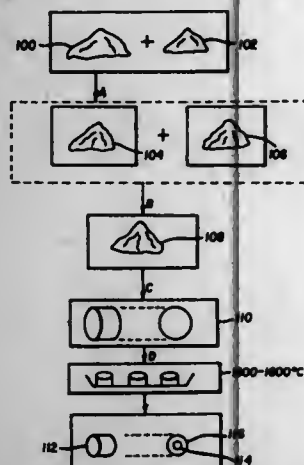
5,672,302 IN-SITU SURFACE NITRIDATION OF ZIRCONIA CERAMICS

Dilip K. Chatterjee; Syamal K. Ghosh, both of Rochester, and Gregory S. Jarrold, Henrietta, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 9, 1996, Ser. No. 728,320

Int. Cl.⁶ C04B 35/64

U.S. Cl. 264—60



1. A method for preparing a ceramic article comprising: compacting a mixture of zirconia alloy and zirconium diboride to form a block and;

sintering said compact in an atmosphere of from 3 to 5 mole % hydrogen and 97 to 95 mole % nitrogen gas mixture at a temperature of 1200° to 1600° C.;

whereby said prepared ceramic article has a core comprising sintered particles of zirconium oxide alloy and a shell consisting essentially of sintered particles of ZrN.

5,672,303 PROCESS AND EXTRUDING HEAD FOR THE MANUFACTURE AND/OR COATING OF EXTRUDING PROFILES

Burkhard Metzger, and Hans Joachim Ziolkowski, both of Ingelheim, Germany, assignors to Bellaform Extrusionstechnik GmbH, Ingelheim, Germany

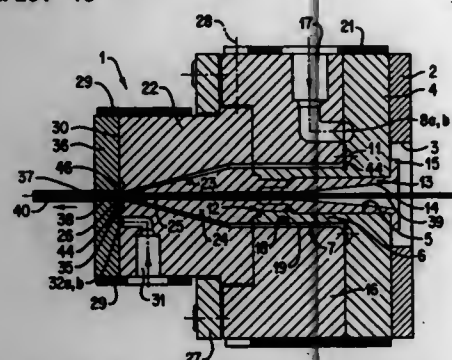
Continuation of Ser. No. 244,939, Jun. 15, 1994, abandoned.

This application Sep. 15, 1995, Ser. No. 528,802

Claims priority, application Germany, Oct. 17, 1992, 42 35 101.4

Int. Cl.⁶ B29C 47/02; 47/28

U.S. Cl. 264—75



1. Process for the continuous manufacture and/or coating of extruded profiles, comprising feeding a plasticized material to an extruding head and extruding the plasticized material through the extruding head, wherein plasticized material of at least two colors is used, said plasticized material being separated into at least two partial flows wherein said two colors are not homogeneously mixed, and wherein the partial flows are combined again before

exiting the extruding head, whereby the partial flows are maintained as much as possible.

6. Extruding head for the manufacture and/or coating of extruded profiles comprising a feeder channel supplying plasticized material from a plasticizing and conveyor device and an exit channel connected to the feeder channel, wherein the feeder channel is connected to at least two distribution channels which enter into a ring channel at equidistant locations, whereby the ring channel is connected with the exit channel through a ring slot extending in an axial direction.

12 Claims

5,672,304

METHOD FOR MANUFACTURING A FOAMABLE SYNTHETIC MATERIAL FROM SHREDDED FOAM
Jürgen Kellert, Kleinwallstadt, and Alfred Nogosek, Salzgitter, both of Germany, assignors to Rieter Automatik GmbH, Germany

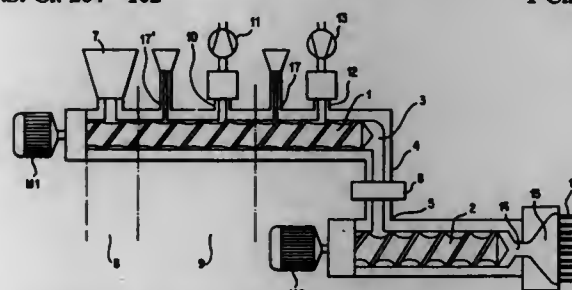
Filed Mar. 20, 1995, Ser. No. 406,597

Claims priority, application Germany, Mar. 30, 1994, 44 11 164.9

Int. Cl.⁶ B29C 47/76

U.S. Cl. 264—102

1 Claim



1. Method for manufacturing a foamable synthetic material comprising supplying reusable synthetic foam material in a shredded form, introducing foaming gas in a liquid form to said synthetic material at a pressure maintaining the foaming gas in its liquid form, degassing said synthetic material prior to the introduction of the foaming gas, the synthetic foam material having at least reached a doughy state for the degassing of the synthetic material, wherein said degassing and said introduction of foaming gas are performed at locations in an extruding assembly separated such a distance from one another that the foaming gas applied to the synthetic material cannot reach the location of degassing against the current of the synthetic material which is maintained in a molten state throughout the extruding assembly, wherein the synthetic material provided with foaming gas is cooled below the foaming temperature of the foaming gas, and the foamable synthetic material is thereafter discharged from the extruding assembly.

5,672,305

METHOD OF MANUFACTURING MEDICAL PROSTHETIC ARTICLES

Yamato Kogure, 3-23-2, Masago, Niigata-shi, Japan
Continuation-in-part of Ser. No. 265,201, Jun. 24, 1994, abandoned. This application Apr. 19, 1996, Ser. No. 635,296

Claims priority, application Japan, Jun. 25, 1993, 5-155604; Mar. 11, 1994, 6-79139; Mar. 17, 1994, 6-87171

Int. Cl.⁶ B29C 33/10; 33/56; 45/34

U.S. Cl. 264—102

7 Claims

1. A method of manufacturing a medical prosthetic article by injecting a thermoplastic resin into the cavity of a plaster mold, comprising the steps of: confining first and second plaster molds having porous structures respectively in first and second mold bodies made dividable from each other, said first and second plaster molds defining therein a cavity having first and second inner faces, a contour of a medical prosthetic article to be molded, a sprue runner

5,672,307

FLASH SPINNING PROCESS

Hyunkook Shin, Wilmington, and Roger Keith Siemionko, Hockessin, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

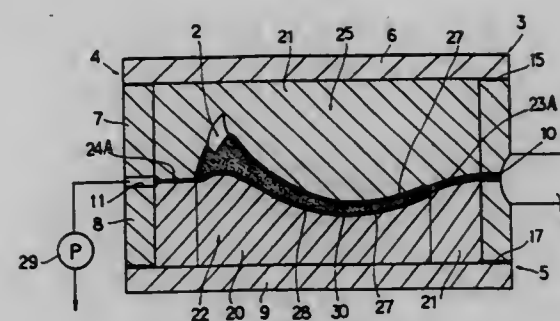
Filed Mar. 8, 1996, Ser. No. 612,714

Int. Cl.⁶ D01D 5/11

U.S. Cl. 264—205

6 Claims

1. A process for the preparation of plexifilamentary film-fibril strands of synthetic fiber-forming polyolefin which comprises: generating a spin fluid consisting essentially of (a) 5 to 30 wt. % synthetic fiber-forming polyolefin, (b) a primary solvent selected from the group consisting of methylene chloride and 1,2-dichloroethylene, and (c) a co-solvent selected from the group consisting of hydrofluoroethers and cyclic perfluorinated hydrocarbons said co-solvent having (i) 3 to 7 carbon atoms and (ii) an atmospheric boiling point between 15° and 100° C., said co-solvent being present in the spin fluid in an amount sufficient to raise the cloud point pressure of the spin fluid by at least 50 pounds per square inch; and flash-spinning the spin fluid at a pressure that is greater than the autogenous pressure of the spin fluid into a region of lower pressure to form plexifilamentary film-fibril strands of said synthetic fiber forming polyolefin.



communicating with said cavity, and an air vent communicating with said cavity; sealing up said cavity not only from the ambient air but also from said porous structures of said first and second plaster molds, when said first and second mold bodies are closed; evacuating said cavity through said air vent; and injecting a thermoplastic resin through said sprue runner into said cavity under a predetermined degree of vacuum.

5,672,306

METHOD OF MAKING AN ADSORBENT FIBROUS NONWOVEN COMPOSITE STRUCTURE

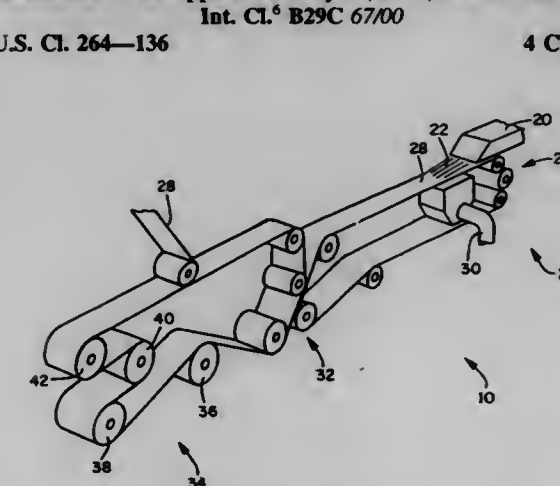
Troy Alan Sprang, Alpharetta; Annmarie Veronica Douglas, Norcross, and Benji Dawn Morgan, Atlanta, all of Ga., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Division of Ser. No. 409,105, Mar. 24, 1995, Pat. No. 5,571,604, Continuation of Ser. No. 151,609, Nov. 12, 1993, abandoned. This application May 30, 1995, Ser. No. 453,602

Int. Cl.⁶ B29C 67/00

U.S. Cl. 264—136

4 Claims



1. A process of making an adsorbent fibrous nonwoven composite structure comprising: providing an aqueous suspension of pulp fibers and at least one adsorbent material, the suspension being free of wet-end suspension additives; depositing the aqueous suspension onto a paper-making forming surface to form a layer of fibers and adsorbent material, removing water from the layer under sufficient vacuum so that adsorbent material is concentrated near one surface of the layer to yield an adsorbent fibrous nonwoven composite structure having a first exterior surface and a second exterior surface, wherein the concentration of adsorbent material adjacent the first exterior surface of the nonwoven structure is at least 60 percent, as determined by optical image analysis, and the concentration of adsorbent material adjacent the second exterior surface of the nonwoven structure is less than 40 percent, as determined by optical image analysis.

5,672,308

METHOD AND APPARATUS FOR FORMING SEAL PORTION OF TUBULAR BODY OF SYNTHETIC RESIN
Mamoru Fujita, Tokyo, Japan, assignor to Yoshino Kogyosha Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/00650, § 371 Date Jan. 3, 1996, § 102(e) Date Jan. 3, 1996, PCT Pub. No. WO95/27656, PCT Pub. Date Oct. 19, 1995

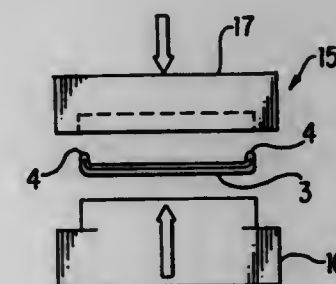
PCT Filed Apr. 4, 1995, Ser. No. 553,624

Claims priority, application Japan, Apr. 11, 1994, 6-072048

Int. Cl.⁶ B29D 23/20; B29C 65/00

U.S. Cl. 264—248

8 Claims



1. A method for forming a seal portion of a tubular body of synthetic resin, which comprises the process of: clamping an end portion of a tubular body of synthetic resin flat by a pair of clamps to form a clamped, flattened end portion of a predetermined width and an original volume and a projecting end portion projecting out of said clamps; heating and fusing said projecting end portion, said heating and fusing forming side projecting portions of said projecting end portion projecting outward from opposing sides of said projecting end portion beyond said width of said clamped, flattened end portion; bending said side projecting portions inwardly substantially perpendicular to said clamped, flattened end portion; and pressing said projecting end portion including said side projecting portions into a desired shape to form a seal portion, while reducing a cubic volume of said projecting end portion to 0.65-0.80 times the original volume.

5,672,309

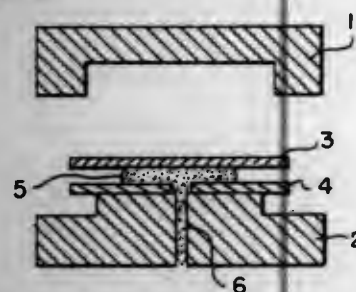
METHOD FOR PRODUCING MOLDED ARTICLE OF FIBER REINFORCED THERMOPLASTIC RESIN

Shohel Masul, Nagoya; Takahisa Hara, Toyonaka; Masahito Matsumoto, Ibaraki; Nobuhiko Usui, Takatsuki, and Shigeyoshi Matsubara, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan
Continuation of Ser. No. 104,610, Aug. 11, 1993, abandoned, which is a continuation of Ser. No. 821,136, Jan. 16, 1992, abandoned, which is a continuation of Ser. No. 475,407, Feb. 5, 1990, abandoned. This application May 30, 1995, Ser. No. 453,517

Claims priority, application Japan, Feb. 10, 1989, 1-032061; Mar. 31, 1989, 1-082674; May 31, 1989, 1-139797
Int. Cl.⁶ B32B 31/00

U.S. Cl. 264-257

16 Claims



1. A method for producing a molded article of a fiber-reinforced thermoplastic resin, comprising the steps of:
supplying at least two porous fibrous sheets between a pair of male and female molds which are unclosed;
supplying a melt mass of a thermoplastic resin in a space between said porous sheets; and
closing the molds and pressing the melt mass of the thermoplastic resin, wherein the melt mass of the thermoplastic resin is filled into the pores of the porous fibrous sheets by a pressing pressure generated by the mold closing, such that the sheets become united together.

5,672,310

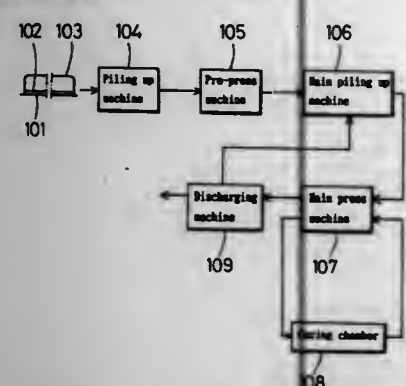
METHOD OF MANUFACTURING WOOD-CEMENT BOARD

Masaru Watanabe, Chikusa-ku, Japan, assignor to Nichiha Corporation, Nagoya, Japan
Filed Nov. 30, 1995, Ser. No. 565,109

Claims priority, application Japan, Oct. 23, 1995, 7-274195
Int. Cl.⁶ B28B 3/00

U.S. Cl. 264-297.4

4 Claims



1. A method of manufacturing wood-cement board comprising:
strewing a raw materials mixture of wood-cement board on a mold panel to form a mat, piling up a plural number of said mold panels having said mats thereon, pre-pressing said piled mats and panels to reduce the thickness of each mat, piling up a plural number of said pre-pressed mats and panels; main-pressing said pre-pressed and piled mats and panels and curing said piled, main-pressed mats.

5,672,311

PROCESS FOR PREPARING THERMOSET COMPOSITE ARTICLES

Clayton A. May, Watsonville, Calif.; Walter V. Breitigam, Katy, and Ronald S. Bauer, Houston, both of Tex., assignors to Shell Oil Company, Houston, Tex.
Continuation of Ser. No. 769,516, Oct. 1, 1991, abandoned, which is a continuation of Ser. No. 477,381, Feb. 9, 1990, abandoned. This application Mar. 20, 1992, Ser. No. 859,636
Int. Cl.⁶ B29B 17/00

U.S. Cl. 264-347

26 Claims

1. A process for preparing a shaped thermoset composite article, the process comprising:
(a) placing a shaped laminate comprising a fibrous reinforcing agent and a partially-cured thermosettable resin system into a temperature-programmable oven;
(b) exposing said laminate, at a pressure less than about 50 psi, to an elevated temperature which elevated temperature increases over time, is sufficient to promote further cure of the resin system and to thereby increase the glass transition temperature thereof, and remains within about 20° C. below the advancing glass transition temperature of the thermosettable resin system; and
(c) cooling the thus-treated laminate to room temperature.

5,672,312

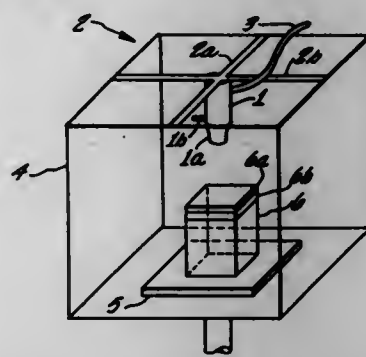
THERMAL STEREOLITHOGRAPHY

Thomas A. Almquist, San Gabriel, and Dennis R. Smalley, Baldwin Park, both of Calif., assignors to 3D Systems, Inc., Valencia, Calif.

Continuation of Ser. No. 148,544, Nov. 8, 1993, Pat. No. 5,501,824, which is a continuation of Ser. No. 900,001, Jun. 17, 1992, abandoned, which is a continuation of Ser. No. 592,559, Oct. 4, 1990, Pat. No. 5,141,680, which is a continuation-in-part of Ser. No. 182,801, Apr. 18, 1988, Pat. No. 4,999,143. This application Jun. 5, 1995, Ser. No. 464,977
Int. Cl.⁶ B29C 35/08; 41/02; 41/36

U.S. Cl. 264-401

18 Claims



8. A method of forming a three-dimensional object on a substantially layer-by-layer basis, including forming a removable support structure comprising the steps:
separately containing one of a selected one of a building material and a support material and a nonselected one of the building material and the support material wherein said selected one is normally in a solid state and which is made flowable when maintained at or above a flowable temperature; maintaining said building material and said support material as flowable material wherein at least said selected one is maintained at a temperature at or above said flowable temperature; maintaining a building environment at a temperature below said flowable temperature; supporting at least a portion of the object on a platform located within said building environment; identifying as positioning control signals, for substantially each layer, locations where said selected one is to be located; transmitting said positioning control signals for said identified locations;

5,672,315

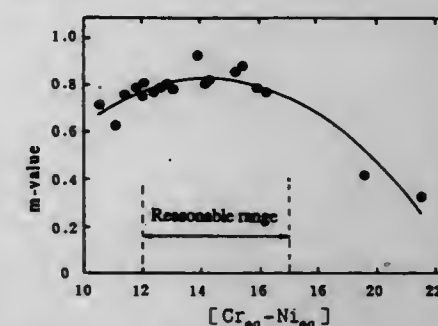
SUPERPLASTIC DUAL-PHASE STAINLESS STEELS HAVING A SMALL DEFORMATION RESISTANCE AND EXCELLENT ELONGATION PROPERTIES

Nobuyoshi Okato, Hiroshi Yoshida, and Nobuya Koide, all of Kanagawa, Japan, assignors to Nippon Yakin Kogyo Co., Ltd., Tokyo, Japan

Filed Nov. 3, 1995, Ser. No. 553,097
Int. Cl.⁶ C22C 38/42; 38/44

U.S. Cl. 420-40

3 Claims



1. A superplastic dual-phase stainless steel having a low deformation resistance and an excellent elongation, comprising C: not more than 0.05 wt %, Si: not more than 1.5 wt %, Mn: not more than 3.0 wt %, Cr: 17.0-26.0 wt %, Ni: 3.0-10.0 wt %, Mo: 0.1-2.0 wt %, N: 0.08-0.20 wt %, S: not more than 0.002 wt %, B: 0.0005-0.01 wt % and the remainder being Fe and inevitable impurities, wherein contents of Cr, Ni, Mo, Si, C, Mn, Cu, and N satisfy a difference $Cr_{eq}-Ni_{eq}$ between Cr_{eq} defined by the following equation (1) and Ni_{eq} defined by the following equation (2) of 12.0-17.0.

$$Cr_{eq} = Cr + Mo + 0.5Si \quad (1)$$

$$Ni_{eq} = Ni + 30C + 0.5Mn + 0.5Cu + 20N \quad (2)$$

5,672,313

METHOD OF MANUFACTURING POWDER MOLDING AND POWDER FEEDER

Ryuji Shiga, Yoshishige Takano, and Yoshinobu Takeda, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

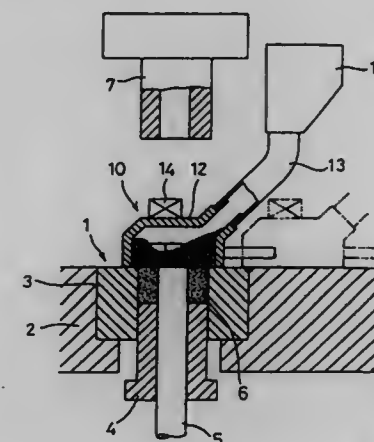
PCT No. PCT/JP94/02094, § 371 Date Aug. 11, 1995, § 102(e) Date Aug. 11, 1995, PCT Pub. No. WO95/16559, PCT Pub. Date Jun. 22, 1995

PCT Filed Dec. 12, 1994, Ser. No. 501,066

Claims priority, application Japan, Dec. 13, 1993, 5-311701
Int. Cl.⁶ B29C 43/02

U.S. Cl. 264-460

7 Claims



1. A method of manufacturing a powder molding, comprising the steps of:
feeding a material powder from a shoe box through a bottom of the shoe box into a cavity formed in a mold while oscillating the material powder at an oscillation frequency of 10-200 Hz and at an oscillation pressure of 1-50 kg such that the density of the powder in the cavity becomes at least 1.1 times the apparent density; and
compressing the powder in the cavity.
4. A powder feeder for use in manufacturing a powder mold, comprising:
a mold part having a cavity for compression molding; and
a shoe box mounted so as to be movable toward and away from said cavity, said shoe box having a lower portion provided with a plurality of cells having open tops and bottoms, said cells each comprising a space defined in said lower portion by a plurality of vertical partitioning plates; and
an oscillator mounted on said shoe box.

5,672,314

Patent Not Issued For This Number

5,672,316

MICROWAVE-HEATABLE PRESSURE REACTOR

Gunter Knapp, Sorgerweg 16, A-8047 Graz, Austria

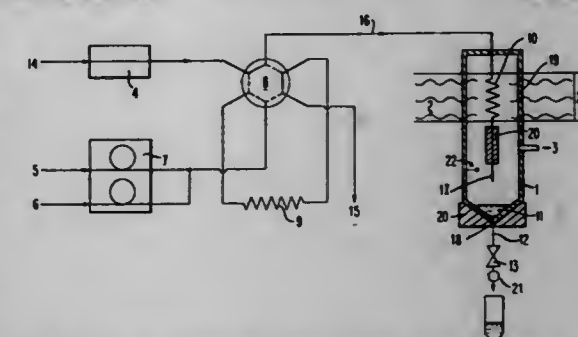
Filed Mar. 7, 1995, Ser. No. 399,754

Claims priority, application Austria, Mar. 11, 1994, 532/94

Int. Cl.⁶ A61L 2/00

U.S. Cl. 422-21

20 Claims



17. Process for sterilizing liquids, comprising the steps of:
pressurizing an interior space of a pressure container, continuously pumping liquid to be sterilized to the container, generating a microwave field in the container, passing the liquid in a microwave-transparent segment of a pipeline through the microwave field effective in the container such that the liquid is heated while in the microwave-transparent segment of the pipeline, releasing the liquid after it has been heated and thus sterilized into the interior space of the container, and
removing the sterilized liquid from the container through an outlet opening therein.

5,672,317
ANALYZER WITH FIXED POSITION BAR CODE
READER

Jürg Bühler, Rothenburg, and Siegfried Müller, Meierskappel, both of Switzerland, assignors to Roche Diagnostics Systems, Inc., Branchburg, N.J.

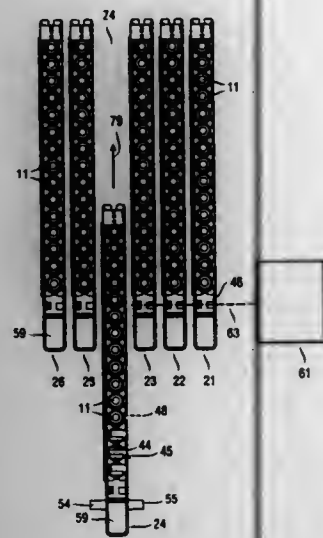
Filed Mar. 22, 1996, Ser. No. 624,854

Claims priority, application Switzerland, Apr. 19, 1995, 1119/95

Int. Cl.⁶ G01N 35/02

U.S. Cl. 422—65

6 Claims



1. An analyzer for automatically performing analytical operations using liquid samples and reagents contained in vessels, the analyzer comprising:

- at least two vessel holders that during operation of the analyzer are disposed parallel to one another and located at predetermined positions in the analyzer, each vessel holder being configured and dimensioned to hold a plurality of vessels, each vessel holder containing a single straight row of parallelly oriented elongate chambers which are located at predetermined positions within the vessel holder, each chamber being configured and dimensioned for receiving one vessel that within the chamber can either be present or absent, adjacent chambers being separated by a partition, each chamber having a first side wall and a second side wall positioned and dimensioned so that the first side wall and the second side wall in cooperation with the partitions form the sides of the chamber, each side wall having an inner surface and an outer surface, the inner surface of the first side wall of each chamber bearing a first bar code label for detecting the absence of a vessel in the chamber, and the outer surface of the second side wall of each chamber bearing a second bar code label for detecting the position of the chamber in the vessel holder, the first bar code label and the second bar code label being readable from the side of the vessel holder formed by the second side walls;
- a bar code reader having a focal range, the bar code reader being fixedly disposed in the analyzer and positioned at a distance from each vessel holder to read all of the bar code labels on each vessel holder as the vessel holder is inserted into the analyzer; and
- means for automatically adjusting the focal range of the bar code reader in dependence on the distance between the bar code reader and the vessel holder.

5,672,318

Patent Not Issued For This Number

5,672,319
DEVICE FOR ANALYZING A FLUID MEDIUM

Niels Elsum, Risskov, Denmark, assignor to Danfoss A/S, Nordborg, Denmark, and Tecator AB, Hoganas, Sweden

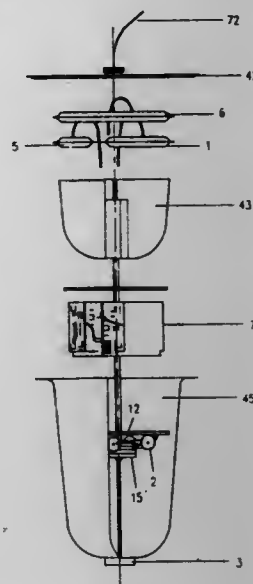
PCT No. PCT/DK94/00171, § 371 Date Oct. 10, 1995, § 102(e) Date Oct. 10, 1995, PCT Pub. No. WO94/25876, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 28, 1994, Ser. No. 535,048

Int. Cl.⁶ B01D 61/28; C02F 1/44; G01N 35/08

U.S. Cl. 422—82.02

9 Claims



1. A self-contained, immersible dialyzer for analyzing a fluid medium, especially a liquid, comprising:

- a fluid-tight housing;
- an opening in the housing, the opening being closed by an ion-permeable membrane, the membrane having a first surface and a second surface and allowing transfer of ions and molecules between the surfaces, the first surface in use comprising an outer surface for contacting the medium;
- channel defining means within the housing, the channel defining means being joined to the membrane to define at least one flow channel delimited by the second surface of said membrane and by the channel defining means;
- a carrier fluid reservoir within the housing, the carrier fluid reservoir being adapted to hold a carrier fluid;
- carrier pump means within the housing, the carrier pump means being operative for generating a flow of carrier fluid through the flow channel to allow transfer of ions and molecules between the medium and the carrier fluid across the membrane as the carrier fluid flows through the flow channel, so as to transform the flow of carrier fluid into a flow of sample fluid;
- at least one detecting device within the housing, the detecting device being coupled to the flow of sample fluid for detecting an analyte in the sample fluid and for generating a corresponding detection signal; and
- at least one waste reservoir within the housing separate from said carrier fluid reservoir, the waste reservoir being located downstream of the detecting device and adapted to receive the flow of sample fluid.

5,672,320
REPEATING PIPET HAVING A PLUNGER ADVANCE
MECHANISM

Ralf Ritter, Schwabenstrasse 54, 86836 Untermeitingen, Germany

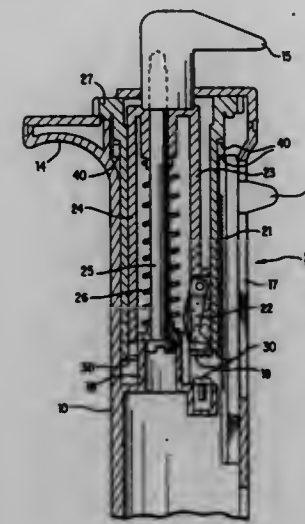
Filed Oct. 2, 1995, Ser. No. 537,505

Claims priority, application Germany, Sep. 30, 1994, 9415847 U

Int. Cl.⁶ B01L 3/02

U.S. Cl. 422—100

13 Claims



1. An advancing mechanism for movement of a pipet plunger in a repeating pipet having a receptacle receiving an upper end of the plunger pipet, the advancing mechanism comprising:

- a rack communicating with the pipet plunger and a return lever for pulling the pipet plunger backward;
- a pawl pretensioned against the rack into an initial position;
- an engagement control element located between the rack and the pawl, the engagement control element permitting engagement of the pawl with the rack only during a certain portion of a pawl advance travel, the engagement control element keeping the pawl out of engagement with the rack during a remainder of the pawl advance travel;
- an adjusting element for adjusting the engagement control element to one of a plurality of engagement positions, each engagement position setting a plunger step length for each stroke of the pawl, the engagement control element being a rotatable sleeve having a lower end provided with a plurality of lower axial steps that control engagement between the pawl and said rack, said rack mounted outside the rotatable sleeve and having teeth facing the sleeve, said pawl being connected to a sliding body connected with an actuating element and axially displaceable with the sleeve, the rotatable sleeve having a plurality of limiting stops at an upper circumference that correspond to the plurality of lower axial steps, each limiting stop associated with one of the lower axial steps and with a corresponding setting of the engagement control element to set a retraction motion travel of the rack and the plunger to a whole-number multiple of the respective plunger step length with an additional safety margin and wherein the sliding body is telescopically guided in the rotatable sleeve and the sliding body is pretensioned by a spring into an initial position.

5,672,321
BIOLOGICAL SPECIMEN COLLECTION SYSTEM
Victor Daykin, Ajax, Canada, assignor to Samco Scientific, Inc., San Fernando, Calif.

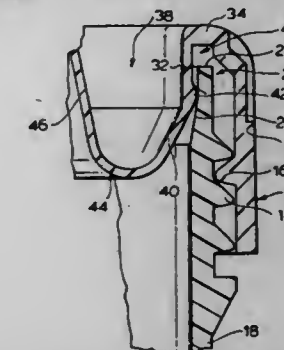
Continuation of Ser. No. 230,923, Apr. 21, 1994, abandoned.

This application May 8, 1996, Ser. No. 646,771

Int. Cl.⁶ B01L 3/00; B65D 41/00

U.S. Cl. 422—102

1 Claim



1. A biological specimen collecting system for holding a biological specimen in a sustained sealed environment, the biological specimen collecting system comprising:

- a container for holding the biological specimen, the container being of circular cross section, the cross section of the container being radially symmetric in each plane which is orthogonal to the center line of the container, the interior surface of the sidewalls of the container sloping downwardly and inwardly from a point at or near the top of said container to a second point, the sidewalls being substantially vertical from the second point downward, the container having an outwardly extending thread region on the exterior surface thereof, and whereby once a cap having a sealing bead is screwed onto the container the entire periphery of the sealing bead engages the sealing surface, and
- a sealing closure cap mounted on the open end of the container and having a peripheral groove to receive the container rim, the peripheral groove being defined by inner and outer walls and a top, the outer wall of the cap having an inwardly extending thread region complementary to the thread region on the container for engagement therewith, the inner wall of the cap having a sealing bead extending radially outwardly, the entire periphery of the sealing bead contacting the sealing surface of the container to provide sustained sealing of the container by the sealing cap.

5,672,322
METHOD, DRY MULTI-STAGE PUMP AND
PLASMA SCRUBBER FOR CONVERTING REACTIVE
GASES

Jan Visser, Weert, Netherlands, assignor to Leybold AG, Cologne, Germany

PCT No. PCT/NL93/00017, § 371 Date Feb. 23, 1995, § 102(e) Date Feb. 23, 1995, PCT Pub. No. WO93/13851, PCT Pub. Date Jul. 22, 1993

PCT Filed Jan. 18, 1993, Ser. No. 256,604

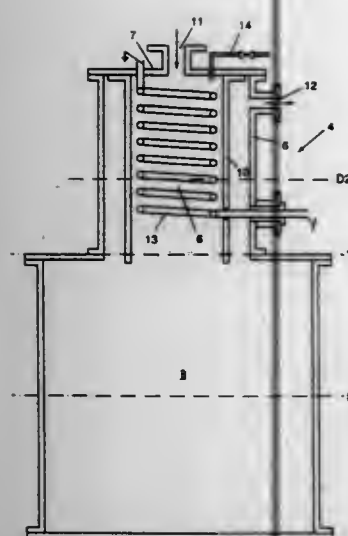
Claims priority, application Netherlands, Jan. 16, 1992, 9200076

Int. Cl.⁶ B01D 50/00

U.S. Cl. 422—168

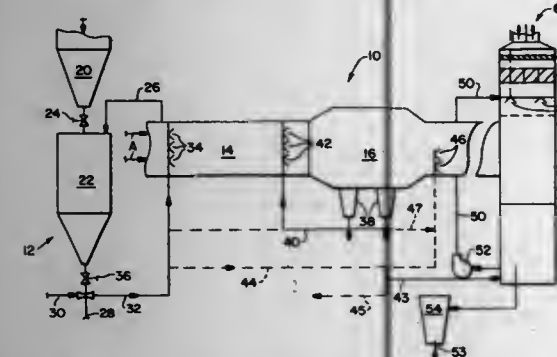
9 Claims

- Method for treating reactive gases passing through a single dry multi-stage pump, comprising the steps of: converting the reactive gases into non-reactive components by a gas discharge in a reaction chamber comprising a collection tank detachably sealed to the side walls of the reaction chamber forming a gas discharge chamber with the side walls and top wall, the collecting tank being in open communication with the reaction chamber, and a plasma generator positioned within the gas discharge chamber, the reaction chamber positioned between two stages of the dry multi-stage pump; and



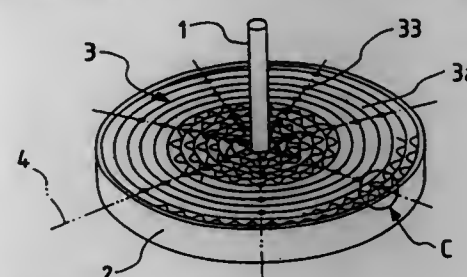
collecting solid particles produced by the converting step in the collecting tank disposed below the reaction chamber.

5,672,323
ACTIVATED CARBON FLUE GAS DESULFURIZATION SYSTEMS FOR MERCURY REMOVAL
 Pervaje A. Bhat, North Canton, and Dennis W. Johnson, Barberton, both of Ohio, assignors to The Babcock & Wilcox Company, New Orleans, La.
 Continuation of Ser. No. 378,417, Jan. 26, 1995, abandoned.
 This application Apr. 22, 1996, Ser. No. 635,532
 Int. Cl.⁶ B01D 50/00; C10B 17/20
 U.S. Cl. 422—172 15 Claims



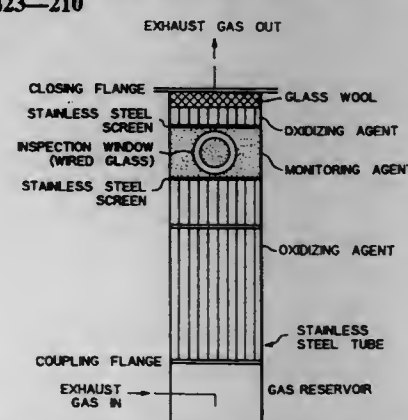
1. An air toxics removal assembly for a flue gas treatment system, comprising:
 particulate removal means positioned in a flue duct for removing particulates from the flue gas;
 a wet flue gas desulfurization tower located downstream of said particulate removal means and connected thereto by the flue duct for removing SO₂ from the flue gas;
 fluid means for supplying heated powdered activated carbon;
 first means for injecting heated activated carbon into the flue gas in the flue duct upstream of the particulate removal means for removing toxics from the flue gas, said first injecting means being connected to said fluid supplying means for receiving heated activated carbon;
 means for recirculating injected activated carbon from said first injection means captured by said particulate removal means along with fly ash back into the flue gas, said recirculating means being connected to said particulate removal means; and
 second means for injecting recirculated activated carbon along with fly ash in the duct upstream of the particulate removal means, said second injecting means being connected to said recirculating means and supplied with recirculated activated carbon and fly ash.

5,672,324
ELECTRICALLY HEATABLE HONEYCOMB BODY OF A CATALYTIC CONVERTER EQUIPPED IN AN EXHAUST SYSTEM OF AN INTERNAL COMBUSTION ENGINE
 Atsuya Okamoto, Akikazu Kojima, Niro Takaki, and Kiyohiko Watanabe, all of Nishio, Japan, assignors to Nippon Soken, Inc., Nishio, Japan
 Filed Feb. 14, 1996, Ser. No. 601,581
 Claims priority, application Japan, Feb. 17, 1995, 7-053438
 Int. Cl.⁶ F01N 3/10
 U.S. Cl. 422—174 18 Claims



1. An electric heater comprising:
 a first electrode and a second electrode;
 a multi-layered honeycomb body disposed between said first and said second electrodes acting as a heat generator, said multi-layered honeycomb body comprising a plurality of conductive foil layers which are electrically insulated from other conductive foil layers;
 a plurality of bonding parts each defining an electrical conductive path between adjacent conductive foil layers, said bonding parts being disposed along a plurality of bonding lines extending across said plurality of conductive foil layers from said first electrode to said second electrode, wherein said bonding parts are disposed on every other conductive foil layer along each bonding line and said bonding parts are disposed on every other bonding line along each conductive foil layer.

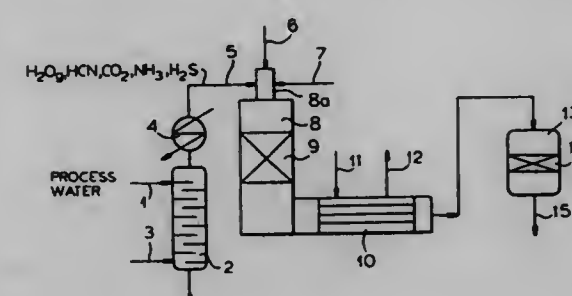
5,672,325
METHOD FOR THE OXIDATION TREATMENT OF DECARBORANE GAS
 Hajime Hiratsuka, Junichi Yagyu, both of Ibaraki-ken; Tet-suaki Marufuji, and Kazunori Gotoda, both of Kanagawa-ken, all of Japan, assignors to Japan Atomic Energy Research Institute, and Tomoe Shokai Co., Ltd., both of Tokyo, Japan
 Filed Jan. 24, 1996, Ser. No. 590,912
 Claims priority, application Japan, Jan. 24, 1995, 7-008721
 Int. Cl.⁶ B01D 53/46
 U.S. Cl. 423—210 2 Claims



1. A method for oxidation treatment of decaborane gas exhausted from a boron coating of the inner surfaces of vacuum vessels in nuclear fusion reactors comprising passing decaborane gas through a metal tube packed with granules of an alkaline

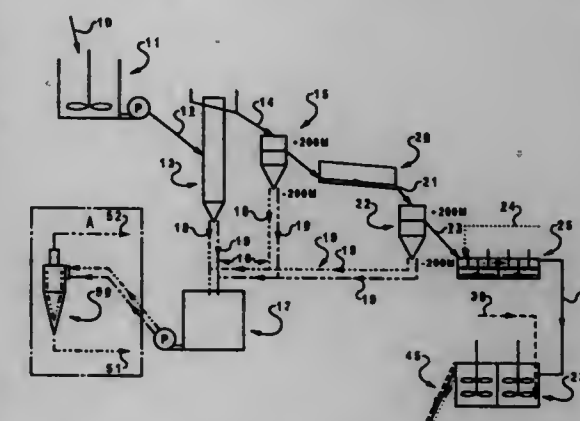
oxidizing agent and granules of a monitoring agent, thereby oxidizing said decaborane gas to stable substances consisting essentially of manganese oxide, potassium borate, water and hydrogen; wherein the alkaline oxidizing agent comprises potassium permanganate and potassium hydroxide, and the monitoring agent comprises copper sulfate;
 wherein the metal tube is packed in three layers in the order of a first layer comprising the granules of the oxidizing agent, a second layer comprising the granules of the monitoring agent, and a third layer comprising the granules of the oxidizing agent, whereby the second layer is partitioned from the first layer and from the third layer by means of stainless steel screens;
 wherein the decaborane gas is passed through the layers in order from the first layer to the third layer; and
 wherein an inspection window is provided in the metal tube positioned next to the second layer in order to monitor the progress of the oxidative reaction of the decaborane gas by watching the color change of the monitoring agent.

5,672,326
METHOD OF TREATING VAPORS CONTAINING AMMONIA AND HYDROGEN SULFIDE
 Hans-Peter Minak, Essen, and Manfred Gross, Gladbeck, both of Germany, assignors to Krupp Koppers GmbH, Essen, Germany
 Filed Dec. 5, 1995, Ser. No. 567,228
 Claims priority, application Germany, Jan. 16, 1995, 195 01 108.2
 Int. Cl.⁶ B01D 53/58
 U.S. Cl. 423—224 12 Claims



1. A process for continuously treating vapor containing ammonia and 5 to 40 percent by volume hydrogen sulfide, without interruption by deposition of elemental sulfur, said process consisting essentially of the steps of:
 (a) introducing a vapor containing ammonia and 5 to 40 percent by volume hydrogen sulfide into a cracking furnace at a temperature of substantially 1000° to 1200° C. in a reducing atmosphere to produce a process gas containing ammonia and elemental sulfur, said elemental sulfur deliberately retained as vapor in said process gas;
 (b) feeding said process gas to a cracking catalyst and converting the ammonia in said process gas to a hydrogen/nitrogen mixture in said process gas;
 (c) thereafter cooling said process gas from step (b) with said elemental sulfur and said hydrogen/nitrogen mixture therein to a temperature in a range of 250° C. to 350° C. to form a cooled process gas;
 (d) passing the gas from step (c) containing all the sulfur formed in step (a) to a hydrogenation zone, hydrogenating the sulfur with hydrogen formed in step (b) to convert all the sulfur in the process gas to hydrogen sulfide; and
 (e) recovering a process gas containing hydrogen sulfide from said hydrogenation reactor.

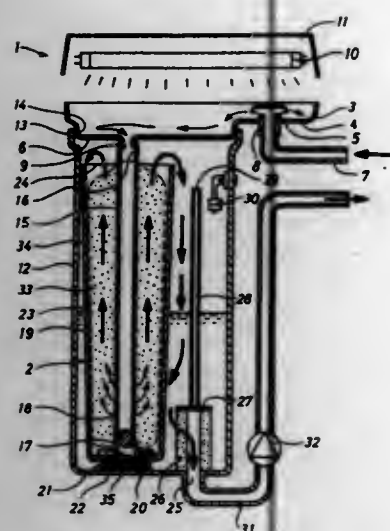
5,672,327
BENEFICIATION OF KISH GRAPHITE
 George W. Bennett, Orléans; Maxime Leduc, Longueuil; Jean-Guy St-Hilaire, St. Antoine, and Christian Garceau, St. Grégoire, all of Canada, assignors to Indresco Canada, Inc., Canada
 Continuation of Ser. No. 312,341, Sep. 26, 1994, abandoned.
 This application Nov. 8, 1995, Ser. No. 554,249
 Int. Cl.⁶ C01B 31/04
 U.S. Cl. 423—448 7 Claims



1. A method of beneficiating kish to produce flake graphite having 99%+ graphitic carbon content comprising concentrating the kish to form a graphite concentrate, screening the concentrate to collect an about +200 mesh fraction, milling said fraction at an energy level and for a time sufficient to liberate the flakes to a purity of at least about 90% carbon, screening said milled fraction to collect the remaining +200 mesh fraction, mixing said remaining +200 mesh fraction with an acid having a concentration of less than about 7.5% to form an acidic pulp, subjecting said pulp to attrition with a solid attrition adjuvant at an energy level and for a time sufficient to dislodge impurities remaining on the graphite and at least 50% by weight of the flake graphite in said graphite concentrate is recovered as a +100 mesh product, neutralizing said acidic pulp, and recovering the flake graphite from the neutralized pulp.

5,672,328
METHOD AND APPARATUS FOR REMOVING SILVER IN THE FORM OF SILVER SALTS FROM A LIQUID
 Thomas Busch-Sørensen, Holte, Denmark, assignor to Eskofot A/S, Ballerup, Denmark
 PCT No. PCT/DK91/00038, § 371 Date Aug. 5, 1992, § 102(e) Date Aug. 5, 1992, PCT Pub. No. WO91/12565, PCT Pub. Date Aug. 22, 1991
 PCT Filed Feb. 8, 1991, Ser. No. 916,007
 Claims priority, application Denmark, Feb. 8, 1990, 0336/90
 Int. Cl.⁶ B01J 19/12
 U.S. Cl. 423—561.1 5 Claims

1. A method for removing silver in the form of silver sulfide from a solution containing a silver thiosulfate complex in a photographic fix or rinse fluid solution by means of precipitation, which method comprises subjecting said solution to electromagnetic radiation with a wavelength of 375 nm or less, such that the liquid is irradiated with such an amount of energy that substantially no



crystalline silver sulfide is formed and in that the irradiated liquid is passed through a filter means which binds the silver sulfide to its surface as crystalline silver sulfide.

5,672,329

MANGANESE OXIDES PRODUCTION THEREOF, AND USE THEREOF

Masaki Okada, Tokuyama, and Takashi Mouri, Hikari, both of Japan, assignors to Tosoh Corporation, Shinnanyo, Japan
Continuation of Ser. No. 96,817, Jul. 28, 1993, abandoned.

This application Jan. 11, 1996, Ser. No. 584,094

Claims priority, application Japan, Jul. 29, 1992, 4-220893; Nov. 30, 1992, 4-320732; Nov. 30, 1992, 4-320733; Dec. 3, 1992, 4-324467; Dec. 3, 1992, 4-324469; Dec. 9, 1992, 4-329411

Int. Cl.⁶ C01G 45/00; 51/00; 9/00; C01F 1/00

U.S. Cl. 423-599

9 Claims

1. A manganese oxide represented by the general formula $A_nMn_2O_4 \cdot nH_2O$, where A is selected from the group consisting of Zn, Mg, Ca and Co; and if A is Zn, $0.1 < x < 0.67$, $n=0$ and said manganese oxide has a spinel crystal structure; if A is Mg, $0 < x < 1$, $0 \leq n \leq 20$, said manganese oxide has a layer crystal structure having interplanar spacings

- 9.23±0.05 angstrom
- 7.14±0.05 angstrom
- 5.00±0.05 angstrom
- 3.56±0.05 angstrom
- 2.51±0.05 angstrom and
- 2.48±0.05 angstrom;
- if A is Ca, x is 1 or $0.1 < x < 0.19$, and $0 \leq n \leq 20$, said manganese oxide has an amorphous crystal structure when $x=1$ having interplanar spacings
- 4.8±0.05 angstrom
- 3.1±0.05 angstrom

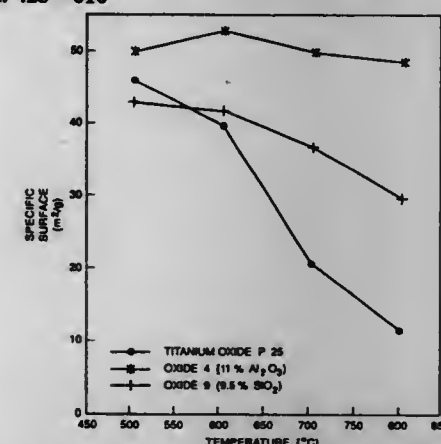
and said manganese oxide has a δ crystal structure when $0.1 < x < 0.19$; and if A is Co, $0.7 < x < 0.8$, $n=0$ and said manganese oxide has a mixed crystal structure of both a layer and a spinel.

5,672,330
FLAME-HYDROLYTICALLY PRODUCED TITANIUM DIOXIDE MIXED OXIDE METHOD OF ITS PRODUCTION AND ITS USE

Werner Hartmann, Babenhausen; Helmut Mangold, Rodenbach, and Dieter Kerner, Hanau, all of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Germany
Division of Ser. No. 139,708, Oct. 22, 1993, Pat. No. 5,451,390.
This application Apr. 18, 1995, Ser. No. 423,349
Claims priority, application Germany, Oct. 24, 1992, 42 35 996.1

Int. Cl.⁶ C01G 23/047; C08F 4/16
U.S. Cl. 423-610

7 Claims



1. A member of the group consisting of catalysts, catalytic carriers, photocatalysts, automobile paints, cosmetic articles and silicone rubbers comprising a flame-hydrolytically produced titanium dioxide mixed oxide having a BET surface of 10 to 150 m²/g which contains 1-30% by weight of a member of the group consisting of aluminum oxide and silicon dioxide as a component of the mixed oxide, and a balance of the titanium dioxide and unavoidable impurities.

5,672,331

PROCESS FOR PREPARING UNIFORM MFI-TYPE ZEOLITE CRYSTALS

Johannes Petrus Verdulijn, Leefdaal, Belgium, assignor to Exxon Chemical Patents Inc. (ECPI), Linden, N.J.
PCT No. PCT/EP92/02330, § 371 Date Jun. 3, 1994, § 102(e) Date Jun. 3, 1994, PCT Pub. No. WO93/08124, PCT Pub. Date Apr. 19, 1993

PCT Filed Oct. 8, 1992, Ser. No. 211,875

Claims priority, application United Kingdom, Oct. 23, 1991, 9122498

Int. Cl.⁶ C01B 39/40

U.S. Cl. 423-702

13 Claims

SEEDED IMAGE 10,000 × SEEDED IMAGE 40,000 ×



1. A process for the preparation of an MFI-type zeolite comprising mixing:
(i) a source of particulate silica in which silica particles present have an average diameter of 1 μ m or less;
(ii) seeds of an MFI zeolite having an average diameter of 100 nm or less in the form of a colloidal suspension;
(iii) an organic structure directing agent; and
(iv) a source of fluorine or an alkali metal;
to form an aqueous synthesis mixture, the seeds being present in an amount of 0.05 to 1700 ppm by weight of the synthesis mixture, and the synthesis mixture having an alkalinity, expressed as a

molar ratio of OH^-/SiO_2 , of less than 0.1, and allowing the synthesis mixture to crystallize.

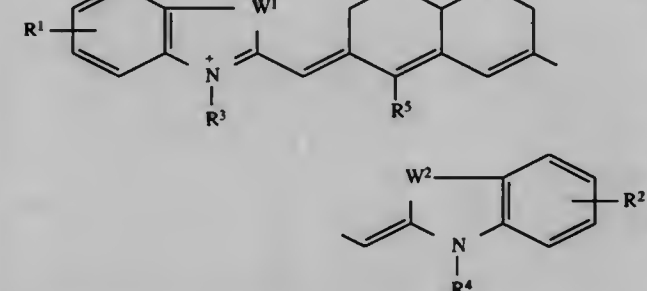
5,672,332

DELTA 1,2 BICYCLO[4,4,0] FUNCTIONAL DYES FOR CONTRAST ENHANCEMENT IN OPTICAL IMAGING

Ella Y. Fung, and Raghavan Rajagopalan, both of St. Louis, Mo., assignors to Mallinckrodt Medical, Inc., St. Louis, Mo.
Filed May 13, 1996, Ser. No. 645,310
Int. Cl.⁶ A61K 49/00; G01N 31/00; 33/48

U.S. Cl. 424-9.6

8 Claims



wherein R¹ is hydrogen; R² is hydrogen; R³ is methyl; R⁴ is methyl; R⁵ is methoxycarbonyl; W¹ is —S—; W² is —S—; A is —CH₂—; and B is —CH₂—.

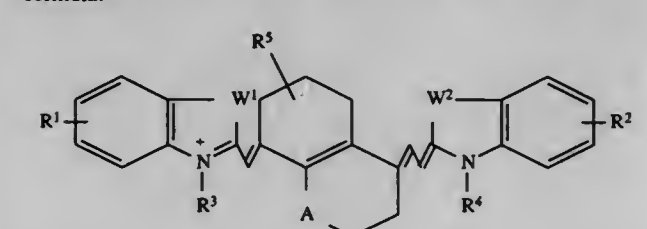
5,672,333

 $\Delta^{1,6}$ BICYCLO [4,4,0] FUNCTIONAL DYES FOR CONTRAST ENHANCEMENT IN OPTICAL IMAGING

Raghavan Rajagopalan, Maryland Heights, and Ella Y. Fung, St. Louis, both of Mo., assignors to Mallinckrodt Medical, Inc., St. Louis, Mo.
Filed May 13, 1996, Ser. No. 649,850
Int. Cl.⁶ A61K 49/00; G01N 31/00; 33/48

U.S. Cl. 424-9.6

10 Claims



wherein R¹, R², and R⁵ may be the same or different and are selected from the group consisting of hydrogen, C₁-C₁₀ alkyl, C₁-C₁₀ alkoxy, hydroxyl, C₁-C₁₀ hydroxyalkyl, C₁-C₁₀ alkoxyalkyl, C₁-C₁₀ aryl, carboxyl, C₁-C₁₀ carboxylalkyl, halogen, nitro, C₁-C₁₀ alkoxyalkyl, mercapto, C₁-C₁₀ mercaptoalkyl, C₁-C₁₀ alkylthio, sulfonate, and —(CH₂)_m—N(R⁶)(R⁷) wherein R⁶ and R⁷ are independently hydrogen or C₁-C₁₀ alkyl, C₁-C₁₀ acyl, and R⁶ and R⁷ are capable of forming 5, 6, or 7 membered rings which may optionally be substituted with —O—, —NR⁸, or —S—; R³ and R⁴ may be the same or different and are selected from the group consisting of C₁-C₁₀ alkyl, C₁-C₁₀ hydroxyalkyl, C₁-C₁₀ alkoxyalkyl, C₁-C₁₀ aryl, C₁-C₁₀ carboxylalkyl, C₁-C₁₀ alkyl sulfonate, mercapto alkyl and —(CH₂)_m—N(R⁶)(R⁷); W¹ and W² may be the same or different and are selected from the group consisting of —S—, —O—, —Se—, —Te—, —NR⁸ and C(R⁹)(R¹⁰); and m is about 0-10; R⁸, R⁹, and R¹⁰ are independently hydrogen, C₁-C₁₀

alkyl, C₁-C₁₀ alkoxy, C₁-C₁₀ mercaptoalkyl, hydroxyl, C₁-C₁₀ hydroxyalkyl, C₁-C₁₀ alkoxyalkyl, C₁-C₁₀ aryl, C₁-C₁₀ carboxylalkyl, C₁-C₁₀ alkoxyalkyl, C₁-C₁₀ alkylthio, and —(CH₂)_m—N(R⁶)(R⁷); and A is selected from the group consisting of —(CH₂)_n—, —O—, —S—, or —NR⁸.

5,672,334

INVIVO AGENTS COMPRISING CATIONIC METAL CHELATORS WITH ACIDIC SACCHARIDES AND GLYCOSAMINOGLYCANS

David F. Ranney, Dallas, Tex., assignor to Access Pharmaceuticals, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 880,660, May 8, 1992, abandoned, Ser. No. 863,595, Dec. 9, 1991, Pat. No. 5,214,661, and a continuation-in-part of Ser. No. 642,033, Jan. 16, 1991, Pat. No. 5,336,762. This application Nov. 29, 1993, Ser. No. 160,085

Int. Cl.⁶ A61B 5/055

U.S. Cl. 424-9.34

33 Claims

1. An agent comprising at least about 15 weight percent chelator for paramagnetic metal ions, and a sulfated oligosaccharide, sulfated polysaccharide or glycosaminoglycan carrier, said chelator having a cationic group and being bound to said carrier by non-covalent binding.

5,672,335

USE OF METAL COMPLEXES AS LIVER AND GALLBLADDER X-RAY DIAGNOSTIC AGENTS

Werner Krause; Thomas Balzer; Wolf-Rüdiger Press; Gabriele Schuhmann-Giampieri; Ulrich Speck, all of Berlin, and Andreas Müller, Neuenhagen, all of Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany

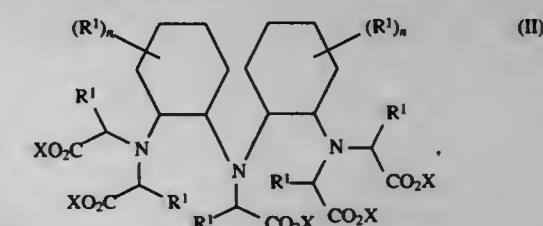
Continuation-in-part of Ser. No. 387,408, Feb. 13, 1995, which is a continuation-in-part of Ser. No. 351,086, Nov. 30, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 487,094

Int. Cl.⁶ A61B 5/055

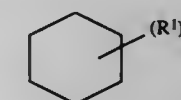
U.S. Cl. 424-9.42

35 Claims

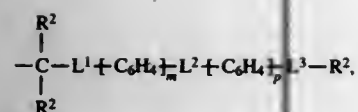
1. In a method of computer tomography of the liver and/or biliary tracts of a human patient, the improvement comprising: administering to said patient a contrast-enhancing metal complex of a metal ion of atomic number 39-42, 44-51 or 56-83 and a complexing agent, wherein said metal complex is a compound of formula II



wherein X is, in each case independently of one another, hydrogen or a metal ion equivalent of atomic number 39-42, 44-51 or 56-83,



stands for a C₆-ring, which can be saturated, unsaturated or aromatic, and which is substituted n-fold by group R¹, n is 0, 1 or 2, and R¹ is, in each case independently of one another, hydrogen or a radical of formula IIa,



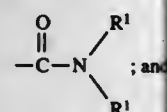
wherein

m and p are each independently 0 or 1.

R² is, in each case independently of one another, hydrogen or a branched or unbranched, saturated or unsaturated C₁-C₆ aliphatic radical, and

L¹, L² and L³ are each independently a direct bond, an oxygen atom, a sulfur atom, —N(H)—, —N(R²)— or a C₁-C₁₀ alkylene chain, optionally interrupted by an oxygen or a sulfur atom, an —N(H)— or an —N(R²)— group, wherein if m and/or p is equal to zero, no two or more heteroatoms are connected directly with one another;

wherein each free carboxyl groups not involved in complexing can also be present as a salt of a physiologically compatible cation or as an amide of formula



wherein said metal complex contains at least one radical of formula IIa.

5,672,336

PROCESS OF PREPARING MICROPARTICULATE COLLAGEN, COLLAGEN-BASED PRODUCTS THEREBY AND METHOD OF APPLYING SAME

Vinay K. Sharma, 12 Walnut Dr., Long Valley, N.J. 07853
Division of Ser. No. 985,802, Dec. 2, 1992, Pat. No. 5,356,614, which is a continuation-in-part of Ser. No. 835,557, Feb. 14, 1992, abandoned, which is a division of Ser. No. 405,520, Sep. 11, 1989, Pat. No. 5,196,185. This application Oct. 7, 1994, Ser. No. 319,995

The portion of the term of this patent subsequent to Mar. 23, 2010, has been disclaimed.

Int. Cl.⁶ A61L 9/04

U.S. Cl. 424—45

12 Claims

1. A method of wound treatment, which comprises: applying to such a wound a physiologically-acceptable amount of microparticulate collagen of a particle size of from 0.1 to 5.0 μm.

5,672,337

AMIDO PHOTOSTABILIZATION OF DIBENZOYLMETHANE SUNSCREENS

Jean-Marc Asclone, Paris; Serge Forestier, Claye Souilly, and Pascal Sterle, Soisy/Montmorency, all of France, assignors to L'Oreal, Paris, France

Filed Dec. 12, 1995, Ser. No. 571,340

Claims priority, application France, Dec. 12, 1994, 94 14930

Int. Cl.⁶ A61K 7/42, 7/40

U.S. Cl. 424—59

34 Claims

1. A topically applicable, photostable sunscreen/cosmetic composition adopted for the photoprotection of human skin and/or hair, comprising an effective photoprotecting amount of at least one dibenzoylmethane compound and an effective amount of at least one amido compound photostabilizer therefor, in a cosmetically acceptable vehicle, diluent or carrier.

5,672,338

COSMETIC COMPOSITIONS MADE WITH HYDROXY CARBAMATE FUNCTIONALIZED SILICONES

Marianne D. Berthiaume, Latham, N.Y., assignor to General Electric Company, Pittsfield, Mass.

Filed Mar. 14, 1996, Ser. No. 616,021

Int. Cl.⁶ A61K 7/06; 7/40; 7/48; 31/695

U.S. Cl. 424—59

20 Claims

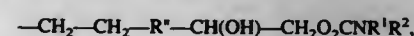
1. A cosmetic composition comprising a silicone having the formula:



where

M=R₃SiO_{1/2},M'=R_{3-j}R'_jSiO_{1/2},D=R₂SiO_{2/2},D'=R_{2-j}R'_jSiO_{2/2},T=RSiO_{3/2},T'=R'SiO_{3/2}, andQ=SiO_{4/2}

where the subscript i varies from 1 to 3, the subscript j is either 1 or 2 and the subscripts a, b, c, d, e, f, and g are zero or positive subject to the limitation that the sum of b+d+f is at least one and the sum of a+c+e+g is at least one, with R being an independently selected monovalent hydrocarbon radical for each M, D, and T and ranging from 1 to about 40 carbon atoms with R' defined as:



where R'' is a divalent radical having from one to about forty carbon atoms and R¹ and R² are each independently selected from the group consisting of hydrogen and one to forty carbon atom monovalent hydrocarbon radicals.

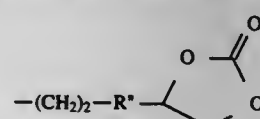
11. A cosmetic composition comprising a silicone having the formula:



where

M=R₃SiO_{1/2},M'=R_{3-j}R'_jSiO_{1/2},D=R₂SiO_{2/2},D'=R_{2-j}R'_jSiO_{2/2},T=RSiO_{3/2},T'=R'SiO_{3/2}, andQ=SiO_{4/2}

where the subscript i varies from 1 to 3, the subscript j is 1 or 2 and the subscripts a, b, c, d, e, f, and g are zero or positive subject to the limitation that the sum of b+d+f is at least one and the sum of a+c+e+g is at least one, with R being an independently selected monovalent hydrocarbon radical for each M, D, and T and ranging from 1 to about 40 carbon atoms with R'' defined as:



where R'' is a divalent radical having from one to about forty carbon atoms.

5,672,339

COMPOSITION FOR ROUGE FOR LIP

Yoshikazu Soyama; Takashi Minami; Hirotsuka Takada; Junko Hirayama, and Akio Nasu, all of Yokohama, Japan, assignors to Shiseido Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01995, § 371 Date Aug. 9, 1996, § 102(e) Date Aug. 9, 1996, PCT Pub. No. WO96/18375, PCT Pub. Date Jun. 20, 1996

PCT Filed Sep. 29, 1995, Ser. No. 693,097

Claims priority, application Japan, Dec. 16, 1994, 6-334199; May 31, 1995, 7-158642; May 31, 1995, 7-158643; Jun. 29, 1995, 7-186155; Sep. 21, 1995, 7-269314; Sep. 21, 1995, 7-269315

Int. Cl.⁶ A61K 7/021

U.S. Cl. 424—63

31 Claims

1. A composition for rouge for lip comprising:
a volatile oil content,
a water-repellent polymer soluble to said volatile oil content,
a powder wherein said powder has a total surface area of 1 to 25 m² per gram of the composition, and
a nonvolatile oil content having a compatibility with said volatile oil content.

5,672,340

ANTIPERSPIRANT DEODORANT COMPOSITIONS

Wei Mei Sun, Palatine; Zhu-ning Ma, Oak Park; Maximo M. Panitch, Skokie, and Ramiro Galleguillos, Glendale Heights, all of Ill., assignors to Helene Curtis, Inc., Chicago, Ill.
Continuation of Ser. No. 199,499, Feb. 22, 1994, abandoned.
This application Mar. 7, 1996, Ser. No. 612,771

Int. Cl.⁶ A61K 7/38; 7/34

U.S. Cl. 424—66

30 Claims

1. A gelled or solid antiperspirant composition comprising:
(a) about 1% to about 40% by weight of an antiperspirant compound;
(b) about 0.5% to 10% by weight of a borate crosslinker;
(c) about 0.5% to about 70% by weight of a surfactant selected from the group consisting of a nonionic surfactant or a non-ionic surfactant blend, wherein the nonionic surfactant and nonionic surfactant blend has an HLB value of about 3 to about 20; and
(d) a carrier comprising water;
wherein the antiperspirant composition has a pH of about 3 to about 5, a penetrometer reading of about 4 mm to about 10 mm, and a % transmittance at 700 nm of at least 50%.

5,672,341

Patent Not Issued For This Number

5,672,342

ANIMAL SCENT ATTRACTANT KITS AND METHODS

Donald G. Bell, P.O. Box 548, Atmore, Ala. 36504

Filed Feb. 17, 1995, Ser. No. 390,757

Int. Cl.⁶ A01N 25/00; 31/06

U.S. Cl. 417—84

17 Claims

1. An animal scent attractant and cover scent comprising animal urine collected from a single individual animal at a given time of the same type of animal which said attractant and cover scent is designed to attract, said urine being packaged after urination.

5,672,343

N-3 DELETION MUTANTS OF THE LONG FORM OF CSF-1

Martha B. Ladner, Oakland; Janelle A. Noble; George A. Martin, both of Berkeley, all of Calif.; Ernest S. Kawasaki, Waltham, Mass.; Mazie Yee Coyne, Danville, Calif.; Robert F. Halenbeck, San Rafael, Calif., and Kirsten E. Kotha, El Cerrito, Calif., assignors to Chiron Corporation, Emeryville, Calif.

Division of Ser. No. 999,280, Dec. 28, 1992, Pat. No.

5,573,930, which is a continuation-in-part of Ser. No. 799,839, Nov. 27, 1991, abandoned, and a continuation-in-part of Ser. No. 799,411, Nov. 27, 1991, abandoned, each which is a continuation of Ser. No. 39,657, Apr. 16, 1987, abandoned, and a continuation of Ser. No. 105,261, Oct. 13, 1987, abandoned, which is a continuation of Ser. No. 39,654, Apr. 16, 1987, abandoned, which is a continuation-in-part of Ser. No. 923,067, Oct. 24, 1986, abandoned, which is a continuation-in-part of Ser. No. 876,819, Jun. 20, 1986, abandoned, which is a continuation-in-part of Ser. No. 821,068, Jan. 21, 1986, abandoned, which is a continuation-in-part of Ser. No.

756,814, Jul. 18, 1985, abandoned, which is a continuation-in-part of Ser. No. 744,924, Jun. 14, 1985, abandoned, which is a continuation-in-part of Ser. No. 728,834, Apr. 30, 1985, abandoned, which is a continuation-in-part of Ser. No. 698,359, Feb. 5, 1985, abandoned. This application Apr. 21, 1995, Ser. No. 426,279

Int. Cl.⁶ A61K 38/19; C07K 14/53; C12N 15/27

U.S. Cl. 424—85.1

15 Claims

1. A CSF-1 polypeptide consisting of amino acids 4 to 522 of the sequence shown in SEQ ID NO: 2 or a carboxy truncated polypeptide thereof, wherein the carboxy truncated polypeptide contains at least amino acids 4-149 of SEQ ID NO: 2.

5,672,344

VIRAL-MEDIATED GENE TRANSFER SYSTEM

William N. Kelley; Thomas D. Palella, and Myron Levine, all of Ann Arbor, Mich., assignors to The Regents of the University of Michigan, Ann Arbor, Mich.

Continuation of Ser. No. 737,035, Jul. 29, 1991, abandoned, which is a continuation of Ser. No. 139,597, Dec. 30, 1987, abandoned. This application Feb. 10, 1994, Ser. No. 194,794

Int. Cl.⁶ A61K 48/00; C12N 15/86

U.S. Cl. 424—93.2

35 Claims

1. A vector for direct delivery of a gene to a mammalian host comprising a recombinant viral vector which targets and expresses a mammalian gene in a selected cell in the mammalian host, the recombinant vector further comprising:

- at least a portion of the genome of a DNA virus which exhibits tropicity for the selected host cell, which portion is operatively arranged to infect the host cell, wherein the portion of the genome is modified to have a level of virulence less than the level of virulence present in a virulent wild type viral strain from which the recombinant viral vector is derived; and
- a mammalian gene operatively linked to the portion, wherein the operatively-linked gene is expressed in the host cell after infection of the cell.

5,672,345
SELECTIVE MAINTENANCE OF A RECOMBINANT GENE IN A POPULATION OF VACCINE CELLS

Roy Curtiss, III, St. Louis, Mo., assignor to Washington University, St. Louis, Mo.

Continuation of Ser. No. 990,361, Dec. 15, 1992, abandoned, which is a continuation of Ser. No. 251,304, Oct. 3, 1988, abandoned, which is a continuation-in-part of Ser. No. 106,072, Oct. 7, 1987, abandoned. This application Mar. 10, 1995, Ser. No. 402,308

Int. Cl.⁶ A61K 39/02; C12P 21/00; C12N 15/00; 1/21
 U.S. Cl. 424—93.2 16 Claims

1. A live bacterial carrier for a vaccine for immunizing an individual, said carrier comprising an avirulent derivative of a pathogenic strain of bacteria characterized by:

- a lack of a functioning native chromosomal gene encoding a first enzyme which is a β -aspartic semialdehyde dehydrogenase (Asd);
- the presence of a first recombinant gene encoding a second Asd enzyme wherein the first recombinant gene cannot recombine to replace the defective chromosomal gene;
- the presence of a second recombinant gene encoding a desired polypeptide; and
- physical linkage between the first recombinant gene and the second recombinant gene, wherein loss of the first recombinant gene causes the bacteria to lyse when in an environment which requires expression of said first recombinant gene for cell survival.

5,672,346
HUMAN STEM CELL COMPOSITIONS AND METHODS
 Edward Srour, Indianapolis, Ind.; Esmail Zanjani, Reno, Nev.; John E. Brandt, and Ronald Hoffman, both of Indianapolis, Ind., assignors to Indiana University Foundation, Bloomington, Ind.

Continuation-in-part of Ser. No. 919,447, Jul. 27, 1992, abandoned. This application Jun. 15, 1993, Ser. No. 77,134

Int. Cl.⁶ A61K 35/14
 U.S. Cl. 424—93.7 5 Claims

1. A method of obtaining persistent maintenance of grafted human hematopoietic cells in a mammal, comprising the step of grafting the mammal in utero with a pluripotent human stem cell (PHSC) containing population of non-fetal human hematopoietic cells characterized as CD34⁺ and which undergo self-renewal and differentiation to members of the lymphoid, myeloid, erythroid and megakaryocytic lineages when cultured in vitro.

5,672,347
TUMOR NECROSIS FACTOR ANTAGONISTS AND THEIR USE

Bharat B. Aggarwal; Michael A. Palladino, both of San Mateo, and Mohamed R. Shalaby, San Rafael, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Division of Ser. No. 342,676, Nov. 21, 1994, abandoned, which is a continuation of Ser. No. 174,212, Dec. 28, 1993, abandoned, which is a continuation of Ser. No. 26,717, Mar. 5, 1993, abandoned, which is a continuation of Ser. No. 707,412, May 28, 1991, abandoned, which is a continuation of Ser. No. 417,171, Oct. 4, 1989, abandoned, which is a continuation of Ser. No. 898,272, Aug. 20, 1986, abandoned, which is a continuation-in-part of Ser. No. 754,507, Jul. 12, 1985, abandoned, and Ser. No. 881,311, Jul. 2, 1986, abandoned, which is a continuation-in-part of Ser. No. 677,156, Dec. 3, 1984, abandoned, which is a continuation-in-part of Ser. No. 627,959, Jul. 5, 1984, abandoned. This application May 5, 1995, Ser. No. 435,934

Int. Cl.⁶ A61K 39/395
 U.S. Cl. 424—139.1 7 Claims

1. A method for treatment of a graft versus host reaction which comprises administering to a patient a therapeutically effective dose of a tumor necrosis factor-alpha ("TNF- α ") antagonist.

5,672,348
Patent Not Issued For This Number

5,672,349
PROCESS FOR THE EXPRESSION OF HERPES SIMPLEX VIRUS TYPE 1 GLYCOPROTEIN I AND METHODS OF USE

Anthony Bart Nesburn, Malibu; Steven Lewis Wechsler, Westlake Village, and Homayon Ghiasi, Los Angeles, all of Calif., assignors to Cedars Sinai Medical Center, Los Angeles, Calif.

Continuation of Ser. No. 852,999, Mar. 18, 1992, abandoned, which is a continuation-in-part of Ser. No. 829,947, Feb. 3, 1992. This application Sep. 22, 1994, Ser. No. 310,370

Int. Cl.⁶ A61K 39/245; C12N 15/38; C12P 21/02
 U.S. Cl. 424—186.1 21 Claims

11. A process for preparing a vaccine against Herpes Simplex Virus 1 infection, comprising the steps of:

- preparing a recombinant baculovirus having a genetic construct which comprises a gene sequence encoding at least one of a full length Herpes Simplex Virus Type 1 (HSV-1) gI (SEQ ID No. 1) and HSV-1 gI truncated by removal of a fragment encoding the transmembrane anchor sequence, and a promoter sequence wherein said gI gene sequence is functionally linked to the regulatory elements of said promoter, and wherein said promoter is operative in a baculovirus expression system;
- introducing the recombinant baculovirus into a first set of host cells;
- culturing the host cell; and
- recovering said HSV-1 gI from the culture.

5,672,350
RECOMBINANT BOVINE CORONAVIRUS E2 AND E3 POLYPEPTIDES AND VACCINES

Michael D. Parker; Graham J. Cox, and Lorne A. Babiuk, all of Saskatoon, Canada, assignors to Veterinary Infectious Disease Organization, Saskatchewan, Canada

Continuation of Ser. No. 811,422, Dec. 19, 1991, abandoned, which is a continuation-in-part of Ser. No. 779,500, Oct. 18, 1991, abandoned, which is a continuation-in-part of Ser. No. 397,689, Aug. 22, 1989, abandoned. This application Dec. 22, 1993, Ser. No. 171,763

Int. Cl.⁶ A61K 39/215
 U.S. Cl. 424—221.1 18 Claims

1. A method of eliciting an immune response which reduces the severity of Bovine coronavirus (BCV) infection in a mammalian host, said method comprising:

- (a) providing a vaccine composition comprising a pharmaceutically acceptable carrier and at least one recombinant BCV polypeptide comprising a BCV neutralization epitope selected from the group consisting of E2 (S) having a molecular weight ranging from approximately 170 to 200 kDa, E3 (HE) having a molecular weight of approximately 120–140 kDa, a fragment of E2 and a fragment of E3; and
- (b) administering to the mammalian host an amount of the vaccine composition effective to elicit an immune response which reduces the severity of Bovine coronavirus infection.

5,672,351
ANTI-MICROBIAL COMPOSITIONS
 Michael C. L. Chikindas, Bromborough; Andrew Joiner, Liverpool, and Phillip William Small, Bromborough, all of Great Britain, assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

Filed Dec. 11, 1995, Ser. No. 570,182
 Claims priority, application European Pat. Off., Dec. 12, 1994, 94309258

Int. Cl.⁶ A61K 6/00; 7/48
 U.S. Cl. 424—401 12 Claims

1. An anti-microbial cosmetic composition for the care of the human body, comprising a carrier medium and an effective amount of histatins or their fragments, which have been capped at the C-terminus.

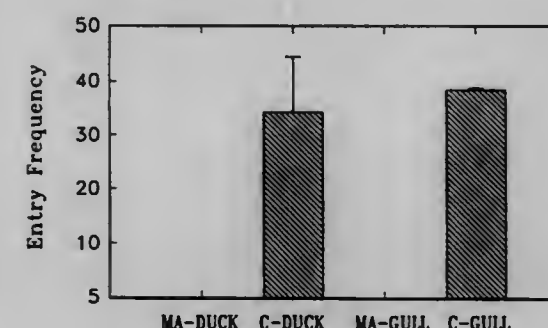
5. An anti-microbial cosmetic composition for the care of the human body, comprising a carrier medium and an effective amount of histatins or their fragments, which have been complexed with an anti-microbially-active metal ion selected from the group consisting of silver, copper, zinc and tin (II).

5,672,352
METHODS OF IDENTIFYING THE AVIAN REPELLENT EFFECTS OF A COMPOUND AND METHODS OF REPELLING BIRDS FROM MATERIALS SUSCEPTIBLE TO CONSUMPTION BY BIRDS

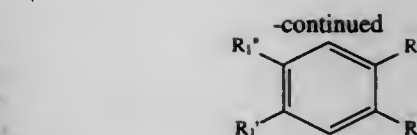
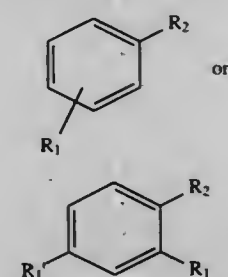
Larry Clark, Woodstown; J. Russell Mason, Bridgeton, both of N.J.; Pankaj S. Shah, Terre Haute, Ind., and Richard A. Dolbeer, Huron, Ohio, assignors to Monell Chemical Senses Center, Philadelphia, Pa.

Continuation-in-part of Ser. No. 102,855, Aug. 6, 1993, abandoned, which is a continuation of Ser. No. 836,054, Feb. 12, 1992, abandoned, which is a continuation-in-part of Ser. No. 679,432, Apr. 2, 1991, abandoned. This application May 2, 1994, Ser. No. 236,350

Int. Cl.⁶ A01N 25/28; 25/02; 25/04
 U.S. Cl. 424—405 25 Claims



1. A method for repelling birds from consuming or utilizing a material otherwise susceptible to consumption or utilization by birds consisting essentially of providing a compound having an aromatic core structure characterized by one of the following core ring structures



wherein R₁ or R₁ or R₁ is an electron donating group and R₂ is an electron withdrawing group or a neutral group which group does not substantially hinder electron donation to the core ring structure by R₁ to said material in an amount sufficient to reduce consumption of said material by at least about fifty percent, provided that said compound is not an anthranilic ester or an ester of phenylacetic acid.

5,672,353
STABILIZED AGCHEMICAL CONCENTRATE AND USE THEREOF

Kolazi S. Narayanan, Wayne, N.J., assignor to ISP Investments Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 142,627, Oct. 25, 1993, which is a continuation-in-part of Ser. No. 17,093, Feb. 12, 1993, Pat. No. 5,425,955, which is a continuation-in-part of Ser. No. 975,811, Nov. 13, 1992. This application Dec. 19, 1995, Ser. No. 574,738

Int. Cl.⁶ A01N 25/04; 25/14; 25/30; 25/24
 U.S. Cl. 424—409 18 Claims

1. A stabilized agricultural chemical concentrate of (a) between about 0.1 and about 20 wt. % of a stabilizer composition comprising (1) between about 10 and about 90 wt. % of a water insoluble, non-crosslinked polymer selected from the group consisting of a C₁ to C₁₂ alkyl vinyl ether/organic acid ester copolymer dissolved in (2) between about 90 and about 10 wt. % of a liquid selected from the group consisting of a petroleum distillate boiling between about 70° C. and about 250° C., an N—C₈ to C₁₆ alkylpyrrolidone, a C₃ to C₈ alkanol, a dibasic acid C₁ to C₄ alkyl ester, an ether having a boiling point above 150° C. and mixtures thereof and (b) between about 80 and about 99.9 wt. % of an agricultural concentrate containing an effective agriculturally active amount of a water insoluble active agricultural dissolved in between about 10 and about 80 wt. % of an organic solvent and between about 1 and about 30 wt. % of a surfactant having a hydrophilic-lipophilic balance of from 3 to 20, said surfactant being selected from the group consisting of anionic surfactant and non-ionic surfactants and mixtures thereof.

5,672,354
TREATED BIRD SEED PREFERENTIALLY PALATABLE TO BIRDS BUT NOT PALATABLE TO ANIMALS HAVING CAPSAICIN SENSITIVE RECEPTORS

Peter M. Blumberg, Frederick, Md., assignor to The United States of America as represented by the Secretary of the Department of Health & Human Services, Washington, D.C.

Division of Ser. No. 892,484, Jun. 3, 1992, which is a continuation of Ser. No. 574,159, Aug. 29, 1990, abandoned. This application Feb. 5, 1996, Ser. No. 596,807

Int. Cl.⁶ A23K 1/18 16 Claims

1. A method of selectively repelling rodents from eating birdseed comprising at least one of the group consisting of sunflower seeds, millet, barley, oats, wheat, corn, peanuts, thistle seed, sorghum, sudan grass seed, watergrass seed, clover seed and mixtures, thereof, said method comprising coating on, impregnating in or mixing with said birdseed an amount of pepper obtained from a plant of the genus Capsicum containing capsaicin, dihydrocapsaicin or nordihydrocapsaicin, said capsaicin, dihydrocapsaicin or nordihydrocapsaicin being included in an effective amount within the range of about 1 part in 200 to about 1 part in 100,000 by weight of said birdseed.

5,672,355

METHOD OF TREATING EYE DISORDERS WITH SILICONE/FLUOROSILICONE COPOLYMER OIL

Miguel F. Refojo, Wellesley, and Felipe I. Tolentino, Boston, both of Mass., assignors to Richard-James, Inc., Peabody, Mass.

Continuation-in-part of Ser. No. 27,253, Mar. 5, 1993, Pat. No. 5,336,487. This application May 9, 1994, Ser. No. 240,178 Int. Cl.⁶ A61K 31/765

U.S. Cl. 424—427

15 Claims

1. A method of manipulating the retina, holding the retina in place, displacing a dislocated lens, delaminating tissue in the eye, or delivering a drug into the eye, comprising introducing into the eye a liquid silicone/fluorosilicone copolymer oil in an amount effective to accomplish the method.

5,672,356

BIOADHESIVE PHARMACEUTICAL COMPOSITION FOR THE CONTROLLED RELEASE OF ACTIVE PRINCIPLES

Isabelle Rault, Saint Lye la Foret; Gérard Pichon, Orleans, and Alain Cuine, Saint Jean de Braye, all of France, assignors to Adlr et Compagnie, Courbevoie, France

Filed Sep. 21, 1994, Ser. No. 309,930

Claims priority, application France, Sep. 22, 1993, 93 11259 Int. Cl.⁶ A61K 9/22; 47/36

U.S. Cl. 424—468

4 Claims

1. A bioadhesive pharmaceutical composition for the controlled release of an active principle locally in the buccal cavity or systemically across a mucous membrane, which comprises: an active principle, a compound (A) selected from the group consisting of a copolymer formed by the copolymerization of methyl vinyl ether and maleic anhydride, a derivative thereof, and mixtures thereof, a compound (B) which is acetylated maize starch, and therapeutically acceptable excipients, wherein the amount of (A) is between 5 and 85% of the total mass of the composition and wherein the amount of (B) is between 5 and 85% of the total mass of the composition, said composition being wet granulated and compressed into a tablet.

5,672,357

METHOD AND DEVICE FOR IMPLANTATION OF LARGE DIAMETER OBJECTS IN BOVINES

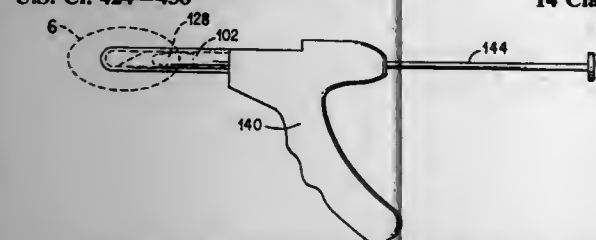
Clifton Augustus Baile, Chesterfield; Jeffrey Wilson Day, Manchester; Thomas Riley Hampton, II, St. Charles; Thomas Richard Kasser, Chesterfield; James Brian Pike, St. Peters; Jonathan Paul Smith, Pacific, and Lyle Elmore Ziemann, Chesterfield, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Jul. 1, 1994, Ser. No. 270,196

Int. Cl.⁶ A23K 1/18

U.S. Cl. 424—438

14 Claims



1. A device for the intraperitoneal or subcutaneous implantation of large, in the range of about 8 to about 15 mm, diameter size-invariant objects into a bovine, comprising: a tube of moldable plastic which itself functions as a trocar having an outside diameter of less than about 25 mm and

having a first portion of its length which extends from hide to intraperitoneal cavity adjacent the left paralumbar fossa in a bovine, said first portion having an inside diameter in the range of about 8 to about 15 mm; the tube having a first end and a second end, the first end of the tube having a non-hide-incising tip which absent any other trocar penetrates tissues underlying an incision in the hide and which punctures the peritoneum, the tube having adjacent the first end thereof means for releasably retaining the large diameter objects in the tube while the tube is inserted into an incision in the bovine's hide and having adjacent the second end thereof a seal for completing enclosure of contents of the tube.

5,672,358

CONTROLLED RELEASE AQUEOUS EMULSION

S. Esmail Tabibi, Rockville, Md.; Robert W. Mendes, Dedham, Mass., and Nitin P. Pathak, Clearwater, Fla., assignors to Ascent Pharmaceuticals, Inc., Billerica, Mass.

Continuation-in-part of Ser. No. 263,277, Jun. 21, 1994, abandoned. This application Jun. 19, 1995, Ser. No. 491,626

Int. Cl.⁶ A61K 9/107; 9/127

U.S. Cl. 424—450

23 Claims

1. A controlled release pharmaceutical composition including a water phase and an oil phase, said composition comprising an oil-in-water emulsion having an average oil particle size of about 100 nm to about 250 nm, a pH value of about 4.5 to about 8.0 and a viscosity at 20°–25° C. of 1 to about 1000 cps, said water phase constituting at least 25 weight percent of the total composition, said oil phase comprising a wax matrix that is a wax having a melting point of about 40° to about 80° C. that is present in an amount of about 3 to about 30 weight percent of the total composition and in which is dissolved or dispersed a pharmaceutically effective amount of a pharmacologically active compound that is free from decomposition at a temperature below about 90° C., said oil and water phases being emulsified by an emulsifying agent that provides freedom from phase separation at a pH value of about 4.5 to about 8, while also providing phase separation at a pH value below about 2.0, and is present at about 2 to about 20 weight percent of the total composition, said composition containing zero to about 35 weight percent of the total composition additional excipient.

5,672,359

MULTICOMPARTMENT HARD CAPSULE WITH CONTROL RELEASE PROPERTIES

George A. Digenis, and Dagmar Noskova, both of Lexington, Ky., assignors to The University of Kentucky Research Foundation, Lexington, Ky.

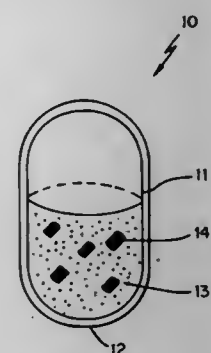
Continuation of Ser. No. 94,637, Jul. 21, 1993, abandoned.

This application Nov. 20, 1995, Ser. No. 560,946

Int. Cl.⁶ A61K 9/52

U.S. Cl. 424—463

18 Claims



1. A hard capsule drug delivery system comprising: a. at least one slow rate releasing compartment comprising pellets or granules and at least one drug;

- b. at least one intermediate rate releasing compartment, said intermediate releasing compartment comprising powder or granules containing at least one drug;
- c. a hard capsule which houses said intermediate rate releasing and said slow rate releasing compartments; and
- d. a fast rate releasing outer layer comprising at least one drug and excipients, which surrounds completely said hard capsule.

5,672,360

METHOD OF TREATING PAIN BY ADMINISTERING 24 HOUR ORAL OPIOID FORMULATIONS

Richard S. Sackler, Greenwich; Robert F. Kaiko, Weston, and Paul Goldenheim, Wilton, all of Conn., assignors to Purdue Pharma, L.P., Norwalk, Conn.

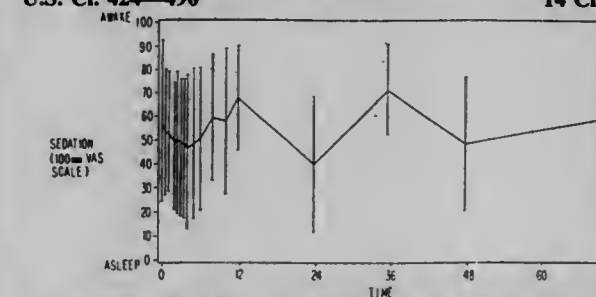
PCT No. PCT/US94/13606, § 371 Date Jul. 22, 1996, § 102(e) Date Jul. 22, 1996, PCT Pub. No. WO95/14460, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 22, 1994, Ser. No. 578,688

Int. Cl.⁶ A61K 9/16; 9/50

U.S. Cl. 424—490

14 Claims



1. A method of effectively treating pain in humans, comprising orally administering to a human patient on a once-a-day basis an oral sustained release dosage form containing an opioid analgesic or salt thereof which upon administration provides a time to maximum plasma concentration (T_{max}) of said opioid in about 2 to about 10 hours and a maximum plasma concentration (C_{max}) which is more than twice the plasma level of said opioid at about 24 hours after administration of the dosage form, and which dosage form provides effective treatment of pain for about 24 hours or more after administration to the patient.

5,672,361

LAMININ 5 FOR GROWTH OF PANCREATIC ISLET CELLS

Craig Halberstadt, San Diego, and John J. Grzesiak, Cardiff, both of Calif., assignors to Desmos, Inc., San Diego, Calif.

Filed Mar. 29, 1996, Ser. No. 626,242

Int. Cl.⁶ A61K 35/39; 38/28; C12N 5/06; 5/08

U.S. Cl. 424—556

13 Claims

1. A method of growing cells of pancreatic islet-like cell clusters (ICCs), comprising the step of culturing said ICCs in culture media in contact with laminin 5, with the proviso that said laminin 5 is not rat laminin 5.

8. The pancreatic ICCs prepared in accordance with claim 1.

9. A method of treating Type 1 diabetes in a patient in need thereof, comprising the step of administering to said patient an effective insulin-producing amount of the ICCs of claim 8.

5,672,362

DUST MITE CONTROL METHOD USING DOT

James Burnett, P.O. Box 323, San Geronimo, Calif. 94963

Filed Sep. 23, 1996, Ser. No. 724,043

Int. Cl.⁶ A01N 59/14

U.S. Cl. 424—660

6 Claims

1. A method for controlling dust mites living on an inanimate surface comprising:

providing a liquid solution with about 2.5% by weight to about 5% by weight of dissolved disodium octaborate tetrahydrate; heating said solution; and applying an amount of said solution which is effective to control dust mites to said surface.

5,672,363

PRODUCTION APPARATUS FOR MAKING GREEN COMPACT

Masato Sagawa; Hiroshi Nagata, and Hiroo Shirai, all of Kyoto, Japan, assignors to Intermetallics Co., Ltd., Kyoto, Japan

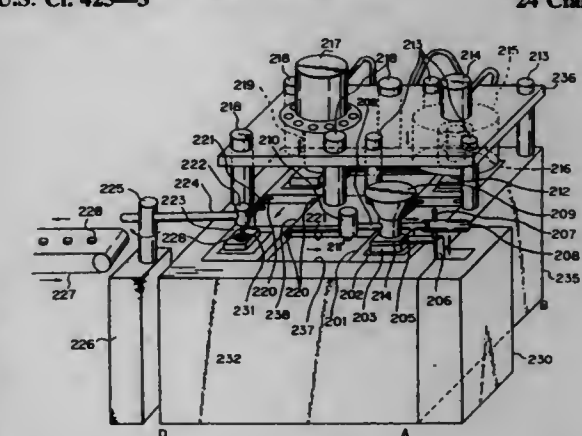
Continuation of Ser. No. 328,544, Oct. 25, 1994, abandoned, which is a continuation of Ser. No. 93,896, Jul. 20, 1993, abandoned, which is a division of Ser. No. 800,356, Dec. 2, 1993, Pat. No. 5,250,255. This application Jun. 5, 1995, Ser. No. 461,614

Claims priority, application Japan, Nov. 30, 1990, 2-330048; Feb. 14, 1991, 3-040861; Mar. 1, 1991, 3-059487; Jun. 14, 1991, 3-169346

Int. Cl.⁶ B29C 43/00

U.S. Cl. 425—3

24 Claims



1. An apparatus for production of a green compact comprising a circuit circulating die assemblies, each of said die assemblies containing a rubber mold which comprises rubber in at least its side portion, a high density filling device comprising a feeder for feeding a powder into the rubber molds and a pusher or a vibrator or both a vibrator and a pusher; a die press machine configured to impart a compaction force sufficient to produce the green compact to each of said circulating die assemblies in succession; and a device for removing the green compact from each rubber mold, said high-density filling device, die-press machine and removing device being successively arranged along the circuit, wherein each of said circulating die assemblies has sufficient structural integrity to withstand the compaction force, wherein all structure necessary to withstand the compaction force is present in said circulating die assemblies.

5,672,364

APPARATUS FOR MANUFACTURING TABLETS

Heizaburo Kato, Shizuoka-ken; Yuki Tsushima, Honjo; Takayuki Ohwaki, Inuyama; Masaharu Nakajima, Saltama-ken, and Yutaka Morita, Honjo, all of Japan, assignors to Sankyo Seisakusho Co. & Elsal Co., Ltd., Tokyo, Japan

Filed Jun. 26, 1995, Ser. No. 494,924

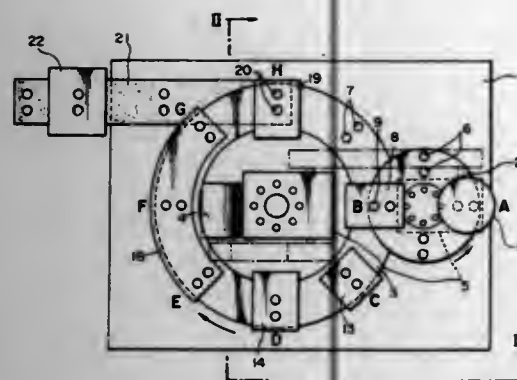
Claims priority, application Japan, Jul. 7, 1994, 6-155899; Jul. 8, 1994, 6-157344

Int. Cl.⁶ B30B 11/10

U.S. Cl. 425—89

10 Claims

1. A tablet manufacturing apparatus for manufacturing tablets from a moist powder including a medicinal ingredient said apparatus comprising: a moist powder supplying means for supplying moist powder,



a first table including a plurality of groups of filling holes, constructed and arranged such that said moist powder can be successively supplied to said groups of filling holes, said first table being mounted for rotation about a first axis;

a second table being mounted for rotation about a second axis and including a plurality of groups of mold cavities, said second table being overlaid by at least a part of said first table such that said mold cavities of said one of said groups of mold cavities are coaxially aligned below corresponding filling holes of said one of said groups of said filling holes where said part of said first table overlays said second table;

filling and pressurizing means for moving the moist powder from said filling holes into said mold cavities under a pressurized condition, said filling and pressurizing means comprising filling pins where said part of said first table overlays said second table; said filling pins being of a size slightly smaller than that of said filling holes whereby said filling pins can move into said filling holes, said filling and pressurizing means including support means for supporting said filling pins for coaxial movement relative to said coaxially aligned filling holes and mold cavities for engagement with the moist powder in said filling holes; and

forming means for compressing the moist powder into tablets; release means for releasing said tablets out of said mold cavities; and

means for moving said first and second tables relatively with respect to each other.

5,672,365

DIE ASSEMBLY FOR MOLDING A LEAD SCREW

Kiyoshi Ishii, Tokyo, and Mizuho Ishikawa, Kanagawa-ken, both of Japan, assignors to Kabushiki Kaisha Mold Gijutsu Kenkyusho, Tokyo, and Minebea Co., Ltd., Miyota-machi, both of Japan

Division of Ser. No. 305,562, Sep. 14, 1994, Pat. No. 5,533,247. This application Sep. 13, 1995, Ser. No. 527,835

Claims priority, application Japan, Sep. 17, 1993, 5-265346 Int. Cl.⁶ B29C 45/16

U.S. Cl. 425—127

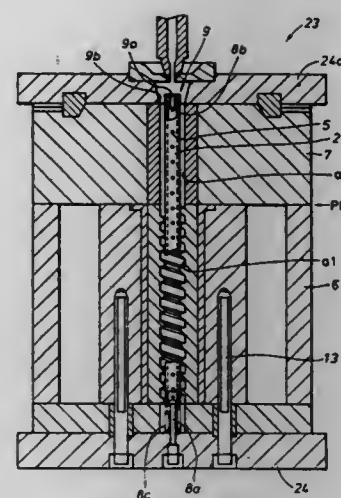
11 Claims

1. A die assembly for molding a lead screw around a core tube having a required mechanical strength and provided with holes at portions matching in position with a thread crest of a prescribed screw thread, comprising:

a die member having a one-piece first die section defining a substantially cylindrical cavity including a thread groove formed in a die surface thereof, and having a second die section defining a substantially cylindrical cavity coaxially aligned with the cylindrical cavity of the first die section, the first and second die sections having a radial parting line;

means for coaxially positioning said core tube in said cavity of the first and second die sections;

gate means for injecting synthetic resin material both into an internal bore of said core tube, and into an annular gap defined between an outer circumferential surface of said core tube and an opposing die surface; and



means for separating the first section and second section of said die member in an axial direction to allow a molded lead screw to be removed.

5,672,366

METHOD OF IMPROVING EFFICIENCY IN RUMINANTS

Mark K. Petersen, Socorro, N. Mex., assignor to New Mexico State University Technology Transfer Corp., Las Cruces, N. Mex.

Continuation of Ser. No. 87,493, Jul. 6, 1993, abandoned. This application Aug. 17, 1995, Ser. No. 516,252

Int. Cl.⁶ A23K 1/18

U.S. Cl. 426—2

2 Claims

1. A method of re-partitioning nutrients and decreasing weight loss in ruminants on a negative energy diet comprising the steps of:

a) selecting protein dietary supplements from the group consisting of feather meal, blood meal, cottonseed meal, and mixtures thereof;

b) administering said selected protein dietary supplements to the ruminants to produce a ratio of concentration of insulin to a concentration of growth hormone of 0.075 or more; and

c) maintaining a negative energy diet.

5,672,367

BIODEGRADABLE CHEWING GUM

Dirk Wybe Grijpma, Groningen; Johannes Fredericus Laimbäck, Apeldoorn, and Albert Johan Pennings, Norg, all of Netherlands, assignors to Rijksuniversiteit te Groningen, Netherlands

Filed Oct. 13, 1995, Ser. No. 543,182

Claims priority, application Netherlands, Oct. 14, 1994, 9401703

Int. Cl.⁶ A23G 3/30

U.S. Cl. 426—6

11 Claims

1. A biodegradable chewing gum comprising one or more conventional chewing gum components and a gum base comprising at least one biodegradable polyester polymer obtained by the polymerization of one or more cyclic esters.

5,672,368

BEVERAGE BAG AND METHOD OF USE

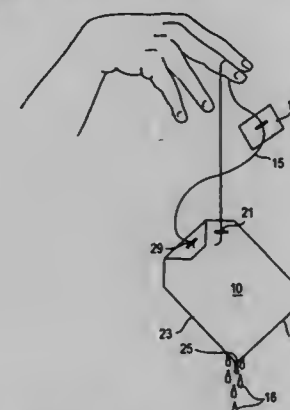
Warren E. Perkins, 3700 NE. Sugarhill Ave., Jensen Beach, Fla. 34957-3727

Filed Jul. 31, 1996, Ser. No. 688,949

Int. Cl.⁶ B65B 29/04

U.S. Cl. 426—83

17 Claims



1. A method for preventing dripping of steeping liquid from a water-permeable beverage bag during its transport from the steeping liquid to a place of disposal comprising:

forming the beverage bag as a generally planar envelope having a plurality of sides around its perimeter and containing a substance from which essences are extracted, at least one of said sides being substantially straight, said envelope having an apex formed by the intersection of two of said envelope sides, the apex angle included between said two envelope sides being less than 140°;

steeping said bag and its contained substance in a hot liquid; removing said bag from the steeping liquid and suspending said bag from first handle means attached to the bag at a location such that said bag is oriented so that said apex is caused to be the lowermost bag point;

allowing steeping liquid to drip from said apex; then reorienting said bag so that its substantially straight side is positioned in a generally horizontal plane and is then the lowermost part of the bag by suspending said bag from a second handle means that is attached to said bag at a second location; and then

transporting the bag to another place for disposal.

5,672,369

ALCOHOL AND POLYOL-CONTAINING DOUGHS AND METHOD OF MAKING

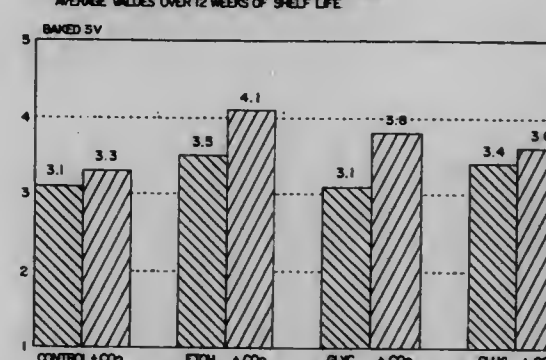
Dennis A. Lonergan, Medina; Peter S. Pesbeck, Maple Grove, and Patricia W. Hahn, Plymouth, all of Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed Jun. 7, 1995, Ser. No. 477,216

Int. Cl.⁶ A21D 10/02; 15/02

U.S. Cl. 426—128

7 Claims

SYNERGY BETWEEN ETHANOL, SUCROSE, AND CO₂ PACKAGING AVERAGE VALUES OVER 12 WEEKS OF SHELF LIFE

1. A method for making a baked bread from a dough that has been frozen, the baked bread having a specific volume substan-

tially the same as bread made from a dough that has not been frozen, the method comprising:

preparing a dough containing at least flour and water and sufficient leavening as to provide a specific volume at a storage temperature in excess of between about 1 to 2 cc's per gram; adding to said dough ethanol in an amount within a range of between about 0.5% and about 5% by weight of said dough; storing the dough in a container at a temperature being less than about 45° F. (7° C.) with said dough product therein, thereby freezing the dough, said container having a volume of at least equal to the volume of said dough product and wherein the container volume in excess of the dough product contains at least about 50% by volume of carbon dioxide gas;

baking the dough that has been frozen to form a baked dough product with a specific volume at least about 36 percent greater than a specific volume of unbaked dough.

5,672,370

METHOD OF PRODUCING A DRIED KRILL PRODUCT

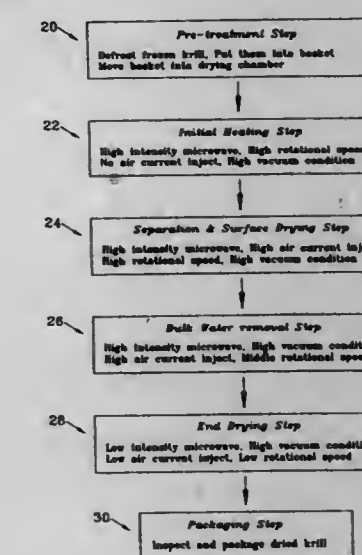
Timothy Douglas Durance, and Fang Liu, both of Vancouver, Canada, assignors to The University of British Columbia, Vancouver, Canada

Filed Apr. 16, 1996, Ser. No. 632,832

Int. Cl.⁶ A23L 1/33

U.S. Cl. 426—241

19 Claims



1. A method for producing dried krill products in the form of whole but separate carcasses comprising arranging raw krill in an at least partially separated arrangement in a microwave transparent carrier, partially drying said raw krill to provide a partially dried product substantially free of surface moisture but containing a first amount of unbound moisture within its structure, heating said partially dried product by means of electromagnetic radiation, subjecting said partially dried product to a reduced pressure below atmospheric pressure during at least a portion of the period of time in which said product is subjected to electromagnetic radiation to provide a heated dried product containing unbound within its structure a second amount of moisture sufficient to generate flexibility and strength in the product, such that the form of whole krill is maintained during the drying process, and subjecting said krill to a tumbling action during said partial drying and said heating by of electromagnetic radiation.

5,672,371

METHOD FOR SEPARATING THE TOXIC RESINOUS FRACTION FROM PREPARED WHOLE JOJOBA SEEDS OR JOJOBA SEED PRESS-CAKE

André d'Oostervynck, Museumlaan 17, 9831 Sint-Martens-Latem, Belgium

Filed Nov. 17, 1995, Ser. No. 544,447

Claims priority, application Belgium, Nov. 17, 1994, 09401036

Int. Cl.⁶ A23L 1/211

U.S. Cl. 426—430

7 Claims

1. A method for separating the toxic resinous fraction from prepared whole jojoba seeds or jojoba seed press-cake, said resinous fraction comprising toxic p-coumaric acid derivatives, said method comprising extracting said resinous fraction with an apolar mixture of solvents which mixture is a selective eluter for said p-coumaric acid derivatives.

5,672,372

METHOD FOR SWEETENING A FOOD COMPOSITION WITH SINGLE-CHAIN MONELLIN ANALOGS

Sung-Hou Kim, and Joong Myung Cha, both of Moraga, Calif., assignors to The Regents of the University of California, Berkeley, and Lucky Blotch Corp., Emeryville, both of Calif.

Division of Ser. No. 146,326, Nov. 2, 1993, Pat. No. 5,487,983, which is a division of Ser. No. 502,257, Mar. 30, 1990, Pat. No. 5,264,558, which is a continuation-in-part of Ser. No. 465,585, Jan. 18, 1990, abandoned, which is a continuation of Ser. No. 117,124, Nov. 4, 1987, abandoned, and a continuation-in-part of Ser. No. 64,341, Jun. 19, 1987, abandoned, and a continuation-in-part of Ser. No. 64,343, Jun. 19, 1987, abandoned. This application Jun. 6, 1995, Ser. No. 469,854

Int. Cl.⁶ A23L 1/221/227

U.S. Cl. 426—548

11 Claims

1. A method to provide a sweet flavor to a food composition which comprises including a sweetness enhancing amount of, in said composition a single chain sweet proteinaceous compound of the formula B-C-A,

wherein B represents a peptide portion at least 90% homologous to residues 1-46 of the B chain of native monellin and modified only by conservative substitutions;

C is a covalent bond or is a hydrophilic, physiologically acceptable covalent linker capable of providing a spacing length equivalent to a peptide of 1-10 amino acids selected so as to reside on the external portion of the molecule and not to disturb the native conformation; and

A represents a peptide at least 90% homologous to residues 6-45 of the A chain of native monellin and modified only by conservative substitution.

5,672,373

METHOD OF PRODUCING ANHYDROUS WHOLE MILK POWDER HAVING FULL FAT RECOVERY FOR FURTHER USE

Van Miller, R.R. #2, Brisbane, Erin, Ontario, Canada, N0B 1T0

Filed Oct. 16, 1995, Ser. No. 543,571

Int. Cl.⁶ A23C 9/16

U.S. Cl. 426—588

11 Claims

1. A method for production of dry milk powder having a fat content equivalent to that of dry whole milk, wherein substantially all of the fat content is recoverable as fat when said dry milk powder is blended as dry whole milk powder into milk chocolate or dry baking mixes; said method comprising the steps of:

(a) obtaining unhomogenized whole milk having butter fat, water, lactose, and protein constituents;

(b) extracting the butter fat as anhydrous fat from the whole milk so as to leave said water, lactose, and protein constituents thereof as skim milk;

(c) storing said extracted butter fat at temperatures below 40° C.;

(d) drying said skim milk by removing all the available free water therefrom, thereby leaving anhydrous skim milk powder solids comprising said lactose and protein constituents, and any bound water remaining in said lactose and protein constituents;

(e) placing a selected amount of said anhydrous skim milk powder solids into a ribbon blender;

(f) heating a selected amount of said extracted butter fat to a temperature above 40° C. so as to render said extracted butter fat into a liquid oil;

(g) adding said selected amount of heated liquid oil into said ribbon blender, over time, while slowly agitating said anhydrous skim milk powder and said heated oil as it is added thereto;

(h) continuing to agitate said selected amount of anhydrous skim milk powder and said selected amount of liquid oil until they are a thoroughly blended mixture while permitting said blended oil and skim milk powder mixture to cool;

(i) removing said blended mixture from said ribbon blender; and

(j) setting aside said blended mixture for use as dry whole milk powder from which substantially all of said fat content in said dry whole milk powder is recoverable as fat.

5,672,374

PROCESS AND APPARATUS FOR PRODUCING A FOOD PRODUCT

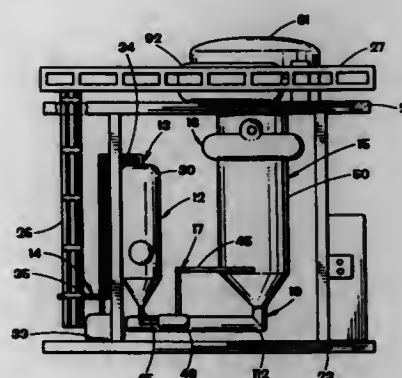
Derald L. McCabe, Houston, Tex., assignor to Environmental Liquid Reclamation, Inc., Houston, Tex.

Filed Nov. 15, 1995, Ser. No. 559,420

Int. Cl.⁶ A23K 1/00; A23P 1/00

U.S. Cl. 426—635

31 Claims



1. A process for producing a food product from a waste slurry of water and solid organic material from a cooking process facility, comprising the steps of:

(a) feeding the waste slurry into a degasser, having first and second ends;

(b) applying a vacuum to the waste slurry in the degasser to degas the waste slurry;

(c) feeding the degassed slurry into an evaporator, having first and second ends;

(d) feeding steam into the evaporator;

(e) heating the degassed slurry with the steam to evaporate the water from the degassed slurry to initially separate a portion of the water from the solid organic material;

(f) recirculating a portion of the degassed slurry through the evaporator to substantially separate the water from the solid organic material;

(g) removing the separated water from the evaporator; and

(h) removing the solid organic material from the evaporator, the solid organic material having a sludge-like, consistency and being suitable for use as a food product.

5,672,375

METHOD AND APPARATUS FOR TIPPING, CUTTING, AND SORTING SUTURES

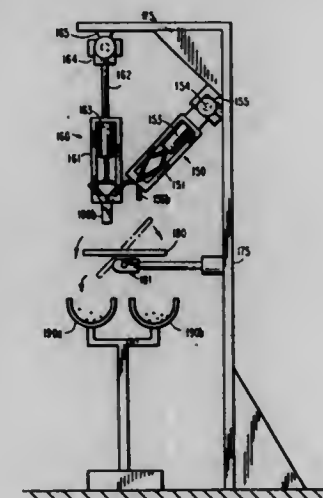
Francis D. Colligan, Waterbury, and Ronald H. Belcourt, Jr., Meriden, both of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Division of Ser. No. 309,705, Sep. 21, 1994, Pat. No. 5,540,778. This application Apr. 2, 1996, Ser. No. 630,044

Int. Cl.⁶ A61L 17/00; B05D 3/12

U.S. Cl. 427—231

7 Claims



1. A method for tipping and cutting a multifilament surgical suture, comprising:

a) providing a multifilament surgical suture;

b) applying a tipping agent to selected portions of a running length of the suture by generating a mist of tipping agent and passing the selected portions through the mist of tipping agent;

c) grasping a length of the suture at spaced apart locations with a pair of gripping units such that a tipped portion of the suture is positioned between the gripping units; and

d) cutting the suture at the tipped portion.

5,672,376

METHOD AND APPARATUS FOR APPLICATION OF LIQUID MATERIALS ONTO SUBSTRATES

John S. Wallace, Bloomfield Village, Mich., assignor to ND Industries, Inc., Troy, Mich.

Filed Jul. 5, 1994, Ser. No. 270,598

Int. Cl.⁶ B05D 5/00

U.S. Cl. 427—8

33 Claims

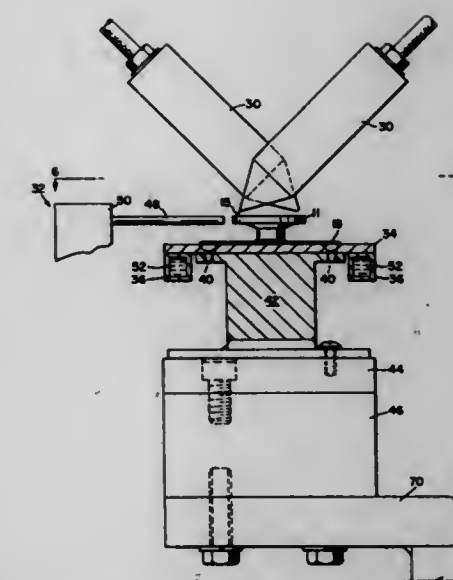
1. A method of selective application of curable liquid material to portions of fastener comprising the steps of:

movably supporting said fastener;

retaining said fastener in a stabilized and stationary orientation during its entire treatment to restrict rotation of said fastener; adjusting the position from which curable liquid material will be applied along at least two different axes in relation to said fastener;

applying a first amount of curable material onto a selected first portion of said fastener;

applying a second amount of curable material onto a selected second portion spaced from and not in contact with any of said first amount applied in said first applying step of said fastener; and



exposing said article to a radiation source for a time sufficient to cure at least a portion of said first and second amounts of said curable liquid material applied to said fastener.

5,672,377

METHOD OF FORMING A SOLID ELECTROLYTIC CAPACITOR

Kosuke Amano; Hitoshi Ishikawa; Atsushi Kobayashi, and Masaharu Satoh, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

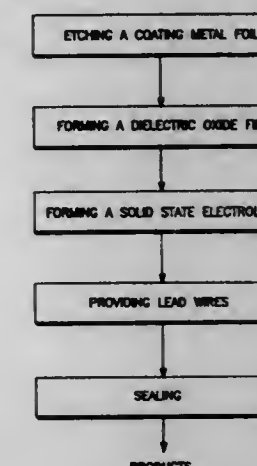
Continuation of Ser. No. 169,982, Dec. 16, 1993, abandoned. This application Mar. 25, 1996, Ser. No. 621,329

Claims priority, application Japan, Dec. 17, 1992, 4-336865

Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—80

2 Claims



1. A process for forming a solid electrolytic capacitor comprising the steps of:

forming a dielectric film on a first electrode;

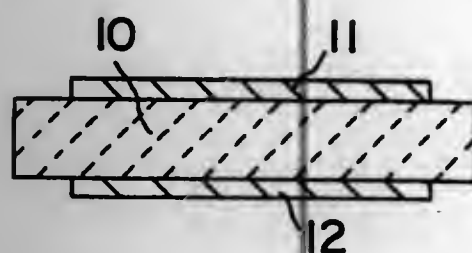
forming a polyaniline on said dielectric film as an electrolyte prepared by an oxidation polymerization of aniline by use of not only an oxidizing agent of ammonium dichromate but also a protonic acid comprising paratoluene sulfonic acid, wherein the pKa value of a byproduct produced by the reduction of said oxidizing agent is greater than the pKa value of said protonic acid, said byproduct being an anion serving as a dopant to said polyaniline and each said pKa value being a dissociation constant; and

providing a second electrode on said polyaniline.

5,672,378
METHOD FOR MAKING A BATIO, POWDER MIXTURE
THE POWDER MIXTURE AND METHOD FOR MAKING
A Y5V CERAMIC BODY THEREFROM

Galeb H. Maher, North Adams, Mass., and Veerabhadrao Bheemineni, Latham, N.Y., assignors to MRA Laboratories, Inc., North Adams, Mass.

Filed Apr. 22, 1996, Ser. No. 635,563
 Int. Cl.⁶ B05D 5/12; C04B 41/88; 35/468
 U.S. Cl. 427—123



1. A method for making a ceramic powder mixture comprising:
 - a) preparing a powder mixture having an average particle size of about 1 micron by combining:
 - from 96 to 98 mole percent of precursors of a stoichiometric barium zirconate titanate (BZT) wherein zirconium amounts to from 13.5 to 15.0 mole percent, and wherein up to 4 mole % of said barium is replaced by strontium;
 - a compound containing from 0.5 to 1.5 mole percent of Curie-point shifter cations;
 - a sintering flux consisting of from 1.2 to 2.6 weight percent of a cadmium silicate wherein the molar ratio of CdO to SiO₂ ranges from 1:1 to 3:1 inclusive;
 - from zero to 0.01 mole percent of Pb; and
 - from zero to 2 mole % of an alkaline earth metal selected from barium, calcium, strontium and combinations thereof to effect in said powder mixture a ratio (A/B) of the large cations (A) to the small cations (B) in the range from 1.024 to 1.035; and
 - b) partially calcining said homogeneous mixture at approximately 700° C. to obtain a powder comprised of agglomerates of said homogeneous powder mixture wherein each of said agglomerates has essentially the same composition,
- to provide a powder mixture capable of being formed into a body that can be fired to maturity at no higher than 1100° C., and subsequently annealed at a lower temperature to provide a mature dielectric ceramic body meeting the Y5V standard and having a dielectric constant greater than 10,000 at the Curie temperature which lies between 0°-20° C.

5,672,379
METHOD OF PRODUCING WEAR RESISTANT TRAFFIC
MARKINGS

Donald Craig Schall, Alvin Charles Lavoie, both of Lansdale; Francis Joseph Landy, Jenkintown, and Steven Scott Edwards, Horsham, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Jul. 26, 1996, Ser. No. 687,851
 Int. Cl.⁶ B05D 5/06

U.S. Cl. 427—137

1. A method for producing a wear resistant traffic marking on a road surface comprising:
 - applying on said road surface a layer of a traffic paint composition containing a latex binder in an aqueous evaporable carrier, said latex binder having a T_g in the range varying from 0° C. to 60° C., a gel permeation chromatography number average molecular weight in the range varying from 1,000 to less than 30,000; and
 - evaporating said aqueous evaporable carrier from said layer to form said wear resistant traffic marking on said road surface, said layer having a no-pick-up time, as evaluated under

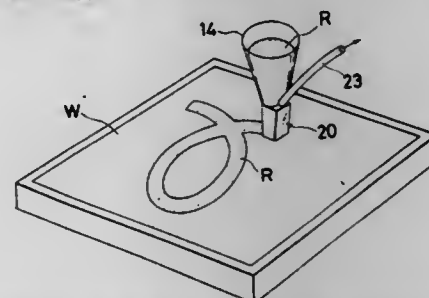
ASTM D711-89, varying in the range of from 1 minute to 60 minutes at a relative humidity in the range of from 65 to 90 percent.

5,672,380
METHOD FOR PRODUCTION OF PATTERNED SHAPED
ARTICLES

Hiroshi Uchida, Ashikaga; Mitsuhiro Onuki, Kiryu, and Hideo Watanabe, Ashikaga, all of Japan, assignors to CCA Inc., Tokyo, Japan

Division of Ser. No. 115,546, Sep. 3, 1993, Pat. No. 5,429,676.
 This application Apr. 10, 1995, Ser. No. 419,239
 Int. Cl.⁶ B05D 1/26; 1/36

U.S. Cl. 427—180



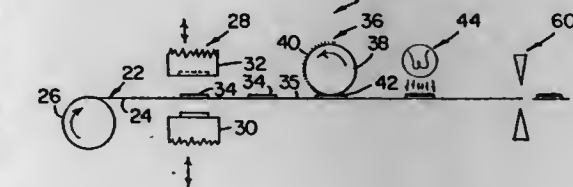
1. A method for producing a patterned shaped article, comprising the steps of:
 - disposing a layer of particles on a given surface;
 - providing on the layer of particles a head having at least one supply port and at least one suction port;
 - moving the head to trace a pattern to be formed while simultaneously removing a portion of the particles of the layer by suction using the at least one suction port to thereby form a cavity of a clear-cut pattern in the layer of particles on the given surface;
 - supplying into the cavity of the clear-cut pattern particles different from the removed particles such that the supplied particles can cooperate with the particles of the layer to maintain the clear-cut pattern, the supplied particles being supplied from the at least one supply port, thereby forming the layer into a resultant layer of particles having the clear-cut pattern on the layer, at least some of the particles of the resultant layer being settable particles; and
 - allowing the resultant layer of particles to set on the layer.

5,672,381
PRINTING OF REFLECTIVE SHEETING

J. Sundar Rajan, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Continuation of Ser. No. 194,149, Feb. 9, 1994, abandoned, which is a division of Ser. No. 772,967, Oct. 8, 1991, Pat. No. 5,378,575, which is a division of Ser. No. 524,147, May 15, 1990, Pat. No. 5,085,918. This application Jun. 7, 1995, Ser. No. 481,236

Int. Cl.⁶ B05D 3/02; G03G 9/08; G09F 13/16; B31F 1/07

U.S. Cl. 427—198



1. A method of printing an image on a reflective sign comprising the steps of:

- A. providing a sign component selected from the group consisting of retroreflective sheeting and transparent film, said sign component having a polymeric surface;
- B. providing an embossed pattern in said sign component, the pattern providing a definition of an image to be printed;
- C. applying to the embossed pattern, dry toner powder comprising:
 - (1) colorant; and
 - (2) binding agent which adheres to said polymeric surface and which comprises a polymer;
- D. fusing the applied dry toner powder to form a fixed image borne upon the embossed pattern.

5,672,382
COMPOSITE POWDER PARTICLE, COMPOSITE BODY
AND METHOD OF PREPARATION

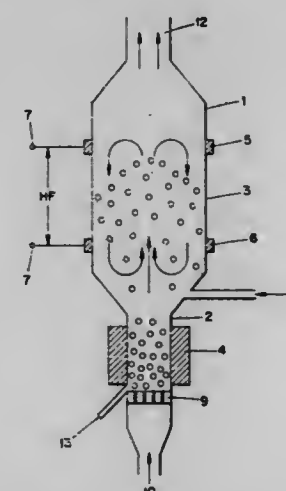
Benno Lux, Scuol/GR, Switzerland, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Division of Ser. No. 217,018, Mar. 24, 1994, abandoned, which is a continuation of Ser. No. 980,439, Nov. 23, 1992, abandoned, which is a continuation of Ser. No. 589,039, Sep. 27, 1990, abandoned, which is a continuation of Ser. No. 324,654, Mar. 17, 1989, abandoned, which is a continuation of Ser. No. 945,557, Dec. 23, 1986, abandoned. This application May 25, 1995, Ser. No. 450,928

Claims priority, application Germany, Dec. 24, 1985, 34 56 113.6

U.S. Cl. 427—213

Int. Cl.⁶ B05D 7/00



1. A method of making composite powder particles comprising an inner core, which is enclosed by a coating having a thickness between 0.1 and 5000 μm and comprising a superhard material having a Vickers hardness of more than 3500, which material is different from the core, the core and the coating comprising diamond or modification of diamond, the materials of the core and coating being different in chemical or physical properties with respect to each other characterized in, that the cores are coated in a chemical gas phase deposition procedure by the aid of gas flow in motion, at a temperature between 500° and 1200° C. and a pressure below 500 Torr, at which the gas consists either of

- a) hydrogen and CH₄ or another gaseous or vaporous carbon compound with or without addition of noble gases or
 - b) a gaseous or vaporous boron compound or a boron and nitrogen containing compound with or without hydrogen, nitrogen, halide or noble gas addition
- and at least one of the gases being supplied by a physical or chemical procedure in an excited state and the gas mixture being brought into contact with a powdered substrate in a CVD-reactor in which solid bodies are floating.

5,672,383
BARRIER FILMS HAVING CARBON-COATED HIGH
ENERGY SURFACES

John R. Wagner, Jr., Rochester, and Eldridge M. Mount, III, Fairport, both of N.Y., assignors to Mobil Oil Corporation, Fairfax, Va.

Division of Ser. No. 221,620, Apr. 1, 1994, abandoned. This application Sep. 15, 1995, Ser. No. 528,803
 Int. Cl.⁶ B05D 3/04

U.S. Cl. 427—228

1. A method for producing a polymeric film having barrier characteristics, comprising:
 - depositing a carbon coating on an exposed surface of an amorphous nylon layer by vapor deposition of a hydrocarbon gas in the presence of plasma, wherein said amorphous nylon layer is in adhered to a polymeric substrate.

5,672,384
METHOD OF ELIMINATING MOISTURE PROBLEMS IN
HOUSING

Bengt Kanngard, Taljestensvagen 6 S-141, 34 Huddinge, and Jan Kristensson, Pl. 10840 Gribby S-761, 72 Norrtälje, both of Sweden

PCT No. PCT/SE95/00123, § 371 Date Sep. 12, 1996, § 102(e) Date Sep. 12, 1996, PCT Pub. No. WO95/21801, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 8, 1995, Ser. No. 693,237
 Claims priority, application Sweden, Feb. 10, 1994, 9400438
 Int. Cl.⁶ B05D 7/22

U.S. Cl. 427—230

1. Method of eliminating moisture problems in housing and premises having supporting structures made of concrete, which comprises:
 - hydrophobically impregnating a supporting concrete bedding with a hydrophobic agent having a molecular size such that the impregnation becomes open to diffusion, and
 - thereafter applying on the bedding an acidic ion exchange material having particles dispersed in a carrier in order to form a layer on the bedding.

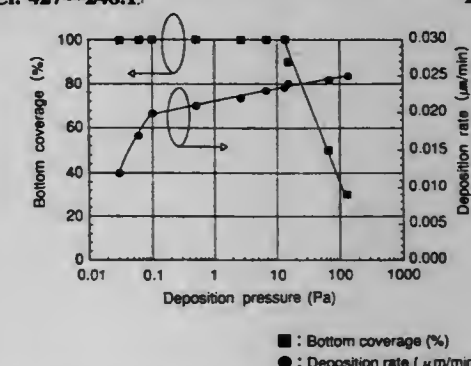
5,672,385
TITANIUM NITRIDE FILM-MOCVD METHOD
INCORPORATING USE OF
TETRAKISDIALKYLAMINOTITANIUM AS A SOURCE
GAS

Hitoshi Jimba, Fuchu; So Won Kim, Inagi, and Atsushi Sekiguchi, Hachioji, all of Japan, assignors to Anelva Corporation, Fuchu, Japan

Filed Mar. 6, 1996, Ser. No. 611,678
 Claims priority, application Japan, Mar. 28, 1995, 7-096167
 Int. Cl.⁶ C23C 16/18

U.S. Cl. 427—248.1

13 Claims



1. A method of depositing a thin film comprising titanium nitride as a main component on a surface of a substrate, said method comprising the steps of:

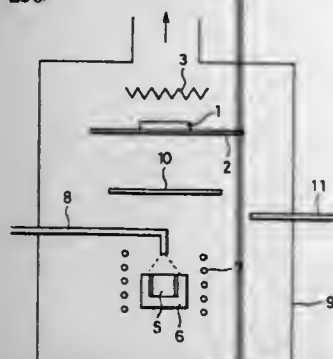
providing a substrate on which contact holes having a diameter of 0.25 μm and aspect ratio of 4.0 are patterned; providing a thermal chemical reaction of tetrakisdiethylaminotitanium gas used as a raw material gas in an atmosphere under a pressure in a range of about 0.1 to about 15 Pa thereby forming a titanium nitride thin film covering about 100% of the bottoms of said contact holes.

5,672,386
PROCESS FOR FORMING A COATING OF CHROMIUM AND NITROGEN HAVING GOOD WEAR RESISTANCE PROPERTIES

Masaki Ooya, Kashiwazaki, Japan, assignor to Kabushiki Kaisha Riken, Tokyo, Japan
Division of Ser. No. 327,896, Oct. 27, 1994, Pat. No. 5,587,227.
This application Mar. 29, 1996, Ser. No. 625,061
Int. Cl.⁶ C23C 16/34

U.S. Cl. 427—250

1 Claim



1. A method of providing a wear resistant coating on a surface of a substrate said method comprising vaporizing chromium in the presence of said substrate so as to form a layer of chromium on the surface of said substrate and thereafter reacting said vaporized chromium with nitrogen in the presence of said substrate and continuously decreasing a concentration of said nitrogen to form said wear-resistant coating on said layer of chromium on said substrate surface, wherein said coating is a composition of chromium and nitrogen which is chromium nitride adjacent said layer of chromium and which continuously increases in chromium content toward the surface of said coating.

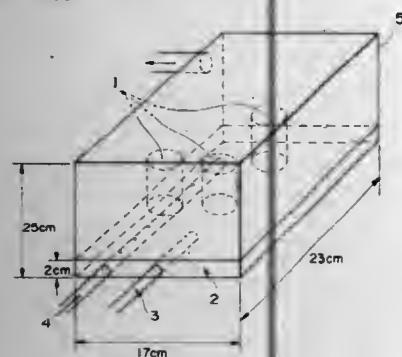
5,672,387
PROCESS FOR THE PRODUCTION OF HEAT- AND CORROSION-RESISTANT POROUS METAL BODY

Toshiyasu Tsubouchi, Satoru Okamoto, and Tomohiko Ihara, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan
Filed Jun. 16, 1995, Ser. No. 491,416
Claims priority, application Japan, Aug. 12, 1994, 6-190424; Dec. 28, 1994, 6-327996

U.S. Cl. 427—253

Int. Cl.⁶ B01D 5/00

5 Claims



1. A process for the production of a heat- and corrosion-resistant porous body having at least a surface layer of metal, said process comprising

placing said body on or apart from a powder, said body not being embedded in said powder, said powder comprising aluminum and/or an aluminum compound, chromium and/or a chromium compound, and N_2X , wherein X is selected from the group consisting of F, Cl, Br, and I, a weight ratio of chromium to aluminum being 10 to 80, said chromium and/or chromium compound being present in an amount of 15% to 35% by weight, calculated as chromium and based on said powder.

heating said powder and said body to 800° to 1100° C. in a heating zone in the presence of a mixed gas comprising a generated gas and a reducing diluent gas, said generated gas resulting from heating said powder to 950° to 1100° C., and said reducing diluent gas being flowed into said heating zone substantially throughout said heating in an amount of 0.01 to 0.06 mol/min per 1 kg, in terms of Cr of said chromium or chromium compound.

5,672,388
MEMBRANE REPAIRATION AND POER SIZE REDUCTION USING INTERFACIAL OZONE ASSISTED CHEMICAL VAPOR DEPOSITION

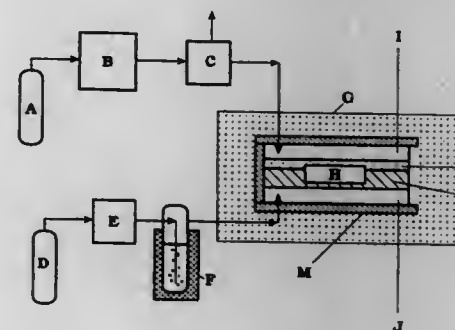
James Alexander McHenry, Washington; Harry William Deckman, Clinton, both of N.J.; Edward William Corcoran, Jr., Easton, Pa.; Wenyih Frank Lai, Fair Lawn, and Horst Witke, Flemington, both of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Jul. 8, 1994, Ser. No. 272,360

Int. Cl.⁶ C23C 16/00

U.S. Cl. 427—255.3

9 Claims



1. A method for enhancing and stabilizing the permselective properties, selectively sealing defects and pinholes, and controllably altering the pore size of porous membranes capable of passing ozone and silicon compounds, the method comprising the steps of: contacting a porous membrane with a silicon compound wherein the silicon compound is coated on or impregnated in the porous membrane, and then

reacting the silicon compound coated on or impregnated in the porous membrane with ozone for a time and at a reaction temperature and pressure sufficient to allow said ozone and the silicon compound to form a silicon oxide at the porous membrane's surface,

wherein the silicon compound is a nonvolatile liquid having a vapor pressure less than 50 torr and a viscosity less than 1,000 centistokes at the reaction temperature.

5,672,389
LOW-DENSITY RESIN IMPREGNATED CERAMIC ARTICLE AND METHOD FOR MAKING THE SAME

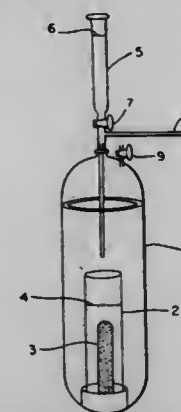
Huy K. Tran, Mountain View; William D. Henline, Palo Alto; Ming-ta S. Hsu, San Jose; Daniel J. Rasky, Palo Alto, and Salvatore R. Riccitello, San Jose, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 212,640, Mar. 14, 1994, Pat. No. 5,536,562. This application Jun. 8, 1995, Ser. No. 523,726

Int. Cl.⁶ B05D 3/00

U.S. Cl. 427—294

16 Claims



1. A method for making a uniform density resin impregnated ceramic article comprising the steps of

(a) providing a matrix of ceramic fibers; (b) immersing the matrix of ceramic fibers in a solution of a low boiling solvent and a thermoplastic resin having a molecular weight of from 10^5 to 10^7 , said solution having a viscosity of from 20,000–100,000 cps; and (c) removing the solvent from the matrix of ceramic fibers by evaporation at atmospheric pressure to form a thermoplastic resin film on the ceramic fibers.

5,672,390
PROCESS FOR PROTECTING A SURFACE USING SILICATE COMPOUNDS

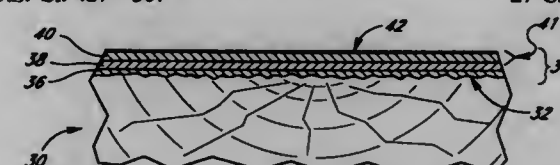
Nathan C. Crews, IV, Bremerton; Daniel A. Young, and Lance A. Young, both of Port Orchard, all of Wash., assignors to Dancor, Inc., Newport Beach, Calif.

Continuation of Ser. No. 979,155, Nov. 20, 1992, abandoned, which is a continuation-in-part of Ser. No. 704,125, May 22, 1991, Pat. No. 5,205,874, which is a continuation-in-part of Ser. No. 611,140, Nov. 13, 1990, abandoned. This application Mar. 20, 1995, Ser. No. 407,316

Int. Cl.⁶ B05D 3/04; C23C 22/78

U.S. Cl. 427—307

27 Claims



1. A method for treating a rigid surface of an article in order to form a protective layer on said rigid surface, comprising the steps of:

(a) forming a hydrophilic surface on said rigid surface of said article;
(b) applying a silicate-containing solution to said hydrophilic surface, thereby forming a continuous layer of said silicate-containing solution on said hydrophilic surface;
(c) drying said layer of silicate-containing solution on said hydrophilic surface to produce a dried layer of silicate material on said rigid surface of said article; and
(d) exposing said dried layer of silicate material to an acid, thereby forming said protective layer on said rigid surface.

5,672,391
METHOD OF MANUFACTURING FOAM CORE MOLDINGS

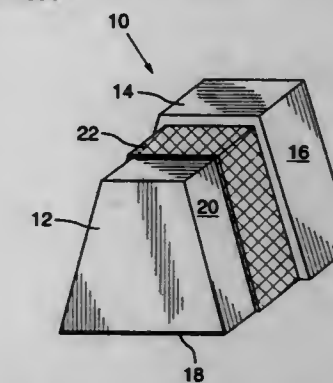
Ned Santarossa, Woodbridge, Canada, assignor to 888804 Ontario Limited, Woodbridge, Canada

Filed Aug. 28, 1995, Ser. No. 520,085

Int. Cl.⁶ B05D 3/12

U.S. Cl. 427—356

8 Claims



1. A method of manufacturing an elongate decorative molding having a decorative surface, comprising the steps of:

(a) placing a flat surface of an elongate foam molding core on an input portion of a flat elongate table, the foam core comprising a flexible resilient expanded polymer foam solid having: said flat surface on one side; a decorative surface on another side and a cross-sectional profile, the cross sectional profile of the core being proportionally smaller than the desired cross sectional profile of the finished decorative molding, the table including a smooth continuous planar top surface and a longitudinal axis;
(b) aligning the foam core on said longitudinal axis of the table;
(c) sliding the foam core on the top surface of the table forwardly along the axis through a coating containment chamber, the coating chamber: having a bottom surface defined by the top surface of the table; having a rearward opening larger than the core profile; side walls and a forward wall which includes a die, the die having a die opening with a profile proportionally larger than the cross sectional profile of the molding core, the die opening having a profile conforming a desired cross sectional profile;
(d) applying a cementitious liquid coating material to the decorative surface of the molding core as the foam core slides through the coating chamber, the flat surface of the core slidingly engaging the top surface of the table thus being shielded from coating material;
(e) passing the coated molding core through the die opening on to an output portion of the table top surface; and
(f) curing the coating material after the molding has passed the die.

5,672,392
PREPARATION OF RECORDING MATERIALS FOR INKJET PRINTERS

Arnold De Clercq, Dirmstein; Lothar Höhr, Worms, and Ulrich Riebeling, Schifferstadt, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/03584, § 371 Date May 8, 1996, § 102(e) Date May 8, 1996, PCT Pub. No. WO95/13194, PCT Pub. Date May 18, 1995

PCT Filed Oct. 31, 1994, Ser. No. 635,973

Claims priority, application Germany, Nov. 11, 1993, 43 38 486.2

Int. Cl.⁶ B05D 3/00

U.S. Cl. 427—391

6 Claims

1. A process for the preparation of a recording material comprising applying an aqueous coating composition to one or both sides of a sheet of paper for an inkjet printer wherein said coating composition is an aqueous dispersion consisting essentially from

20 to 200 g/l of starch and from 0.5 to 50 g/l of a copolymer formed by emulsion copolymerization of 100 parts by weight of a monomer mixture consisting essentially of

- from 10 to 65 parts by weight of a monomer selected from the group consisting of styrene, α -methylstyrene, acrylonitrile, methacrylonitrile, and mixtures thereof,
- from 30 to 85 parts by weight of a monomer selected from the group consisting of acrylic ester with a C_1 - C_{18} alcohol, methacrylic ester with a C_1 - C_{18} alcohol and mixtures thereof,
- from 5 to 25 parts by weight of a monomer containing a tertiary, quaternary amino group, or a mixture thereof, and
- from 0 to 20 parts by weight of another monoethylenically unsaturated monomer in an aqueous medium in the presence of from 12 to 300% by weight, based on said monomer mixture, of at least one natural or synthetic protective colloid.

5,672,393

COATING METHOD USING ACTINIC RADIATION-CURABLE FORMULATION

Andrew G. Bachmann, Harwinton, and Stephen E. Cantor, Cheshire, both of Conn., assignors to Dymax Corporation, Torrington, Conn.

Continuation of Ser. No. 618,343, Mar. 19, 1996, abandoned, which is a division of Ser. No. 406,506, Mar. 20, 1995, abandoned. This application Nov. 4, 1996, Ser. No. 743,051

Int. Cl.⁶ B05D 3/06; C08F 2/46

U.S. Cl. 427—493

32 Claims

1. A method for coating an object, comprising:

providing an actinic radiation-curable formulation, comprising: a polymerizable liquid acrylate composition that contains an opacifying agent to render it substantially opaque to a band of radiation lying at least partially within the ultraviolet range and at least partially within the visible range, said composition transmitting less than 30 percent of radiation in said band incident thereupon; a catalyst system including a photoinitiator component and a thermal initiator component, each of said catalyst components being responsive for initiating polymerization of said acrylate composition; said photoinitiator component being responsive to radiation throughout said band and being selected from the group consisting of phosphine oxide compounds, perfluorinated diphenyl titanocene compounds, and mixtures thereof, and said thermal initiator component being responsive to temperatures below about 120° C.;

providing an object for coating;

applying said formulation to said object to produce a coating thereon; and

exposing said formulation to radiation throughout said wavelength band, in a first irradiation stage, to initiate photopolymerization, said first irradiation stage being continued for a period sufficient to produce substantial polymerization.

5,672,394

ELECTRODES OF IMPROVED SERVICE LIFE

Kenneth L. Hardee, Middlefield; Lynn M. Ernes, Willoughby, and Richard C. Carlson, Euclid, all of Ohio, assignors to Eltech Systems Corporation, Chardon, Ohio

Division of Ser. No. 441,578, May 15, 1995, Pat. No. 5,578,176, which is a division of Ser. No. 217,830, Mar. 25, 1994, Pat. No. 5,435,896, which is a division of Ser. No. 904,314, Jun. 25, 1992, Pat. No. 5,314,601, which is a continuation-in-part of Ser. No. 633,914, Dec. 26, 1990, abandoned, which is a continuation-in-part of Ser. No. 374,429, Jun. 30, 1989, abandoned. This application Aug. 2, 1996, Ser. No. 691,477

Int. Cl.⁶ C23C 4/10

U.S. Cl. 427—453

10 Claims

1. A method of preparing an electrode from a substrate metal, which method initially comprises providing a roughened surface by one or more steps of:

(a) intergranular etching of said substrate metal, which etching provides three-dimensional grains with deep grain boundaries; or

(b) grit blasting of the metal substrate surface with sharp grit to provide a three-dimensional surface;

with the resulting roughened surface having a profilometer-measured average surface roughness of at least about 250 microinches and an average surface peaks per inch of at least about 40, with said peaks per inch being basis an upper threshold limit of 400 microinches and a lower threshold limit of 300 microinches; there thus being subsequently established after either of steps (a) and (b), a ceramic oxide barrier layer on said roughened surface, which barrier layer is provided by one or more steps of:

(1) heating said roughened surface in an oxygen-containing atmosphere to an elevated temperature in excess of about 450° C. for a time of at least about 15 minutes; or

(2) applying a metal oxide precursor substituent, with or without doping agent, to said roughened surface, said metal oxide precursor substituent providing a metal oxide on heating, followed by thermally treating said substituent at an elevated temperature sufficient to convert metal oxide precursor to metal oxide; or

(3) establishing on said roughened surface a suboxide layer by chemical vapor deposition of a volatile starting material, with or without doping compounds, which is transported via an inert gas carrier to the surface that is heated to a temperature of at least about 250° C.; or

(4) melt spraying ceramic oxide particles onto said roughened surface;

with there being maintained for said barrier-layer-containing surface said profilometer-measured average surface roughness of at least about 250 microinches and an average surface peaks per inch of at least about 40, the resulting barrier-layer-containing surface being subsequently treated by:

applying to said barrier-layer-containing surface an electrocatalytic coating, with said method of preparing said electrode.

5,672,395

METHOD FOR ENHANCING THE TOUGHNESS OF CVD DIAMOND

Thomas R. Anthony, Schenectady, N.Y.; William F. Banholzer, Columbus, Ohio; Clifford L. Spiro, Niskayuna, N.Y.; Steven W. Webb, and Bradley E. Williams, both of Worthington, Ohio, assignors to General Electric Company, Pittsfield, Mass.

Continuation of Ser. No. 238,545, May 5, 1994, abandoned.

This application May 29, 1996, Ser. No. 654,815

Int. Cl.⁶ B05D 3/00

U.S. Cl. 427—444

11 Claims

1. A process for treating an as-grown chemical vapor deposited (CVD) polycrystalline starting diamond film with a thickness of greater than 200 μ m and having residual starting stresses and containing voids, comprising the step of subjecting said diamond film to a temperature of above about 1000° C. and a hydrostatic pressure of above about 3 kilobars, said temperature and hydrostatic pressure are in the graphite-stable region, wherein graphitization of said polycrystalline diamond film is prevented and said voids are substantially reduced in size.

5,672,396

GHOST-LIKE DECORATIVE OBJECT

Benson Zinbarg; Nancy Mimoun, both of Stamford, Conn., and Alfred Pisano, New York, N.Y., assignors to Sun Hill Industries, Inc., Stamford, Conn.

Continuation of Ser. No. 774,420, Oct. 10, 1991, abandoned, which is a continuation-in-part of Ser. No. 664,024, Mar. 4, 1991, abandoned. This application Oct. 4, 1993, Ser. No. 131,020

Int. Cl.⁶ A63H 27/00

U.S. Cl. 428—16

43 Claims



1. A decorative structure simulating an appearance of a floating ghost, comprising:

a flexible sheet member means having facial indicia thereon for simulating at least an appearance of a face of a ghost object, said flexible sheet member means having peripheral edge portions;

an inflated balloon member over which said flexible sheet member means is mounted with said sheet member means in contact with said balloon member to provide a composite structure of said flexible sheet member means and said balloon member, with said facial indicia being located adjacent to and in contact with a surface of said balloon member after said flexible sheet member means is mounted over said balloon member, said flexible sheet member means being draped completely over and in contact with at least an uppermost portion of said balloon member such that said flexible sheet member means completely covers said balloon member and the entire peripheral edge portions of said flexible sheet member means are unsupported and freely hang down, said entire peripheral edge portions hanging a distance below said balloon member and being freely movable, without constraint, relative to said balloon member; and

a flexible elongated support member having a lower end portion fixedly coupled to an uppermost portion of at least one of said balloon member and said flexible sheet member means for suspending the composite structure to an object which is located above said composite structure, and said flexible elongated support member extending upwardly from said uppermost portion of said at least one of said balloon member and said flexible sheet member means, said flexible elongated support member having an upper end portion which is fixedly coupled to a support object located above the composite structure for suspending said composite structure to said support object and for supporting said composite structure to hang down from said support object at a distance below said support object such that said composite structure is freely movable relative to said support object responsive to air movement and said entire peripheral edge portions of said flexible sheet member means are freely movable relative to said balloon member responsive to said air movement, to thereby provide a floating ghost structure simulating the appearance of a floating ghost.

5,672,397

COMPOSITE ARTICLE OF AN AUTOMOTIVE VEHICLE

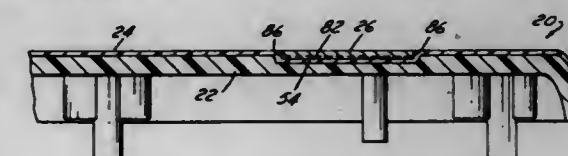
Holton D. Bowers, Jr., Northville, and Stephen F. Lange, Farmington Hills, both of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed Oct. 13, 1995, Ser. No. 542,499

Int. Cl.⁶ B60R 13/04

U.S. Cl. 428—31

1 Claim



1. A trim strip for an automotive vehicle comprising: a supporting member having a front, a shell having a front and a back and having its back secured to the front of said supporting member, said shell having a thickness on the order of about 0.020 inches, a recess in the front of the shell, said recess having a bottom surface and peripheral side edges surrounding said bottom surface, a thin strip representative of an image and having a front and a back and peripheral side edges, and means securing said strip in the recess of said shell with the back of the strip resting upon the bottom surface of the recess, the front of said strip being exposed and substantially flush with the front of said shell and the peripheral side edges of the strip abutting the peripheral side edges of the recess, said supporting member and said shell being formed of compatible thermoplastic materials and said supporting member being molded and heat-sealed to the shell, said means securing said strip in the recess of said shell being a heat-curable adhesive.

5,672,398

FLEXIBLE TUBULAR STRUCTURES

Alexander Charles Edward Johnson, Tockwith, Great Britain, assignor to W. E. Rawson Limited, Wakefield, England

Filed Jan. 10, 1994, Ser. No. 258,435

Int. Cl.⁶ F16L 11/04; 11/14; 11/08; 11/02

U.S. Cl. 428—35.7

26 Claims

1. An underground passageway comprising a flexible tubular structure, the structure comprising a first layer and a second layer in contact therewith, the first layer being a fibrous layer capable of being impregnated with a resin and the second layer comprising a material formed by mixing a first component comprising polyethylene and/or polypropylene with a second component comprising an optionally substituted alkene-vinyl alkanoate copolymer.

5,672,399

FILTER MATERIAL CONSTRUCTION AND METHOD

Brad Kahlbaugh, Roseville, and Denis J. Dudley, Bloomington, both of Minn., assignors to Donaldson Company, Inc., Minneapolis, Minn.

Filed Nov. 17, 1995, Ser. No. 559,989

Int. Cl.⁶ B01D 24/00; B32B 3/28

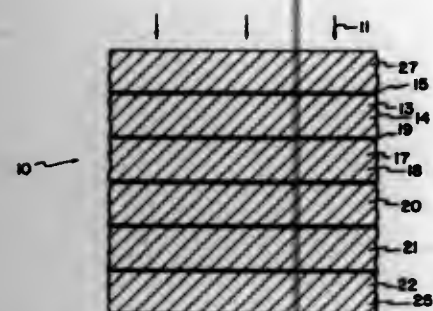
U.S. Cl. 428—36.1

20 Claims

1. An air filter construction comprising:

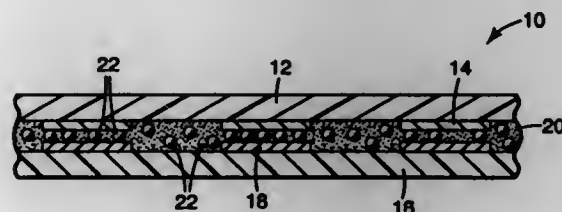
(a) a pleated filter media arrangement comprising a multi-layer composite having a thickness of no greater than about 0.15 cm, a pleat depth of at least 0.6 cm, and including more than one pleat per 2.54 cm; said pleated media arrangement including first and second layers of fine fiber media therein:

(i) said first layer of fine fiber media comprising a most upstream layer of fine fiber media positioned within said pleated media; said first layer of fine fiber media comprising media having an average fiber diameter of no greater



- than about 3 microns and said first layer comprising fibers with diameters no greater than about 5 microns;
- (ii) said first layer of fine fiber media having a thickness of no greater than 15 microns;
- (iii) said first layer of fine fiber media having a permeability, on its own, of at least about 90 meters/min.; and, an efficiency of no greater than about 30%, for 0.78 microns mono-dispersed polystyrene latex spheres;
- (iv) said second layer of fine fiber media being positioned downstream from said first layer of fine fiber media, said second layer of fine fiber media comprising media having an average fiber diameter of no greater than about 3 microns and said second layer comprising fibers with diameters no greater than about 5 microns;
- (v) said second layer of fine fiber media having a thickness of no greater than 15 microns;
- (vi) said second layer of fine fiber media having an efficiency of no greater than about 60%, for 0.78 micron mono-dispersed, polystyrene latex spheres;
- (vii) said second layer of fine fiber media having a greater efficiency for 0.78 micron mono-dispersed polystyrene latex spheres, than said first layer of fine fiber media;
- (viii) said second layer of fine fiber media being spaced from said first layer of fine fibers by a distance of no greater than 254 microns;
- (b) said pleated media arrangement including a first spacing structure comprising a region of coarse fiber material positioned to separate said first layer of fine fiber media from said second layer of fine fiber material; said first spacing structure comprising a material having an efficiency on its own of no greater than 10%, for 0.78 micron mono-dispersed polystyrene latex spheres;
- (i) said first spacing structure having a permeability of at least 200 meters/min.;
- (ii) said first spacing structure comprising a nonwoven substantially continuous fiber matrix having an average fiber diameter of at least 12 microns;
- (c) said pleated media arrangement including an upstream layer of coarse fiber material positioned adjacent an upstream side of said first layer of fine fiber media; said upstream layer of coarse fiber material comprising a nonwoven substantially continuous fiber matrix having an average fiber diameter of at least 12 microns;
- (i) said upstream layer of coarse fiber material having an efficiency, on its own, of no greater than 10%, for 0.78 micron mono-dispersed polystyrene latex spheres; and,
- (d) said pleated media arrangement including a downstream layer of coarse fiber material positioned adjacent a downstream side of said second layer of fine fiber media; said downstream layer of coarse fiber material comprising a nonwoven substantially continuous fiber matrix having an average fiber diameter of at least 12 microns;
- (i) said downstream layer of coarse fiber material having an efficiency, on its own, of no greater than 10%, for 0.78 micron mono-dispersed polystyrene latex spheres.

5,672,400
ELECTRONIC ASSEMBLY WITH SEMI-CRYSTALLINE COPOLYMER ADHESIVE
 Dennis D. Hansen, Luck, Wis.; Michael A. Kropp, Cottage Grove, and Glen Connell, Pine Springs, both of Minn., assignors to Minnesota Mining and Manufacturing Company
 Filed Dec. 21, 1995, Ser. No. 576,710
 Int. Cl.⁶ B32B 9/00
 U.S. Cl. 428—40.1 2 Claims

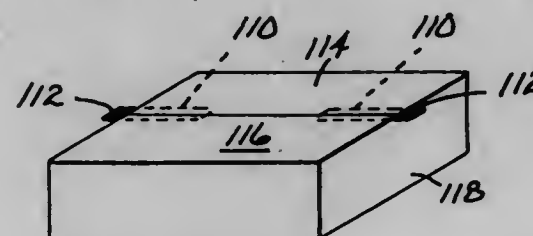


1. An electronic assembly, comprising:
- (a) a first substrate with at least one first conductive bonding site;
- (b) a second substrate with at least one second conductive bonding site; and
- (c) a polymeric adhesive composition between said first and second substrates and said first and second bonding sites, wherein the adhesive composition, measured by DMA at 1 rad/second, has a ratio of loss modulus (G'') to storage modulus (G'), $\tan \delta=1$, at a temperature of about 90° C. to about 150° C., and wherein at the temperature where $\tan \delta=1$, the adhesive composition has a storage modulus (G') of less than about 2×10^5 dynes/cm²; and, at a temperature 20° C. below the temperature where $\tan \delta=1$, the adhesive composition has a storage modulus (G') greater than about 5×10^5 dynes/cm², and wherein the T_g of the adhesive composition is about -10° C. to about 40° C.

5,672,401
LUBRICATED SHEET PRODUCT AND LUBRICANT COMPOSITION
 James R. Anglin, Export; Julie A. Urbanski, Natrona, both of Pa., and Theresa S. Knighton, Newburgh, Ind., assignors to Aluminum Company of America, Pittsburgh, Pa.
 Filed Oct. 27, 1995, Ser. No. 548,996
 Int. Cl.⁶ B32B 15/08
 U.S. Cl. 428—64.1 29 Claims

1. A bare or coated food, beer or beverage container stock comprising a metal sheet product having first and second surfaces at least one of which comes in contact with food, beer or a beverage and which is lubricated with a petrolatum-free composition made by blending a mixture comprising:
- (a) about 10–90% by weight of an ester; and
- (b) about 10–90 wt. % of a blend, said blend comprising:
- (i) about 10–95 wt. % of a polyalphaolefin; and
- (ii) about 5–90 wt. % of a microcrystalline wax.

5,672,402
REMOVABLE ADHESIVE TAPE
 Karl W. Kreckel, Haan, Germany; Patrick J. Hager, Woodbury, and James H. Rickert, Marine, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Division of Ser. No. 259,747, Jun. 6, 1994, Pat. No. 5,516,581, which is a continuation of Ser. No. 61,637, May 12, 1993, abandoned, which is a continuation of Ser. No. 802,061, Dec. 10, 1991, abandoned, which is a continuation-in-part of Ser. No. 632,173, Dec. 20, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 487,142
 Int. Cl.⁶ C09J 7/02
 U.S. Cl. 428—34.2 8 Claims



1. An assembly comprising a container including first and second relatively moveable panels positioned in a closely adjacent closed position to close the container, and being moveable to an open position with said relatively moveable panels spaced apart to open said container, said relatively moveable panels including attached portions having surfaces that are closely adjacent in said closed position; and
- a tape sealing said relatively moveable panels in said closed position, said tape being highly extensible, having first and second opposite tape surfaces, and sealing means for attaching the first tape surface to the surface of the attached portion on the first panel and comprising a layer of pressure sensitive adhesive defining the second tape surface for adhering the tape to the surface of the attached portion of said second panel to thereby retain the relatively moveable panels in said closed position, said tape being highly extensible and removable from said attached portions by stretching said tape to at least about 150% of its initial length at an angle no greater than about 35° from the surfaces of said attached portions, said tape including a tab portion projecting past at least one of said relatively moveable panels and adapted for manual engagement to afford manual stretching of said tape.

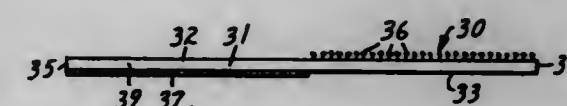
5,672,403
MULTILAYER MOLDED ARTICLE
 Takahisa Hara, Kawanishi; Masahito Matsumoto, Ibaraki; Nobuhiro Usui, and Shigeyoshi Matubara, both of Osaka, all of Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan
 Division of Ser. No. 395,190, Feb. 27, 1995, Pat. No. 5,543,094, which is a continuation of Ser. No. 969,439, Oct. 30, 1992, abandoned. This application May 7, 1996, Ser. No. 646,138
 Claims priority, application Japan, Oct. 31, 1991, 3-286298
 Int. Cl.⁶ B32B 3/02; 5/14; 7/00
 U.S. Cl. 428—95 9 Claims



1. A multilayer molded article comprising a core of a thermoplastic resin and a skin material laminated on the resin core wherein the skin material is made of a fabric which is lined with a

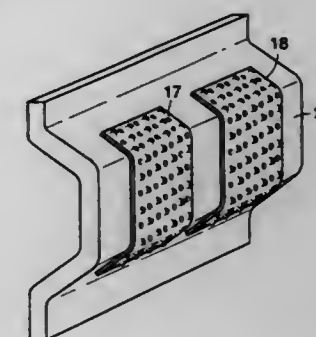
nonwoven fabric having a weight of at least 50 g/m² and an elongation at break of 20% to 80%.

5,672,404
ATTACHMENT STRIPS
 Joseph P. Callahan, Jr.; Kevin M. Hamer, both of St. Paul; Patricia R. Konstl, Oakdale, and David C. Windorski, Woodbury, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Filed Dec. 13, 1995, Ser. No. 571,725
 Int. Cl.⁶ A44B 13/00; B32B 7/12
 U.S. Cl. 428—100 8 Claims



1. An attachment strip for removably attaching an object to a substrate, said attachment strip comprising:
- a flexible backing layer having opposite first and second major surfaces and first and second opposite ends;
- first attachment means comprising a field of hooks along and projecting from only a portion of said first surface adjacent said first end, and second attachment means comprising a first layer of pressure sensitive adhesive on only a portion of said second surface adjacent said second end.

5,672,405
METAL-REINFORCED MOLDED-PLASTIC COMPOSITE STRUCTURES
 J. Lee Plank, Jr., 18 Genoa La., Shavertown, Pa. 18706, and Charles D. Flack, Jr., R.R. 4 Box 230, Dallas, Pa. 18612
 Filed Feb. 26, 1996, Ser. No. 607,112
 Int. Cl.⁶ B60R 19/03; B32B 3/10; B29C 70/00
 U.S. Cl. 428—133 10 Claims



1. A composite structure comprising:
- A. a molded body formed of synthetic plastic whose shape defines that of a bumper attachable to an automobile subjected to impact forces; and
- B. a metal sheet reinforcing the body to enhance its resistance to said impact forces which in the absence of the sheet may fracture the body, said sheet being formed of a ductile metal capable of being deformed without fracture of the sheet, said sheet having punched therein an array of round holes each bordered by a metal projection in the form of a metal collar, each hole being occupied by said plastic which also envelopes the projection both inside and out whereby the sheet is fully integrated with the plastic body and the resultant bumper is highly resistant to said impact forces.

5,672,406

MATERIAL HAVING A THERMALLY EXPANDABLE PASSAGE

Anthony Arthur Leonard Challis, Langport, and Michael John Bevis, Uxbridge, both of England, assignors to British Technology Group Limited, London, England
PCT No. PCT/GB92/00537, § 371 Date Jan. 21, 1994, § 102(e) Date Jan. 21, 1994, PCT Pub. No. WO92/16434, PCT Pub. Date Oct. 1, 1992

PCT Filed Mar. 24, 1992, Ser. No. 122,418
Claims priority, application United Kingdom, Mar. 25, 1991, 9106317

Int. Cl.⁶ B32B 3/24; B65D 65/00
U.S. Cl. 428—136



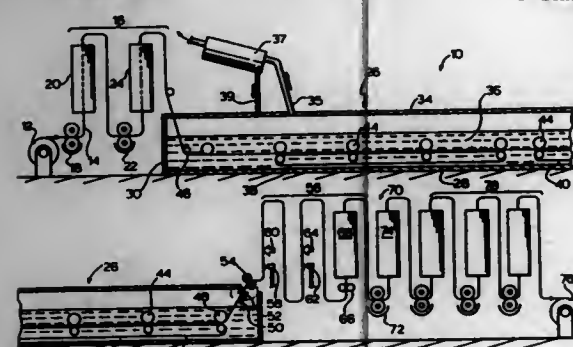
1. A wrappable packaging material sufficiently flexible for use as a wrapping and asymmetrically laminated from at least two plastic layers disposed adjacent to each other and having different coefficients of thermal expansion, the material having a non-straight slit, wherein the slit forms a passage through the plastic layers, which passage varies in size with temperature, at least over a certain temperature range, at a range greater than the thermal coefficient of expansion of the plastic layers.

5,672,407

STRUCTURE WITH ETCHABLE METAL

D. Gregory Beckett, Oakville, Canada, assignor to Beckett Technologies Corp., Mississauga, Canada
Continuation of Ser. No. 238,508, May 5, 1994, abandoned, which is a division of Ser. No. 828,496, Jan. 31, 1992, Pat. No. 5,340,436, which is a continuation-in-part of Ser. No. 655,022, Feb. 14, 1991, abandoned. This application Mar. 15, 1996, Ser. No. 618,430

Int. Cl.⁶ H05B 6/80; B32B 3/24
U.S. Cl. 428—137



1. A novel element, comprising:
a self-supporting flexible layer of aluminum having a thickness of about 1 to about 15 microns, having a first face and a second face and having a plurality of apertures formed there-through with each said aperture being in registry in each said face,
said plurality of apertures comprising a plurality of elongate slots in said self-supporting flexible layer of aluminum sized and arranged to generate thermal energy when the element is adjacent a foodstuff and exposed to microwave radiation,
a layer of aqueous sodium hydroxide-resistant material adhered to each said face of said self-supporting flexible layer of aluminum in a pattern completely overlying said aluminum layer and defining the periphery of each of said plurality of apertures, and
a layer of dielectric material adhered to and coextensive with each face of said element.

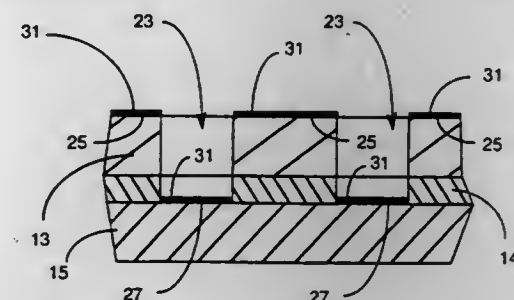
5,672,408

DUPLICATE COPIES FROM A PRINTER OR COPIER

Dan Kikinis, Stratoga, Calif., assignor to Elonex I.P. Holdings, Ltd., London, England
Continuation of Ser. No. 291,987, Aug. 17, 1994, abandoned. This application Jan. 22, 1996, Ser. No. 589,313
Int. Cl.⁶ B41M 5/03

U.S. Cl. 428—138

20 Claims



1. A print-through form comprising:
a top layer including a printing region having a matrix of perforations therethrough, leaving a contiguous first area between the perforations; and
a base layer adjacent to and underlying the top layer, such that areas of the base layer are exposed through the matrix of perforations in the printing region;
wherein a marking material applied to both the perforations and the contiguous area between the perforations in the printing region forms a character on the top layer by marking the contiguous area between the perforations, and also forms a copy of the character on the base layer by marking the areas on the base layer exposed through the perforations in the top layer, such that, with the layers separated, the character is discernible on both layers.

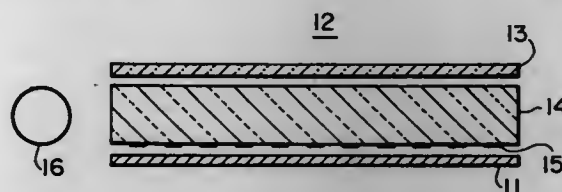
5,672,409

POLYESTER FILM REFLECTOR FOR A SURFACE LIGHT SOURCE

Katsutoshi Miyakawa; Kenji Tsunashima, both of Kyoto, and Seizo Aoki, Koka-gun, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan
Continuation of Ser. No. 824,163, Jan. 22, 1992, abandoned. This application Nov. 15, 1993, Ser. No. 151,764
Claims priority, application Japan, Jan. 22, 1991, 3-020328; Mar. 27, 1991, 3-063517

Int. Cl.⁶ B32B 5/16
U.S. Cl. 428—141

2 Claims



1. A reflector for use in a surface light source comprising a biaxially stretched white polyester laminated film comprising one or more layers of (A), a white polyester film having 5 to 25 weight percent inorganic particles, and (B), a white polyester film having fine voids and 2 to 25 weight % polyolefin; and at least an outermost layer of A contains a fluorescent whitening agent;
wherein said biaxially stretched polyester laminated film has an apparent specific gravity of from 0.5 to 1.2 and a lamination structure of A/B or A/B/A; and
the mean reflectance measured from the A surface of the biaxially stretched white polyester laminated film, in the range of wavelength of a light of 300 to 380 nm, is not less than 90%.

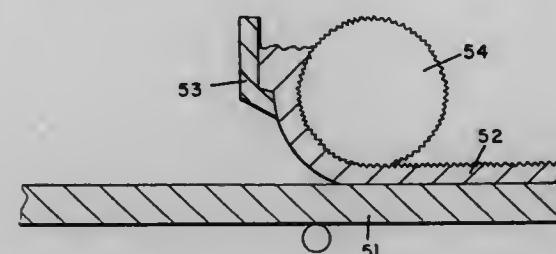
5,672,410

EMBOSSSED METALLIC LEAFING PIGMENTS

Richard G. Mickka, Sudbury, Mass.; Dennis R. Benoit, Woonsocket, R.I.; Richard M. Thomas, Dyer; James P. Rettker, Glenwood, both of Ill., and Karl Josephy, Los Angeles, Calif., assignors to Avery Dennison Corporation, Pasadena, Calif.
Continuation-in-part of Ser. No. 882,174, May 11, 1992, abandoned. This application Feb. 9, 1993, Ser. No. 15,205

Int. Cl.⁶ B32B 3/00; 3/28; 5/16
U.S. Cl. 428—148

17 Claims



1. A product for producing a diffraction pattern comprised of embossed metal particles having a major dimension between 10 to 50 microns, a thickness from about 100 to about 500 angstroms, and embossments comprising a diffraction pattern transferred from replicating contact with a diffraction grating having from about 5,000 to about 11,000 grooves per cm.

5,672,411

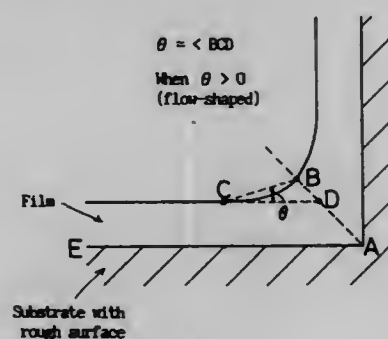
INSULATING BOARDS AND METHOD OF MANUFACTURING THE SAME

Keizo Harada; Kenichi Watanabe, and Shosaku Yamanaka, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed Dec. 9, 1994, Ser. No. 352,905

Claims priority, application Japan, Jan. 25, 1994, 6-006153
Int. Cl.⁶ H01L 21/00

U.S. Cl. 428—161
Int. Cl.⁶ H01L 21/00

4 Claims



1. An insulating board comprising a substrate, and an insulating film of silicon oxide formed on the surface of said substrate by vapor phase deposition using an organic silicone as a reaction source gas, where at the corners of each recess of the substrate, said insulating film is accumulated with an angle θ , which is shown in FIGS. 1A and 1B and defines the step coverage of the film, varying continuously or in steps from $\theta \leq 0$ to $\theta > 0$ and from the interface with said substrate toward the surface of the insulating board, and wherein the adhesion strength of said insulating film to said substrate is 50 kgf/cm² or higher, and the leakage current density of said insulating film is 10^{-8} A/cm² or lower.

5,672,412

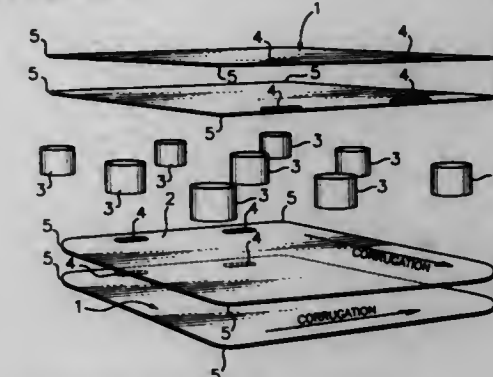
RECYCLABLE CROSS-LAMINATED CORRUGATED AND FIBER CORE PALLET

Randy Lee Phares, 4017 W. Creedance Blvd., Glendale, Ariz. 85310-4066, and David Paul Basto, 2025 W. Indian School Rd., Phoenix, Ariz. 85015

Filed Sep. 19, 1994, Ser. No. 308,295

Int. Cl.⁶ B32B 3/28; B65D 19/00
U.S. Cl. 428—182

15 Claims



1. A completely recyclable pallet comprising:
a generally rectangular upper deck;
a generally rectangular lower deck parallel to said upper deck;
a plurality of thick-walled hollow, cylindrical paperboard spacers having first ends and second ends, wherein said first ends are adhesively affixed to said upper deck and wherein said second ends are adhesively affixed to said lower deck to provide separation between said upper and lower decks;
each of said upper and lower decks comprising first and second sheets of corrugated paperboard said sheets including a plurality of parallel corrugated flutes, wherein a surface of the first sheet is adhesively bonded to a surface of the second sheet, and wherein the corrugated flutes of said first sheet run perpendicularly to the corrugated flutes of said second sheets.

5,672,413

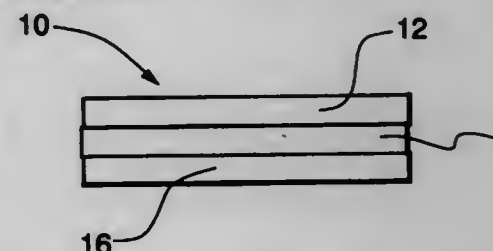
ELEMENT AND ASSOCIATED PROCESS FOR USE WITH INKJET HOT MELT INKS FOR THERMAL IMAGE TRANSFER

Dene Harvey Taylor, Holyoke, and Douglas Allan Cahill, Belchertown, both of Mass., assignors to Rexam Graphics Incorporated, South Hadley, Mass.

Filed Sep. 27, 1995, Ser. No. 534,638

Int. Cl.⁶ B32B 3/00
U.S. Cl. 428—195

8 Claims



1. An element for use with a hot melt ink jet imaging apparatus comprising:
a dimensionally stable temporary carrier;
a flexible, transparent protective layer over said temporary carrier; and
a hot melt ink jet receptive, temperature activated, adhesive layer over said protective layer; wherein said adhesive layer:
is at least 1 micron thick;
exhibits greater adhesion to said protective layer than said protective layer exhibits to said temporary carrier;
is non-tacky at room temperature up to a temperature of 150° F.;

has an activation temperature of between about 150° F. and about 185° F.;
is transparent; and
has at least the same flexibility and crease resistance as said protective layer.

5,672,414

MULTILAYERED PRINTED BOARD STRUCTURE

Kenji Okamoto; Yukio Nakajima; Kazuhiko Imamura, and Takao Ichihara, all of Kanagawa, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan

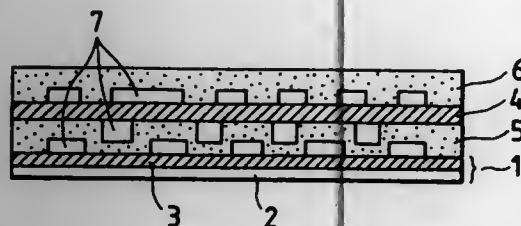
Filed Jun. 21, 1994, Ser. No. 263,332

Claims priority, application Japan, Jun. 25, 1993, 5-180836; Mar. 18, 1994, 6-074402; May 10, 1994, 6-095985

Int. Cl.° B32B 9/00

U.S. Cl. 428—209

24 Claims



1. A multilayered printed board structure, comprising:
an insulated metal substrate including an insulating layer laminated on a metallic plate as a base layer and a conductive layer on said insulating layer, and having first electronic components mounted on said insulated metal substrate;
at least one printed board laminated over a first side of said insulated metal substrate on which said first electronic components are mounted, and having second electronic components mounted on one or both sides of said printed board;
an insulating resin filling a space between said insulated metal substrate and said printed board;
said printed board or said insulation layer of said insulated metal substrate being divided into at least first and second portions, said first portion containing electronic parts similar in first operational characteristics; and
said second portion containing parts similar in second operation characteristics, said first and second operational characteristics being different; and
said portions of said printed board or said insulating layer formed of materials differing in physical properties and selected in relation to the operational characteristics of said electronic parts of said portion.

5,672,415

LOW DENSITY MICROFIBER NONWOVEN FABRIC

Lawrence Howell Sawyer; Linda Ann Connor, both of Roswell, and Samuel Edward Marmon, Alpharetta, all of Ga., assignors to Kimberly-Clark Worldwide, Inc., Irving, Tex.

Filed Nov. 30, 1995, Ser. No. 565,328

Int. Cl.° B32B 7/02

U.S. Cl. 428—219

13 Claims

1. A lofty nonwoven web comprising spunbond microfilaments, wherein said lofty web has a density from about 0.01 g/cc to about 0.075 g/cc and said microfilaments have a weight-per-unit length between about 0.66 dtex and about 1.0 dtex.

5,672,416

FABRIC FOR THE PREPARATION OF ELECTROPHORESIS GELS

Bertold Radola, Munich; Horst Schwall, Gau-Algesheim, and Manfred Demharter, Heidelberg, all of Germany, assignors to Serva Feinbiochemica GmbH & Co., Heidelberg, Germany

PCT No. PCT/EP88/00946, § 371 Date Aug. 21, 1989, § 102(e) Date Aug. 21, 1989, PCT Pub. No. WO89/03721, PCT Pub. Date May 5, 1989

PCT Filed Oct. 21, 1988, Ser. No. 391,591

Claims priority, application Germany, Oct. 24, 1987, 37 36 087.6

Int. Cl.° B32B 07/00

U.S. Cl. 428—247

10 Claims

1. A fabric useful for the production of electrophoresis gels comprising a polyester fabric having a mesh size of between about 10 to about 100 μ m, and also having a multilayer coating consisting of a first layer of a copolymer of maleic acid anhydride and vinylmethylether with diallylamine, a second layer of allylglycidyl agarose and a third layer of a surfactant.

5,672,417

TURBOMACHINE BLADE MADE OF COMPOSITE MATERIAL

Christophe Jean Roger Champenois, Soisy sur Seine; Laurent Jean Pierre David, St. German les Corbeil, and Gérard François Inizan, Yerres, all of France, assignors to Societe Nationale D'etude et de Construction de Moteurs D'aviation "Sneema", Paris, France

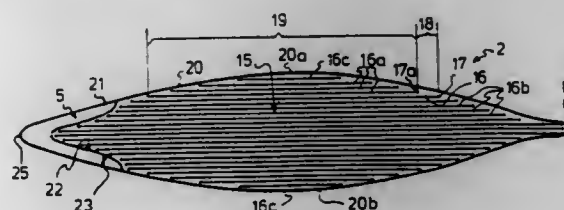
Filed Mar. 28, 1996, Ser. No. 623,013

Claims priority, application France, Mar. 29, 1995, 95 03665

Int. Cl.° B29C 70/24; B32B 5/26; 7/00

U.S. Cl. 428—257

15 Claims



1. A turbomachine blade made of a composite material comprising reinforcing fibres embedded in a matrix of injectable and hardenable material, wherein said reinforcing fibres form single multilayer fabric extending continuously between an intrados face and an extrados face consisting of a plurality of parallel layers disposed one on top of the other such that each layer partly covers the layers below it, the number of layers present at any position determining the thickness of said blade at that position, and wherein each of said layers is formed by weft fibres and warp fibres interwoven with said weft fibres, said weft fibres of each layer partly covered by another layer being connected by warp fibres thereof to the weft fibres of at least one layer thereabove over the extent of the surface covered by said at least one layer thereabove, and said weft fibres of each layer partly covering another layer being connected by warp fibres thereof to the weft fibres of at least one layer therebelow.

5,672,418

PARTICLE BINDERS

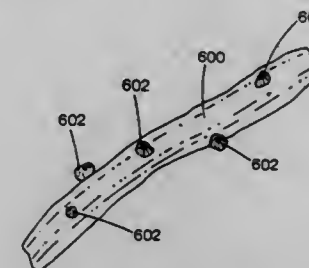
Michael R. Hansen, Seattle, and Richard H. Young, Sr., Renton, both of Wash., assignors to Weyerhaeuser Company, Federal Way, Wash.

Continuation-in-part of Ser. No. 931,059, Aug. 17, 1992, Pat. No. 5,543,215, Ser. No. 931,277, Aug. 17, 1992, Pat. No. 5,538,783, Ser. No. 931,213, Aug. 17, 1992, Pat. No. 5,300,192, Ser. No. 931,278, Aug. 17, 1992, Pat. No. 5,352,480, Ser. No. 931,284, Aug. 17, 1992, Pat. No. 5,308,896, and Ser. No. 931,279, Aug. 17, 1992. This application Aug. 17, 1993, Ser. No. 107,469

Int. Cl.° B32B 5/16

U.S. Cl. 428—283

36 Claims



1. A fibrous product made by the method comprising the steps:
providing fibrous material comprising individualized fibers having a hydrogen bonding functionality;
providing particles having a hydrogen bonding functionality or a coordinate covalent bond forming functionality;
selecting a binder from the group consisting of glycerin, a glycerin monoester, a glycerin diester, a propylene glycol, urea, and combinations thereof, the binder comprising binder molecules, the binder molecules having at least one functional group capable of forming a hydrogen bond or a coordinate covalent bond with the particles, and at least one functional group capable of forming a hydrogen bond with the fibrous materials; and
exposing at least a portion of the particles to sufficient amounts of the binder in the presence of the fibrous material to bind at least a portion of the particles to the fibrous material.

5,672,419

WATER ABSORBENT COMPOSITION AND MATERIAL
Shingo Mukaida; Kazuhiko Iguchi, both of Kyoto-fu, and Kenji Tanaka, Shiga-ken, all of Japan, assignors to Sanyo Chemical Industries, Inc., Kyoto-fu, Japan

Continuation of Ser. No. 193,378, Jan. 26, 1994, abandoned.

This application Sep. 11, 1995, Ser. No. 526,194

Claims priority, application Japan, Feb. 24, 1993, 5-061143; Feb. 24, 1993, 5-061144

Int. Cl.° B32B 5/16; D02G 3/00

U.S. Cl. 428—283

9 Claims

1. Water absorbent material comprising:
(A) water absorbing polymer particles which are capable of absorbing 35 to 100 times of physiological saline solution based on their own weight, at least 90% of the polymer particles having a size of 0.1 to 0.9 mm,
(B) powders of at least one resin selected from the group consisting of polyolefin modified by carboxylic acid, olefin-acrylic acid copolymer and copolymer of olefin-maleic anhydride, said resin having a melting point of about 70°–100° C., which remains undissolved and unhydrolyzed after being in contact with water for 24 hours, the powders (B) having a particle size not greater than 300 μ m and being present in an amount of 0.5–30 parts by weight per 100 parts by weight of the polymer particles (A) and
(C) at least one fibrous material having a fiber length in the range of 1–200 mm and 0.1 to 100 denier, selected from the group consisting of sheath and core biocomponent fiber, eccentric core-sheath biocomponent fiber, side-by-side bicom-

ponent fiber and cellulose fiber, in which the melting point of the lowest melting component of the biocomponent fiber is 50°–180° C., the weight ratio of the polymer particles to the fibrous material ranging from 20:80 to 95:5;

wherein the polymer particles (A) adhere to the fibrous material (C) through the resin (B) as a result of heat treatment at temperatures higher than the melting point of the resin powder (B).

5,672,420

HIGH TEMPERATURE CERAMIC ARTICLES HAVING CORROSION RESISTANT COATING

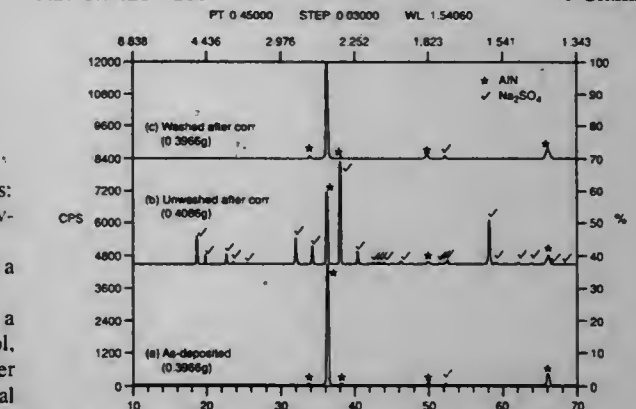
David P. Stinton, and Woo Y. Lee, both of Knoxville, Tenn., assignors to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

Filed Mar. 22, 1996, Ser. No. 624,839

Int. Cl.° D04H 1/58

U.S. Cl. 428—288

6 Claims



1. A ceramic article comprising a porous body comprising at least one of: SiC fibers, Si₃N₄ fibers, SiC coated fibers or Si₃N₄ coated fibers, said article having a coating of AlN adherently disposed throughout at least a portion of said porous body.

5,672,421

HETEROFILAMENTS FOR CORD REINFORCEMENT IN RUBBER GOODS

Harry W. Stanhope, Concord, N.C., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Division of Ser. No. 323,164, Oct. 13, 1994, which is a continuation-in-part of Ser. No. 20,875, Feb. 19, 1993, abandoned. This application Aug. 19, 1996, Ser. No. 662,428

Int. Cl.° B32B 5/00; F16G 1/00; 5/00; 7/00

U.S. Cl. 428—295

5 Claims

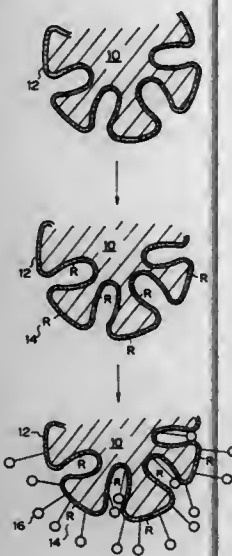


1. An article of manufacture comprising a cord adapted for reinforcing a rubber good, said cord being disposed within said good, said cord comprising a heterofilament, said heterofilament

being a sheath/core filament, said sheath consisting essentially of polybutylene terephthalate; and said core comprises materials being selected from the group consisting of polystyrene, polyolefin, polyvinyl, polyester, and polyurethane.

5,672,422 PACKING MATERIAL FOR COLUMN AND PROCESS FOR PRODUCTION THEREOF

Taketoshi Kanda; Atsuo Sakamoto; Michio Yokouchi, and Yutaka Ohtsu, all of Yokohama, Japan, assignors to Shiseldo Company Ltd., Tokyo, Japan
Filed Feb. 25, 1992, Ser. No. 841,157
Claims priority, application Japan, Feb. 28, 1991, 3-057785
Int. Cl.⁶ B32B 3/26; B29C 67/00; D04H 1/64; B05D 3/04
U.S. Cl. 428—304.4 5 Claims



1. A packing material for a column comprising a porous support coated with silicone polymer having an Si—R bond, wherein R is a hydrophobic group and an Si—R' bond, wherein R' is a hydrophilic group.

5,672,423 MAGNETIC RECORDING MEDIUM HAVING AN UNDERLAYER CONTAINING THREE DIFFERENT POWDERS

Hiroo Inaba, and Kiyomi Ejiri, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Continuation-in-part of Ser. No. 10,844, Jan. 29, 1993, Pat. No. 5,455,112. This application Jan. 25, 1995, Ser. No. 378,366
Claims priority, application Japan, Jan. 31, 1992, 4-40509
Int. Cl.⁶ G11B 5/68 18 Claims

1. A magnetic recording medium containing a support having thereon in order a non-magnetic layer unit and a magnetic layer unit, said magnetic recording medium having been produced by providing a non-magnetic layer unit containing at least one non-magnetic layer and comprising a non-magnetic powder dispersed in a binder on a non-magnetic support followed by providing, while the non-magnetic layer is still wet, a magnetic layer unit containing at least one magnetic layer and comprising a ferromagnetic powder dispersed in a binder on the non-magnetic layer, wherein the mean thickness of the magnetic layer is 1.0 μm or less and the non-magnetic powder in the non-magnetic layer comprises (A) a tabular inorganic non-magnetic powder having a tabular size of from 0.01 to 0.3 μm and an aspect ratio of from 3 to 20, (B) a carbon black powder having a mean particle size of from 0.01 to

0.04 μm and (C) a powder component having a larger mean particle size than the mean particle size of each of powders (A) and (B).

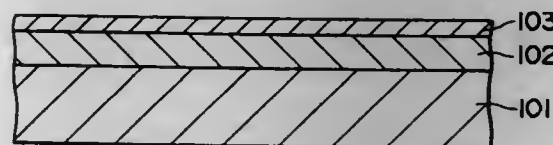
5,672,424 INK JET TRANSPARENCIES

Shadi L. Malhotra; Kirit N. Naik, both of Mississauga, and David N. MacKinnon, Etobicoke, all of Canada, assignors to Xerox Corporation, Stamford, Conn.
Filed Jun. 3, 1996, Ser. No. 658,288
Int. Cl.⁶ B41M 5/00; B41J 2/01 21 Claims

1. A transparency comprised of a supporting substrate, thereover a first coating layer comprised of an anionic polymer, a second cationic coating layer situated on the top of the first anionic layer and which second layer is comprised of monomeric or polymeric cationic quaternary compounds, and which second layer contains a lightfastness inducing agent, and a third ink receiving coating layer situated on the top of the second cationic layer, said third coating layer being comprised of a block polymer, a biocide and a filler, and wherein said transparency possesses a haze value of from about 0.5 to about 10 and a lightfastness value of from about 95 to about 99.

5,672,425 MAGNETIC RECORDING MEDIUM AND A METHOD OF FABRICATING THE SAME

Kenichi Sato; Kazunobu Chiba; Yuichi Arisaka, and Yukari Yamada, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jun. 23, 1992, Ser. No. 902,869
Claims priority, application Japan, Jun. 28, 1991, 3-159167; Dec. 28, 1991, 3-359089
Int. Cl.⁶ G11B 5/66 24 Claims



1. A magnetic recording medium comprising:
a nonmagnetic support;
a magnetic metal thin film formed on the nonmagnetic support; and
a multilayer laminate protective film formed over the magnetic metal thin film, said multilayer laminate protective film having an overall thickness in the range of 50 to 500 \AA and consisting essentially of a plurality of alternating layers of a corrosion-resistant protective film comprised of a corrosion-resistant metal and a durable protective film comprised of a hard material, said multilayer laminate protective film having at least three layers arranged such that said magnetic recording medium has an error rate of less than 1×10^{-4} and a reproduced output level of greater than -6.7 dB.

5,672,426 HIGH BARRIER TRANSPARENT FILMS

Subhash Makhija, Westfield; M. Ishaq Haider, Bernardsville; Edward C. Chenevey, North Plainfield, and Michael Jaffe, Maplewood, all of N.J., assignors to Hoechst Celanese Corp., Somerville, N.J.

Continuation of Ser. No. 262,409, Jun. 20, 1994, abandoned.
This application Dec. 21, 1995, Ser. No. 575,845
Int. Cl.⁶ B32B 27/36; C08G 63/00; B29C 51/00 13 Claims

1. A process for making a transparent film that comprises a liquid crystalline polymer having repeat units derived from p-hydroxybenzoic acid, hydroquinone, and isophthalic acid, comprising the steps of:
dissolving said liquid crystalline polymer at a temperature below about 40° C. in a solvent in which said polymer is soluble, which solvent is selected from the group consisting of: an aliphatic alcohol having a boiling point below about 100° C. and a pK_a below about 10; a co-solvent of trifluoroacetic acid and methylene chloride; a co-solvent of pentafluorophenol and 1,1,1,3,3,3-hexafluoro-2-propanol; and mixtures thereof; forming an amorphous film from said solution at a temperature below about 40° C.;
annealing said amorphous film at a temperature between the glass transition temperature and the melting point temperature of said polymer; and
stretching said annealed film at least 25% of its length in both the machine direction and the transverse direction, at a temperature below the melting point temperature of said polymer.

5,672,427 ZINC OXIDE POWDER HAVING HIGH DISPERSIBILITY

Masahiro Hagiwara, and Akira Nishihara, both of Omiya, Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan
Filed Aug. 30, 1994, Ser. No. 298,709
Claims priority, application Japan, Aug. 31, 1993, 5-216396; Aug. 31, 1993, 5-216397; Aug. 31, 1993, 5-216398; Aug. 31, 1993, 5-216399

Int. Cl.⁶ B32B 9/04; C01G 9/02 6 Claims

1. A modified zinc oxide powder having a surface that has been modified to improve dispersibility thereof, said modified powder being obtained by a process consisting of contacting (a) an unmodified zinc oxide powder comprising 0.1 atomic % to 25 atomic % relative to a total amount of metals including zinc of at least one metal selected from the group consisting of aluminum, silicon, titanium, vanadium, chromium, manganese, iron, cobalt, gallium, germanium, zirconium, indium, tin, and hafnium, the balance being substantially zinc oxide, and having an average primary particle size of up to 1 μm with (b) a surface improvement agent consisting of at least one organic liquid selected from the group consisting of alcohols, ketones, amines and esters and drying the resultant powder; said modified powder having a relative transmissivity at least 0.24 higher than a relative transmissivity of said unmodified powder.

5,672,428 SILICONE RELEASE COATED POLYESTER FILM AND A PROCESS FOR COATING THE FILM

Kenneth J. Muschelwitz, Easley, and Robert G. Posey, Taylors, both of S.C., assignors to Hoechst Celanese Corporation, Somerville, N.J.

Filed Oct. 17, 1995, Ser. No. 544,246

Int. Cl.⁶ B32B 7/12 22 Claims

1. A polyester release film comprising an oriented polyester film and an effective amount of a silicone release coating composition on said film to release an adhesive backed article from the silicone coating, said silicone release coating comprising

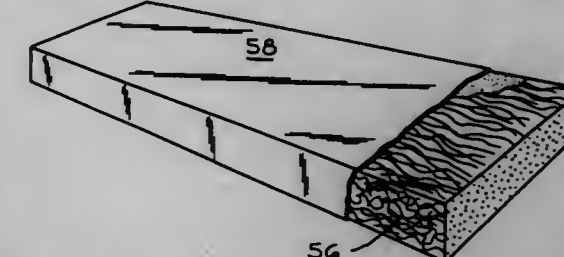
- a) an alkylvinylpolysiloxane containing vinyl groups;
 - b) a catalyst selected from the group consisting of platinum complex and tin complex;
 - c) a glycidoxysilane; and
 - d) an alkylhydrogenpolysiloxane containing 1.5 to 2 mol % hydrogen.
8. A silicone release coating composition comprising:
a) an alkylvinylpolysiloxane containing vinyl groups;
b) a catalyst selected from the group consisting of platinum complex and tin complex;

5,672,429 GLASS FIBER INSULATION PRODUCT

Clarke Berdan II, Granville; Ronald A. Houpt, Newark; Russell M. Potter, Hebron, and David P. Aschenbeck, Newark, all of Ohio, assignors to Owens-Corning Fiberglass Technology, Inc., Summit, Ill.

Continuation of Ser. No. 329,804, Oct. 26, 1994, Pat. No. 5,629,089, which is a continuation of Ser. No. 148,746, Nov. 5, 1993, abandoned. This application Jan. 17, 1996, Ser. No. 583,734

Int. Cl.⁶ D02G 3/00 3 Claims



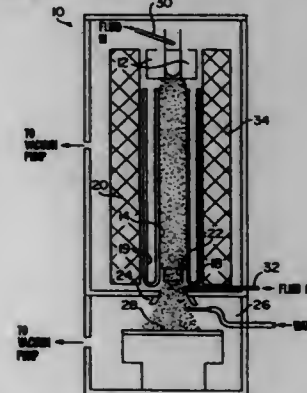
1. A glass fiber insulation product in the form of a binderless pack of irregularly-shaped glass fibers having a k value of less than 0.300 Btu in/hrft²°F. (0.0432 Watt/m²°C.) at 0.5 pcf (8.0 Kg/m³) and at an effective fiber diameter of 5 microns.

5,672,430 CVD DIAMOND RADIATION DETECTOR

Grant Lu, Shrewsbury, Mass., and Gordon L. Cann, Laguna Beach, Calif., assignors to Saint-Gobain/Norton Industrial Ceramics Corp., Worcester, Mass.

Division of Ser. No. 94,826, Jul. 20, 1993, abandoned. This application May 23, 1995, Ser. No. 447,779

Int. Cl.⁶ C23C 16/26 4 Claims



1. A chemically vapor deposited diamond material having a collection distance greater than 25 microns.

5,672,431

EPOXY RESINS INCORPORATED WITH IMIDAZOLE/CHROMIUM ACETYLACETONATE AND COMPOSITES THEREOF

King-Fu Lin, Taipei Hsien, Taiwan, assignor to National Science Council, Taipei, Taiwan

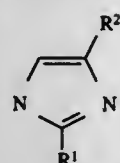
Filed Feb. 21, 1996, Ser. No. 603,557

Int. Cl.⁶ C08G 59/40; 59/70

U.S. Cl. 428—413

31 Claims

1. A curable epoxy resin composition, comprising:
an epoxy resin;
from 10 to 60 percent by weight of the epoxy resin of an amine curing agent;
from 0.1 to 5 percent by weight of the epoxy resin of an imidazole accelerator; and
from 0.01 to 5 percent by mole of the epoxy resin of chromium acetylacetonate (Cr(acac)₃),
wherein the imidazole accelerator has the formula



wherein R¹ is selected from the group consisting of an alkyl having from 11 to 25 carbon atoms and a phenyl, and R² is selected from the group consisting of H, an alkyl having from 1 to 25 carbon atoms, and a phenyl.

5,672,432

CATHODIC ELECTROCOAT COMPOSITIONS CONTAINING SELF-CROSSLINKING POLYMERS
Paul J. Harris, West Bloomfield, and Timothy S. December, Rochester, both of Mich., assignors to BASF Corporation, Southfield, Mich.

Filed Nov. 16, 1995, Ser. No. 559,218

Int. Cl.⁶ B32B 27/00; C25D 13/00; C08F 2/46; C08L 63/00
U.S. Cl. 428—425.8

24 Claims

1. A coating composition comprising an aqueous dispersion of a self-crosslinkable cationic polymer, wherein the self-crosslinkable cationic polymer is prepared according to a method comprising the steps of:

- forming an epoxide-functional prepolymer having polyepoxide and extender segments, wherein each extender segment has at least one pendant hydroxyalkylene carbamate group;
- reacting the epoxide groups of the prepolymer with an amine compound having at least one epoxide-reactive group and at least one blocked primary amine group to form a polymer;
- forming an aqueous dispersion of the polymer by means of unblocking the primary amine groups and at least partially neutralizing the amine groups of the polymer before or during addition of a sufficient amount of water to form a dispersion of the polymer.

5,672,433

MAGNESIUM COMPOSITE ELECTRONIC PACKAGES
Arnold J. Cook, Mt. Pleasant, Pa., assignor to PCC Composites, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 72,415, Jun. 2, 1993, abandoned.

This application Nov. 13, 1995, Ser. No. 558,945

U.S. Cl. 428—469

43 Claims

1. A system comprising:
an electronic component having a specific coefficient of thermal expansion; and
a cast metal matrix composite having a coefficient of thermal expansion which essentially matches that of the element, said composite in contact with said electronic component such that



heat can be transferred therebetween, said composite comprising reinforcement particles filled with a cast matrix material having magnesium.

5,672,434

MULCHING COMPOSITE

Dean G. Dalebroux, Green Bay; Peggy D. Sands, Appleton; Robert E. Miller, Appleton; Lowell Schleicher, Appleton, and Kenneth D. Glanz, Appleton, all of Wis., assignors to Appleton Papers Inc., Appleton, Wis.

Filed Jun. 10, 1996, Ser. No. 660,894

Int. Cl.⁶ B32B 9/00

U.S. Cl. 428—537.5

24 Claims

1. An agricultural mulch comprising:
 - a) an extensible paper substrate having a top surface and a bottom surface;
 - b) a first coming on the top surface, said first coming comprising a film-forming latex resistant to water permeability, and a pigment;
 - c) a second coming on the bottom surface, said second coming comprising a film-forming latex resistant to water permeability and, a pigment;
2. said extensible paper having an elongation of at least 5% in the machine and cross machine directions of formation of the paper substrate;
3. said film-forming latex comprising an oil in water emulsion forming a film at drying temperatures of less than 100° C.;
4. said first coating sufficient to form a coat weight of 8 to 18 grams per sq. meter of the paper substrate;
5. said second coating sufficient to form a coat weight of 8 to 18 grams per square meter of the paper substrate;
6. said paper substrate having a weight of from 37 to about 97 grams per sq. meter of the paper substrate;
7. said first coating having a water contact angle of at least 50°;
8. said agricultural mulch having a ratio of wet tensile strength to dry tensile strength of from 0.9 to about 1.7;
9. said agricultural mulch coated top and bottom surfaces being resistant to water permeability, as measured according to a test method for water permeability set forth in Example 1 herein such that when said agricultural mulch is placed on the surface of water at ambient temperature, said agricultural mulch does not curl out of the plane of the surface of the water within 5 seconds of placement in contact with the surface of the water.

5,672,435

HARD DISK DRIVE COMPONENTS AND METHODS OF MAKING SAME

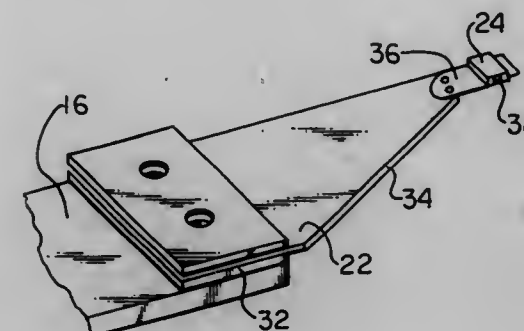
David W. Born; Uday V. Deshmukh; Timothy G. Fawcett; Richard T. Fox; Kevin J. Nilsen, and Aleksander J. Pyzik, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 354,185, Dec. 12, 1994, abandoned. This application Jun. 29, 1995, Ser. No. 496,797

Int. Cl.⁶ B22F 3/26

U.S. Cl. 428—539.5

15 Claims



1. A hard disk drive component having a magnetic media deposited thereon comprising a non-disk device formed of a multi-phase ceramic-metal composite having a crystalline ceramic phase and a free metal phase wherein the theoretical density of the hard disk drive component is greater than 98 percent.

5,672,436

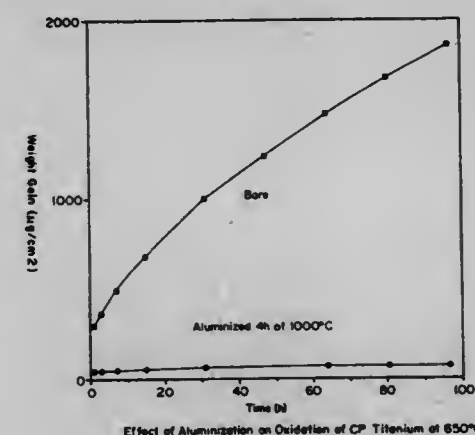
OXIDATION PROTECTION METHOD FOR TITANIUM
Albert G. Tobin, Smithtown, N.Y., assignor to Grumman Aerospace Corporation, Los Angeles, Calif.

Filed May 31, 1990, Ser. No. 531,036

Int. Cl.⁶ B32B 5/06

U.S. Cl. 428—629

16 Claims



1. A titanium article of manufacture having an oxidation resistant surface consisting essentially of a TiAl₃ layer on an outer surface of said article, said layer formed by vapor deposition of an aluminum material on the surface of said titanium, said surface having been oxidized after said vapor deposition.

5,672,437

SOLID ELECTROLYTE FOR A FUEL CELL

Tamotsu Yajima, Gifu-ken, Japan, assignor to Tokyo Yogyo, Kabusiki Kaisha, Gifu-ken, Japan

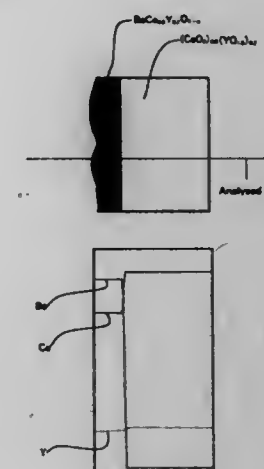
Filed Jun. 5, 1995, Ser. No. 461,497

Claims priority, application Japan, Feb. 9, 1995, 7-043666; Feb. 14, 1995, 7-047918

Int. Cl.⁶ H01M 8/10

U.S. Cl. 429—33

6 Claims



1. A solid electrolyte for a fuel cell comprising:
 - (a) a specifically-shaped solid electrolyte consisting essentially of cerium oxide having a fluorite-type structure and oxide-ionic conduction; and
 - (b) a membrane of a perovskite-type oxide having an ABO₃-type composition, which is a solid electrolyte of proton/oxide-ionic mixed conduction, being bonded on a part of a surface of said solid electrolyte consisting essentially of cerium oxide, in which
 - (i) A of ABO₃ represents at least one element selected from a group consisting of alkaline earth metals Mg, Sr, Ca and Ba; and
 - (ii) B of ABO₃ represents cerium by itself or cerium having at least one element selected from a group consisting of alkaline earth metals Mg, Sr, Ca and Ba and rare earth elements Sc, Y, La, Nd, Sm, Eu, Gd, Dy, Ho and Yb; said elements selected from alkaline earth metals and rare earth elements substituting said cerium by 1 to 30 mol %.

5,672,438

MEMBRANE AND ELECTRODE ASSEMBLY EMPLOYING EXCLUSION MEMBRANE FOR DIRECT METHANOL FUEL CELL

Shoibal Banerjee, Newark, Del.; Cecelia C. Cropley, Acton, Mass.; John A. Kosek, Danvers, Mass., and Anthony B. La Conti, Lynnfield, Mass., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

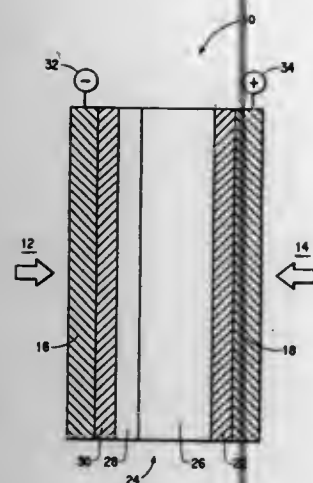
Filed Sep. 25, 1996, Ser. No. 719,745

Int. Cl.⁶ H01M 8/10

U.S. Cl. 429—33

16 Claims

1. A membrane and electrode assembly comprising a cation exchange membrane with an electrode formed on at least one of its surfaces, said membrane comprising polymer having a polymer backbone and cation exchange groups carried on recurring side



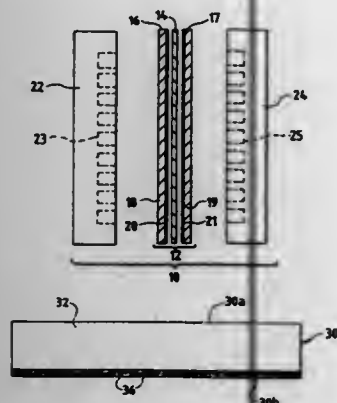
chains attached to said polymer backbone, the ratio of carbon atoms in said polymer backbone to cation exchange groups being at least about 23:1.

5,672,439
METHOD AND APPARATUS FOR REDUCING REACTANT CROSSOVER IN AN ELECTROCHEMICAL FUEL CELL

David P. Wilkinson, North Vancouver, Canada; Mark C. Johnson, Phoenix, Ariz.; Kevin M. Colbow, North Vancouver, and Stephen A. Campbell, Coquitlam, both of Canada, assignors to Ballard Power Systems, Inc., Burnaby, Canada
Filed Dec. 18, 1995, Ser. No. 574,262
Int. Cl.⁶ H01M 4/90

U.S. Cl. 429-40

24 Claims



1. An electrochemical fuel cell comprising:
 - (a) a first electrode, said first electrode having first and second oppositely facing major surfaces, said first electrode comprising at least one layer of porous material and a sufficient quantity of catalyst disposed within the volume of said electrode between said major surfaces so that a reactant in a fluid introduced to said first major surface of said first electrode is substantially completely reacted upon contacting said second major surface of said first electrode;
 - (b) a second electrode;
 - (c) an electrolyte interposed between said second major surface of said first electrode and said second electrode;

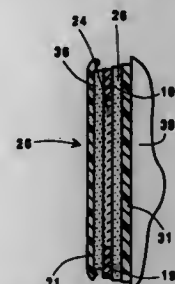
wherein said at least one layer of porous material comprises a plurality of stacked layers.

5,672,440
CELL TESTER DEVICE EMPLOYING A CATHODICALLY DEPOSITABLE METAL ION ELECTROLYTE SOLUTION

John C. Bailey, Columbia Station, Ohio, assignor to Eveready Battery Company, St. Louis, Mo.
Continuation-in-part of Ser. No. 396,505, Nov. 8, 1994, which is a continuation-in-part of Ser. No. 246,926, May 20, 1994, Pat. No. 5,458,992, which is a continuation of Ser. No. 648,080, Jan. 31, 1991, abandoned. This application May 31, 1995, Ser. No. 455,951
Int. Cl.⁶ H01M 10/48

U.S. Cl. 429-93

24 Claims



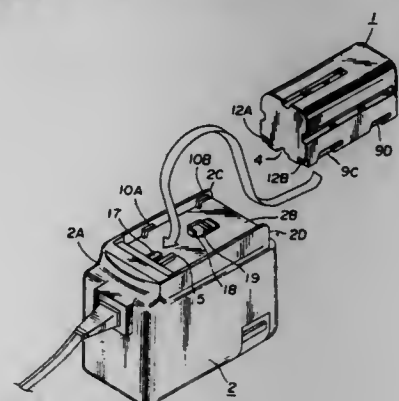
1. A cell tester device for an electrochemical cell having a first terminal and a second terminal of opposite polarity; said device comprising a first electrically conductive electrode adapted to contact the first terminal of the cell; an electrically conductive layer spaced apart from said electrode and adapted to contact the second terminal of the cell; and an immobilized metal ion electrolyte disposed between and in contact with the electrode and the conductive layer, said electrolyte comprising a solution of at least one salt of at least one metal which can be cathodically deposited from the solution of one of its simple or complex ions at least at the interface of the electrode and the electrolyte and the deposited metal ion having a different color than the electrolyte so that when the electrode makes contact with the first terminal of the cell and the conductive layer makes contact with the second terminal of the cell, the metal ion in the electrolyte will be reduced to provide a deposit at said interface that has a different visual appearance than the electrolyte that can be used to indicate the condition of the cell and which different visual appearance is observable to the user.

5,672,441
BATTERY DEVICE AND DRIVING DEVICE FOR BATTERY DEVICE

Hisashi Aoki, Aichi; Hideto Mitsui, Kanagawa, and Yasushi Noda, Tokyo, all of Japan, assignors to Sony Corporation, Japan
Filed Aug. 31, 1995, Ser. No. 521,758
Claims priority, application Japan, Sep. 2, 1994, 6-210211
Int. Cl.⁶ H01M 2/10

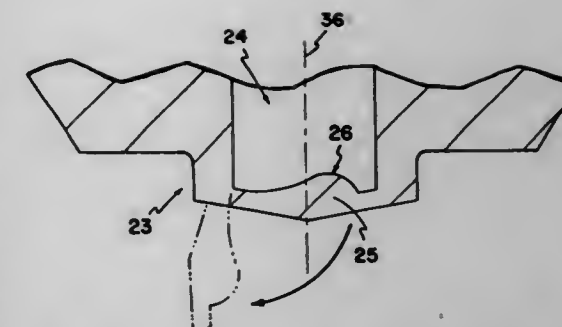
U.S. Cl. 429-97

10 Claims



1. A battery device comprising: a casing having;

a battery housing unit disposed therein, a loading surface on a lateral surface of an outer periphery of said casing, and an abutment surface on a lateral surface of the outer periphery of said casing which faces a loading direction of said battery device; and at least one battery housed within said battery housing unit in said casing; wherein said loading surface of the casing has a groove for discriminating whether the battery device is compatible with electronic equipment to which it may be connected; said groove having a first end open on said abutment surface and extending from said first end in a direction parallel to said loading direction; wherein said groove is located at a position offset relative to a centerline of the loading surface.



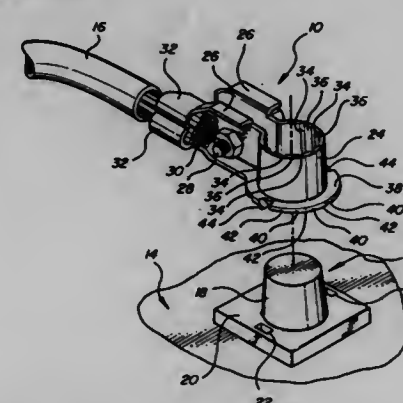
the bottom surface, and having a centrally located channel with a longitudinal axis extending from the first end to a closed bottom portion at the second end, the closed bottom portion having a tab extending into the channel which is out of alignment with the longitudinal axis of the channel.

5,672,442
BATTERY TERMINAL AND POST WITH ROTATION INHIBITING MEANS

Jason Todd Burnett, Toledo, Ohio, assignor to Yazaki Corporation, Tokyo, Japan
Filed Sep. 23, 1996, Ser. No. 717,855
Int. Cl.⁶ H01M 2/30; H01R 4/28

U.S. Cl. 429-121

12 Claims



1. A battery connection comprising: a battery post having a base and a shaft extending from the base; a battery terminal having a clamping ring for encircling the shaft; alignment means extending from one of the clamping ring and the base; and means disposed on the other of the base and the ring for receiving the alignment means when the terminal is in a predetermined position relative to the post.

5,672,443
BATTERY SEALING CAP

Timothy L. Salisbury, Phillips; Charles A. Draheim, Platteville, and Joseph L. Passaniti, Fitchburg, all of Wis., assignors to Phillips Plastics Corporation, Prescott, and Rayovac Corporation, Madison, both of Wis.
Continuation-in-part of Ser. No. 228,309, Apr. 15, 1994, abandoned. This application Mar. 20, 1995, Ser. No. 407,391
Int. Cl.⁶ H01M 2/08

U.S. Cl. 429-185

14 Claims

1. A battery sealing cap comprising:
 - (a) a base having a top surface and a bottom surface;
 - (b) an annular rim attached to and extending outward from the top surface of the base; and
 - (c) a central portion having a first end and second end, the central portion being attached to and generally centrally located on the base such that the first end extends outward from the top surface and the second end extends outward from

5,672,444
COMPOSITE ELECTRODE FOR A PHOTO-RECHARGEABLE STORAGE BATTERY

Hisao Kuriyaki, Kazuyoshi Hirakawa, both of Fukuoka, and Teruaki Nomiyama, Kagoshima, all of Japan, assignors to Kyushu University, Fukuoka Pref., Japan
Filed Mar. 22, 1996, Ser. No. 621,031
Claims priority, application Japan, Aug. 24, 1995, 7-215779
Int. Cl.⁶ H01M 6/30; 4/60

U.S. Cl. 429-213

2 Claims

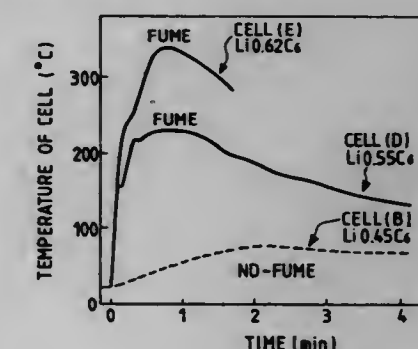
1. A composite electrode for a photo-rechargeable storage battery, comprising:
 - a filter paper of glass fiber as a base material;
 - a polypyrrole film coated on a surface of the filter paper; and
 - a gel of polytungstic acid provided on the polypyrrole film in the form of a cluster.

5,672,445
ORGANIC ELECTROLYTE SECONDARY CELL

Kazuhiro Nakamitsu, Hisashi Takamoto, Shigeo Komatsu, and Toshimichi Nakamura, all of Kyoto, Japan, assignors to Japan Storage Battery Co., Ltd., Kyoto, Japan
Filed Dec. 8, 1995, Ser. No. 569,293
Claims priority, application Japan, Dec. 9, 1994, 6-331531; Feb. 13, 1995, 7-049075
Int. Cl.⁶ H01M 4/58

U.S. Cl. 429-218

2 Claims



1. A lithium secondary cell comprising: a positive electrode including a material which occludes and exudes lithium; a negative electrode containing a negative material including graphite; and a separator disposed between said positive and negative electrodes; wherein the quantity of lithium occluded in said negative material in a fully-charged state is less than 55% of the theoretical lithium occlusion capacity of said negative electrode.

5,672,446

LITHIUM ION ELECTROCHEMICAL CELL

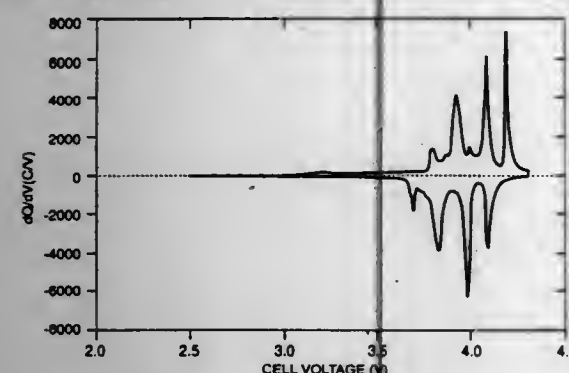
Jeremy Barker; Jeffrey Swoyer; J. Lee Morris; Wade Guindy, and Frederik Flemming, all of Henderson, Nev., assignors to Valence Technology, Inc., Henderson, Nev.

Filed Jan. 29, 1996, Ser. No. 592,981

Int. Cl.⁶ H01M 4/58

U.S. Cl. 429—218

24 Claims



1. An electrochemical cell comprising: an anode comprising a carbon mixture comprising carbon platelet particles and at least one carbon material selected from the group consisting of microbead particles and fibrous particles; a cathode; and a polymeric layer containing an electrolyte solution that is interposed between the anode and cathode.

5,672,447

NON-SINTERED NICKEL ELECTRODE WITH EXCELLENT OVER-DISCHARGE CHARACTERISTICS, AN ALKALINE STORAGE CELL HAVING THE NON-SINTERED NICKEL ELECTRODE, AND A MANUFACTURING METHOD OF THE NON-SINTERED NICKEL ELECTRODE

Akifumi Yamawaki; Shinsuke Nakahori, both of Naruto; Takeo Hamamatsu, Hiroshima, and Yoshitaka Baba, Naruto, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

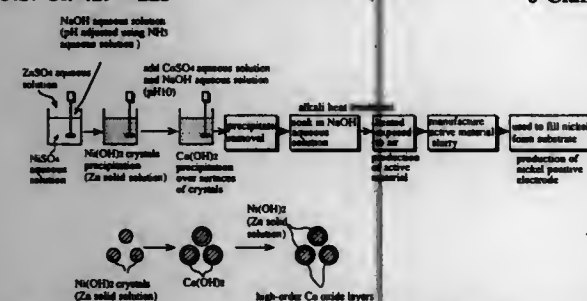
Division of Ser. No. 618,622, Mar. 20, 1996. This application Jun. 27, 1996, Ser. No. 670,170

Claims priority, application Japan, Jul. 31, 1995, 7-195096

Int. Cl.⁶ H01M 4/02

U.S. Cl. 429—223

6 Claims



1. A method of manufacturing a non-sintered nickel electrode for use in an alkali storage cell, said method comprising the steps of: manufacturing a mixture powder by mixing an active material with one of metallic cobalt powder and cobalt compound powder, said active material containing nickel hydroxide powder and at least one of zinc, cadmium, magnesium, and calcium in a form of a solid solution, subjecting the mixture powder to a heat treatment in a presence of oxygen and alkali so that a cobalt layer is formed on surfaces of the nickel hydroxide having a disordered crystal structure and an oxidation number higher than +2, and applying the mixture powder subjected to the heat treatment to an active material supporter.

5,672,448

MULTI-EXPOSURE SYSTEM FOR HOLOGRAM

Emiko Isogai, Hekinan; Satoshi Koike, Kariya; Tetsuo Kimura, Oobu; Hiroshi Ando, Nagoya, and Hiroyuki Tatebayashi, Handa, all of Japan, assignors to Nippondenso Co., Ltd., Aichi-pref, Japan

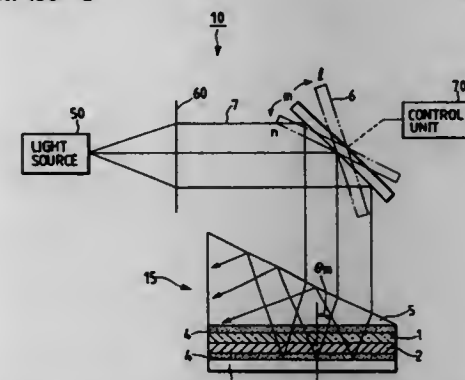
Continuation of Ser. No. 422,619, Apr. 13, 1995, abandoned, which is a continuation of Ser. No. 175,213, Dec. 28, 1993, abandoned. This application Jan. 25, 1996, Ser. No. 591,145

Claims priority, application Japan, Dec. 29, 1992, 4-361570; Jan. 20, 1993, 5-007189; Apr. 19, 1993, 5-091634; Nov. 8, 1993, 5-278204

Int. Cl.⁶ G02B 23/02; G03H 1/28

U.S. Cl. 430—1

4 Claims



4. A method for forming a multiple-exposure hologram comprising the steps of: providing a holographic recording medium; performing a first exposure of the holographic medium to an exposure light having a given wavelength at an incident angle which is determined according to a first equation based on a change in thickness of the holographic recording medium according to a second equation; performing a second exposure of the holographic medium to an exposure light having said given wavelength at a second incident angle which is determined according to the first equation based on a change in thickness of the holographic recording medium caused by the step of performing the first exposure of the holographic recording medium according to the second equation; and performing a third exposure of the holographic medium to an exposure light having said given wavelength at a third incident angle which is determined according to the first equation based on a change in thickness of the holographic recording medium caused by the step of performing the second exposure of the holographic recording medium according to the second equation, wherein the first equation is given by the following:

$$[\lambda \cos \theta m = \lambda_0 \cos \sin^{-1} \{ (\sin \theta) / n \}] \cdot M_z$$

$$\lambda \cos \theta m = \lambda_0 \cos \sin^{-1} \{ (\sin \theta) / n \} \cdot M_z$$

wherein θm is an incident angle during exposure, λ is a wavelength of reconstructed light, λ_0 is said given wavelength of the exposure light during recording, θ is an angle of reconstructed light coming out of the photographic recording medium during reconstruction, n is an index of refraction of the photographic recording medium, and M_z is defined by the second equation as follows:

$$M_z = \frac{(\text{a thickness of the holographic recording medium during reconstruction})}{(\text{a thickness of the holographic recording medium during exposure})}$$

$$\left[\frac{(\text{the reconstruction wavelength during reconstruction})}{(\text{target reconstruction wavelength})} \right]$$

wherein the first, second and third incident angles are fixed during each exposure, and the reconstruction wavelengths

obtained by the first, second, and third exposures are substantially identical to respective target reconstruction wavelengths.

5,672,449

SILICON MEMBRANE AND METHOD OF MAKING SAME

Hans Löschner, Vienna, Austria; Feng Shi, Kassel, and Ivaylo W. Rangelow, Baunatal, both of Germany, assignors to IMS Ionen Mikrofabrikations Systeme GmbH, Vienna, Austria, and Universität Gesamthochschule Kassel, Kassel, Germany

Filed Aug. 15, 1995, Ser. No. 515,409

Claims priority, application Austria, Aug. 16, 1994, 1585/94

Int. Cl.⁶ G03F 9/00

U.S. Cl. 430—5

21 Claims



1. A method of making a silicon membrane with predetermined stress characteristics, said method comprising the steps of: (a) masking at least a selected first portion of a surface of a silicon substrate of a conductivity type of one polarity with a mask and leaving unmasked a second nonmasked portion of said surface; (b) doping the second nonmasked portion of said surface with a doping agent of a conductivity type whose polarity is opposite the polarity of the conductivity type of said substrate to form a doped layer at said second portion; (c) removing said mask from said first portion of the surface of said substrate; (d) doping said surface with a doping agent in a predetermined concentration and of a conductivity type whose polarity is opposite the polarity of the conductivity type of said substrate to form in said first portion a doped layer of a smaller thickness than at said second portion; and (e) electrochemically etching said substrate to remove said substrate below the doped layers of said first and second portions to form a silicon membrane from said first and second portions whose first portion is thinner than its second portion.

5,672,450

METHOD OF PHASE SHIFT MASK FABRICATION COMPRISING A TAPERED EDGE AND PHASE CONFLICT RESOLUTION

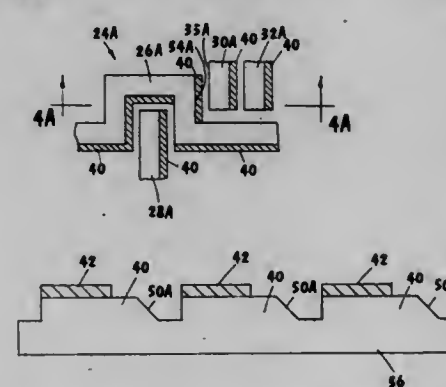
J. Brett Rolfsen, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation-in-part of Ser. No. 240,994, May 11, 1994, Pat. No. 5,487,962. This application Jan. 23, 1996, Ser. No. 589,942

Int. Cl.⁶ G03F 9/00

U.S. Cl. 430—5

27 Claims



1. A method for forming a phase shifting photomask comprising:

forming an opaque layer on a transparent substrate and patterning the opaque layer to form a mask pattern comprising features; determining areas of phase conflict in the mask pattern; and forming phase shifters along selected edges of features in phase conflict areas of the mask pattern using design rules of a computer aided design program to locate the phase shifters, each said phase shifter including a tapered edge formed with a slope such that the tapered edge does not print on a target in a subsequent lithographic process.

5,672,451

MIGRATION IMAGING MEMBERS

Man C. Tam; Liqin Chen; Edward G. Zwartz; Daniel Bihon, all of Mississauga, and Marie-Eve Perron, Montreal, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

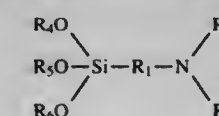
Filed Apr. 11, 1996, Ser. No. 630,296

Int. Cl.⁶ G03G 17/10

U.S. Cl. 430—41

23 Claims

1. A migration imaging member which comprises (a) a substrate, (b) a conductive layer comprising indium tin oxide dispersed in a polymeric binder, (c) a siloxane film charge blocking layer comprising a hydrolysis reaction product of a silane of the formula



wherein R_1 is an alkylidene group, R_2 and R_3 are each, independent of the other, a hydrogen atom, an alkyl group, a phenyl group, or a poly(ethylene-amino) group, and R_4 , R_5 , and R_6 are each, independent of the others, alkyl groups, said siloxane having reactive hydroxyl and ammonium groups attached to silicon atoms, and (d) a softenable layer comprising a softenable material and a photosensitive migration marking material.

5,672,452

METHOD FOR TRANSFERRING COLOR IMAGES ONTO BOTH SIDES OF A TRANSFER MATERIAL

Makoto Kanbayashi, Kawasaki; Takashi Kasuya, Soka; Tatsuya Nakamura; Tatsuhiro Chiba, both of Tokyo, and Koji Inaba, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 74,417, Jun. 10, 1993, abandoned. This application Jul. 10, 1995, Ser. No. 500,015

Claims priority, application Japan, Jun. 15, 1992, 5-178900

Int. Cl.⁶ G03G 13/01

U.S. Cl. 430—47

30 Claims

1. An image-forming method comprising the steps of: (i) transferring a first color toner image comprised of color toner particles formed on an image carrier onto a first surface of a transfer material having said first surface and a second surface opposite said first surface, the color toner particles having a capsule structure which comprises wax having a melting point of 40° C. to 140° C. contained inside of each color toner particle and a surface layer region comprised of a resin, wherein said wax is present in the core of said capsule to allow exudation of the wax to the capsule surface upon application of heat and pressure; (ii) a first fixing step of fixing the first color toner image on the first surface of the transfer material by a fixing means for applying both heat and pressure onto the first surface of the transfer material and the second surface of the transfer material through heating and melting, thereby obtaining a first color image and thereby melting the wax from the color toner particles of the first color toner image, the melted wax covering at least a part of the surface of the first color image to prevent toner offset and thereafter solidifying as a result of temperature decrease after passing through said fixing means,

said first fixing step being performed while applying oil to the transfer material at an application dosage of between 0.00 and 0.04 mg/A4 at said fixing means, wherein the fixing means has a fixing side and a nonfixing side and is provided with heating means at both the fixing side and the nonfixing side;

(iii) transferring a second color toner image comprised of said color toner particles formed on the image carrier onto the second surface of the transfer material, wherein said wax is present in the core of said capsule to allow exudation of the wax to the capsule surface upon application of heat and pressure; and

(iv) a second fixing step of fixing the second color toner image on the second surface of the transfer material by the fixing means through heating and melting, thereby obtaining a second color image on the second surface of the transfer material, and thereby melting the wax from the color toner particles of the second color toner image, the melted wax covering at least a part of the second color image to prevent toner offset and thereafter solidifying as a result of temperature decrease after passing through said fixing means, said second fixing step being performed while applying oil to the transfer material at an application dosage of between 0.00 and 0.04 mg/A4 at said fixing means;

wherein the wax covering at least a part of the surface of the first color image melts by the fixing means in the second fixing step to prevent offset during said second fixing step and thereafter solidifies as a result of temperature decrease after passing through said fixing means.

5,672,453

FROST IMAGE RECORDING MEDIUM AND METHOD OF AND APPARATUS FOR FORMING AND READING FROST IMAGE

Hiroyuki Obata; Minoru Utsumi; Masayuki Iijima; Masato Okabe, and Hironori Kamiyama, all of Tokyo, Japan, assignors to Dai Nippon Printing Co., Ltd., Tokyo, Japan
Division of Ser. No. 294,751, Aug. 23, 1994, Pat. No. 5,521,040, which is a division of Ser. No. 741,505, Jul. 29, 1991, Pat. No. 5,378,565. This application Feb. 26, 1996, Ser. No. 607,066

Claims priority, application Japan, Nov. 29, 1989, 1-311489; Nov. 29, 1989, 1-311490; Nov. 30, 1989, 1-312779; Dec. 5, 1989, 1-315957; Dec. 28, 1989, 1-342249; Jan. 14, 1990, 2-156239
Int. Cl.⁶ G03G 16/00

U.S. Cl. 430—50

11 Claims

1. A method for making an original for an overhead projector, comprising the steps of: disposing a photosensitive member having an electrically conductive layer and a photoconductive layer, which are successively formed on a substrate, face-to-face with an information recording medium and effecting image exposure with a voltage being applied between said photosensitive member and said information recording medium, thereby forming an electrostatic charge image on said information recording medium; and heating said information recording medium formed with said electrostatic charge image to form a frost image thereon.

5,672,454

TONER CONTAINING PARTICULATE MAGNETIC MATERIALS

Mitsuhiro Sasaki, and Koji Akiyama, both of Wakayama, Japan, assignors to Kao Corporation, Tokyo, Japan
Filed Dec. 1, 1994, Ser. No. 352,692

Claims priority, application Japan, Dec. 2, 1993, 5-339392
Int. Cl.⁶ G03G 9/083

U.S. Cl. 430—106.6

12 Claims

1. A toner for developing an electrostatic latent image, comprising at least particulate magnetic materials and a binder resin, the toner having no particulate magnetic materials on the surface of the toner, wherein A and b_{min} satisfy the relationship:

$$b_{min}/A > 0.02,$$

where A represents an average particle diameter of the toner, and b_{min} represents a minimum distance between a particulate magnetic material located at a position closest to the surface of the toner and the toner surface, and wherein said toner is produced by the method comprising the steps of:

- dissolving a shell-forming resin in a mixture comprising a core material-constituting monomer, particulate magnetic materials, and other additives to give a polymerizable composition;
- dispersing the polymerizable composition obtained in step (a) in an aqueous dispersant, and localizing the shell-forming resin on the surface of droplets of a core-constituting material; and
- polymerizing the polymerizable composition obtained in step (b) to form a core material covered with a shell.

5,672,455

CARRIER FOR ELECTROSTATIC LATENT-IMAGE DEVELOPER, ELECTROSTATIC LATENT-IMAGE DEVELOPER AND IMAGE FORMING PROCESS

Kazuhiko Yanagida; Susumu Yoshino; Takashi Imai; Koichi Takahashi, and Suk Kim, all of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan
Filed Dec. 18, 1996, Ser. No. 768,441

Claims priority, application Japan, Dec. 25, 1995, 7-336615
Int. Cl.⁶ G03G 9/113; 13/22

U.S. Cl. 430—108

14 Claims

1. A carrier for an electrostatic latent-image developer, which comprises a core material having thereon a coating layer comprising a resin and fine electroconductive particles, wherein the resin has a work function of 4.5 eV or lower.

5,672,456

LIQUID DEVELOPER COMPOSITIONS

Scott D. Chamberlain, Macedon; David H. Pan, Rochester, and John W. Spiewak, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

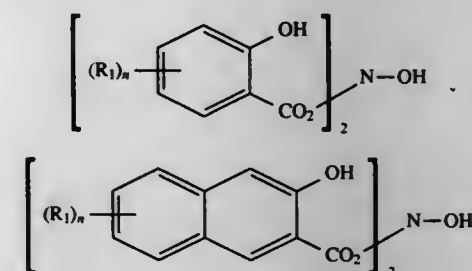
Filed Jan. 6, 1997, Ser. No. 778,855

Int. Cl.⁶ G03G 9/135

U.S. Cl. 430—115

25 Claims

1. A positively charged liquid developer comprised of a nonpolar liquid, thermoplastic resin, a cyclodextrin charge control additive, pigment, and a charge director comprised of a nonpolar liquid soluble organic aluminum complex, or mixtures thereof of the formulas



wherein R_1 is selected from the group consisting of hydrogen and alkyl, and n represents the number of R substituents.

5,672,457

LIQUID DEVELOPERS AND METHODS THEREOF

George A. Gibson, Fairport, and Scott D. Chamberlain, Macedon, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 3, 1996, Ser. No. 658,287

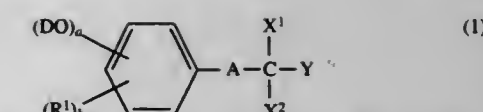
Int. Cl.⁶ G03G 9/13; 9/135

U.S. Cl. 430—115

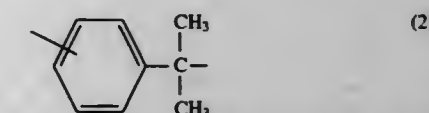
30 Claims

1. A process for the preparation of negatively charged liquid developers comprising a nonpolar liquid, a mixture of more than one thermoplastic resins, a charge director, and an aluminum charge control agent, wherein said process comprises melt mixing and reacting a first thermoplastic resin with said charge control agent, subsequently adding to the product obtained a second thermoplastic resin to prepare a mixture of the reaction product of said first thermoplastic resin with said charge control agent and said second thermoplastic resin, and subsequently dispersing said mixture and a charge director in nonpolar liquid to produce a negatively charged liquid developer.

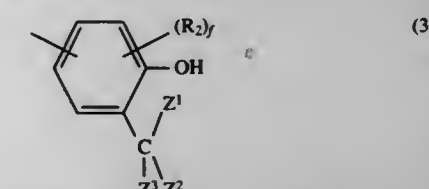
30. A liquid developer comprising the product of claim 1.



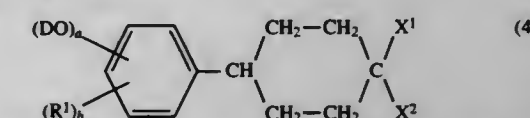
wherein R^1 is an alkyl group having 1 to 3 carbon atoms, a cycloalkyl group, an alkoxy group having 1 to 3 carbon atoms or an aryl group; D is an organic radical having a 1,2-quinonediazide group; a is 1; b is an integer of 0 to 4; A is a single bond, a polymethylene group having 1 to 4 carbon atoms, a cycloalkylene group, a phenylene group, a group represented by the following formula (2):



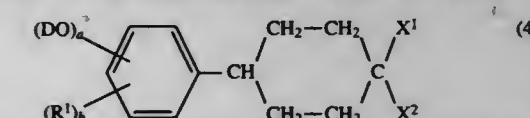
a carbonyl group, an ester group, an amide group or an ether group; Y is a hydrogen atom, an alkyl group or an aryl group; and X^1 and X^2 are the same or different and represented by the following formula (3):



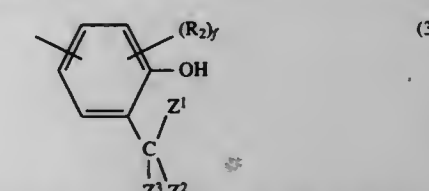
wherein each of Z^1 , Z^2 and Z^3 is the same or different and is an alkyl group, a cycloalkyl group or an aryl group; R^2 is an alkyl group, a cycloalkyl group or an alkoxy group; and f is an integer of 0 to 3.



10. A radiation sensitive resin composition containing, in admixture, an alkali soluble resin and a radiationally effective amount of at least one 1,2-quinonediazide compound selected from the group consisting of compounds represented by the following formula (4):



wherein R^1 is an alkyl group having 1 to 3 carbon atoms, a cycloalkyl group, an alkoxy group having 1 to 3 carbon atoms or an aryl group; D is an organic radical having a 1,2-quinonediazide group; a is 1; b is an integer of 0 to 4; and X^1 and X^2 are the same or different and represented by the following formula (3):



wherein each of Z^1 , Z^2 and Z^3 is the same or different and is an alkyl group, a cycloalkyl group or an aryl group; R^2 is an alkyl group, a cycloalkyl group or an alkoxy group; and f is an integer of 0 to 3.

5,672,459

RADIATION SENSITIVE RESIN COMPOSITION CONTAINING QUINONE DIAZIDE ESTER HAVING TWO HINDERED PHENOL GROUPS

Katsumi Inomata; Masahiro Akiyama, both of Yokkaichi; Toshiyuki Ota, Tsukuba, and Akira Tsuji, Yokkaichi, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Mar. 22, 1996, Ser. No. 621,008

Claims priority, application Japan, Mar. 31, 1995, 7-075785
Int. Cl.⁶ G03F 7/023

U.S. Cl. 430—191

18 Claims

1. A radiation sensitive resin composition containing, in admixture, an alkali soluble resin and a radiationally effective amount of at least one 1,2-quinonediazide compound selected from the group consisting of compounds represented by the following formula (1):

50 mole percent chloride, based on silver, (b) having {100} major faces, (c) exhibiting a thickness of 0.2 μm or less, (d) exhibiting a mean equivalent circular diameter in the range of from 3 to 6 μm , and (e) including a core and a surrounding band containing up to 30 percent of the silver forming the grains and a higher level of iodide ions than the core, so that when the photographic element is developed for 3 minutes and 15 seconds at 38° C. in a developer of the composition:

Potassium carbonate, anhydrous	34.30	g
Potassium bicarbonate	2.32	g
Sodium sulfite, anhydrous	0.38	g
Sodium metasilicate	2.78	g
Potassium iodide	1.20	mg
Sodium bromide	1.31	g
Diethylenetriaminepentaacetic acid,	8.43	g
Pentasodium salt (40% solution)		
Hydroxylamine sulfate	2.41	g
Water to 1 Liter		
pH 10		

and subsequently bleached and fixed, it exhibits a density above fog of at least 0.15 in the at least one portion of the photographic element receiving the exposure of 1.33×10^{-3} lux second.

5,672,468

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL AND METHOD FOR FORMING COLOR IMAGE

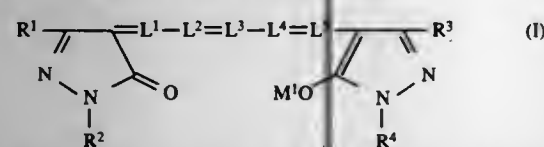
Kentaro Okazaki, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan
Filed Jun. 20, 1996, Ser. No. 670,776

Claims priority, application Japan, Jun. 23, 1995, 7-179614
Int. Cl.⁶ G03C 1/06; 1/81; 1/825

U.S. Cl. 430—522 15 Claims

1. A silver halide color photographic material comprising a support having provided thereon photographic constituent layers comprising (i) at least three kinds of silver halide emulsion layers different in color sensitivity, each containing a yellow color-forming coupler, a magenta color-forming coupler and a cyan color-forming coupler, respectively, and (ii) at least one light-insensitive layer,

wherein the photographic constituent layers comprises at least one layer containing silver chloride grains or silver chlorobromide grains having a silver chloride content of not less than 90 mol %, the silver chloride grains or silver chlorobromide grains having a silver chloride content of not less than 90 mol % being sensitized by at least one compound selected from the group consisting of a gold compound, a selenium compound and a tellurium compound; and the photographic constituent layers comprises at least one layer containing at least one compound represented by formula (I)



wherein R¹ and R² each represents an electron withdrawing group having a Hammett substituent constant σ_p of 0.3 or more; R³ and R⁴ each represents an alkyl group or an aryl group; L¹ to L⁵ each represents a methine group, with the proviso that at least one of L¹ to L⁵ has a substituent group; M¹ represents a hydrogen atom, or an atomic group or metal atom to be a monovalent cation.

5,672,469

SILVER HALIDE PHOTOGRAPHIC MATERIAL

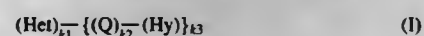
Takanori Hioki, and Mikio Ihama, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Nov. 8, 1995, Ser. No. 555,095

Claims priority, application Japan, Nov. 8, 1994, 6-298000
Int. Cl.⁶ G03C 1/34

U.S. Cl. 430—614

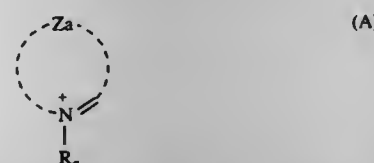
6 Claims

1. A silver halide photographic material comprising a support having thereon at least one light-sensitive layer, said photographic material comprising a reduction-sensitized silver halide emulsion containing at least one compound represented by formula (I):



wherein Het represents a group adsorptive to silver halide grains selected from the group consisting of:

- (1) a 5-, 6- or 7-membered heterocyclic ring having 2 or more hetero atoms,
- (2) a 5-, 6- or 7-membered nitrogen-containing heterocyclic ring having a quaternary nitrogen atom, which is represented by formula (A):



- (3) a 5-, 6- or 7-membered nitrogen-containing heterocyclic ring having a thioxo group, which is represented by formula (B):

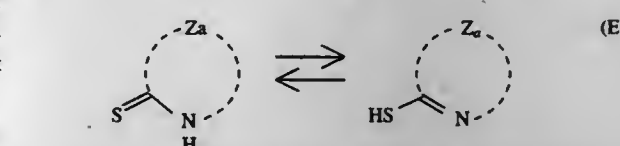
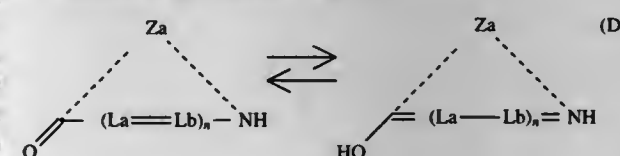


- (4) a 5-, 6- or 7-membered nitrogen-containing heterocyclic ring represented by formula (C):

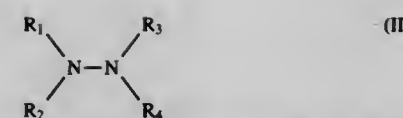


and

- (5) a 5-, 6- or 7-membered nitrogen-containing heterocyclic ring represented by formula (D) or (E),



wherein Za represents an atomic group necessary to form a 5-, 6- or 7-membered nitrogen-containing heterocyclic ring; Ra represents an aliphatic group; La and Lb each represent a methine group; and n represents 0, 1 or 2, provided that Her is substituted with at least one $-(\text{Q})_{k_2}-(\text{Hy})$ moiety; Q represents a divalent linking group comprising an atom selected from the group consisting of a carbon atom, a nitrogen atom, a sulfur atom and an oxygen atom or an atomic group containing at least one atom selected from the group consisting of a carbon atom, a nitrogen atom, a sulfur atom, and an oxygen atom; Hy represents a hydrazine structure represented by formula (II):



wherein R₁, R₂, R₃, and R₄ each represent an aliphatic group, an aryl group or a heterocyclic group; R₁ and R₂, R₃ and R₄, R₁ and R₃, or R₂ and R₄ may be connected to each other to form a ring, provided that at least one of R₁, R₂, R₃, and R₄ represents a divalent aliphatic, aryl or heterocyclic group to which the $-(\text{Q})_{k_2}-(\text{Het})_{k_1}$ moiety is bonded; k₁ and k₃ each represent 1, 2, 3 or 4; and k₂ represents 0 or 1.

5,672,470

MICROBIAL PROCESS FOR DETECTION OF TOXIC SUBSTANCES

Wolfgang Hengstenberg, Universitätsstr. 150, 44789 Bochum; Roman Kolar, Kohlenbankstr. 18, 44227 Dortmund, and Marko Scholz, Hunscheidtstr. 43, 44789 Bochum, all of Germany

Filed Jan. 20, 1995, Ser. No. 375,818

Claims priority, application Germany, Jan. 22, 1994, 44 01 868.1

Int. Cl.⁶ C12Q 1/02

14 Claims

1. A process for detection of toxic substances wherein said process involves determining the inhibition effect of such toxic substances, contained in a sample, on microorganism metabolism, wherein the inhibition effects of the toxic substances on carbohydrate transport into the microorganism, as effected by the microorganism phosphotransferase systems, are determined and serve as evidence of toxic substances being present in the sample, wherein said process comprises:

- producing a suspension of bacterium cells having said phosphotransferase system along with the sample to be examined, in a buffer system;
- adding a substrate analog for a carbohydrate, wherein the substrate analog is transported into the bacterium cells by means of the phosphotransferase systems, which is dependent on a phosphoenol pyruvate, under phosphorylation, wherein the substrate analog, after its phosphorylation, is hydrolyzed by a bacteria specific enzyme of the phosphotransferase system thereby releasing a substance susceptible to analysis;
- determining the released substance concentration after a defined reaction time; and
- comparing the determined concentration of the released substance with a value obtained from a comparative batch of a suspension without a sample additive.

5,672,471

ASSAY FOR DETECTION AND/OR QUANTIFYING A MAMMALIAN IGA ANTIBODY RESPONSE TO EPSTEIN-BARR VIRUS MEMBRANE ANTIGEN USING EBV-MA GP 350/220 LACKING THE TRANSMEMBRANE ANCHOR DOMAIN

Paul John Durda, Needham; Elliott Dan Kleff, Brookline, both of Mass.; Gary Richard Pearson, Great Falls, Va.; Harvey Rabin, North Andover, and Marcia Delaney Sullivan, Methuen, both of Mass., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 291,321, Aug. 16, 1994, abandoned, which is a continuation of Ser. No. 933,601, Aug. 20, 1992, abandoned, which is a continuation of Ser. No. 546,338, Jun. 29, 1990, abandoned. This application Oct. 12, 1995, Ser. No. 542,234

Int. Cl.⁶ C12Q 1/70; G01N 33/563; 33/543

U.S. Cl. 435—5

18 Claims

1. An assay for detecting a mammalian IgA antibody response to Epstein-Barr Virus Membrane Antigen EBV-MA which comprises: (a) incubating a sample suspected to contain EBV-MA antibodies with an immobilized recombinant form of EBV-MA

gp350/220 wherein said EBV-MA is truncated gp350/220 secreted by a mammalian cell expression system and further wherein said truncated gp350/220 lacks the transmembrane anchor domain; and

- (b) detecting the product step (a) by reacting the product of step (a) with a labeled detector reagent which specifically binds mammalian IgA antibodies specific for EBV-MA, thereby detecting said mammalian antibody response to EBV-MA.

5,672,472

SYNTHETIC UNRANDOMIZATION OF OLIGOMER FRAGMENTS

David J. Ecker, Leucadia; Jacqueline Wyatt, Carlsbad; Thomas W. Bruce, Carlsbad; Kevin Anderson, Carlsbad; Ronnie C. Hanecak, San Clemente; Timothy Vickers, Oceanside, and Peter Davis, Carlsbad, all of Calif., assignors to ISIS Pharmaceuticals, Inc., Carlsbad, Calif.

PCT No. PCT/US92/07121, § 371 Date Feb. 22, 1994, § 102(e) Date Feb. 22, 1994, PCT Pub. No. WO93/04204, PCT Pub. Date Mar. 4, 1993

Continuation-in-part of Ser. No. 749,000, Aug. 23, 1991, abandoned. This PCT application Aug. 21, 1992, Ser. No. 196,103
Int. Cl.⁶ C12Q 1/70; 1/68; C07H 21/00; C12P 19/34

U.S. Cl. 435—6

64 Claims

1. A method for determining an oligonucleotide having specific, assayable activity for a target comprising the steps of:

- (a) preparing a group of sets of oligonucleotides each oligonucleotide comprising at least four nucleotide units by:
 - (i) defining a common position in the oligonucleotides of the sets, and
 - (ii) synthesizing said sets of oligonucleotides such that each set has a different base unit in said common position, the base units which are not in said common position being randomized;
- (b) assaying each of the sets for activity against the target;
- (c) selecting a set based upon its activity against the target;
- (d) preparing a further group of sets of oligonucleotides, each of the sets of said further group of sets having in the previously defined common position the base unit appearing in that position in the set selected in step (c); each set of said further group of sets having a different base unit in an additional, defined common position, the base units in the positions of the oligonucleotides which are not in a defined common position being randomized;
- (e) assaying each of the sets of said further group of sets specific activity for the target;
- (f) selecting a set based upon its activity in said assay; and
- (g) performing steps (d), (e) and (f) iteratively until all positions of said oligonucleotide are identified, thereby determining an oligonucleotide having said specific assayable activity.

5,672,473

METHODS OF IDENTIFYING COMPOUNDS USEFUL FOR TREATING AUTOIMMUNE DISEASES

Laurie H. Glimcher, W. Newton; Hong Zhou, Watertown, and John Douhan, III, Boston, all of Mass., assignors to President and Fellows of Harvard College, Cambridge, Mass.

Filed Aug. 24, 1994, Ser. No. 295,502

Int. Cl.⁶ C07H 21/00; C07K 14/705; C12Q 1/68; G01N 33/566
U.S. Cl. 435—6

25 Claims

1. A method of determining whether a compound inhibits the ability of a polypeptide to activate transcription, the polypeptide being characterized in that it comprises a CIITA transcription activation domain and lacks a functional CIITA interaction domain, wherein inhibition of transcription indicates that said compound is a potential autoimmune disease therapeutic.

5,672,474

WHITE BLOOD CELL HEMATOLOGY CONTROL

Wayne L. Ryan, Omaha, Nebr., assignor to Streck Laboratories, Inc., Omaha, Nebr.

Continuation of Ser. No. 186,500, Jan. 25, 1994, abandoned, and a continuation of Ser. No. 052,651, Apr. 26, 1993, abandoned, and a continuation of Ser. No. 879,429, May 7, 1992, Pat. No. 5,270,209, which is a continuation-in-part of Ser. No. 697,331, May 9, 1991, abandoned. This application Nov. 26, 1996, Ser. No. 749,571

Int. Cl.⁶ G01N 33/49

U.S. Cl. 436—8

42 Claims

1. A reference control composition for hematology instruments comprising:

- a) fixed or stabilized red blood cells as a white blood cell surrogate, suspended in an isotonic aqueous suspension medium; and
- b) a lipoprotein in an amount sufficient to provide a composition which gives a white blood cell histogram profile that is substantially that of whole blood.

5,672,475

MIXED LUMINESCENT CONJUGATE TEST

Michael J. Lee, Sherborn, Mass.; Howard H. Weetall, Rockville, Md., and Joseph E. Connolly, Dedham, Mass., assignors to Chiron Diagnostics Corporation, E. Walpole, Mass.

Continuation of Ser. No. 58,617, May 6, 1993, abandoned.

This application Jan. 20, 1995, Ser. No. 375,466

Int. Cl.⁶ C12Q 1/68; G01N 33/53

U.S. Cl. 435—6

38 Claims

1. A dual luminescent label specific binding assay for detecting two substances in a sample comprising the sequential steps of:

- (a) forming a test reaction mixture comprising:
 - (i) a test sample comprising a first substance and a second substance;
 - (ii) a first test reagent comprising a first binding partner (BP1) which specifically binds to said first substance wherein said first binding partner is attached to a first luminescent label selected from the group consisting of luminols and isoluminols (BP1_L) and a second binding partner (BP2) which is immobilized on a solid support (BP2_S); and
 - (iii) a second test reagent comprising a third binding partner (BP3) which specifically binds to said second substance wherein said third binding partner is attached to a second luminescent label selected from the group consisting of acridinium esters and benzacridinium esters (BP3_L) and a fourth binding partner (BP4) which specifically binds to said second substance, wherein said fourth binding partner is immobilized on a solid support (BP4_S);
- (b) reacting said test mixture to form a first specific binding complex comprising BP1_L-first substance-BP2_S, and a second specific binding complex comprising BP3_L-second substance-BP4_S;
- (c) separating said first and second binding complexes from unbound BP1_L and BP3_L;
- (d) activating said first luminescent label in the presence of an oxidation catalyst at a first pH process condition to emit a first measurable light emission from said first luminescent label, wherein said first pH process condition does not activate said second luminescent label;
- (e) measuring said first light emission;
- (f) activating said second luminescent label at a second pH process condition to emit a second measurable light emission from said second luminescent label;

- (g) measuring said second light emission; and
- (h) correlating the first light emission to the presence or amount of said first substance and correlating the second light emission to the presence or amount of said second substance present in said test sample, wherein said first pH condition is a pH level lower than said second pH condition.

5,672,476

MARKER AT THE ESTROGEN RECEPTOR GENE FOR DETERMINATION OF OSTEOPOROSIS PREDISPOSITION

François Rousseau, Ste-Foy, Canada, assignor to Université Laval, Cite Universitaire, Quebec, Canada

Filed Jan. 25, 1996, Ser. No. 592,835

Int. Cl.⁶ C12Q 1/68; C12P 19/34; C07H 21/04

U.S. Cl. 435—6

12 Claims

1. A method of determining predisposition to low or high bone density of a human patient, which comprises determining estrogen receptor polymorphism in linkage disequilibrium in a biological sample of said human patient, wherein heterozygosity is associated with high bone density and homozygosity is associated with low bone density, said estrogen receptor polymorphism being selected from the group consisting of a PvuII polymorphic site located in the first intron of the estrogen receptor gene and a DNA variant or mutation which shows linkage disequilibrium with one of the alleles of the PvuII polymorphic site located in the first intron of the estrogen receptor gene.

5,672,477

STREPTOCOCCUS LACTIS PLASMID ENCODING FOR MUCOIDNESS

Ebenezer R. Vedamuthu, Bradenton, Fla., assignor to Quest International B.V., Naarden, Netherlands

Continuation of Ser. No. 656,852, Feb. 19, 1991, abandoned, which is a division of Ser. No. 189,388, May 2, 1988, Pat. No. 5,066,588, which is a continuation-in-part of Ser. No. 786,631, Oct. 11, 1985, Pat. No. 4,918,014. This application Apr. 15, 1996, Ser. No. 632,642

Int. Cl.⁶ C12Q 1/68; C12N 15/00; C07H 21/04

U.S. Cl. 435—6

4 Claims

1. Labeled full length plasmid DNA of pSRQ2202 as originally carried in *Streptococcus cremoris* NRRL-B-15995 which has been labeled by nick translation and which binds to unknown DNA in *Streptococcus lactis* containing plasmids selected from the group consisting of pSRQ2201, pSRQ2202, pSRQ2203, pSRQ2204 and pSRQ2205 as carried in deposits *Streptococcus lactis* NRRL-B-18337 and NRRL-B-18338 for pSRQ2203, pSRQ2204 and pSRQ2205 and *Streptococcus cremoris* NRRL-B-15995 for pSRQ2201 and pSRQ2202, bound to a surface.

3. A method for detecting the presence of unknown plasmid DNA and lactose utilization which comprises:

- (a) reacting the unknown plasmid DNA from a *Streptococcus lactis* containing plasmids selected from the group consisting of pSRQ2201, pSRQ2202, pSRQ2203, pSRQ2204 and pSRQ2205 as carried in deposits *Streptococcus lactis* NRRL-B-18337 and NRRL-B-18338 for pSRQ2203, pSRQ2204 and pSRQ2205 and *Streptococcus cremoris* NRRL-B-15995 for pSRQ2201 and pSRQ2202 with labeled full length DNA of a plasmid which is pSRQ2202 as originally carried in *Strepto-*

- coccus cremoris* NRRL-B-15995 which has been labeled by nick translation to produce the labeled DNA to determine whether the unknown DNA binds to the labeled DNA; and
- (b) detecting the presence of the unknown DNA.

5,672,478

METHODS OF USE FOR AND KITS CONTAINING CHEMILUMINESCENT COMPOUNDS

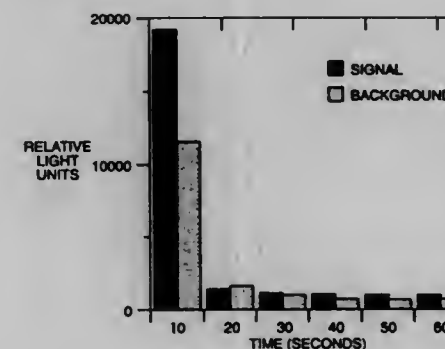
Sharat Singh, San Jose; Rajendra Singh, Mountain View, both of Calif.; Frank Meneghini, Keene, N.H., and Edwin F. Ullman, Atherton, Calif., assignors to Behringwerke AG, Marburg, Germany

Division of Ser. No. 373,678, Jan. 17, 1995, Pat. No. 5,545,834, which is a continuation of Ser. No. 916,453, Jul. 20, 1992, abandoned. This application Jun. 11, 1996, Ser. No. 661,846

Int. Cl.⁶ C12Q 1/68; C12M 1/00; G01N 33/566; C07H 21/04

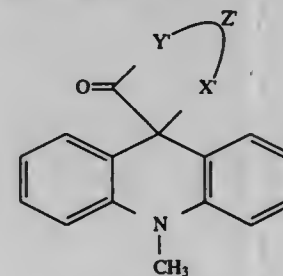
U.S. Cl. 435—6

36 Claims



1. A method for determining an analyte, said method comprising:

- a) combining in a liquid medium: (1) a sample suspected of containing said analyte, (2) a chemiluminescent compound having the formula:



wherein: X' and Y' are linking groups each comprising a chain of one atom in length, said atoms being independently selected from the group consisting of O, S, Se, and N wherein N is part of a functionality selected from the group consisting of NH, NR', NSO₂R' and NCOR', where R' is selected from the group consisting of alkyl, aryl and halogenated alkyl groups; Z' is a group linking X' and Y' comprising a chain of 1-2 carbon atoms in length; where one or more hydrogens of said Y' and said Z' may be replaced by one or more organic radicals which may be taken together to form rings or double bonds; and (3) chemical means for chemically activating said chemiluminescent compound to produce luminescence; and

- b) detecting the amount of luminescence generated by said chemiluminescent compound, the amount thereof being related to the amount of analyte in said sample.

5,672,479

METHODS FOR IDENTIFYING COMPOUNDS THAT BIND TO PUR PROTEIN

Edward M. Johnson, New York, N.Y., and Andrew D. Bergemann, Boston, Mass., assignors to Mount Sinai School of Medicine, New York, N.Y.

Division of Ser. No. 470,911, Jun. 6, 1995, which is a continuation-in-part of Ser. No. 14,943, Feb. 2, 1993, Pat. No. 5,545,551, which is a continuation-in-part of Ser. No. 938,189, Aug. 28, 1992. This application Jun. 7, 1995, Ser. No. 486,421

Int. Cl.⁶ G01N 33/53; 33/574; C07K 2/00; C12N 15/00

U.S. Cl. 435—7.1

12 Claims

1. A method for identifying a compound in a chemical or biological preparation that binds to PUR or binding fragments of PUR thereof comprising:

- (i) contacting the chemical or biological preparation with a solid phase matrix wherein PUR or fragments are immobilized to said matrix to permit said compound to bind to said solid phase matrix;
- (ii) removing any unbound material from said solid phase matrix; and
- (iii) detecting the presence of the compound bound to the solid phase.

5,672,480

IMMUNOASSAYS FOR PROSTATE SPECIFIC ANTIGEN
Barry L. Dowell, Mundelein; Debra B. Alexander, Gurnee; Susan B. O'Morchoe, Woodridge; Carol A. King, Highland Park, and Allan H. Smith, Zion, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 174,964, Dec. 29, 1993, Pat. No.

5,599,677. This application May 23, 1995, Ser. No. 447,576

Int. Cl.⁶ G01N 33/531; 33/573

U.S. Cl. 435—7.4

5 Claims

1. A complex comprising Analyte cross-linked to αHE, wherein the Analyte is capable of existing as a free Analyte or bound to a Binding Molecule to form a Analyte-Binding Molecule Complex which has a non-hidden epitope which is available for antibody binding and wherein αHE is an antibody to Analyte which can bind free Analyte but not the Analyte-Binding Molecule complex.

5,672,481

APPARATUS AND METHOD FOR PARTICLE SEPARATION IN A CLOSED FIELD

Billy W. Minshall, Mill Creek; Patrick M. Maloney; Fred Mill, both of Bothell; Shelly Heimfeld, Woodinville; Stanley Corpuz, Kirkland; Penny Thompson, Snohomish, and Eric Peterson, Seattle, all of Wash., assignors to Cellpro, Incorporated, Bothell, Wash.

Continuation-in-part of Ser. No. 5,891, Jan. 15, 1993, abandoned, which is a continuation of Ser. No. 780,750, Oct. 23, 1991, Pat. No. 5,240,856. This application Apr. 23, 1993, Ser. No. 52,784

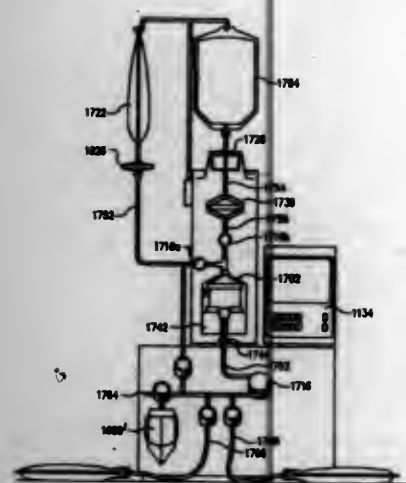
Int. Cl.⁶ G01N 33/49; 33/543

U.S. Cl. 435—7.21

24 Claims

1. A cell separation apparatus having a separation device assembly, the separation device assembly including a separation device for collecting target cells from a sample fluid contained in a sample container, and a fluid control system including a rigid-walled fluid collection vessel for receiving the target cells after being released from the separation device, said cell separation apparatus providing a closed sterile pathway from the sample container to the rigid-walled fluid collection vessel, comprising:

conduits coupling said separation device to said sample container and to a first port of said rigid-walled fluid collection vessel to provide a pathway along which said target cells travel from said sample container to said separation device and from said separation device to said rigid-walled fluid collection vessel in the absence of exposure to the environ-



ment, said conduits and said separation device forming a single replaceable item within said separation apparatus; means responsive to a valve control signal for selectively enabling the fluid coming out of the separation device to flow into the rigid-walled fluid collection vessel; and means for controlling the operation of the fluid control system, by providing said valve control signal.

5,672,482 METHOD FOR PURIFYING CYCLIC INULOOLIGOSACCHARIDE

Sachiko Kushibe, and Masao Tamura, both of Tokyo, Japan, assignors to Mitsubishi Chemical Corporation, and Mitsubishi Kasei Engineering Company, both of Tokyo, Japan
Filed Apr. 7, 1995, Ser. No. 418,770
Claims priority, application Japan, Apr. 15, 1994, 6-077645
Int. Cl.⁶ C12Q 1/48; 1/34; 1/02; C07H 1/06

U.S. Cl. 435—15 6 Claims

1. A method for purifying cyclic inulooligosaccharide, comprising the steps of:
allowing an exo-enzyme having an ability to cut β -(2 \rightarrow 1) fructoside bond or a microorganism which produces the exo-enzyme to act on a saccharide solution containing (a) cyclic inulooligosaccharide in which fructose molecules are bonded through β -(2 \rightarrow 1) bond in a cyclic configuration, and (b) at least one saccharide selected from disaccharide, linear oligosaccharide and inulin, said enzyme decomposing said saccharide into monosaccharide, disaccharide, or both; and subsequently collecting the cyclic inulooligosaccharide from the thus obtained saccharide solution.

5,672,483

Patent Not Issued For This Number

5,672,484 MICROBIOLOGICAL CULTURE BOTTLE, AND METHOD OF MAKING AND USING SAME

Ruth Eden; Gideon Eden, and Ray McMillian, all of Ann Arbor, Mich., assignors to Difco Laboratories, Ann Arbor, Mich.

Continuation of Ser. No. 191,982, Feb. 4, 1994, abandoned.
This application Dec. 21, 1995, Ser. No. 576,050

Int. Cl.⁶ C12Q 1/04 8 Claims

8. A container (10) for detecting aerobic microorganisms in a sample, said container (10) comprising:

a closed chamber (12) containing a growth media (24) therein and defining a headspace above said media; and
a non-toxic insert means (22) hydrated with said growth media (24) having a surface area positioned within said chamber (12) and at least partially into said headspace for providing a quantity of oxygen to said growth media and permitting microorganisms introduced with said sample to reside on said surface thereon by increasing, in a substantially static state, the microorganisms' exposure to oxygen within said chamber and enhancing the microorganisms' metabolism, said insert means being selected from the group consisting of sponge, cotton, fiber glass beads, glass, and resinous material.

5,672,485

IMMORTALIZED CELL LINES FOR VIRUS GROWTH

Douglas N. Foster, and Linda K. Foster, both of Roseville, Minn., assignors to Regents of the University of Minnesota, Minneapolis, Minn.

Filed Aug. 13, 1996, Ser. No. 696,200

Int. Cl.⁶ C12Q 1/02

U.S. Cl. 435—40.51 9 Claims

1. A spontaneously immortalized cell line, derived from primary chicken embryonic fibroblasts, having the characteristics of UMNSAH-DF 1 cell line and deposited with the American Type Culture Collection as Accession #CRL-12203.

5,672,486

PROTEIN POLYLIGANDS JOINED TO A STABLE PROTEIN CORE

Jean-Paul Soullillon, Nantes Cedex, France, assignor to Centre Hospitalier Regional de Nantes, Nantes Cedex, France
Continuation of Ser. No. 646,875, Jan. 28, 1991, abandoned, which is a continuation-in-part of Ser. No. 575,394, Aug. 29, 1990, abandoned. This application Aug. 20, 1992, Ser. No. 932,915

Int. Cl.⁶ C12N 15/00; 5/00; C12P 21/06; C07H 21/04

U.S. Cl. 435—69.1 8 Claims

1. A DNA sequence encoding a subunit of a composition, said composition comprising at least six subunits, each subunit consisting essentially of a portion of a μ subunit constant region of IgM up to the entire μ subunit constant region of IgM capable of assembling upon expression in a cellular host, said subunits covalently joined as a result of assembling upon expression in a cellular host, each of said subunits fused to a naturally occurring peptide sequence capable of binding to a naturally-occurring receptor on a cell surface membrane.

5,672,487

RECOMBINANT PRODUCTION OF PROTEINS IN YEAST

Jürgen Schweden, Neustadt; Claus Bollschweiler, Heidelberg; Michael Piontek, Essen; Ulrike Weydemann, Köln, and Gerd Gellissen, Wülfrath, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, and Rhein Biotech Gesellschaft, Duesseldorf, both of Germany
Filed Mar. 29, 1996, Ser. No. 619,598

Claims priority, application Germany, Oct. 28, 1993, 43 36 810.7

Int. Cl.⁶ C12P 21/02 3 Claims

1. A process for the recombinant production of proteins in yeast, which comprises transforming the yeast with an expression cassette which comprises the following structural elements encoded:

L-A-P-GEN

where

L is a leader sequence of an animal peptide neurohormone,
A is an adaptor producing an alpha-helix structure,
P is a processing signal and
GEN is a structural gene for the required protein growing the transformed yeast in a suitable growth medium; and recovering said protein.

5,672,488

CONTRACEPTIVE VACCINE BASED ON ALLOIMMUNIZATION WITH ZONA PELLUCIDA POLYPEPTIDES

Jurrien Dean, Bethesda, Md., assignor to The United States of America as represented by the Secretary, Department of Health and Human Services, Washington, D.C.

Division of Ser. No. 38,948, Mar. 26, 1993, which is a continuation-in-part of Ser. No. 930,462, Aug. 20, 1992, abandoned, which is a continuation of Ser. No. 364,379, Jun. 12, 1989, abandoned. This application May 30, 1995, Ser. No. 453,952

Int. Cl.⁶ C12P 21/06; C12N 7/00; C07H 19/00; 19/01

U.S. Cl. 435—69.3 6 Claims

1. A DNA segment encoding the mouse ZP3 protein.

5,672,489

CATALYTIC ANTIBODIES HYDROLYZING ACYLATED CARBOHYDRATES IN A REGIOSELECTIVE AND STERESELECTIVE MANNER

Ikuo Fujii; Yoshiharu Iwabuchi, both of Suita, and Hideaki Miyashita, Habikino, all of Japan, assignors to Protein Engineering Research Institute, Osaka, Japan

Continuation of Ser. No. 209,622, Mar. 14, 1994, abandoned.

This application Feb. 16, 1996, Ser. No. 602,595

Claims priority, application Japan, Sep. 8, 1993, 5-223231

Int. Cl.⁶ C12P 19/00; C12N 9/00

U.S. Cl. 435—72 17 Claims

1. A method for hydrolytically deprotecting an acylated hydroxy group in a carbohydrate in a regioselective and stereoselective manner, which comprises the step of:

admixing a catalytically effective amount of a catalytic antibody with the carbohydrate containing the acylated hydroxy group, wherein the catalytic antibody specifically hydrolyzes the acylated hydroxy group in the carbohydrate in a regioselective and stereoselective manner, thereby deprotecting the acylated hydroxy group in the carbohydrate in a regioselective and stereoselective manner.

said catalytic antibody being produced by immunizing an animal using a compound, as a hapten, which is thought to be a transition state analog of desired hydrolysis of the carbohydrate containing the acylated hydroxy group.

5,672,490

METHOD OF CLEAVING DNA

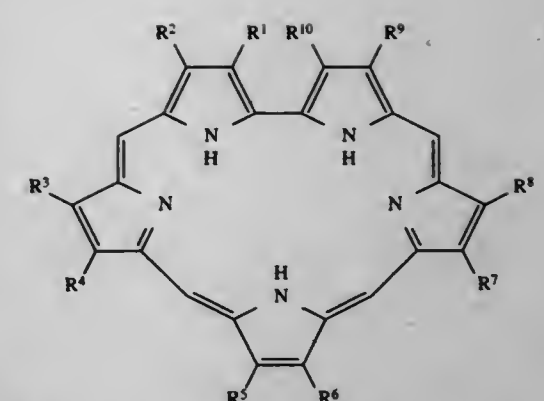
Jonathan L. Sessler; Brent L. Iverson; Vladimir Král; Kevin Shreder, all of Austin; Hiroyuki Furuta, Oita, all of Tex., and Richard E. Thomas, Port Smith, R.I., assignors to The University of Texas Board of Regents, Austin, Tex.

Division of Ser. No. 424,288, Apr. 28, 1995, which is a continuation-in-part of Ser. No. 964,607, Oct. 21, 1992, Pat. No. 5,457,195. This application Jun. 2, 1995, Ser. No. 460,669

Int. Cl.⁶ C12P 19/34; C07D 487/22

U.S. Cl. 435—91.1 4 Claims

1. A method of cleaving DNA, which method comprises contacting DNA with a sapphyrin-EDTA conjugate under conditions effective to promote cleavage of the DNA, wherein the sapphyrin-EDTA conjugate has the structure:



wherein,
each of R¹-R¹⁰ is independently H, alkyl, alkene, alkyne, halide, alkyl halide, hydroxyalkyl, glycol, polyglycol, thiol, alkyl thiol, aminoalkyl, carboxyalkyl, alkoxyalkyl, aryloxyalkyl, alkyloxycarbonyl, aryloxycarbonyl, aldehyde, ether, ketone, carboxylic acid, phosphate, phosphonate, sulfate, phosphate substituted alkyl, phosphonate substituted alkyl, or sulfate substituted alkyl, such that the total number of carbon atoms in each substituent R is less than or equal to 10; and
wherein, at least one of R¹-R¹⁰ is of the formula (CH₂)_n-A-(CH₂)_m-EDTA where
A is CH₂, O, S, NH or NR¹¹,
R¹¹ is alkyl, alkene, alkyne, halide, alkyl halide, hydroxyalkyl, glycol, polyglycol, thiol, alkyl thiol, substituted alkyl, phosphate, phosphonate, sulfate, phosphate substituted alkyl, phosphonate substituted alkyl, sulfate substituted alkyl, COO, CONH, CSNH, CONR¹¹, and
each of n and m is independently an integer of less than or equal to 10 or zero.

5,672,491

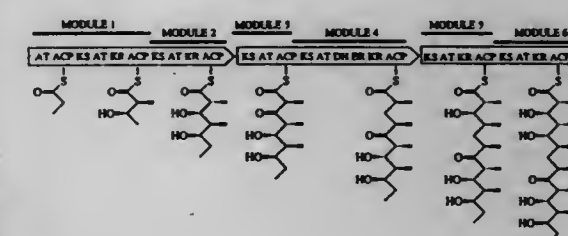
RECOMBINANT PRODUCTION OF NOVEL POLYKETIDES

Chaitan Khosla, Stanford, Calif.; David A. Hopwood, Norwich, England; Suzanne Ebert-Khosla, Stanford, Calif.; Robert McDaniel, Palo Alto, Calif.; Hong Fu, and Camilla Kao, both of Stanford, Calif., assignors to The Leland Stanford Junior University, Palo Alto, Calif., and The John Innes Institute, Norwich, England

Continuation-in-part of Ser. No. 164,301, Dec. 8, 1993, which is a continuation-in-part of Ser. No. 123,732, Sep. 20, 1993, abandoned. This application May 6, 1994, Ser. No. 238,811

Int. Cl.⁶ C12N 1/21; 9/00; 15/63; C12P 19/34

U.S. Cl. 435—148 24 Claims



15. A recombinant vector comprising one or more modules of a modular replacement PKS gene cluster
wherein a module comprises at least one nucleotide sequence which encodes a PKS acyl transferase (AT) activity; at least one nucleotide sequence which encodes a PKS ketosynthase (KS) activity; and at least one nucleotide sequence which encodes a PKS acyl carrier protein (ACP) activity;

5,672,502

ANIMAL CELL CULTURE

John Robert Birch, High Wycombe, and Robert Charles Boraston, Reading, both of United Kingdom, assignors to Celltech Therapeutics Limited, Berkshire, United Kingdom
Continuation-in-part of Ser. No. 9,551, Jul. 9, 1993, abandoned, which is a continuation of Ser. No. 51,745, Apr. 7, 1987, abandoned. This application Feb. 28, 1995, Ser. No. 397,682

Claims priority, application United Kingdom, Jun. 28, 1985, 8516415

Int. Cl.⁶ C12N 5/02; 5/06; 5/10; 5/20

U.S. Cl. 435—240.25

18 Claims

1. A process for the fed batch culture of animal cells comprising culturing the cells in a nutrient medium through the exponential phase and into the decline phase of the culture to produce one or more cell products, wherein during the exponential growth phase of the culture and for a period of time extending beyond the exponential phase of the culture, the medium is supplemented with a combined feed comprising glutamine, at least one sugar as an energy source and one or more essential amino acids other than glutamine.

5,672,503

PLANT GROWTH ESTABLISHMENT AND AGENTS FOR USE THEREIN

Beverly Janice Nairn, Ohope, and Richard Hubert Furneaux, Wellington, both of New Zealand, assignors to Tasman Forestry Limited, Rotorua, New Zealand

Continuation of Ser. No. 46,356, Apr. 9, 1993, abandoned.

This application Jun. 6, 1995, Ser. No. 470,839

Claims priority, application New Zealand, Apr. 10, 1992, 242308

Int. Cl.⁶ C12N 5/04; 1/26; 1/38; A01H 4/00

U.S. Cl. 435—240.45

24 Claims

1. A method for inhibiting vitrification comprising growing a species of Pinus or a species of Eucalyptus using a tissue culture media to which an anti-vitrification agent has been added, said anti-vitrification agent comprising a purified sulfated polysaccharide, substantially free of toxic components, or a mixture of purified sulfated polysaccharides substantially free of toxic components.

5,672,504

PROCESS FOR ENRICHING AN [R,S]-1,2-EPOXIDE IN ONE ENANTIOMER BY USING MICROBES TO CONVERT ONE ENANTIOMER TO THE OTHER OR TO PREFERENTIALLY OPEN THE EPOXIDE RING

Akinobu Matsuyama, Arai, and Yoshinori Kobayashi, Joetsu, both of Japan, assignors to Dai-ichi Chemical Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 195,080, Feb. 14, 1994, abandoned.

This application Oct. 25, 1995, Ser. No. 547,902

Claims priority, application Japan, Feb. 15, 1993, 5-025315; Mar. 16, 1993, 5-055735

Int. Cl.⁶ C12P 1/00

U.S. Cl. 435—280

10 Claims

1. A process for enriching or preferentially increasing the concentration of the (S)-enantiomer of the epoxide of formula (I) in an enantiomeric mixture of (R,S)-epoxide of formula (I)



comprising:

- (a) adding a mixture of (R,S)-enantiomers of the epoxide of formula (I) to a microorganism or a preparation of said microorganism selected from the group consisting of *Candida parapsilosis*, *Candida famata*, *Rhodospiridium toruloides*,

Aspergillus niger, *Nocardioideus flavus*, *Saccharopolyspora hirsuta*, *Bacillus subtilis*, *Bacillus cereus*, *Acetobacter pasteurianus*, *Acetobacter aceti* subsp. *xylinum*, *Citrobacter freundii*, *Enterobacter aerogenes*, *Enterobacter cloacae*, *Escherichia coli*, *Pseudomonas putida*, *Gluconobacter cerinus*, *Streptoallotichus hindustanus*, *Anixiella reticulata*, *Corticium rolfsii*, *Corynespora cassicola*, *Doratomyces stemonitis*, *Drechslera avenae*, *Helminthosporium sigmoideum* var. *irregul*, *Macrophomina phaseoli*, *Microascus desmosporus*, *Periconia byssoides*, *Scopulariopsis brevicaulis*, *Stachybotrys chartarum*, *Westerdykella multisporea*, *Phialophora pedrosoi*, *Podospora cardanaria*, *Tilletiopsis crenea* and *Gloeophyllum striatum*.

- (b) allowing the microorganism or preparation of said microorganism to preferentially open the epoxy ring of the (R)-enantiomer of formula (I) or to preferentially convert the (R)-enantiomer of formula (I) into the (S)-enantiomer of formula (I), and

- (c) recovering the (S)-enantiomer of formula (I),

where R is an alkyl group, an alkenyl group, a cycloalkyl group, an aryl group, an aralkyl group or a heterocyclic group, said groups optionally having a substituent selected from the group consisting of (1) a halogen atom, (2) a hydroxyl group, (3) a mercapto group, (4) an amino group, (5) a nitro group, (6) an alkoxy group, (7) an alkenyloxy group, (8) a phenoxy group which may be substituted with (i) an alkyl group having 1-4 carbon atoms, (ii) an alkoxy group having 1-4 carbon atoms or (iii) a halogen atom, (9) a naphthyloxy group which may be substituted with (i) an alkyl group having 1-4 carbon atoms, (ii) an alkoxy group having 1-4 carbon atoms or (iii) a halogen atom, (10) an aralkyloxy group, (11) an alkyl-thio group, (12) a carboxyl group, (13) a carbamoyl group, (14) a cyano group, and (15) an acyl group.

wherein said cycloalkyl group, aryl group, aralkyl group and heterocyclic group represented by R may also be substituted with (16) an alkyl group, (17) an alkenyl group or (18) a haloalkyl group.

5,672,505

INSERT FOR A TISSUE CULTURE VESSEL

Christopher L. Jones, Bloomingdale, and Edward F. Musci, Hewitt, both of N.J., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

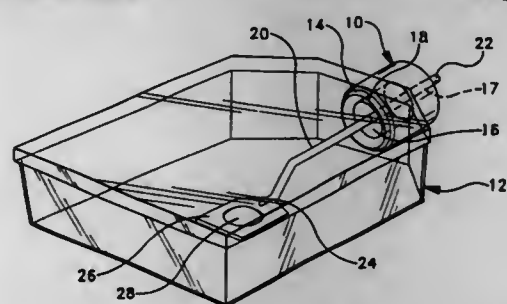
Continuation of Ser. No. 127,406, Sep. 27, 1993, abandoned.

This application Aug. 15, 1994, Ser. No. 290,492

Int. Cl.⁶ C12M 1/00; 3/00

U.S. Cl. 435—283.1

4 Claims



1. An insert for a tissue culture bottle having a neck comprising: a neck adapter having mounting means sized to fit the neck of the bottle; a suspending arm having a first end and a second end, said arm having an offset intermediate said first end and said second end; holder means for holding at least one specimen, said specimen including a porous first membrane having cells thereon, substantially sealed within a second porous membrane impermeable to cells; and said first end of said suspending arm being sized and shaped to fit said mounting means for suspending said suspending arm into the bottle from said first end, said holder means being

attached at said second end of said suspending arm, so that a specimen in said holder is suspended within the bottle when said neck adapter is placed in the neck of the bottle.

5,672,506

SLUDGE TREATMENT TANK AND CONSTRUCTION METHOD THEREOF

Kaitaro Aoyagi, Kawasaki; Sadao Niiibe, Chiba; Toshitomi Umegae, Sakura; Hideo Iwai, Oumihachiman, and Yoshitugu Oshima, Tokyo, all of Japan, assignors to The Zenitaka Corporation, and Sekisui Kagaku Kogyo K.K., both of Osaka-fu, Japan

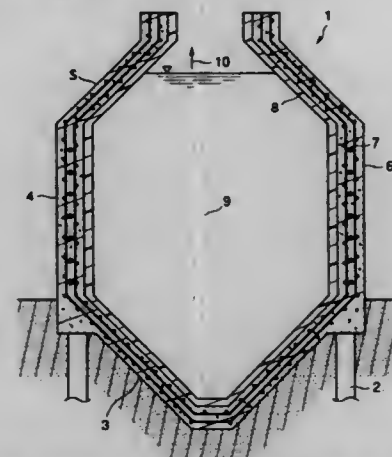
Filed Mar. 4, 1996, Ser. No. 610,252

Claims priority, application Japan, Mar. 9, 1995, 7-049555

Int. Cl.⁶ C12M 3/00

U.S. Cl. 435—289.1

6 Claims



1. A sludge treatment tank, comprising a concrete tank including a member composed of a glass long-fiber reinforced foamed plastic composite material as an inside wall member also serving as a formwork.

5,672,507

APPARATUS FOR THE SURFACE CULTURE OF NUCLEATED CELLS AND CELL CULTURE DEPENDENT SUBSTANCES

Walter Merk, Biberach an der Riss, Germany, assignor to Boehringer Ingelheim Animal Health, Inc., St. Joseph, Mo.
Continuation-in-part of Ser. No. 259,206, Jun. 13, 1994, abandoned, which is a continuation of Ser. No. 110,283, Aug. 23, 1993, abandoned, which is a continuation of Ser. No. 986,840, Dec. 8, 1992, abandoned, which is a continuation of Ser. No. 648,092, Jan. 31, 1991, abandoned. This application Feb. 24, 1995, Ser. No. 393,742

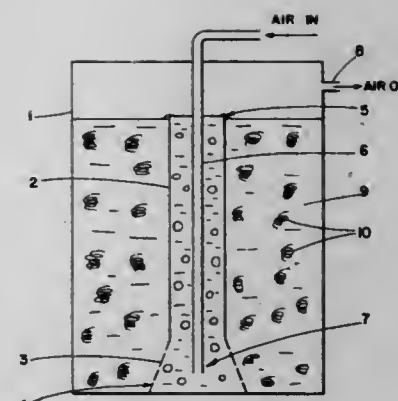
Int. Cl.⁶ C12M 3/00

U.S. Cl. 435—295.2

2 Claims

1. An apparatus for surface-culture of nucleated cells comprising:

- (a) a vessel for holding nutrient medium and filling bodies on the surfaces of which filling bodies nucleated cells grow during cultivation;
- (b) a cylindrical culture chamber disposed centrally along the vertical axis of the vessel which chamber holds the nutrient medium and filling bodies within the vessel such that the nutrient medium and filling bodies substantially fill the culture chamber but leaving a space at the top of the culture chamber;
- (c) a tube located along the center, vertical axis of the culture chamber having a bottom skirt-like projection, which skirt-like projection is attached to the bottom of the culture chamber and the top of the tube extends towards the top of the culture chamber so as to meet and slightly exceed the level of nutrient medium and filling bodies within the culture chamber.



- ber, and the surface walls of the tube are perforated so as to allow nutrient medium to pass through but not to allow filling bodies to pass through from the culture chamber, and
- (d) an air diffusion tube disposed along the center vertical axis of the tube having an outlet opening and an inlet opening so that air can be introduced at the bottom of the tube through its outlet opening and then the air can diffuse through the nutrient medium within the tube to oxygenate such nutrient medium and cause the oxygenated nutrient medium to pass through the perforations in the surface walls of the tube and around the filling bodies in the culture chamber, which air diffusion tube's inlet opening is outside of the vessel and its outlet opening is close to the bottom of the tube, whereby the tube together with the air diffusion tube are so arranged that in use air is introduced at the bottom of the culture chamber through the outlet opening of the air diffusion tube and the resulting air bubbles pass up through the annular space between the tube and the air diffusion of the tube to allow the passed air to oxygenate the nutrient medium and to circulate the medium through the filling bodies.

5,672,508

INHIBITORS OF CELL-CYCLE PROGRESSION, AND USES RELATED THERETO

Jeno Gyuris, Winchester; Lou Lamphere, Boston, both of Mass., and David Beach, Huntington Bay, N.Y., assignors to Mitotix, Inc., Cambridge, Mass.

Filed Jan. 23, 1996, Ser. No. 589,981

Int. Cl.⁶ C12N 15/62; C07H 21/04

U.S. Cl. 435—320.1

37 Claims

1. A nucleic acid comprising a nucleotide sequence encoding a fusion polypeptide comprising CDK-binding motifs from two or more different proteins which bind to cyclin dependent kinases.

5,672,509

HPDE IV-C: A HUMAN PHOSPHODIESTERASE IV ISOZYME

Douglas A. Fisher, Mystic, Conn., assignor to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 112,815, Aug. 25, 1993, abandoned. This application Aug. 5, 1994, Ser. No. 286,856

Int. Cl.⁶ C12N 5/10; 15/09; 15/12; C07H 21/04

U.S. Cl. 435—325

4 Claims

1. An isolated DNA fragment consisting of the DNA sequence of SEQ.ID.NO:1, or an allelic variant thereof.
2. A recombinant DNA fragment comprising the DNA fragment of claim 1.
3. A host cell comprising the recombinant DNA fragment of claim 2.

5,672,510

RETROVIRAL VECTORS

Martin Eglitis, McLean, Va.; J. Anthony Thompson, Birmingham, Ala., and W. French Anderson, Bethesda, Md., assignors to Genetic Therapy, Inc., Gaithersburg, Md., and The United States of America as represented by the Secretary Department of Health and Human Services, Washington, D.C.

Continuation of Ser. No. 919,062, Jul. 23, 1992, abandoned, which is a continuation-in-part of Ser. No. 686,167, Apr. 19, 1991, abandoned, which is a continuation-in-part of Ser. No. 467,791, Jan. 19, 1990, abandoned. This application Nov. 17, 1994, Ser. No. 340,805

Int. Cl.⁶ C12N 5/10; 15/79

U.S. Cl. 435—325

27 Claims

1. A retroviral vector, said vector including a 3' LTR; a 5' LTR; and a multiple cloning site having a length no greater than about 70 base pairs, wherein said multiple cloning site is located between the 5' LTR and 3' LTR of said retroviral vector, and the 5' end of said multiple cloning site is no greater than about 895 base pairs from the 3' end of the 5' LTR, and the 3' end of the multiple cloning site is no greater than about 40 base pairs from the 5' end of the 3' LTR, and said multiple cloning site includes the NotI, SnaBI, SalI, BamHI, XhoI, HindIII, ApaI, and ClaI cloning sites.

5,672,511

BASE-MODIFIED ENZYMIC NUCLEIC ACID

Leonid Beigelman, Longmont, and Alex Karpetsky, Boulder, both of Colo., assignors to Ribozyme Pharmaceuticals, Inc., Boulder, Colo.

Division of Ser. No. 363,254, Dec. 23, 1994, and a continuation-in-part of Ser. No. 963,322, Oct. 15, 1992, abandoned, and Ser. No. 149,210, Nov. 4, 1993, abandoned. This application May 5, 1995, Ser. No. 437,114

Int. Cl.⁶ C12Q 1/68; C12N 1/58; A61R 48/00

U.S. Cl. 435—325

17 Claims

1. An enzymatic nucleic acid molecule comprising at least one modified nucleotide, wherein base portion of said modified nucleotide is a 6-methyl uracil.

16. A mammalian cell comprising the enzymatic nucleic acid of any one of claims 1-4, in vitro.

5,672,512

CHAIN INCUBATOR/CONVEYOR AND METHOD OF USE

James D. Shaw, Hilton, N.Y., assignor to Johnson & Johnson Clinical Diagnostics, Inc., Rochester, N.Y.

Continuation-in-part of Ser. No. 504,170, Jul. 19, 1995, abandoned, which is a division of Ser. No. 354,683, Dec. 12, 1994, abandoned. This application Feb. 12, 1996, Ser. No. 599,901

Int. Cl.⁶ G01N 1/500

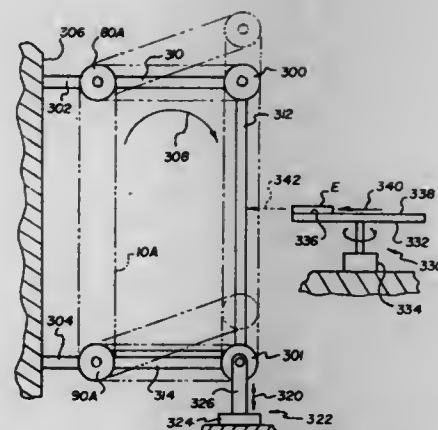
U.S. Cl. 436—46

18 Claims

1. A method of efficiently loading slide test elements onto an incubator comprising a continuous series of slide test element supports joined together for movement past a loading station which may or may not have a slide test element present for loading and means for moving said supports incrementally in a selected direction past said loading station, said joined supports and said moving means defining a flexible and variable path of travel for said supports,

the method comprising the steps of alternately moving said supports past said loading station and loading any slide test element presented by said station, from said station onto a support aligned opposite said station if said aligned support is empty,

and in the event no slide test element is presented by said station to a given empty support prior to said empty support moving past said station, then distorting said flexible path if a slide test element is presented at said station immediately after said



empty support passes, so that said empty support is repositioned and aligned with said station now presenting a slide test element.

5,672,513

CARCINO-EMBRYONIC ANTIGEN DERIVATIVES LACKING THE CARBOXYL TERMINAL END

Alexey Tersikh, Lausanne, Switzerland; André Pèlerin, Montpellier, France, and Jean-Pierre Mach, Lausanne, Switzerland, assignors to Roche Diagnostic Systems, Inc., Branchburg, N.J.

Filed Mar. 23, 1994, Ser. No. 217,299

Claims priority, application European Pat. Off., Mar. 25, 1993, 93810214

Int. Cl.⁶ G01N 33/574; C07K 14/47; 14/82

U.S. Cl. 436—64

3 Claims

1. A recombinant carcino-embryonic antigen glycoprotein lacking the 26 amino acid hydrophobic domain at the C-terminal end of natural carcino-embryonic antigen glycoprotein and devoid of the ethanolamine attached to the C-terminal end of said natural carcino-embryonic antigen glycoprotein which recombinant glycoprotein comprises the amino acid sequence SEQ ID NO: 1.

5,672,514

CHEMILUMINESCENT DETECTING METHOD AND APPARATUS

Tohru Tsuchiya; Taizo Akimoto, both of Kanagawa-ken; Keiji Mori, Tokyo; Yasushi Kojima, Kanagawa-ken, all of Japan; Günter Dietzel, Straubenhardt, Germany; Gerhard Petz, Essen, Germany, and Andreas Köpke, Scheden, Germany, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 19, 1996, Ser. No. 588,854

Claims priority, application Japan, Feb. 1, 1995, 7-015153; Mar. 10, 1995, 7-051465; Mar. 17, 1995, 7-059198

Int. Cl.⁶ G01N 33/48; 21/76; 23/04

U.S. Cl. 436—86

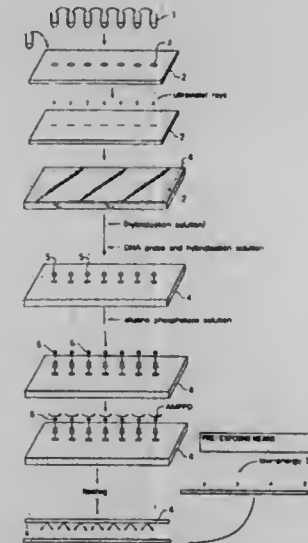
15 Claims

1. A chemiluminescent detecting method comprising the following steps:

uniformly irradiating with radiation a stimutable phosphor sheet formed with a stimutable phosphor layer containing a stimutable phosphor, which can store an energy of radiation and be stimulated by visible light to emit the energy of radiation in a form of light, thereby storing energy of radiation uniformly therein;

selectively labeling a biopolymer with a labeling substance which can produce chemiluminescent light by contact between itself and a chemiluminescent substance, causing the biopolymer labeled with the labeling substance and the chemiluminescent substance to come into contact with each other;

exposing the stimutable phosphor sheet to chemiluminescent light produced by the contact of the biopolymer labeled with



the labeling substance and the chemiluminescent substance for a predetermined period of time to release energy stored in the stimutable phosphor sheet relative to the position and intensity of the chemiluminescent light from the labeled biopolymer in contact with the chemiluminescent substance; scanning the exposed stimutable phosphor sheet with an electromagnetic wave to stimulate release of the remaining stored energy; and photoelectrically converting the released remaining stored energy into an image representative of the chemiluminescent light released by the labeled biopolymer.

5,672,515

SIMULTANEOUS DUAL EXCITATION/SINGLE EMISSION FLUORESCENT SENSING METHOD FOR PH AND PCO₂

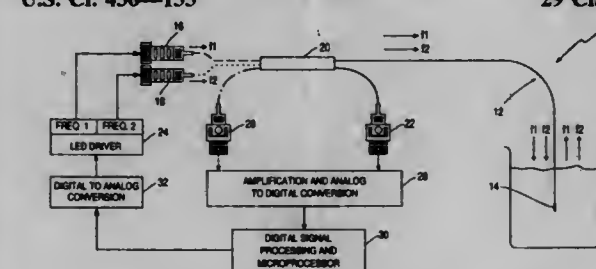
Steven C. Furlong, Maple Grove, Minn., assignor to Optical Sensors Incorporated, Minneapolis, Minn.

Filed Sep. 12, 1995, Ser. No. 526,950

Int. Cl.⁶ G01N 21/64

U.S. Cl. 436—133

29 Claims



1. A method for quantitating an analyte in a sample, comprising: (a) providing an optical sensor comprising an optical fiber means having a distal end portion for contacting the fluid sample, and a proximal end portion for communication with a means for receiving a signal from the distal end portion, and wherein the distal end portion has an analyte sensing means comprising an indicator species having an absorption or excitation spectrum that includes a first region and a second region and wherein the first and second regions do not overlap substantially, and an emission spectrum that is distinct from the absorption or excitation spectrum; (b) contacting the sample with the distal end portion of the optical sensor; (c) simultaneously exciting the indicator species using modulated radiation of a first optical wavelength corresponding to the first region, thereby producing a first modulated indicator emission signal, and modulated radiation of a second optical wavelength corresponding to the second region, thereby pro-

ducing a second modulated indicator emission signal, wherein the radiation of first and second optical wavelengths are respectively transmitted at first and second electrical frequencies;

(d) demodulating the first and second modulated indicator emission signals;

(e) calculating the apparent quantity of analyte present in the sample from the first and second indicator emission signals; and

(f) correcting the apparent quantity of analyte present for variations resulting from external factors, by determining the ratio of the first and second indicator emission signals.

5,672,516

METHOD FOR REAGENTLESS MEASUREMENT OF THE TOTAL ORGANIC CARBON CONTENT OF AN AQUEOUS SAMPLE

Eldon L. Jeffers, LaPorte, Tex., assignor to Fellweger Analytics, Inc., League City, Tex.

Division of Ser. No. 90,492, Jul. 12, 1993, Pat. No. 5,413,763.

This application May 9, 1995, Ser. No. 437,696

Int. Cl.⁶ G01N 21/61; 33/18

U.S. Cl. 436—146

8 Claims

1. A method of reagentless oxidation of organic carbon in an aqueous sample, comprising:

i. removing inorganic carbon from said sample by acidifying said sample so that substantially all of said inorganic carbon is converted to carbon dioxide;

ii. passing said acidified sample through a gas-liquid separator so that said carbon dioxide in said sample is separated from said sample, wherein said gas-liquid separator operates by admitting a stream of said acidified sample on one side of a gas-permeable, liquid-impermeable membrane and admitting a stream of molecular oxygen flowing in a direction opposite that of said sample stream so that the concentration of carbon dioxide on the oxygenated side of said membrane is substantially zero, so that said carbon dioxide in said acidified sample migrates across said membrane and is purged from said sample, and so that said sample is simultaneously oxygenated by molecular oxygen migrating across said membrane into said sample; and

iii. irradiating said purged and oxygenated sample with UV light to convert said molecular oxygen in said sample into atomic oxygen and to promote oxidization of said organic carbon.

5,672,517

METHODS AND COMPOSITIONS FOR DIAGNOSIS AND TREATMENT OF INTERSTITIAL CYSTITIS

Gerald J. Domingue, 3540 Rue Michelle, New Orleans, La. 70131

Filed May 12, 1995, Ser. No. 439,869

Int. Cl.⁶ G01N 33/557

U.S. Cl. 436—518

8 Claims

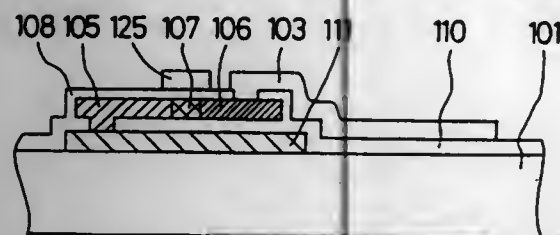
1. A process for obtaining an interstitial cystitis associated particle (

5,672,518

METHOD OF FABRICATING SEMICONDUCTOR DEVICE HAVING STACKED LAYERED SUBSTRATE
Yutaka Hayashi, Tsukuba; Masaaki Kamiya, Tokyo; Yoshikazu Kojima, Tokyo, and Hiroaki Takasu, Tokyo, all of Japan, assignors to Agency of Industrial Science and Technology, and Seiko Instruments Inc., both of Japan
This application May 7, 1994, Ser. No. 60,163
Claims priority, application Japan, Oct. 16, 1990, 2-277436
Int. Cl.⁶ H01L 21/265; 31/18

U.S. Cl. 437—2

10 Claims



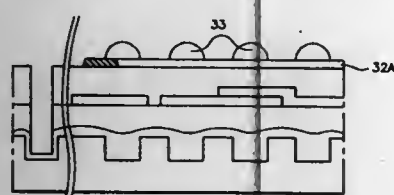
1. A method of fabricating a semiconductor device, comprising the steps of: forming a substrate having a stacked-layered structure comprised of a support substrate, a light-shielding layer formed on the support substrate, an insulating layer formed on the light-shielding layer, and a semiconductor layer formed on the insulating layer; selectively etching the light-shielding layer to form a light-shielding layer pattern; and thereafter forming a transistor switching element having a channel region formed in and constituting part of the semiconductor layer and having a main gate electrode formed over and being electrically insulated from the channel region, wherein the step of forming a substrate includes performing thermocompression bonding of the semiconductor layer to the insulating layer.

5,672,519

METHOD OF FABRICATING SOLID STATE IMAGE SENSING ELEMENTS
Kwang Bok Song; Sung Ki Kim, both of Seoul, and Jin Sub Shim, Kyungki-do, all of Rep. of Korea, assignors to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea
Division of Ser. No. 210,225, Mar. 17, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 484,980
Claims priority, application Rep. of Korea, Feb. 23, 1994, 3197/1994
Int. Cl.⁶ H01L 21/312; 31/101

U.S. Cl. 437—3

8 Claims



4. A method for fabrication of a solid state image sensing element comprising the steps of:
forming a first photoresist on a substrate, the substrate including metal pad portions;
forming stripe microlens patterns by selective exposure and development of the first photoresist;
reflowing the stripe microlens patterns with heat treatment to form stripe microlens layers;

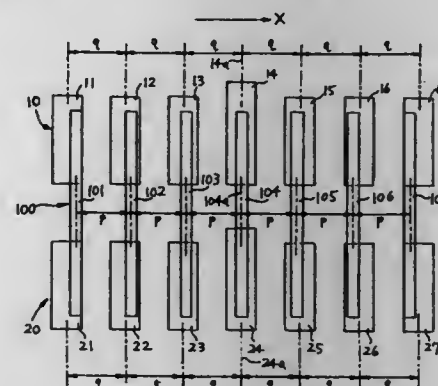
simultaneously exposing the metal pad portions and flattening upper surfaces of the stripe microlens layers;
forming a second photoresist on the stripe microlens layers;
forming a mosaic microlens pattern on the flattened upper surfaces of the stripe microlens layers by selective exposure and development of the second photoresist; and
forming mosaic microlenses by reflowing the mosaic microlens pattern with heat treatment.

5,672,520

METHOD OF CHECKING ALIGNMENT ACCURACY IN PHOTOLITHOGRAPHY
Hidetaka Natsume, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Mar. 28, 1996, Ser. No. 620,808
Claims priority, application Japan, Mar. 30, 1995, 7-072810
Int. Cl.⁶ H01L 21/66

U.S. Cl. 437—8

6 Claims



1. A method of checking the accuracy of alignment of a photomask pattern for a photolithographic step in fabricating semiconductor integrated circuits with a plurality of patterns which are individually defined on a wafer in a plurality of previous photolithographic steps, the method comprising:

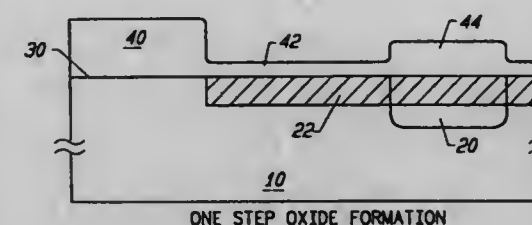
- providing each of said plurality of patterns with an alignment check pattern consisting of a plurality of pattern elements arranged in a row at a first constant pitch such that the rows of pattern elements of the respective alignment check patterns become parallel to each other and such that each pattern element of each alignment check pattern is in alignment with a pattern element of each of the other alignment check pattern(s);
- providing the photomask pattern with another alignment check pattern consisting of a plurality of pattern elements arranged in a row at a second constant pitch different from said first constant pitch, said another alignment check pattern being arranged such that, in the composite layout of the alignment check patterns on the wafer and said another alignment check pattern, each pattern element of said another alignment check pattern partly overlaps a pattern element of each of the alignment check patterns on the wafer; and
- examining which of the pattern elements of said another alignment check pattern is in accurate alignment with one of the pattern elements of each of the alignment check patterns on the wafer.

5,672,521

METHOD OF FORMING MULTIPLE GATE OXIDE THICKNESSES ON A WAFER SUBSTRATE
Radu M. Barsan, Cupertino; Xiao-Yu Li, and Sunil Mehta, both of San Jose, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.
Filed Nov. 21, 1995, Ser. No. 561,306
Int. Cl.⁶ H01L 21/266

U.S. Cl. 437—24

24 Claims



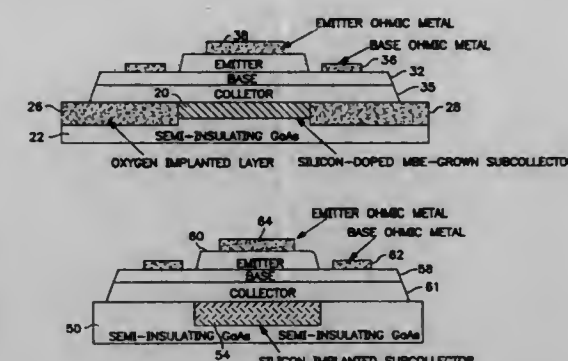
1. An integrated circuit manufacturing process, comprising the steps of:
forming a first region in a substrate wherein the first region contains a dopant that enhances oxide formation;
forming a second region in the substrate wherein the second region contains a dose of nitrogen that retards oxide formation;
forming an oxide layer over the first and the second regions and over a third region of the substrate such that the first, second, and third regions yield differing thicknesses of the oxide layer.

5,672,522

METHOD FOR MAKING SELECTIVE SUBCOLLECTOR HETEROJUNCTION BIPOLAR TRANSISTORS
Dwight Christopher Streit, Seal Beach; Michael Lammert, Manhattan Beach, and Aaron Kenji Oki, Torrance, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed Mar. 5, 1996, Ser. No. 611,117
Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—31

7 Claims



forming a gate insulating layer on said sloping sidewall surfaces of said first and said second steps; and
forming a gate of a transistor over the gate insulating layer such that a channel region of the transistor is disposed in the semiconductor material at said sloping sidewall surface of said first step.

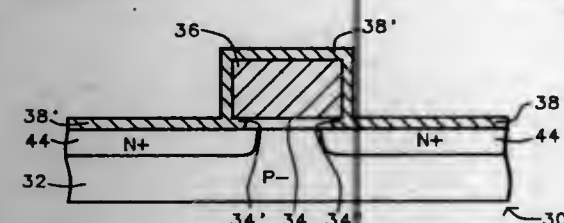
5,672,525

POLYSILICON GATE REOXIDATION IN A GAS MIXTURE OF OXYGEN AND NITROGEN TRIFLUORIDE GAS BY RAPID THERMAL PROCESSING TO IMPROVE HOT CARRIER IMMUNITY

Yang Pan, Singapore, Singapore, assignor to Chartered Semiconductor Manufacturing PTE Ltd., Singapore, Singapore
Filed May 23, 1996, Ser. No. 652,882
Int. Cl.⁶ H01L 21/316

U.S. Cl. 437—40

15 Claims



1. A method of forming an FET transistor comprising the steps as follows:

Forming a stack of a gate oxide layer and a control gate electrode on a surface of a doped semiconductor substrate with counterdoped source/drain regions therein;
forming a silicon oxide layer over said stack of said gate oxide layer and said control gate electrode and exposed portions of said semiconductor substrate including said source/drain regions;
fluorinating said silicon oxide layer and the corners of said gate oxide layer by rapid thermal processing providing a fluorinated silicon oxide layer;
wherein said rapid thermal processing is performed in an atmosphere of NF_3 gas and O_2 gas.

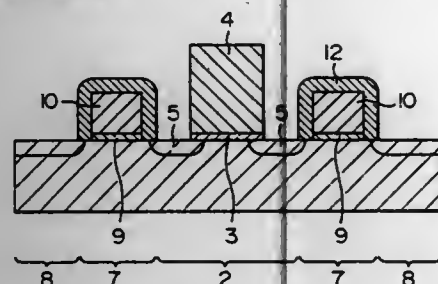
5,672,526

METHOD OF FABRICATING A SEMICONDUCTOR DEVICE USING ELEMENT ISOLATION BY FIELD SHIELD

Koichiro Kawamura, Tokyo, Japan, assignor to Nippon Steel Corporation, Tokyo, Japan
Division of Ser. No. 362,784, Dec. 23, 1994, Pat. No. 5,498,898. This application Mar. 12, 1996, Ser. No. 614,047
Claims priority, application Japan, Dec. 28, 1993, 5-351920
Int. Cl.⁶ H01L 21/336

U.S. Cl. 437—41 R

3 Claims



1. A method of making a semiconductor device comprising the steps of:

forming a field shield electrode of a thin film of at least one of polysilicon and amorphous silicon on a surface of an element-isolation region of a semiconductor substrate with a first

insulating film interposed therebetween and having a thickness of no more than 10 nm nor less than 5 nm for defining an active region in said substrate surrounded by said field shield electrode;

forming a second insulating film on a surface of said active region at its area where a gate electrode of a transistor is to be formed, the thickness of said first insulating film being less than the thickness of said second insulating film; and
applying heat treatment at a temperature not lower than 700° C. to said semiconductor substrate on which at least said field shield electrode is formed.

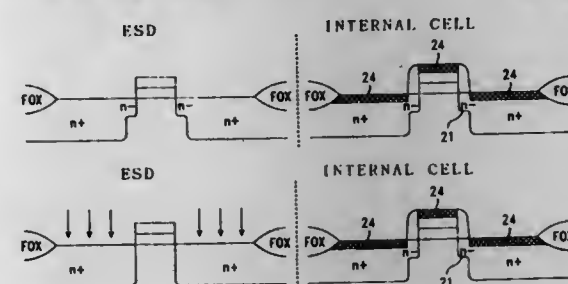
5,672,527

METHOD FOR FABRICATING AN ELECTROSTATIC DISCHARGE PROTECTION CIRCUIT

Jiann-Shin Lee, Taichung Hsien, Taiwan, assignor to United Microelectronics Corp., Hsinchu, Taiwan
Filed Mar. 8, 1996, Ser. No. 613,091
Int. Cl.⁶ H01L 21/336

U.S. Cl. 437—41 RLD

10 Claims



1. A method for fabricating an electrostatic discharge (ESD) protection circuit on a silicon substrate that has defined gate, lightly-doped source and drain, heavily-doped source and drain, field oxide and sidewall spacers adjacent said gate in a MOSFET device region and in an electrostatic (ESD) protection circuit region, said method comprising the steps of:

forming a metal layer on said silicon substrate;
coating and defining a photo-resist mask on said metal layer in said MOSFET device region;
etching unmasked portion of said metal layer to remove said metal layer in said ESD protection circuit region of said silicon substrate;
removing said sidewall spacers adjacent said gate in said ESD protection circuit of said silicon substrate;
stripping said photo-resist mask;
using a rapid thermal process to form salicide; and
removing said lightly-doped drain (LDD) in said ESD protection circuit region by implanting impurities in the ESD protection circuit region.

5,672,528

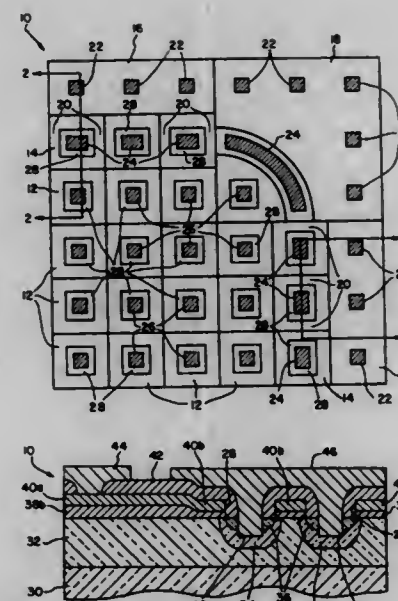
METHOD FOR MAKING SEMICONDUCTOR DEVICE HAVING FIELD LIMITING RING

Donald Ray Disney, Kokomo; Wayne Anthony Sozansky, Greentown, and James Max Himelick, Kokomo, all of Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.
Division of Ser. No. 376,566, Jan. 23, 1995, Pat. No. 5,545,915.
This application Apr. 22, 1996, Ser. No. 635,509
Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—41

7 Claims

1. A method for forming a field limiting ring for a semiconductor device, the method comprising the steps of:
providing a substrate forming a first electrode of the semiconductor device;
forming a dielectric layer on the substrate;
forming a polysilicon layer on the dielectric layer such that the polysilicon layer is electrically isolated from the substrate;



defining openings through the dielectric layer and the polysilicon layer so as to expose underlying portions of the substrate, a first set of the openings being aligned so as to delineate an interior region and an exterior region on the surface of the semiconductor device, the polysilicon layer forming a bridge between adjacent openings of the first set whereby each bridge interconnects the interior region and the exterior region, each bridge having a width, a second set of the openings being disposed within the interior region, the polysilicon layer forming a second electrode between each adjacent pair of openings of the second set, each of the second electrodes having a width which is larger than the widths of the bridges;

forming a region of a first dopant type in the surface of the substrate through each of the openings;
laterally diffusing the regions such that the regions formed through the openings of the first set merge beneath the bridges and thereby form a continuous field limiting ring in the substrate of the semiconductor device, and such that the regions formed through the openings of the second set form wells in the substrate of the semiconductor device, each well being isolated from adjacent wells;
forming an island of a second dopant type in each of the wells; and
forming a metallization having portions projecting through each of the openings and into the islands, wells and continuous field limiting ring in the substrate, the metallic alien being electrically isolated from the polysilicon layer.

5,672,529

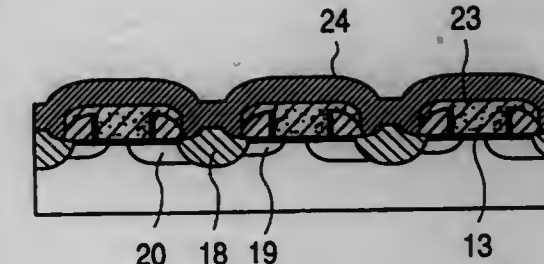
METHOD OF MANUFACTURING NONVOLATILE SEMICONDUCTOR MEMORY DEVICE

Masataka Kato, Musashino; Tetsuo Adachi, Hachioji; Hitoshi Kume, Musashino, and Shoji Shukuri, Koganei, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 30, 1995, Ser. No. 413,263
Claims priority, application Japan, Mar. 31, 1994, 6-062386
Int. Cl.⁶ H01L 21/8247; 21/265

U.S. Cl. 437—43

12 Claims

1. A method of manufacturing a nonvolatile semiconductor memory device, comprising at least the steps of:
depositing on a semiconductor surface of a first conductivity type at least three layers including a gate oxide film, a first polysilicon layer and a first insulation film;
patterning said three layers into stripe columnwise lines;
forming a second insulation film on side walls of said columnwise lines, respectively;



forming an element isolating region on the semiconductor surface of the first conductivity type which is not covered with said first insulation film and said second insulation film;
depositing a second polysilicon layer;
patterning said second polysilicon layer and said first polysilicon layer into rowwise lines which extend substantially orthogonally to said columnwise lines.

5,672,530

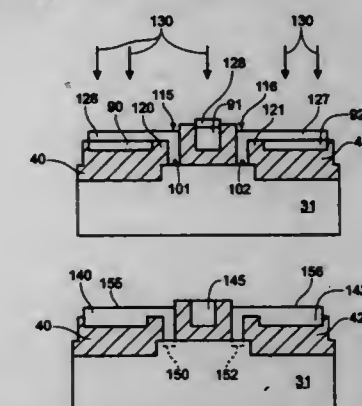
METHOD OF MAKING MOS TRANSISTOR WITH CONTROLLED SHALLOW SOURCE/DRAIN JUNCTION

Sheng Teng Hsu, Camas, Wash., assignor to Sharp Microelectronics Technology, Inc., Camas, Wash., and Sharp Kabushiki Kaisha, Osaka, Japan
Continuation-in-part of Ser. No. 335,112, Nov. 7, 1994, abandoned, which is a continuation of Ser. No. 34,093, Mar. 22, 1993, abandoned. This application Mar. 15, 1996, Ser. No. 616,561

Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—44

7 Claims



1. A method of forming a MOS transistor on a substrate of single crystal silicon in an active region of the substrate which is separated by field insulation regions from adjacent active regions, the method comprising the following steps:

depositing a layer of insulating material on the substrate, including on the field insulation regions, the deposited layer providing gate insulation on the active region and adding insulating material to the field insulation regions;
depositing polycrystalline silicon on said gate insulation to provide a gate electrode and provide insulating side walls on the sides of said gate electrode;
etching the insulating material to form source and drain gaps between the field insulation regions and the side walls on opposite sides of the gate, the surface of the substrate being exposed in each said source and drain gap and each said gap having a depth, perpendicular to the surface of the substrate between the field insulation region and the adjacent side wall, of at least 1500 Å;
depositing polycrystalline silicon on said substrate to form source and drain electrodes, said source electrode including a source strap portion in said source gap contacting the substrate at a source junction region and including a source interconnect portion extending over the field insulation region adjacent said source gap, and said drain electrode including a

forming a contact trench in the second dielectric material, the contact trench having a first edge that is at least partially aligned over the conductive gate and is at least partially defined by the second portion of the sidewall spacer structure, and a second edge that is aligned over the source region, the contact trench defining an exposed surface of the source region;

forming a conductive lower capacitor plate at least partially over the second dielectric material and to conformally cover the first and second edges of the contact trench and the exposed surface of the source region by forming a first layer of conductive material having a first thickness on the first and second edges of the contact trench and then forming a second layer of conductive material having a second thickness that is less than the first thickness on the first layer;

forming a layer of capacitor dielectric material over the lower capacitor plate; and

forming a conductive upper capacitor plate over the capacitor dielectric material.

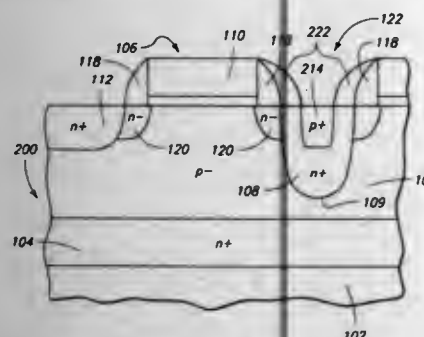
5,672,536

METHOD OF MANUFACTURING A NOVEL STATIC MEMORY CELL HAVING A TUNNEL DIODE

Jeff Zhiqiang Wu, Meridian, and Joseph Karniewicz, Boise, both of Id., assignors to Micron Technology, Inc., Boise, Id. Division of Ser. No. 492,774, Jun. 21, 1995. This application Jun. 3, 1996, Ser. No. 657,300
Int. Cl.⁶ H01L 21/70:27/00

U.S. Cl. 437—52

30 Claims



1. A method of manufacturing a static memory cell comprising: providing a substrate; forming a buried layer of a first conductivity type in the substrate; forming a transistor relative to the substrate and over the buried layer, the transistor having a source, drain, and gate all of the first conductivity type; and forming a region of a second conductivity type in junction with the source to define a tunnel diode between the region and the source.

5,672,537

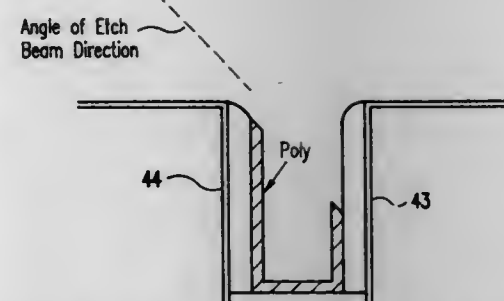
METHOD FOR PREPARING A NARROW ANGLE DEFINED TRENCH IN A SUBSTRATE

Daniel A. Carl, Santa Clara County, Calif.; Donald M. Kenney; Walter E. Mlynko, both of Chittenden County, Vt., and Son Van Nguyen, Dutchess County, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y. Division of Ser. No. 444,465, May 19, 1995, Pat. No. 5,610,441. This application Sep. 17, 1996, Ser. No. 714,276
Int. Cl.⁶ H01L 21/76

U.S. Cl. 437—67

3 Claims

1. A method of preparing a narrow trench in a substrate, comprising the steps of: providing a substrate with trench structures;



depositing polysilicon over said substrate and in said trench structures, said depositing step coating opposing sidewalls of said trench structures; and removing a first portion of said polysilicon from a first sidewall of said opposing sidewalls of said trench structures and leaving a first remaining portion of said polysilicon on said first sidewall of said opposing sidewalls of said trench and removing polysilicon from a surface of said substrate using an angled reactive ion etch, said removing step leaving a second portion of said polysilicon on a second sidewall of said opposing sidewalls of said trench, said second remaining portion of polysilicon being greater in quantity than said first remaining portion.

5,672,538

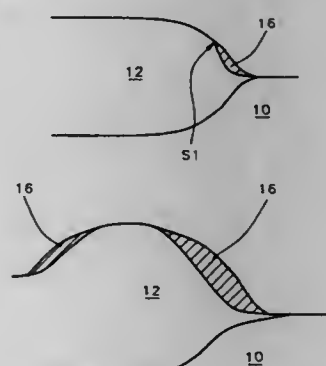
MODIFIED LOCUS ISOLATION PROCESS IN WHICH SURFACE TOPOLOGY OF THE LOCOS OXIDE IS SMOOTHED

Jhon-Jhy Liaw, Sang-Chong; Jin-Yuan Lee, Hsin-Chu, and Sou-Wein Kuo, Taipei, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, LTD, Hsin-Chu, Taiwan

Filed Dec. 4, 1995, Ser. No. 567,015
Int. Cl.⁶ H01L 21/76

U.S. Cl. 437—69

14 Claims



1. A method for forming field oxide isolation structure comprising: providing a silicon substrate; forming a multilayer oxidation masking structure having a first silicon oxide layer and a silicon nitride layer; forming a mask by removing said silicon nitride layer and said first silicon oxide layer over regions where said field oxide isolation structures are to be formed; oxidizing said regions to form said field oxide isolation structures; removing resulting remaining portions of the silicon nitride layer with aqueous chemical etchants; depositing a second silicon oxide layer over said silicon substrate; and anisotropically etching said second silicon oxide layer using a method of end-point-detection to terminate the anisotropic etching of said second silicon oxide layer upon exposure of the silicon substrate, taking care not to remove resultant

remaining portions of said second silicon oxide layer which lie adjacent to topological contours.

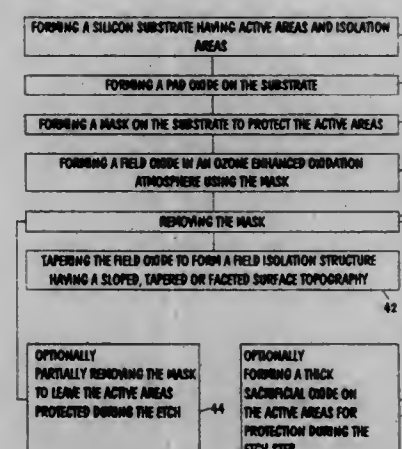
5,672,539

METHOD FOR FORMING AN IMPROVED FIELD ISOLATION STRUCTURE USING OZONE ENHANCED OXIDATION AND TAPERING

Randhir P. S. Thakur; J. Brett Rolfsen; Fernando Gonzalez, all of Boise, and John T. Moore, Meridian, all of Id., assignors to Micron Technology, Inc., Boise, Id. Continuation-in-part of Ser. No. 264,313, Jun. 23, 1994, abandoned, which is a continuation-in-part of Ser. No. 181,650, Jan. 14, 1994, abandoned. This application Oct. 3, 1995, Ser. No. 538,732
Int. Cl.⁶ H01L 21/76

U.S. Cl. 437—70

34 Claims



1. A method for forming a field isolation structure for a semiconductor device comprising: forming a silicon substrate having active areas and isolation areas; forming a mask on the substrate having openings on the isolation areas and solid portions on the active areas; forming a field oxide in the isolation areas using an oxidation atmosphere comprising oxygen and ozone; and dry etching a surface of the field oxide to form a tapered surface.

5,672,540

Patent Not Issued For This Number

5,672,541

ULTRA-SHALLOW JUNCTION SEMICONDUCTOR DEVICE FABRICATION

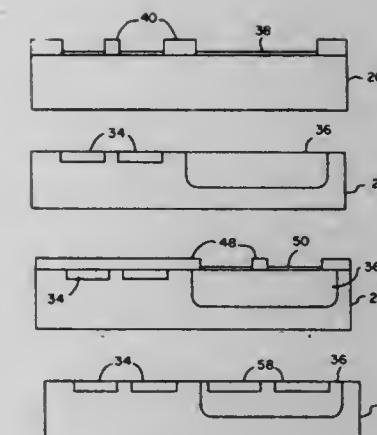
John H. Booske, and Steven S. Gearhart, both of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jun. 14, 1995, Ser. No. 490,242
Int. Cl.⁶ H01L 21/225

U.S. Cl. 437—160

17 Claims

1. A method for fabricating ultra shallow junction semiconductor devices, comprising the steps of: (a) depositing a thin film of a boron containing dopant from a solid source of the boron containing dopant onto a surface of a silicon based semiconductor substrate; (b) surrounding the substrate surface with a plasma of ions generated from a non-reactive gas; (c) accelerating the ions from the plasma toward the substrate surface at an ion energy sufficient to impact the film of boron



containing dopant and drive boron atoms from the dopant into the substrate to dope the substrate; (d) depositing a thin film of phosphorus from a solid source of phosphorus onto the surface of the semiconductor substrate; (e) surrounding the substrate surface with a second plasma of ions generated from a non-reactive gas; and (f) accelerating ions from the second plasma toward the substrate surface at an ion energy sufficient to impact the film of phosphorus and drive phosphorus atoms from the film into the substrate.

5,672,542

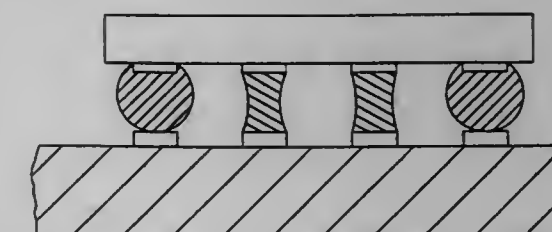
METHOD OF MAKING SOLDER BALLS BY CONTAINED PASTE DEPOSITION

Matthew K. Schiebert, Palo Alto; Donald T. Campbell, Campbell; Matthew Heydinger, Sunnyvale; Robert E. Kraft, Santa Clara, and Hubert A. Vander Plas, Palo Alto, all of Calif., assignors to Hewlett Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 287,453, Aug. 8, 1994, Pat. No. 5,539,153. This application Mar. 19, 1996, Ser. No. 618,226
Int. Cl.⁶ H01L 21/44

U.S. Cl. 437—183

13 Claims



1. A method for forming solder bumps directly on a substrate having a plurality of wettable pads using solder paste and a non-wettable, photoimageable material, comprising: forming a thin non-wettable photoimageable mask on the substrate with the material; forming a plurality of apertures in the mask 10 align with the pads; applying solder paste to the mask such that the solder paste loads the mask apertures; heating the solder paste, such that the solder paste coalesces to form solder bumps on the pads; and removing the mask after formation of the solder bumps.

5,672,543

VOLCANO DEFECT-FREE TUNGSTEN PLUG

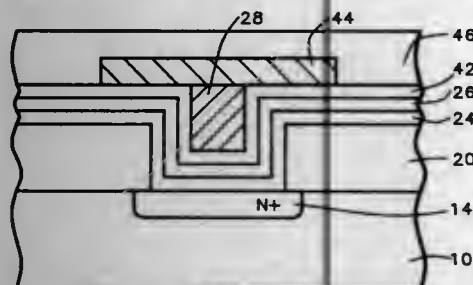
Chaur Rong Chang; Po-Tao Chu; Tzu-Min Peng, and Kuang-Hui Chang, all of Hsin-chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsinchu, Taiwan

Filed Apr. 29, 1996, Ser. No. 639,677

Int. Cl.⁶ H01L 21/18

U.S. Cl. 437—192

10 Claims



1. A method of forming tungsten plug metallization without volcano defects in the fabrication of integrated circuits comprising: providing semiconductor device structures in and on a semiconductor substrate; providing an insulating layer covering said semiconductor device structures wherein a contact opening is made through said insulating layer to said semiconductor substrate; depositing a barrier layer conformally over the surface of said insulating layer and within said contact opening; depositing a stress buffer layer comprising one of the group containing titanium silicide, and cobalt silicide and having a thickness of between about 500 and 1500 Angstroms overlying said barrier layer wherein said stress buffer layer prevents volcano defects; and forming a tungsten plug within said contact opening to complete said formation of said tungsten plug metallization without volcano defects in said fabrication of said integrated circuit.

5,672,544

METHOD FOR REDUCING SILICIDED POLY GATE RESISTANCE FOR VERY SMALL TRANSISTORS

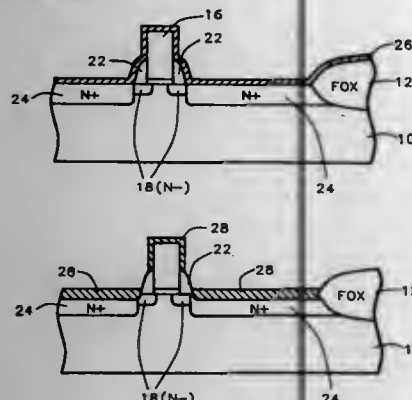
Yang Pan, 60 Woodlands Industrial Park D, Street 2, Singapore, Singapore, 738406

Filed Apr. 22, 1996, Ser. No. 635,827

Int. Cl.⁶ H01L 21/18

U.S. Cl. 437—200

20 Claims



1. A method of fabricating an integrated circuit device comprising: growing a layer of gate silicon oxide over the surface of a semiconductor substrate; depositing a polysilicon layer overlying said gate silicon oxide layer; etching away said polysilicon and said gate oxide layers where they are not covered by a mask to form a gate electrode;

implanting first ions to form lightly doped regions within said semiconductor substrate using said gate electrode as a mask; depositing a dielectric layer overlying said semiconductor substrate and said gate electrode; anisotropically etching said dielectric layer to leave first spacers on the sidewalls of said gate electrode; isotropically etching back said first spacers to leave second spacers extending approximately halfway up on the sidewalls of said gate electrode; implanting second ions to form heavily doped source and drain regions within said semiconductor substrate using said gate electrode and said second spacers as a mask; conformally depositing a layer of titanium over the surfaces of said semiconductor substrate; first annealing said semiconductor substrate whereby said titanium layer is transformed into a titanium silicide layer except where said titanium layer overlies said second spacers; stripping said titanium layer overlying said second spacers to leave said titanium silicide layer only on the top surface and the sidewalls of said gate electrode not covered by said second spacers and on the top surface of said semiconductor substrate overlying said source and drain regions; second annealing said semiconductor substrate whereby said titanium silicide layer is transformed into a lower resistance phase; depositing an insulating layer over the surface of said semiconductor substrate covering said gate electrode; and providing metallization with electrical connections to complete the fabrication of said integrated circuit device.

5,672,545

THERMALLY MATCHED FLIP-CHIP DETECTOR ASSEMBLY AND METHOD

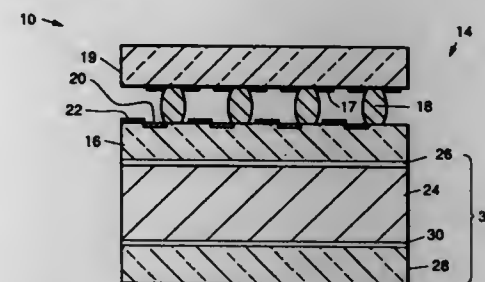
Thomas A. Trautt, Santa Barbara, and Thomas E. Wolverton, Goleta, both of Calif., assignors to Santa Barbara Research Center, Goleta, Calif.

Filed Aug. 8, 1994, Ser. No. 287,634

Int. Cl.⁶ H01L 21/60

U.S. Cl. 437—209

2 Claims



1. A method for reducing thermal stress in flip-chip assemblies, comprising: providing a detector that includes a radiation sensitive circuit on a substrate that is flip-chip connected to a layer of semiconductor material, said substrate having a TCE greater than the semiconductor layer; forming a first compensation layer on said semiconductor having a TCE greater than said substrate's and a first thickness; forming a second compensation layer on said first compensation layer having a TCE approximately equal to the semiconductor layer's and a second thickness, the materials of said compensation layers and their thicknesses being selected to produce a composite structure of the semiconductor and compensation layers having a composite TCE that is greater than the semiconductor layer's TCE and less than or equal to the substrate's TCE; and mounting said detector onto a platform by bonding said second compensation layer to the platform to produce a second composite TCE of the composite structure and platform that is approximately equal to the substrate's TCE.

5,672,546

SEMICONDUCTOR INTERCONNECT METHOD AND STRUCTURE FOR HIGH TEMPERATURE APPLICATIONS

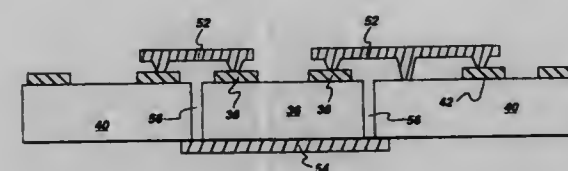
Robert John Wojnarowski, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 4, 1995, Ser. No. 566,624

Int. Cl.⁶ H01L 21/60

U.S. Cl. 437—209

11 Claims



1. A method for interconnecting at least one high temperature semiconductor chip having chip pads, the method comprising: applying a removable polymer layer over the at least one semiconductor chip; forming vias in the removable polymer layer aligned with the chip pads; depositing a flexible pattern of electrical conductors capable of withstanding high temperatures over the removable polymer layer and into the vias; and removing the removable polymer layer.

5,672,547

METHOD FOR BONDING A HEAT SINK TO A DIE PADDLE

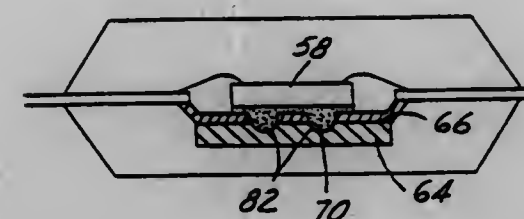
Jian Dih Jeng, Hsinchu, and Hsing Seng Wang, Tan-Yuan, both of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jan. 31, 1996, Ser. No. 594,497

Int. Cl.⁶ H01L 21/60; 23/48

U.S. Cl. 437—209

15 Claims



1. A method of bonding an integrated circuit die to a heat sink, comprising the steps of: providing a lead frame having a die paddle portion, said die paddle portion having a top surface, a bottom surface, and at least one aperture therethrough; positioning a heat sink abutting said bottom surface of said die paddle portion wherein said heat sink has recessed areas in the surface facing said die paddle portion at locations corresponding to the locations of said at least one aperture when said heat sink and said die paddle portion are bonded together, and pressing an integrated circuit die against the top surface of said die paddle portion with an adhesive sandwiched therein between such that the adhesive flows through said at least one aperture of said die paddle adhering to said heat sink.

5,672,548

METHOD FOR ATTACHING HEAT SINKS DIRECTLY TO CHIP CARRIER MODULES USING FLEXIBLE-EPOXY

Thomas Moran Culnane, Lanesboro, Pa.; Michael Anthony Gaynes, Vestal, N.Y.; Ping Kwong Seto, Endicott, N.Y., and Hussain Shaikatullah, Endwell, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

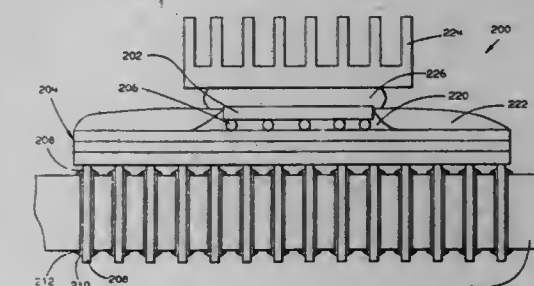
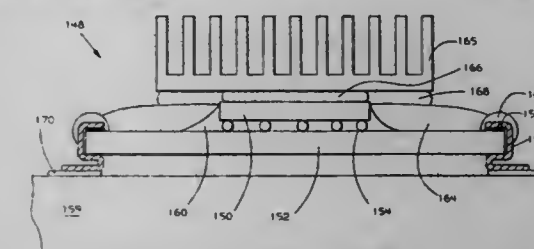
Continuation of Ser. No. 273,253, Jul. 11, 1994, abandoned.

This application Jun. 26, 1996, Ser. No. 668,312

Int. Cl.⁶ H01L 21/265

U.S. Cl. 437—209

36 Claims



1. A method for producing a chip carrier module, comprising: electrically connecting a first surface of a semiconductor chip to a substrate; depositing flexible-epoxy which is not fully cured, between a second surface of the semiconductor chip and a heat spreader; pressing the heat spreader and the chip together; and heating to cure the flexible-epoxy.

5,672,549

METHOD OF PRODUCING EPOXY RESIN-ENCAPSULATED SEMICONDUCTOR DEVICE

Katsunori Minami, Tsu, and Hideo Ito, Utsunomiya, both of Japan, assignors to Sumitomo Bakelite Company Limited, Tokyo, Japan

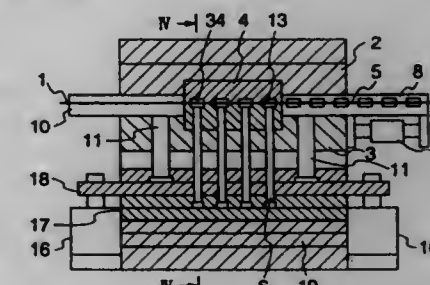
Filed Jul. 22, 1996, Ser. No. 681,348

Claims priority, application Japan, Jan. 31, 1996, 8-015247; Jan. 31, 1996, 8-015248

Int. Cl.⁶ H01L 21/60

U.S. Cl. 437—211

16 Claims



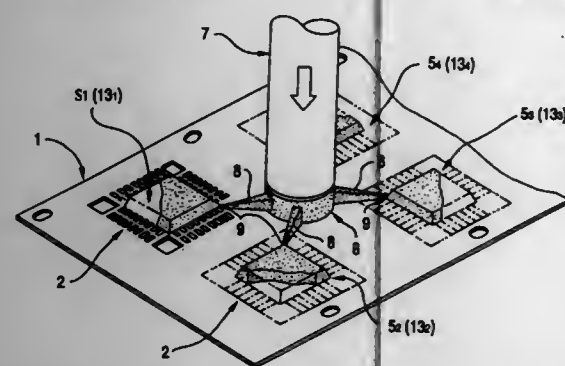
1. A method of producing a resin-encapsulated semiconductor device by injecting an epoxy resin molding compound into an injection mold, in which a lead frame, to which a semiconductor has been bonded and wire-bonded, is fixedly set as an insert in the injection mold, and by curing such epoxy resin molding compound in said injection mold, the method comprising the steps of:

injecting epoxy resin molding compound into said injection mold;
gradually increasing an injection pressure of said injection molding machine in such a manner that a maximum pressure of 30 kg/cm² to 300 kg/cm² is achieved at the time when 80% to 95% of a total amount of the epoxy resin molding compound to be injected is injected into the injection mold; and
injecting the remaining epoxy resin molding compound at an injection pressure of 20 kg/cm² to 100 kg/cm².

5,672,550
METHOD OF ENCAPSULATING SEMICONDUCTOR DEVICES USING A LEAD FRAME WITH RESIN TABLETS ARRANGED ON LEAD FRAME
Masahiro Tsuji, and Osamu Miyata, both of Kyoto, Japan, assignors to Rohm Co., Ltd., Kyoto, Japan
Filed Jan. 10, 1996, Ser. No. 584,449
Claims priority, application Japan, Jan. 10, 1995, 7-018733; Feb. 16, 1995, 7-053588
Int. Cl.⁶ H01L 21/40

U.S. Cl. 437—219

10 Claims



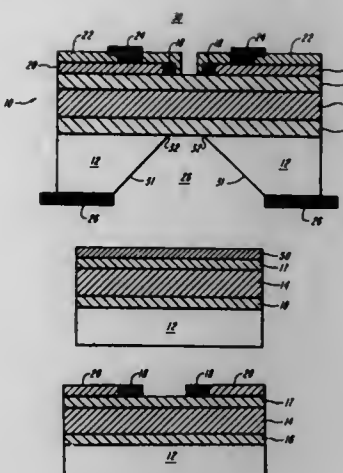
1. A method of manufacturing semiconductor devices comprising the steps of:
setting in a mold a lead frame having a construction in which semiconductor elements are arrayed in a plurality of series in a longitudinal direction of the lead frame;
positioning a resin tablet on the lead frame set in the mold so that resin paths are extended from the resin tablet at substantially equal lengths to a plurality of cavities in the mold; and
injecting molding resin into the cavities through the resin paths to pack the semiconductor elements by pressing the resin tablet.

5,672,551
METHOD FOR MANUFACTURING A SEMICONDUCTOR PRESSURE SENSOR WITH SINGLE-CRYSTAL SILICON DIAPHRAGM AND SINGLE-CRYSTAL GAGE ELEMENTS
Clifford D. Fung, Mansfield, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Division of Ser. No. 210,041, Mar. 18, 1994, abandoned. This application Jun. 5, 1995, Ser. No. 462,176
Int. Cl.⁶ H01L 21/77

U.S. Cl. 437—228 SEN

3 Claims

1. A method for manufacturing a semiconductor pressure sensor, said method comprising the successive steps of
(A) providing a silicon-on-insulator wafer, said wafer including a silicon substrate, a first silicon oxide implantation for forming an etch stop, and a first surface annealed silicon,
(B) epitaxially growing additional single-crystal silicon on said first surface silicon for forming a diaphragm with opposing first and second surfaces,
(C) implanting oxygen ions in said additional single-crystal silicon for forming a dielectric isolator,



(D) annealing said implanted additional single-crystal silicon thereby forming a second surface silicon on said dielectric isolator,
(E) forming a dielectrically isolated single-crystal silicon piezoresistive gage element in said second surface silicon by boron ion implantation and etching,
(F) forming an external connector by metal evaporation and etching, said external connector being in circuit with said gage element for providing an external electrical connection to said sensor, and
(G) etching said substrate to said etch stop such that said diaphragm can deflect in response to a pressure difference between said first and second surfaces.

5,672,552

Patent Not Issued For This Number

5,672,553
SUPERPLASTIC SILICON NITRIDE SINTERED BODY
Mamoru Mitomo, Ushiku; Hideki Hirotsuru, Omata; Hisayuki Suematsu, and Toshiyuki Nishimura, both of Tsukuba, all of Japan, assignors to National Institute for Research in Inorganic Materials, Tsukuba, Japan
Continuation of Ser. No. 383,835, Feb. 6, 1995, abandoned.
This application Aug. 15, 1996, Ser. No. 699,690
Claims priority, application Japan, Jun. 30, 1994, 6-173189
Int. Cl.⁶ C04B 35/587

U.S. Cl. 501—97

6 Claims

3. A superplastic, sintered silicon nitride body consisting of β -Si₃N₄, unavoidable minor components selected from the group consisting of SiO₂ and Si₃N₄, and at least one sintering assistant selected from the group consisting of a liquid phase forming agent and a melting point reducing agent, said liquid phase forming agent, which is Al₂O₃, MgO, Sc₂O₃, oxides of yttrium or oxides of a lanthanide metal, reacting with said Si₃N₄ and SiO₂ as a surface oxidized phase, thereby forming a liquid phase, and said melting point agent, which is CaO, SrO, MgO, BaO or Al₂O₃, lowering the temperature at which said liquid phase forms, said body having a grain boundary phase in an amount of 2–20 volume % and a relative density of at least 98%, said body formed of silicon nitride grains having an average grain size of at most 0.3 μ m, the amount of grains having grain sizes within the range of the average grain size $\pm 0.2 \mu$ m being at least 85 volume %, wherein at least 90% of the silicon nitride grains have an aspect ratio of less than 3 and the amount of grains having grain sizes exceeding 0.5 μ m being at most 3 volume % and at least 90 volume % of the silicon nitride being in β -form, and wherein the superplasticity of the sintered silicon nitride body is such that when a compression or tensile stress of from 30–2000 kg/cm² is applied thereto at a temperature

within the range of from 1350°–1650° C., said sintered body deforming at a deformation rate of from 10⁻²/sec to 10⁻¹/sec.

5,672,554
ALUMINA COMPOSITION, ALUMINA MOLDED ARTICLE, ALUMINA CERAMICS, AND PROCESS FOR PRODUCING CERAMICS
Masahide Mohri; Norio Matsuda; Shinichiro Tanaka, and Yoshio Uchida, all of Ibaraki, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan
Continuation of Ser. No. 281,095, Jul. 27, 1994, abandoned.
This application May 28, 1996, Ser. No. 654,029
Claims priority, application Japan, Jul. 27, 1993, 5-205902; Oct. 5, 1993, 5-249488
Int. Cl.⁶ C04B 35/10

U.S. Cl. 501—127

16 Claims

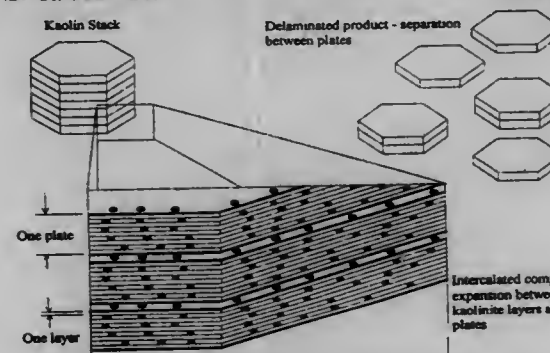


1. An alumina molded article obtained by a method comprising the step of casting an alumina composition, said alumina composition comprising α -alumina particles having a ratio of the shortest diameter to the longest diameter of from 0.3 to 1; and a particle size distribution of not more than 5, as expressed in terms of a D₉₀/D₁₀ ratio, wherein D₁₀ and D₉₀ represent a cumulative 10% diameter and a cumulative 90% diameter, respectively, of a cumulative distribution depicted from the small diameter side, or said alumina composition comprising α -alumina particles having a polyhedral shape; a D/H ratio of from 0.5 to 3.0, wherein D represents a maximum particle diameter parallel to a hexagonal lattice plane of a hexagonal close-packed lattice of α -alumina, and H represents a maximum particle diameter perpendicular to the lattice plane; and a size distribution of not more than 5, as expressed in terms of a D₉₀/D₁₀ ratio, wherein D₁₀ and D₉₀ are as defined above.

5,672,555
KAOLIN-POTASSIUM ACETATE INTERCALATION COMPLEX AND PROCESS OF FORMING SAME
Chris B. Maxwell, Evans, and Prakash B. Malla, Dublin, both of Ga., assignors to Thiele Kaolin Company, Sandersville, Ga.
Filed Feb. 29, 1996, Ser. No. 608,639
Int. Cl.⁶ C04B 33/04

U.S. Cl. 501—147

12 Claims



1. A process for forming a kaolin-potassium acetate intercalation complex, comprising:

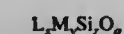
mixing kaolin clay particles, potassium acetate and water until a substantially homogeneous mixture is obtained, wherein potassium acetate is present in the mixture in an amount from about 10 to 75% by weight, based on the weight of the kaolin clay particles, and water is present in the mixture in an amount from about 5 to 50% by weight, based on the weight of the potassium acetate.

5,672,556
CRYSTALLINE SILICATE COMPOSITIONS AND METHOD OF PREPARATION
Thomas J. Pinnavaia, and Peter T. Tanev, both of East Lansing, Mich., assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.
Continuation of Ser. No. 293,806, Aug. 22, 1994, abandoned.
This application Sep. 13, 1995, Ser. No. 527,504
Int. Cl.⁶ C01B 33/20

U.S. Cl. 502—63

23 Claims

1. A calcined crystalline silicate containing composition having uniform framework-confined mesopores having a pore size greater than about 20 Å as determined by N₂ adsorption and textural mesopores and consisting essentially of particles with a size of less than about 400 Å, two hysteresis loops in a N₂ adsorption-desorption isotherm, a ratio of textural to framework mesopores of at least about 0.2, a specific surface area of 300 to 1500 square meters per gram, prepared by a method which comprises reacting a neutral silicon-containing inorganic oxide precursor, a Ti containing inorganic oxide precursor and a neutral amine template in water and an organic co-solvent to form a reaction product and hydrolysis of the reaction product and has a composition as follows:



wherein L is optional and is at least one trivalent element selected from the group consisting of B, Al, Ga, Cr and Fe; M is Ti; x, y, z and q are the molar parts of L, M, Si and O, respectively and wherein x when L is present is about 0.001 and 0.5; y is between about 0.001 and 0.4; z is between about 0.4 and 1 and q is between about 1 and 3.

5,672,557
PALADIUM-CONTAINING THREE-WAY AUTOMOTIVE CATALYSTS HAVING UNIQUE SUPPORT
W. Burton Williamson, Broken Arrow; Ronald G. Silver, Tulsa, both of Okla., and Jack C. Summers, Newtown, Pa., assignors to ASEC Manufacturing, Catoosa, Okla.
Continuation-in-part of Ser. No. 951,969, Sep. 28, 1992. This application Mar. 29, 1996, Ser. No. 625,756
Int. Cl.⁶ B01J 21/04; 23/10; 23/44

U.S. Cl. 502—303

8 Claims

1. A catalyst for reducing the amount of carbon monoxide, hydrocarbons, and nitrogen oxides in the exhaust gases from internal combustion engines comprising:
(a) a support disposed on a monolithic substrate, said support consisting essentially of alumina, ceria and lanthana and, optionally, from 5–20 wt percent of a promoter, and
(b) a catalytically effective amount between about 0.05 to 5.0 wt. % based on the total weight of the catalyst of palladium disposed on the support of (a);
wherein the amount of cerium and lanthanum metals in the support is from about 80 g/L to about 300 g/L weight at a ratio of Ce to La of from 0.3/1 to 10/1;
wherein the amount of alumina in the support constitutes less than 50 weight percent of the support and is less than about 100 g/L; and
wherein the weight ratio of Ce plus La to alumina in the support is greater than about 3.

5,672,558

FORMED COMPOSITIONS

James F. White, Hudson, and Jeffrey J. Ramler, Cleveland Heights, both of Ohio, assignors to Engelhard Corporation, Iselin, N.J.

Continuation of Ser. No. 423,625, Apr. 17, 1995. This application May 6, 1996, Ser. No. 643,494
Int. Cl.⁶ B01J 21/06

U.S. Cl. 502—349 12 Claims

1. A process for the preparation of formed Group IVB metal oxide compositions which comprises:

- A) preparing a paste comprising i) one or more calcined Group IVB metal oxides, ii) at least one solvent and iii) at least one acid;
B) forming a shaped particle from said paste; and
C) drying and calcining said shaped particle.

5,672,559

REVERSIBLE THERMAL RECORDING MEDIUM AND METHOD OF PRODUCING THE SAME

Niro Watanabe, Kitasaitama-gun; Yuji Nakatsu, Kitakatsushika-gun; Keiki Yamada, and Masaru Ohnishi, both of Kamakura, all of Japan, assignors to Toppan Printing Co., Ltd., Taito-ku, and Mitsubishi Denki Kabushiki Kaisha, Tokyo, both of Japan

Division of Ser. No. 462,199, Jun. 5, 1995, which is a division of Ser. No. 201,067, Feb. 24, 1994, which is a continuation of Ser. No. 883,152, May 14, 1992, abandoned. This application Sep. 21, 1995, Ser. No. 531,865

Claims priority, application Japan, May 23, 1991, 3-118310
Int. Cl.⁶ B41M 5/24

U.S. Cl. 503—201 11 Claims



5. A method for reversibly recording data on a recording layer comprising:

providing a substrate and, on the substrate, a recording layer comprising a binder and, in the binder, a plurality of capsules containing a core material comprising a resin admixed with an organic low-molecular weight material capable of interacting with the resin so as to render the core material opaque upon being heated from a first temperature to a second, elevated temperature followed by cooling to said first temperature, and transparent upon being heated from said first temperature to a third, elevated temperature followed by cooling to said first temperature,

heating said recording layer from a first temperature to a second, elevated temperature and cooling said recording layer to said first temperature to change said recording layer from a transparent state to an opaque state, and

heating said recording layer from said first temperature to a third, elevated temperature and cooling said recording layer to said first temperature to change said recording layer from said opaque state to said transparent state.

5,672,560

STABILIZED HEAT-SENSITIVE IMAGING MATERIAL

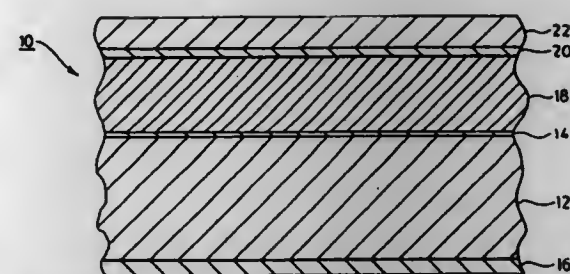
Kent R. Rush, Rochester, N.Y., assignor to Label Corporation, Canandaigua, N.Y.

Filed Jun. 17, 1996, Ser. No. 666,869

Int. Cl.⁶ B41M 5/10

U.S. Cl. 503—209 19 Claims

1. A heat-sensitive imaging material comprising:



a support and a heat-sensitive imaging layer formed thereon, the imaging layer comprising:

- a color-forming amount of a substantially colorless, finely divided solid noble metal salt of an organic acid;
an organic reducing agent that under conditions of heating is capable of a color-forming reaction with said noble metal salt, thereby producing a colored image;
an image toning agent; and
a stabilizer compound that mitigates the formation of non-imagewise background color in said imaging layer, said stabilizer compound having the formula (I)



wherein Z₁, Z₂, and Z₃ each independently represents hydrogen, an alkali metal ion, an alkyl group comprising 1 to about 8 carbon atoms, an aralkyl or cycloalkyl group comprising 5 to about 10 carbon atoms, or an alkyl group comprising 6 to about 15 carbon atoms; or
Z₁ and Z₂ together represent a divalent alkaline earth metal ion, a divalent alkylene group comprising 2 to about 8 carbon atoms, or a divalent aryl group comprising 6 to about 30 carbon atoms;

with the proviso that, when Z₁ and Z₂ together do not represent a divalent alkaline earth metal ion, at least one of Z₁, Z₂, and Z₃ represents hydrogen or an alkali metal ion.

5,672,561

INK RIBBON FOR THERMAL SUBLIMATION TRANSFER PROCESS

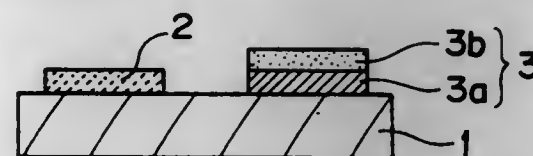
Satoru Shinohara, Miyagi, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jun. 9, 1995, Ser. No. 474,149

Claims priority, application Japan, Jun. 17, 1994, 6-159238

Int. Cl.⁶ B41M 5/035; 5/38

U.S. Cl. 503—227 7 Claims



7. A method of carrying out thermal sublimation transfer of ink to a surface comprising the following steps:

providing an ink ribbon comprising a substrate layer accommodating an ink layer and a laminate layer, the ink layer and laminate layer being disposed on separate areas of the substrate, the ink layer comprising a dye suspended in a resin, the resin consisting of a silicone-modified polyvinyl acetal resin, said silicone-modified polyvinyl acetal resin is a reaction product obtained by reacting a polyvinyl acetal resin and a silicone compound having at least one functional group selected from the group consisting of isocyanate, epoxy and amino, said silicone compound is provided in an amount ranging from 0.1% by weight to 4.5% by weight relative to the polyvinyl acetal resin, the laminate layer comprising a

release layer and an adhesive layer, the release layer being disposed between the substrate and the adhesive layer;
providing a dye-receiving surface that is free of releasing resin; engaging the dye-receiving surface with the ink layer of the ink ribbon;

heating an undersurface of the substrate of the ink ribbon disposed behind the ink layer to transfer said dye and said resin to the dye-receiving layer to produce an image thereon;
moving the ink ribbon to engage the laminate layer with the image disposed on the dye-receiving surface;

heating the undersurface of the substrate of the ink ribbon disposed behind the laminate layer to transfer the release layer and the adhesive layer onto said image.

5,672,562

THERMAL RECORDING ELEMENT

Ramanuj Goswami, Webster; Robert J. Perry, Niskayuna, and Paul Anthony Ziellinski, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

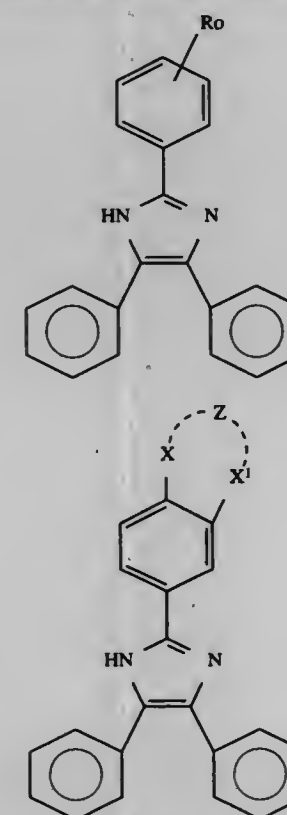
Filed May 8, 1996, Ser. No. 646,669

Int. Cl.⁶ G03C 1/73; 7/02; G01D 15/10

U.S. Cl. 503—227 7 Claims

1. A process of forming a dye image comprising: imagewise-heating a thermal recording element by using a thermal printing head, said thermal recording element comprising a support having thereon a dye layer comprising a dye dispersed in a polymeric binder, wherein said dye layer contains

- (a) a formazan dye that absorbs at from about 400 to about 850 nm, and
(b) a hexaarylbiimidazole which is an oxidative dimer of a 2,4,5-triarylimidazole having one of the following formulas:



wherein:

R represents an alkoxy group of from 1 to about 12 carbon atoms;
X and X¹ each independently represents oxy or imino;
Z is an alkylene group of 1 or 2 carbon atoms; and

o represents an integer of 1 or 3, with the proviso that when o is 1, then R is in the para position and when o is 3, then R is in the para and both meta positions;
thereby forming said image.

5,672,563

THERMAL TRANSFER IMAGE-RECEIVING SHEET

Ryobei Takiguchi; Hitoshi Saito, and Masumi Nishizawa, all of Tokyo, Japan, assignors to Dai Nippon Printing Co., Ltd., Japan

Division of Ser. No. 373,629, Jan. 17, 1995, Pat. No. 5,545,606, which is a division of Ser. No. 216,310, Mar. 23, 1994, Pat. No. 5,405,824, which is a division of Ser. No. 974,738, Nov. 13, 1992, Pat. No. 5,328,888. This application May 21, 1996, Ser. No. 646,816

Claims priority, application Japan, Nov. 18, 1991, 3-328307; Dec. 16, 1991, 3-351811; Feb. 6, 1992, 4-54129; Mar. 4, 1992, 4-81456; Apr. 15, 1992, 4-119873; Sep. 25, 1992, 4-279247
Int. Cl.⁶ B41M 5/035; 5/38

U.S. Cl. 503—227 6 Claims

1. A thermal transfer image-receiving sheet comprising:

- a substrate sheet; and
a dye-receiving layer formed on at least one surface of said substrate sheet, said dye-receiving layer comprising a dye-receiving resin and an ultraviolet absorber reacted with and bonded to said dye-receiving resin.

5,672,564

AQUEOUS, MULTIPHASE, STABLE FINISHED FORMULATION FOR CROP PROTECTION ACTIVE COMPOUNDS AND ITS PREPARATION

August Wigger, Neubofen; Hans-Michael Fricke, Limburgerhof; Uwe Kardorf, Mannheim; Adolf Parg, Bad Dürkheim, and Reiner Kober, Fussgoenheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/02085, § 371 Date Jan. 3, 1996, § 102(e) Date Jan. 3, 1996, PCT Pub. No. WO95/01722, PCT Pub. Date Jan. 19, 1995

PCT Filed Jun. 27, 1994, Ser. No. 569,124

Claims priority, application Germany, Jul. 3, 1993, 43 22 211.0

Int. Cl.⁶ A01N 25/30

U.S. Cl. 504—116 7 Claims

1. An aqueous, multiphase, stable finished formulation for crop protection active compounds containing, in addition to water,

- a) 10 to 700 g/l of one or more crop protection active compounds,
b) 10 to 70 g/l of one or more block polymers, as dispersants, which consist of a polyoxypropylene core of molecular weight 3,000 to 3,500 and the remainder to a combined molecular weight of 6,000 to 7,000 comprising ethylene oxide units,
c) 5 to 80 g/l of an anionic dispersant,
d) 50 to 500 g/l of one or more wetting agents from the group consisting of polyoxyethylene and polyoxyethylene-polyoxypropylene fatty alcohols,
e) 0.5 to 5 g/l of one or more thickeners and
f) if appropriate an organic solvent.

5,672,565

Patent Not Issued For This Number

5-[(4,6-dimethoxypyrimidin-2-yl)aminocarbonyl-aminosulfonyl]-1-methyl-4-(2-methyl-1,2,3,4-tetraazol-5-yl)-pyrazole.

5,672,567

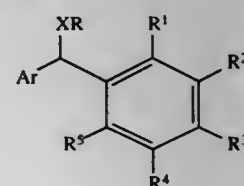
HERBICIDAL HYDROXYBENZYL-SUBSTITUTED HETEROARYL COMPOUNDS AND DERIVATIVES THEREOF

Hsiao-Ling M. Chin, Moraga; Yi-Qiu Wei, Pinole; Nhan H. Nguyen, Richmond, and David B. Kanne, Corte Madera, all of Calif., assignors to Zeneca Limited, London, England
Continuation of Ser. No. 236,309, May 2, 1994, abandoned.
This application Mar. 25, 1996, Ser. No. 622,179
Int. Cl.⁶ A01N 43/54; C07D 239/26

U.S. Cl. 504—239

15 Claims

1. A compound of the formula



wherein:

Ar is a substituted or unsubstituted pyrimidinyl group;
R¹, R², R³, R⁴ and R⁵ are each independently hydrogen, halogen, C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, nitro, cyano, hydroxy, thiocarbonyl, —N(R¹¹)(R¹²), C₁-C₆ haloalkyl, C₁-C₆ haloalkoxy, (C₁-C₆)alkoxy-(C₁-C₆)alkyl, halo(C₁-C₆)alkoxy-(C₁-C₆)alkyl, —C(X)—R¹⁰ or —S(O)_k—R¹⁰,
X is oxygen or sulfur;
R is hydrogen, alkyl, alkyl substituted with one or more of halogen or C₁-C₆ alkoxy or is of the formula —C(Y)—R⁶, —C(O)—C(O)—R⁶, —S(O)₂—R⁶ or P(Y)(R¹¹)(R¹²);

wherein:

Y is oxygen or sulfur;
R⁶ is hydrocarbyl, substituted hydrocarbyl, hydrocarbyloxy, substituted hydrocarbyloxy, hydrocarbyl-S—, substituted hydrocarbyl-S— or is of the formula —N(R⁷)(R⁸);
wherein R⁷ and R⁸ are each independently hydrogen, hydrocarbyl, substituted hydrocarbyl, hydrocarbyloxy, substituted hydrocarbyloxy, (C₁-C₆)alkoxycarbonyl(C₁-C₆)alkyl, hydroxycarbonyl(C₁-C₆)alkyl, or N(R⁹)(R¹⁰) wherein R⁹ and R¹⁰ are each independently hydrogen, C₁-C₆ alkyl or phenyl;
R¹¹ and R¹² are each independently C₁-C₆ alkyl, C₁-C₆ alkoxy or C₁-C₆ alkoxy; and
k is 0, 1 or 2;

or an agriculturally acceptable salt thereof;
with the proviso that when R is hydrogen, at least one of R¹, R², R³, R⁴ and R⁵ is not hydrogen.

5,672,568

ROOT GROWTH INHIBITORS FOR BUILDING MATERIALS COMPRISING MONOHYDRIC ALCOHOL ESTERS OF MECOPROP

Lutz Heuer, and Heinz-Joachim Rother, both of Krefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

PCT No. PCT/EP94/02768, § 371 Date Feb. 28, 1996, § 102(e) Date Feb. 28, 1996, PCT Pub. No. WO95/06408, PCT Pub. Date Mar. 9, 1995

PCT Filed Aug. 19, 1994, Ser. No. 605,087

Claims priority, application Germany, Sep. 1, 1993, 43 29 419.7

Int. Cl.⁶ A01N 39/02

U.S. Cl. 504—317

2 Claims

1. A building material or insulating composition carrying a root penetration-protecting amount of a 2-methyl-4-

5,672,566

SYNERGISTIC HERBICIDAL COMPOSITIONS COMPRISING 1,3-OXAZIN-4-ONE COMPOUNDS

Kazuo Jikihara; Hisato Suzuki, both of Ami-machi; Yumiko Miyashita, Tsukigata-machi; Toshihiro Maruyama, Ami-machi; Yoshihiro Usui, Ami-machi; Futaba Makimura, Ami-machi, and Jiro Morishige, Ami-machi, all of Japan, assignors to Rhone-Poulenc Agrochimie, Lyons, France

PCT No. PCT/JP94/01133, § 371 Date Feb. 5, 1996, § 102(e) Date Feb. 5, 1996, PCT Pub. No. WO95/02329, PCT Pub. Date Jan. 26, 1995

PCT Filed Jul. 12, 1994, Ser. No. 583,073

Claims priority, application Japan, Jul. 13, 1993, 5-195260; Jul. 13, 1993, 5-195272

Int. Cl.⁶ A01N 43/06

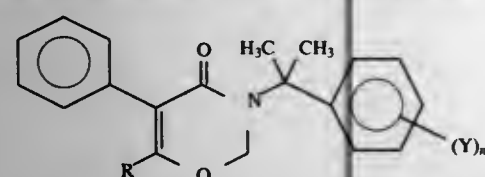
U.S. Cl. 504—130

23 Claims

1. A herbicidal composition containing as active ingredients the following two components A and B.

Component A:

at least one derivative selected from the 1,3-oxazin-4-one derivatives represented by the following general formula (I)

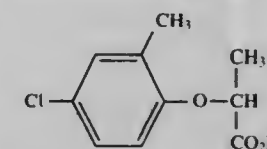


wherein, R is a methyl or an ethyl group, Y is a halogen atom, a lower haloalkyl or a lower haloalkoxy group, and n is 0, 1, 2 or 3, and

Component B:

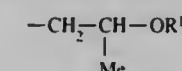
at least one compound selected from
5-tert-butyl-3-(2,4-dichloro-5-isopropoxy-phenyl)-oxadiazol-2-(3H)one, 1,3-dimethyl-4-(2,4-dichloro-3-methylbenzoyl)-phenacyloxy)pyrazole, 2-(2,4-dichloro-m-tolylloxy)propionanilide, (RS)-2-bromo-3,3-dimethyl-N-(1-methyl-1-phenylethyl)-dimethylbutylamide, 2,3-dihydro-3,3-dimethylbenzofuran-5-yl ethanesulfonate, 1-(α,α-dimethylbenzyl)-3-p-tolylurea, 1-(2-chlorobenzyl)-3-(α,α-dimethylbenzyl)urea, 4'-nitrophenyl-2,4,6-trichlorophenyl ether, methyl 5-(2,4-dichlorophenoxy)-2-nitrobenzoate, 2,4-bis(ethylamino)-6-methylthio-S-triazine and 2-(1,2-dimethylpropylamino)-4-ethylamino-6-methylthio-1,3,5-triazine, N'-(2-chloroimidazol[1,2-a]pyridin-3-yl-sulfonyl)-N'-(4,6-dimethoxy-2-pyrimidinyl)urea, methyl 2-[[[(4,6-dimethoxy-2-pyrimidinyl)-amino]carbonyl]amino]sulfonyl]methyl]benzoate, ethyl 5-(4,6-dimethoxypyrimidin-2-yl-carbamoyl-sulfamoyl)-1-methylpyrazole-4-carboxylate, and

chlorophenoxypropionic monoester of the formula

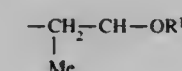


in which

R represents Me, Et, Pr, n-butyl, n-pentyl, n-hexyl, n-heptyl, n-octyl, 2-ethylhexyl, n-nonyl, n-decyl, or their branched structural isomers, or
R is —CH₂—CH₂—OR¹.



or



5,672,569

PROCESS FOR FABRICATING A SUPERCONDUCTING CIRCUIT

Takao Nakamura; Hiroshi Inada, and Michitomo Iiyama, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

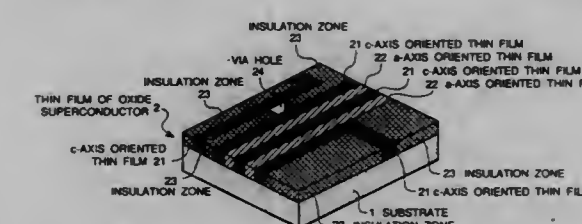
Division of Ser. No. 330,830, Oct. 27, 1994, abandoned, which is a continuation of Ser. No. 106,798, Aug. 16, 1993, abandoned, which is a continuation of Ser. No. 783,697, Oct. 30, 1991, abandoned. This application Mar. 8, 1995, Ser. No. 400,813

Claims priority, application Japan, Oct. 31, 1990, 2-294294; Oct. 31, 1990, 2-294295

Int. Cl.⁶ H01L 39/24

U.S. Cl. 505—330

4 Claims



1. A process for fabricating a superconducting circuit having superconducting wiring lines each made of a thin film of oxide superconductor deposited on a substrate, said process comprising the steps of:

depositing a first thin film of an oxide superconductor such that one of the a-axis and the c-axis of said first thin film is oriented perpendicularly to a surface of said substrate;
removing predetermined areas of said first thin film to leave a first pattern of superconducting wiring lines;
depositing a second thin film of a same oxide superconductor as said first thin film such that said second thin film becomes one of a c-axis oriented thin film and an a-axis oriented thin film and said second thin film has an orientation different from said first thin film on said surface of said substrate, and
removing an upper part of said second thin film so as to expose said first pattern of superconducting wiring lines.

5,672,570

LUBRICATING OIL COMPOSITION FOR DIESEL ENGINE AND METHOD FOR LUBRICATION OF DIESEL ENGINE USING SAME

Tomomi Miyaji; Masahisa Goto, and Keiichi Narita, all of Ichihara, Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 288,902, Aug. 11, 1994, Pat. No. 5,525,247. This application Dec. 29, 1995, Ser. No. 581,219
Claims priority, application Japan, Aug. 11, 1993, 5-199497
Int. Cl.⁶ C10M 141/12; 159/20; 159/22; 159/24

U.S. Cl. 508—192

7 Claims

1. A lubricating oil composition for a diesel engine which is obtained by blending a lubricant base oil with (A) 5 to 20% by weight of a boron-containing ashless dispersant, (B) 0.01 to 30% by weight of at least one kind of metal-type detergent selected from the group consisting of sulfonates, phenates and salicylates having a total base number (a perchloric acid method) of 0 to 200 mg KOH/g, and (C) 0.1 to 30% by weight of an ester of an aromatic carboxylic acid having a hydroxyl group and an alcohol having 2 to 80 carbon atoms, based on the total weight of the composition, a sulfated ash content in the composition being 1.0% by weight or less, a boron content being 0.1% by weight or more.

5,672,571

GREASE COMPOSITION FOR CONSTANT VELOCITY JOINTS

Ko Hatakeyama, and Shinya Kondo, both of Fujisawa, Japan, assignors to Kyodo Yushi Co., Ltd., Tokyo, Japan

Filed Jan. 27, 1995, Ser. No. 379,925

Claims priority, application Japan, Oct. 21, 1994, 6-256357
Int. Cl.⁶ C10M 137/10

U.S. Cl. 508—321

12 Claims

1. A grease composition for constant velocity joints, which comprises:

(a) 60 to 96% by weight of a base oil;
(b) 2 to 15% by weight of a lithium-containing thickener selected from the group consisting of lithium soap and lithium complex soap;
(c) 0.5 to 10% by weight of an organic molybdenum compound selected from the group consisting of molybdenum dithiophosphates and molybdenum dithiocarbamates;
(d) 0.5 to 5% by weight of a zinc dithiophosphate;
(e) 0.1 to 5% by weight of a sulfur-phosphorus extreme pressure agent free of any metal; and
(f) 0.5 to 5% by weight of a calcium salt selected from the group consisting of calcium salts of oxidized waxes calcium salts of petroleum sulfonates and calcium salts of alkyl aromatic sulfonates.

5,672,572

LUBRICATING OIL COMPOSITION

Katsuya Arai, 4-4 Nishitsurugaoka 1-Chome, Ohi-Machi, Saitama-Ken 356; Satoshi Asano, 3-8 Negishidai 7-Chome, Asaka-Shi, Saitama-Ken 351, and Sadao Wada, 21-15 Kashiwa-Mach, 6-Chome, Shiki-Shi, Saitama-Ken 353, all of Japan

PCT No. PCT/US94/06002, § 371 Date Mar. 19, 1996, § 102(e) Date Mar. 19, 1996, PCT Pub. No. WO94/28095, PCT Pub. Date Dec. 8, 1994

PCT Filed May 27, 1994, Ser. No. 553,289

Claims priority, application Japan, May 27, 1993, 5-148670
Int. Cl.⁶ C10M 141/10; 141/00

U.S. Cl. 508—364

6 Claims

1. A lubricating oil composition comprising a base oil containing (A) 0.04 to 0.12% by weight in terms of phosphorus, based on the whole composition, of a zinc dialkyl dithiophosphate containing 50 to 100% by weight in terms of phosphorus, based on the total phosphorus content, of a zinc dialkyl dithiophosphate having sec-

ondary alkyl groups and 50 to 0% by weight in terms of phosphorus, based on the total phosphorus content, of a zinc dialkyl dithiophosphate having primary alkyl groups, (B) 1.0 to 3.0% by weight of a calcium sulfonate and 0.3 to 2.5% by weight of a calcium salicylate, and (C) 50 to 2000 ppm in terms of molybdenum of a sulfurized oxymolybdenum dithiocarbamate containing at least one hydrocarbyl group having 8 to 23 carbon atoms, wherein the oil composition is characterized by having a total base number of 2 to 13.

5,672,573
AMICLOAMINE DERIVATIVES OF CARBOXYLIC AND THIOCARBOXYLIC-FUNCTIONALIZED HYDROCARBON POLYMERS

Antonio Gutierrez, Mercerville, and James P. Stokes, Warren, both of N.J., assignors to Exxon Chemical Patents Inc., Linden, N.J.

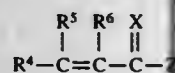
Filed Apr. 10, 1996, Ser. No. 630,055
Int. Cl.⁶ C10M 149/18

U.S. Cl. 508—554

31 Claims

1. A process for preparing a product useful as an additive in fuels and lubricating oils comprising the steps of:

- (A) reacting (i) a hydrocarbon polymer functionalized to contain functional groups of formula —CO—Y—R^3 , the hydrocarbon polymer having a number average molecular weight of at least about 500 prior to functionalization, wherein Y is O or S, R^3 is hydrogen, hydrocarbyl, or substituted hydrocarbyl and wherein at least 50 mole % of the functional groups are attached to a tertiary carbon atom of the polymer, with (ii) a volatile amine containing at least two reactive amino groups under conditions effective to amidate at least a portion of the functional groups and form a first amidoamine adduct containing at least one reactive amino group; and
- (B) reacting the first amidoamine adduct with an α,β -unsaturated compound to form a second amidoamine adduct, wherein the α,β -unsaturated compound has the formula:



wherein X is O or S; Z is OR^7 , —SR^7 , or $\text{—NR}^7(\text{R}^8)$; and R^4 , R^5 , R^6 , R^7 and R^8 are the same or different and are hydrogen, hydrocarbyl, or substituted hydrocarbyl.

5,672,574
STABILIZERS FOR ORGANIC MATERIALS
Samuel Evans, Marly, and Stephan Allenbach, Düringen, both of Switzerland, assignors to Ciba-Geigy Corporation, Tarrytown, N.Y.

Filed Sep. 20, 1995, Ser. No. 530,974

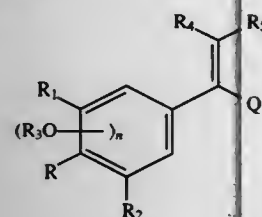
Claims priority, application Switzerland, Sep. 22, 1994, 2889/94-9

Int. Cl.⁶ C10M 129/10, 129/16

U.S. Cl. 508—584

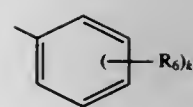
17 Claims

1. A composition comprising an organic material liable to thermal, oxidative and/or actinic degradation and at least one compound of formula (I)



wherein

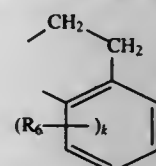
Q is a radical



wherein

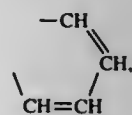
n is 1 or 2 and k is 0, 1 or 2,

or Q together with R_5 forms a group



and n is 1,

R is hydrogen, has the same possible meanings as R_5O or, when R_3 is hydrogen and n is 1, together with R_1 or with R_2 forms a group



R_1 is hydrogen, $\text{C}_1\text{—C}_{18}$ alkyl or $\text{C}_5\text{—C}_{12}$ cycloalkyl,

R_3 is hydrogen, $\text{C}_1\text{—C}_{18}$ alkyl or $\text{C}_5\text{—C}_{12}$ cycloalkyl,

R_4 and R_5 are each independently of the other hydrogen, $\text{C}_1\text{—C}_{12}$ alkyl or $\text{C}_5\text{—C}_{12}$ cycloalkyl,

R_6 is —NO_2 , $\text{—C}\equiv\text{N}$, —COOR_{13} , —S—R_{14} , —SOR_{14} , $\text{—SO}_2\text{—R}_{14}$, $\text{—NR}_7\text{R}_{7a}$, Cl, Br, F, —OR_{15} or —COR_{16} , or two radicals R_6 together form a fused-on benzo ring,

R_7 and R_{7a} are each independently of the other hydrogen or $\text{C}_1\text{—C}_{12}$ alkyl,

R_{13} is hydrogen or $\text{C}_1\text{—C}_{18}$ alkyl,

R_{14} is $\text{C}_1\text{—C}_8$ alkyl or phenyl,

R_{15} is hydrogen, $\text{C}_1\text{—C}_{18}$ alkyl, or $\text{C}_5\text{—C}_{12}$ cycloalkyl, and

R_{16} is $\text{C}_1\text{—C}_{18}$ alkyl, or $\text{C}_5\text{—C}_{12}$ cycloalkyl.

5,672,575
USE OF FLURONIC SURFACTANT TO ENHANCE THE CLEANING EFFECT OF PANCREATIN ON CONTACT LENSES

Rolf Schäfer, Arisdorf, Switzerland, assignor to Alcon Laboratories, Inc., Fort Worth, Tex.

Continuation of Ser. No. 916,056, Jul. 17, 1992, Pat. No.

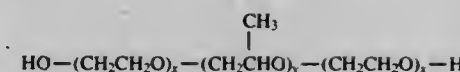
5,318,717, which is a continuation of Ser. No. 682,756, Apr. 9, 1991, abandoned, which is a continuation of Ser. No. 493,022, Mar. 12, 1990, abandoned, which is a continuation of Ser. No. 378,459, Jul. 10, 1989, abandoned, which is a continuation of Ser. No. 150,190, Jan. 29, 1988, abandoned, which is a continuation of Ser. No. 35,206, Apr. 6, 1987, abandoned, which is a continuation of Ser. No. 896,907, Aug. 14, 1986, abandoned, which is a continuation of Ser. No. 687,275, Dec. 28, 1984, Pat. No. 4,609,493. This application Apr. 29, 1994, Ser. No. 235,778

Int. Cl.⁶ C11D 3/386

U.S. Cl. 510—114

1 Claim

1. In a method of removing protein and lipid deposits from a contact lens by means of soaking the lens in a solution containing 0.01 to 5.0 weight/volume percent pancreatin, the improvement which comprises including in the solution 0.02 to 1.0 weight/volume percent of a nonionic surfactant which comprises a block polymer of propylene oxide and ethylene oxide having the following structure:



wherein x and y are whole numbers greater than zero and the molecular weight of the surfactant is in the range of 1,039 to 4,684.

5,672,576
HIGH LATHER STYLING SHAMPOOS
Jon Robert Behrens, Higashinada-ku, Japan; Raymond Edward Bolich, Jr., Maineville, Ohio; Sanjeev Midha, Blue Ash, Ohio, and Robert Lee Wells, Cincinnati, Ohio, assignors to The Procter & Gamble Co., Cincinnati, Ohio
Filed Mar. 15, 1996, Ser. No. 616,332
Int. Cl.⁶ C11D 1/83

U.S. Cl. 510—127

23 Claims

1. A hair styling shampoo composition comprising:

(a) from about 2% to about 25%, by weight, of an alkyl glyceryl ether sulfonate surfactant;

(b) from about 0.1% to about 10%, by weight, of a hydrophobic, water-insoluble hair styling polymer comprising hydrophobic monomer units selected from the group consisting of styrene; polystyrene macromonomer, alpha methylstyrene; t-butyl styrene; indene; norbornylene; beta-pinene; alpha-pinene; 4-biphenyl acrylate; pentachlorophenyl acrylate, 3,5-dimethyladamantyl acrylate; 3,5-dimethyladamantyl methacrylate; 4-methoxycarbonylphenyl methacrylate; trimethylsilyl methacrylate; isobornyl acrylate; isobornyl methacrylate; and combinations thereof.

(c) from about 0.1% to about 10%, by weight, of a non-polar volatile solvent for solubilizing the hair styling polymer, the non-polar volatile solvent having a boiling point of not more than 300° C., and a solubility in water at 25° C. of less than about 0.2% by weight; and

(d) from about 50% to about 97.8% water; wherein the weight ratio of the hair styling polymer to the non-polar volatile solvent is from about 10:90 to about 70:30.

5,672,577
CLEANING COMPOSITIONS FOR REMOVING ETCHING RESIDUE WITH HYDROXYLAMINE, ALKANOLAMINE, AND CHELATING AGENT

Wai Mun Lee, Fremont, Calif., assignor to EKC Technology, Inc., Hayward, Calif.

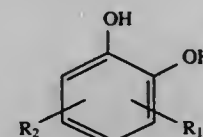
Continuation of Ser. No. 273,143, Jul. 14, 1994, Pat. No. 5,482,566, which is a division of Ser. No. 911,102, Jul. 9, 1992, Pat. No. 5,334,332, which is a continuation-in-part of Ser. No. 610,044, Nov. 5, 1990, Pat. No. 5,279,771. This application Sep. 6, 1995, Ser. No. 523,889

Int. Cl.⁶ C11D 7/26; 7/32; 7/34; 7/50

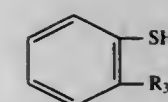
U.S. Cl. 510—175

8 Claims

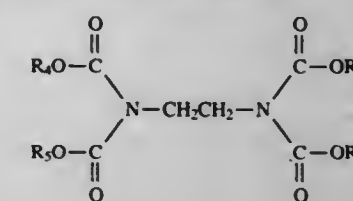
1. A composition for removing etching residue from a substrate consisting essentially of about 5–50% by weight of hydroxylamine; about 10–80% by weight of at least one alkanolamine which is miscible with said hydroxylamine; an effective amount of up to about 30% by weight of at least one compound selected from the group consisting of (1) a compound having a formula I as follows:



wherein R_1 and R_2 can be either H, t-butyl, OH, or COOH , (2) a compound having a formula II as follows:



where R_3 is OH or COOH , and (3) an ethylene diamine tetracarboxylic acid having a formula III as follows:



where R_4 , R_5 , R_6 and R_7 can be either H or NH_4 , and an ammonium salt thereof; and a balance of water, wherein the hydroxylamine, the at least one alkanolamine and said at least one compound are present in sufficient amounts to remove etching residue from a substrate.

5,672,578
LIMESCALE REMOVING COMPOSITIONS
Michel Jean Carrie, Cincinnati, Ohio, and Eddy Vos, Linden, Belgium, assignors to The Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US95/01371, § 371 Date Aug. 2, 1996, § 102(e) Date Aug. 2, 1996, PCT Pub. No. WO95/21232, PCT Pub. Date Aug. 10, 1995

PCT Filed Feb. 1, 1995, Ser. No. 687,415

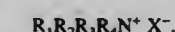
Claims priority, application European Pat. Off., Feb. 3, 1994, 94870019

Int. Cl.⁶ C11D 1/62; 1/66; 1/68; 3/22

U.S. Cl. 510—245

12 Claims

1. An aqueous composition suitable for descaling appliances having a pH of from about 0.1 to about 4.5, comprising maleic acid and a surfactant or mixture of surfactants of the formula



wherein X^- is a counteranion, R_1 is a $\text{C}_8\text{—C}_{20}$ hydrocarbon chain and R_2 , R_3 and R_4 are independently selected from H or $\text{C}_1\text{—C}_4$ hydrocarbon chains.

5,672,579
WATER BASED DIMETHYL ESTER CLEANING SOLUTION

Iris Margarita Diaz, Springfield; Joel Jeffrey Gummeson, Bechtertown, and Mark Weir Heininger, Springfield, all of Mass., assignors to Monsanto Company, St. Louis, Mo.
Continuation of Ser. No. 383,625, Feb. 6, 1995, abandoned.

This application Mar. 4, 1996, Ser. No. 607,252

Int. Cl.⁶ C11D 7/26; 7/50

U.S. Cl. 510—405

3 Claims

1. A cleaning solution free of surfactant or emulsifier consisting essentially of, on a weight basis: i) 10 to 85% of a mixture of dimethyl adipate, dimethyl glutarate and dimethyl succinate; ii) 16 to 66% water; and iii) 11 to 25% of isopropanol.

5,672,580
LIQUID DETERGENT COMPOSITIONS
 Cornells Bernard Donker, Cald; David Machin, Oxtom, both of Great Britain, and Frederik Jan Schepers, Vlaardingen, Netherlands, assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.
 Division of Ser. No. 286,582, Aug. 5, 1994, abandoned. This application Mar. 22, 1996, Ser. No. 620,521
 Claims priority, application European Pat. Off., Apr. 25, 1990, 90304440; Nov. 14, 1990, 90312402
 Int. Cl.⁶ C11D 3/37; 1/00

U.S. Cl. 510—417 7 Claims

1. An aqueous liquid detergent composition having a viscosity of less than 2.5 Pas at 21 s⁻¹ after storage for two weeks at 15° C. or less and comprising from 5.0 to 60% by wt. of a primary alkyl sulfate material;

wherein the primary alkyl sulfate material is a branched sulfate in which at least 50% of the primary alkyl sulfate material is branched;

wherein the composition further comprises a unsaturated soap from 5 to 25% by wt. as part of the surfactant system, said soap having an iodine value of greater than 70; and

wherein mole ratio of a first cationic counterion which is sodium to a second cationic counterion which is selected from the group consisting of potassium and ammonium in the composition is from 3:1 to 1:10.

5,672,581
METHOD OF ADMINISTRATION OF INSULIN
 Reid M. Rubsamen, Berkeley, and Lester John Lloyd, Orinda, both of Calif., assignors to Aradigm Corporation, Hayward, Calif.

Continuation-in-part of Ser. No. 11,281, Jan. 29, 1993, Pat. No. 5,364,838. This application Oct. 28, 1994, Ser. No. 331,056
 Int. Cl.⁶ A61K 38/26; 38/02; C07K 5/00; 7/00

U.S. Cl. 514—3 20 Claims

1. A method of administering insulin to a human patient, comprising:

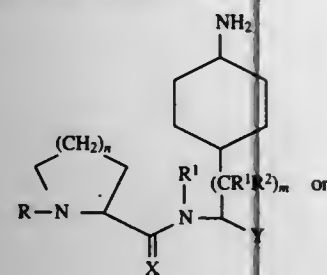
determining a drug release point based on real time values of both a patient's inspiratory flow rate and inspiratory volume; releasing an aerosolized formulation of insulin into the patient's inspiratory flow path when the inspiratory flow rate is in the range of from about 0.10 to 2.0 liters/second and the patient's inspiratory volume is in the range of from about 0.15 to about 0.80 liters.

5,672,582
THROMBIN INHIBITORS
 Daniel F. Veber, Ambler; S. Dale Lewis, Lansdale; Jules A. Shafer, Gwynedd Valley; Dong-Mei Feng, Harleysville, all of Pa.; Ruth F. Nutt, San Diego, Calif., and Stephen F. Brady, Philadelphia, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 55,611, Apr. 30, 1993, abandoned. This application Oct. 12, 1994, Ser. No. 322,049
 Int. Cl.⁶ A61K 38/05

U.S. Cl. 514—19 22 Claims

1. Compounds of the formula



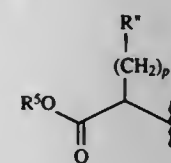
wherein:

m=0 or 1;

n=0, 1, or 2;

X=O or H₂;

R=arylsulfonyl, aminoacyl, acylaminoacyl, N-C₁₋₃alkyl aminoacyl, acyl-N-C₁₋₃alkylaminoacyl, arylacyl, arylC₁₋₃alkanoyle, hydroxyacyl, aryloxyacyl, C₁₋₃alkyloxycarbonyl, or



where p is 0, 1, or 2;

where p is 0, 1, or 2;

R'=aryl, heteroaryl, C₅₋₁₁carbomonocyclic, or C₅₋₁₁carbobicyclic;

R¹=H or CH₃;

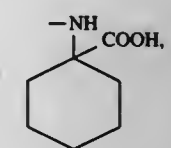
R²=H or CH₃;

R³=H, C₁₋₃alkyl, hydroxyC₁₋₃alkyl, carboxyC₁₋₃alkyl, aminoC₁₋₃alkyl, guanidoC₁₋₃alkyl, aryl or substituted aryl, arylmethyl, C₃₋₈ cycloalkylmethyl, or C₃₋₈ cycloalkyl;

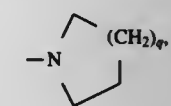
Y=[CHO, COCF₃, BO₂R⁴, CO₂R⁴, COOH,] CONR⁵R⁶, COCO₂R⁴, COCH₂H, or COCO—Q,

wherein

Q=



NR⁵R⁶, or



where q is 0, 1 or 2

W=5-10 membered heterocyclic groups or substituted heterocyclic groups;

R⁴=C₁₋₃alkyl or arylC₁₋₃alkyl;

R⁵=H, C₁₋₃alkyl or arylC₁₋₃alkyl;

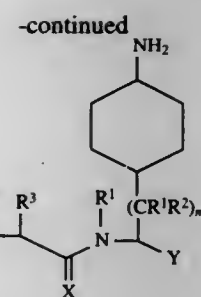
R⁶=H, C₁₋₃alkyl or arylC₁₋₃alkyl;

R⁷=H, C₁₋₃alkyl or arylC₁₋₃alkyl; and

R⁸=H, C₁₋₃alkyl or arylC₁₋₃alkyl,

and pharmaceutically acceptable salts thereof.

12. A composition for inhibiting thrombus formation in blood comprising a compound of claim 1 and a pharmaceutically acceptable carrier.

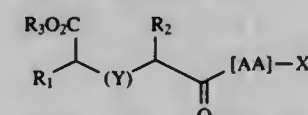


5,672,583
CARBOXY-PEPTIDYL DERIVATIVES AS ANTIDEGENERATIVE ACTIVE AGENTS
 Kevin Chapman, Scotch Plains; William Hagmann, Westfield; Philippe Durette, New Providence; Craig Esser, Belford; Ihor Kopka, Millburn, and Charles Caldwell, Scotch Plains, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
 PCT No. PCT/US93/11207, § 371 Date May 17, 1995, § 102(e)
 Date May 17, 1995, PCT Pub. No. WO94/12169, PCT Pub. Date Jun. 9, 1994

Continuation-in-part of Ser. No. 981,970, Nov. 25, 1992, abandoned. This PCT application Nov. 18, 1993, Ser. No. 436,347
 Int. Cl.⁶ A61K 37/02; C07C 259/06; 237/52; C07D 277/62

U.S. Cl. 514—19 19 Claims

1. A compound of Formula I



or a pharmaceutically acceptable salt thereof wherein:

Y is —CH₂—, CH(C₁₋₃alkyl);

R₁ is mono- or di-substituted C₁₋₆alkyl, wherein the substituents are independently selected from the group consisting of:

- hydrogen,
- aryl group selected from the group consisting of:
 - phenyl,
 - naphthyl,
 - pyridyl,
 - pyrrol,
 - furyl,
 - thienyl,
 - isothiazolyl,
 - imidazolidyl,
 - benzimidazolidyl,
 - tetrazolidyl,
 - pyrazolidyl,
 - pyrimidinyl,
 - quinolyl,
 - isoquinolyl,
 - benzofuryl,
 - isobenzofuryl,
 - benzothienyl,
 - pyrazolyl,
 - indolyl,
 - isindolyl,
 - purinyl,
 - carboxazolidyl,
 - isoxazolidyl,
 - thiazolidyl,
 - oxazolidyl,
 - benzthiazolidyl, and
 - benzoxazolidyl,

which can be mono- or di-substituted with substituents independently selected from C₁₋₆alkyl, C₁₋₆alkyloxy, halo, hydroxy, amino, C₁₋₆alkylamino, aminoC₁₋₆alkyl, carboxyl, carboxylC₁₋₆alkyl, or C₁₋₆alkylcarbonyl;

R₂ is arylC₁₋₆alkyl or aryl substituted C₁₋₆alkyl or biaryl C₁₋₆alkyl wherein the substituent is C₁₋₃alkyl, and wherein the aryl group is selected from the group consisting of:

- phenyl,
- naphthyl,
- pyridyl,
- pyrrol,
- furyl,
- thienyl,
- isothiazolyl,
- imidazolidyl,
- benzimidazolidyl,
- tetrazolidyl,
- pyrazolidyl,
- pyrimidinyl,
- quinolyl,
- isoquinolyl,

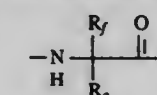
- benzofuryl,
- isobenzofuryl,
- benzothienyl,
- pyrazolidyl,
- indolyl,
- isindolyl,
- purinyl,
- carboxazolidyl,
- isoxazolidyl,
- thiazolidyl,
- oxazolidyl,
- benzthiazolidyl, and
- benzoxazolidyl,

and mono and di-substituted aryl as defined above in items (1) to (27) wherein the substituents on the aryl group are independently selected from C₁₋₆alkyl, C₁₋₆alkyloxy, hydroxyC₁₋₆alkyl, C₁₋₆alkoxyC₁₋₆alkyl, halo, hydroxy, amino, C₁₋₆alkylamino, aminoC₁₋₆alkyl, carboxyl, carboxylC₁₋₆alkyl, and C₁₋₆alkylcarbonyl;

R₃ is

- H,
- Z, where Z is a pharmaceutically acceptable counterion,
- C₁₋₆alkyl,
- aryl or aryl C₁₋₃alkyl, wherein the aryl group is selected from the group consisting of
 - phenyl, and
 - substituted phenyl, wherein the substituent is carboxy, carboxyC₁₋₃alkyl, aminocarbonyl, C₁₋₆alkylaminocarbonyl;

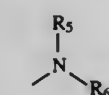
AA is an amino acid of formula II



wherein R₁ and R₂ are individually selected from:

- hydrogen,
- C₁₋₆alkyl,
- mercapto C₁₋₆alkyl,
- hydroxy C₁₋₆alkyl,
- carboxy C₁₋₆alkyl,
- amino substituted C₂₋₆alkyl,
- aminocarbonyl C₁₋₆alkyl,
- mono- or di-C₁₋₆alkyl amino C₂₋₆alkyl,
- guanidino C₂₋₆alkyl,
- substituted phenyl C₁₋₆alkyl, wherein the substituent is hydrogen, hydroxy, carboxy, C₁₋₄alkyl, or C₁₋₄alkyloxy,
- substituted indolyl C₁₋₆alkyl, wherein the substituent is hydrogen, hydroxy, carboxy, C₁₋₄alkyl, or C₁₋₄alkyloxy,
- substituted imidazolidyl C₂₋₆alkyl wherein the substituent is hydrogen, hydroxy, carboxy, C₁₋₄alkyl, or C₁₋₄alkyloxy,
- substituted pyridyl C₁₋₆alkyl wherein the substituent is hydrogen, hydroxy, carboxy, C₁₋₄alkyl, or C₁₋₄alkyloxy,
- substituted pyridylamino C₁₋₆alkyl wherein the substituent is hydrogen, hydroxy, carboxy, C₁₋₄alkyl, or C₁₋₄alkyloxy,
- substituted pyrimidinyl C₁₋₆alkyl wherein the substituent is hydrogen, hydroxy, carboxy, C₁₋₄alkyl, or C₁₋₄alkyloxy,

X is



wherein R₃ and R₄ are each individually selected from the group consisting of:

- H,
- aryl or ArylC₁₋₆alkyl, wherein the aryl group is selected from the group consisting of
 - phenyl,
 - naphthyl,
 - pyridyl,
 - pyrrol,
 - furyl,

- (6) thienyl,
- (7) isothiazolyl,
- (8) imidazolyl,
- (9) benzimidazolyl,
- (10) tetrazolyl,
- (11) pyrazinyl,
- (12) pyrimidyl,
- (13) quinolyl,
- (14) isoquinolyl,
- (15) benzofuryl,
- (16) isobenzofuryl,
- (17) benzothienyl,
- (18) pyrazolyl,
- (19) indolyl,
- (20) isoindolyl,
- (21) purinyl,
- (22) carbazolyl,
- (23) isoxazolyl,
- (24) benzthiazolyl,
- (25) benzoxazolyl,
- (26) thiazolyl, and
- (27) oxazolyl

and mono and di-substituted Aryl as defined above in items (1) to (27) wherein the substituents are independently selected from C_{1-6} alkyl, C_{1-6} alkyloxy, hydroxy C_{1-6} alkyl, C_{1-6} alkoxy C_{1-6} alkyl, halo, hydroxy, amino, C_{1-6} alkylamino, amino C_{1-6} alkyl, carboxyl, carboxyl C_{1-6} alkyl, and C_{1-6} alkylcarbonyl.

5,672,584
CYCLIC PRODRUGS OF PEPTIDES AND PEPTIDE
NUCLEIC ACIDS HAVING IMPROVED METABOLIC
STABILITY AND CELL MEMBRANE PERMEABILITY

Ronald T. Borchardt; Teruna Siahaan; Sanjeev Gangwar; Val-
entino J. Stella, all of Lawrence, Kans., and Binghe Wang,
Norman, Okla., assignors to The University of Kansas,
Lawrence, Kans.

Filed Apr. 25, 1995, Ser. No. 429,732

Int. Cl. A61K 38/02

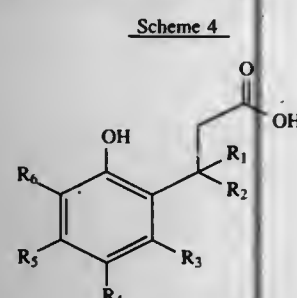
U.S. Cl. 514—11

5 Claims

1. A cyclic prodrug of a biologically active peptide or peptide nucleic acid, wherein the N-terminal amino group and the C-terminal carboxyl group of said biologically active peptide or peptide nucleic acid are linked via a linker, or

wherein the C-terminal carboxyl group of said peptide is linked to a side chain amino group or a side chain hydroxyl group via a linker, or

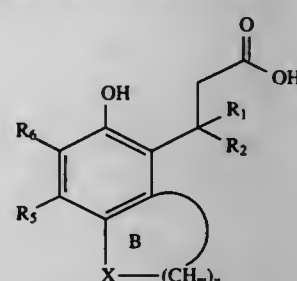
wherein a side chain carboxyl group of said peptide is linked to a side chain amino group or a side chain hydroxyl group via a linker, and wherein said linker is selected from the group consisting of compounds of the formula:



wherein

$R_1=CH_3$, alkyl, phenyl, benzyl, halogen
 $R_2=CH_3$, alkyl, phenyl, benzyl, halogen

$R_3=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_4=OH$, H, NO_2
 $R_5=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen
 $R_6=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen;



(II)

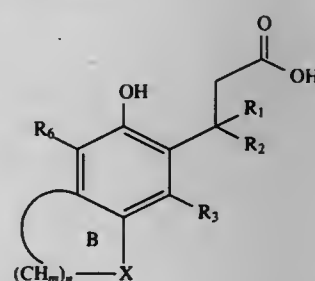
wherein

$R_1=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_2=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_3=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen
 $R_4=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen,
Ring B can be aliphatic or aromatic

$n=1,2,3,4 \dots 10$

m can be 1 or 2 depending if ring B is aliphatic, has double bond(s) or aromatic

$X=O$, S, NH, N-alkyl;



(III)

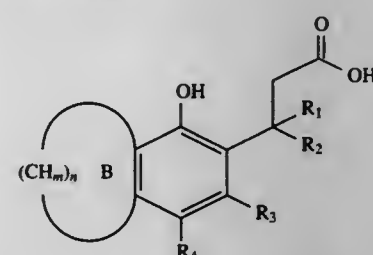
wherein

$R_1=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_2=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_3=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen
 $R_4=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen,
Ring B can be aliphatic or aromatic

$n=1,2,3,4 \dots 10$

m can be 1 or 2 depending if ring B is aliphatic or contains double bond(s) or aromatic

$X=O$, S, NH, N-alkyl;



(IV)

wherein

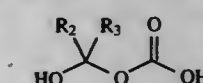
$R_1=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_2=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_3=CH_3$, alkyl, alkenyl, benzyl, halogen
 $R_4=OH$, H, NO_2

Ring B can be aliphatic or aromatic

$n=1,2,3,4 \dots 10$

m can be 1 or 2 depending if ring B is aliphatic or contains double bond(s) or aromatic;

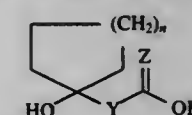
(V) $R_2=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_3=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_4=OH$, H, NO_2
 $R_5=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen
 $R_6=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen;



(X)

wherein

$R_2=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl
 $R_3=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl;



(XI)

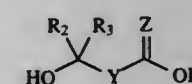
(VI)

wherein

$n=0, 1, \dots 15$

$Y=S$, O

$Z=S$, O; and

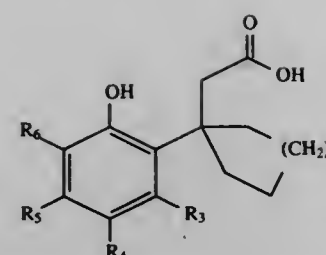


(XII)

wherein

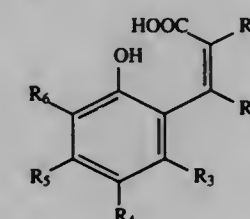
$R_2=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl
 $R_3=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl,
 $Y=S$, O
 $Z=S$, O.

(VII)



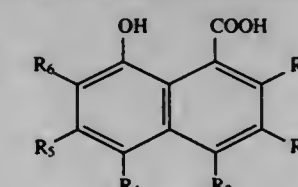
wherein

$R_3=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_4=OH$, H, NO_2
 $R_5=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen
 $R_6=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen
 $n=1,2,3,4 \dots 10$;



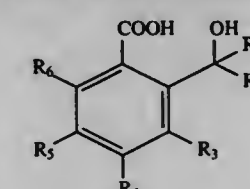
wherein

$R_1=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_2=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_3=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_4=OH$, H, NO_2
 $R_5=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_6=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen;



wherein

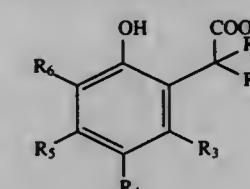
$R_1=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_2=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_3=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_4=OH$, H, NO_2
 $R_5=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_6=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen;



(VIII)

wherein

$R_1=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_2=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_3=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen
 $R_4=OH$, H, NO_2
 $R_5=H$, CH_3 , alkyl, phenyl, benzyl, halogen
 $R_6=H$, CH_3 , alkyl, alkenyl, phenyl, benzyl, halogen;



wherein

$R_1=CH_3$, alkyl, alkenyl, phenyl, benzyl, halogen

5,672,585

METHOD AND COMPOSITION FOR TREATING
THROMBOSIS

Michael D. Pierschbacher; Soan Cheng; William S. Craig, and
Juerg F. Tschopp, all of San Diego, Calif., assignors to La
Jolla Cancer Research Foundation, La Jolla, Calif.

Continuation of Ser. No. 171,068, Dec. 20, 1993, abandoned,

which is a continuation-in-part of Ser. No. 79,441, Jun. 18,

1993, abandoned, which is a continuation-in-part of Ser. No.

50,736, Apr. 14, 1993, abandoned, which is a continuation of

Ser. No. 681,119, Apr. 5, 1991, abandoned, which is a

continuation-in-part of Ser. No. 506,444, Apr. 6, 1990, aban-

doned. This application May 22, 1995, Ser. No. 445,745

Int. Cl. A61K 38/00; 38/02; C07K 5/00; 7/00

U.S. Cl. 514—11

22 Claims

1. A cyclic peptide having the structure:



wherein

X_1 and X_8 are 0 to 20 amino acids;

X_2 is 0 or an amino acid capable of forming a bridge;

X_3 is 0 to 10 amino acids;

X_4 is a positively charged amino acid;

X_5 is a hydrophobic amino acid;

X_6 is a positively charged amino acid; and

X_7 is an amino acid capable of forming a bridge, wherein the hydrophobic amino acid is non-polar and the cyclic peptide inhibits platelet aggregation activity without substantially pro-longing bleeding time.

(IX)

5,672,586

HERPES RIBONUCLEOTIDE REDUCTASE INHIBITORS
Jean André Gauthier, Montréal, Canada, and Neil Moss, Danbury, Conn., assignors to Bio-Mega/Boehringer Ingelheim Research, Inc., Quebec, Canada

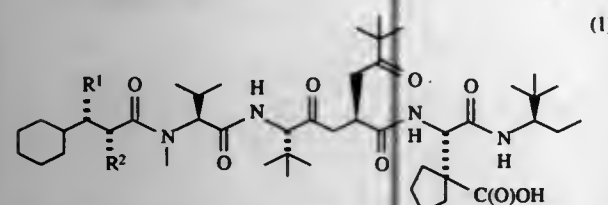
Filed Jun. 18, 1996, Ser. No. 666,732

Claims priority, application Canada, Jun. 23, 1995, 2152541
Int. Cl.⁶ A61K 38/04; 38/07 C07K 5/00

U.S. Cl. 514—18

22 Claims

1. A compound of formula 1



wherein R¹ is hydrogen or (1-4C)alkyl and R² is (1-4C)alkyl; or a therapeutically acceptable salt thereof.

5,672,587

α-GLYCOSYL DERIVATIVE OF CATECHOLAMINE OR ITS SALT, AND ITS PREPARATION AND USES

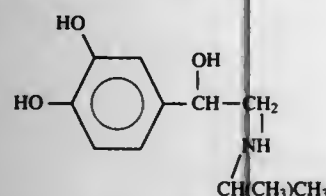
Tetsuya Nakada, and Michio Kubota, both of Osaka, Japan, assignors to Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo, Okayama, Japan

Division of Ser. No. 297,527, Aug. 26, 1994, abandoned, which is a division of Ser. No. 57,915, May 7, 1993, Pat. No. 5,380,837. This application Jun. 7, 1995, Ser. No. 483,268

Claims priority, application Japan, Mar. 9, 1992, 4-101542

Int. Cl.⁶ C07H 15/00; C12N 9/34; C12P 19/44; A61K 31/70
U.S. Cl. 514—25 7 Claims

1. An α-glycosyl derivative of a catecholamine or its salt, which does not substantially exhibit a reducing activity and turns green on the anthrone-sulfuric acid method, said catecholamine being isoproterenol of the formula



wherein at least one α-glycosyl group is bonded to said isoproterenol.

5,672,588

PURINE DERIVATIVES

Lars Jacob Stray Knutsen, Vedbæk, and Jesper Lau, Farum, both of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

Continuation of Ser. No. 348,785, Dec. 2, 1994, abandoned, which is a continuation of Ser. No. 60,784, May 12, 1993, abandoned, which is a continuation-in-part of Ser. No. 886,534, May 20, 1992, abandoned. This application Aug. 28, 1995, Ser. No. 521,077

Int. Cl.⁶ A61K 31/70; C07H 19/16
U.S. Cl. 514—46 12 Claims

1. A method of treating epilepsy in a person in need thereof, comprising administering an effective amount of a compound, wherein the compound is selected from the group consisting of:

- 2-chloro-N-(1-phenoxy-2-propyl)adenosine;
- 2-chloro-N-[(R)-1-phenoxy-2-propyl]adenosine;
- 2-chloro-N-(2-phenoxyethyl)adenosine;
- 2-chloro-N-(1-phenyl-3-butyl)adenosine;

- 2-amino-N-(1-phenoxy-2-propyl)adenosine;
- 2-chloro-N-(cis-2-phenoxypropyl)adenosine;
- 2-chloro-N-(trans-2-phenoxypropyl)adenosine;
- 2-chloro-N-[(R)-1-phenylthio-2-propyl]adenosine;
- (R)-2-chloro-N-[1-(4-fluorophenoxy)-2-propyl]adenosine;
- 2-methoxy-N-[(R)-1-phenoxy-2-propyl]adenosine;
- 2-methyl-N-[(R)-1-phenoxy-2-propyl]adenosine; and pharmaceutically acceptable salts thereof.

5,672,589

CRYSTALLINE LACTITOL MONOHYDRATE AND A PROCESS FOR THE PREPARATION THEREOF, USE THEREOF, AND SWEETENING AGENT

Heikki Olavi Heikkilä, Espoo, and Juha Veikko Nurmi, Pijnajnen, both of Finland, assignors to Suomen Xyrosin Oy, Kotka, Finland

Continuation of Ser. No. 995,856, Dec. 23, 1992, Pat. No. 5,516,763, which is a continuation of Ser. No. 687,856, Jul. 29, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 474,345

Claims priority, application Finland, Dec. 1, 1988, 885588
Int. Cl.⁶ A61K 31/715; C07H 1/00; A23G 3/00; A23L 1/00
U.S. Cl. 514—53 15 Claims

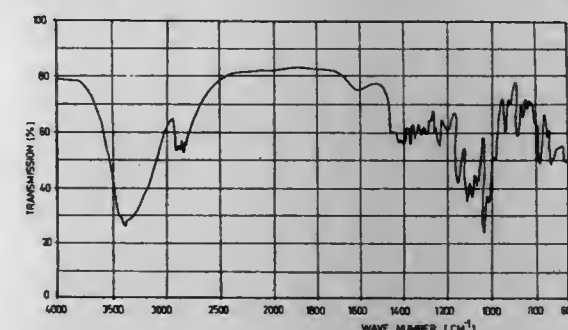
1. A process of preparing a substantially pure crystalline lactitol monohydrate comprising:

- A) obtaining an aqueous lactitol solution, at least about 70% by weight of the solids in said solution consisting of lactitol;
- B) crystallizing said lactitol from said solution in a manner effective to produce a crystalline material, which, when dry, has:

- (i) lattice cell constants of a=7.815±0.008 Å, b=12.682±0.008 Å, and c=15.927±0.008 Å;
- (ii) a melting point in the range of about 90° to about 105° C.; and
- (iii) a water content of between about 4.85 and about 5.15 percent; said crystallizing step comprising maintaining the

- (i) supersaturation of said lactitol in said lactitol solution greater than about 1; and
- (ii) the temperature of said solution greater than about 50° C.; and

- C) separating said lactitol monohydrate crystals from the mother liquor.



5,672,590

PHARMACEUTICAL COMPOSITION FOR IMMUNOMODULATING AND ADJUVANT TREATMENT
Olga Kufudaki, Prague, Czech Rep., assignor to Aliatros Medical, a.s., Prague, Czech Rep.

PCT No. PCT/CZ94/00015, § 371 Date Apr. 10, 1996, § 102(e)
Date Apr. 10, 1996, PCT Pub. No. WO95/02398, PCT Pub. Date Jan. 26, 1995

PCT Filed Jul. 12, 1994, Ser. No. 564,328

Claims priority, application Czechoslovakia, Jul. 12, 1993, 1385-93
Int. Cl.⁶ A61K 31/715; 31/51; 31/44; 31/34; 31/195

U.S. Cl. 514—53

21 Claims

1. A pharmaceutical composition for immunomodulating and adjuvant treatment comprising:

- (a) a D-ribose in an amount ranging from about 32 to 63 wt %;
- (b) a deoxy-derivative of a D-monosaccharide in an amount ranging from about 32 to 63 wt %;
- (c) DL-alpha-alanine in an amount ranging from about 6 to 29 wt %;
- (d) nicotinic acid in an amount ranging from about 6 to 24 wt %; and
- (e) L-ascorbic acid ranging from about 22 to 45 wt %, based on the total weight % of the composition.

5,672,591

Patent Not Issued For This Number

5,672,592

CERTAIN PHOSPHONOMETHYL-PENTANEDIOIC ACID DERIVATIVES THEREOF

Paul F. Jackson, Bel Air, and Barbara S. Slusher, Kingsville, both of Md., assignors to Guilford Pharmaceuticals Inc., Baltimore, Md.

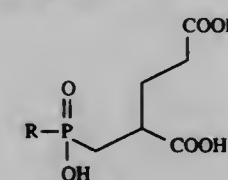
Filed Jun. 17, 1996, Ser. No. 665,776

Int. Cl.⁶ A61K 31/66; C07F 9/38; 9/58; 9/572

U.S. Cl. 514—75

11 Claims

1. A compound having the formula:



where

R is a C₁-C₉ straight or branched chain alkyl, C₂-C₉ straight or branched chain alkenyl group, C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, phenyl, 1-naphthyl, 2-naphthyl, or phenyl(C₁-C₄ alkyl), wherein said alkyl, alkenyl, cycloalkyl, cycloalkenyl, phenyl, 1-naphthyl, 2-naphthyl, or phenyl(C₁-C₄ alkyl) groups are optionally substituted with a substituent selected from the group consisting of: C₃-C₈ cycloalkyl, C₅-C₇ cycloalkenyl, C₁-C₄ alkyl, C₁-C₄ alkenyl, hydroxy, halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched chain alkyl or alkenyl, C₁-C₄ alkoxy, C₁-C₄ alkenyloxy, phenoxy, benzyloxy, amino, and Ar₁, where Ar₁ is selected from the group consisting of 1-naphthyl, 2-naphthyl, and phenyl, and where Ar₁ has one to three substituents which are independently selected from the group consisting of

174-444 O.G.-97-13: QL3

hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C₁-C₆ straight or branched alkyl or alkenyl, C₁-C₄ alkoxy or C₁-C₄ alkenyloxy, phenoxy, benzyloxy, and amino; or a pharmaceutically acceptable salt, hydrate or a mixture thereof.

5,672,593

BISTRIAZENES AS CHEMOTHERAPEUTIC AGENTS
Christopher J. Michejda, North Potomac, and Jeffrey J. Blumenstein, Germantown, both of Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Continuation of Ser. No. 527,915, May 24, 1990, abandoned.

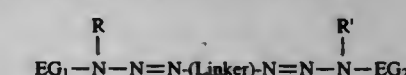
This application Jun. 28, 1993, Ser. No. 82,902

Int. Cl.⁶ A61K 31/655

U.S. Cl. 514—151

4 Claims

1. A pharmaceutical composition, comprising an anti-cancer effective amount of a compound of the formula:



wherein

the Linker is selected from the group consisting of alkylene, substituted alkylene of chain length 1-20, aralkylene or substituted aralkylene wherein the triazene moieties are bonded to said Linker either directly, or via the alkyl groups of said Linker when such alkyl groups are present, polycyclic aralkylene, heterocyclic aralkylene, and their substituted derivatives wherein the triazene moieties are separated by 1-30 carbon atoms;

EG₁ and EG₂ are the same or different, and each is a member selected from the group consisting of alkyl, substituted alkyl of chain length 1-20, aralkyl or substituted aralkyl, polycyclic aralkyl, aryl groups and heterocyclic groups of 2-40 non-hydrogen atoms, containing 1-6 rings; and

R and R' are the same or different, and each is a member selected from the group consisting of the members defined above for EG₁, EG₂ and hydrogen; or a physiologically acceptable salt thereof and a non-aqueous pharmaceutically acceptable carrier.

5,672,594

L-ERYTHROSYL NUCLEOSIDES

Alexander L. Weis, Tamas Bakos, both of San Antonio, Tex., and Charles T. Goodhue, Rochester, N.Y., assignors to Genencor International, Inc., Rochester, N.Y.

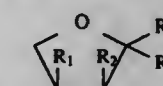
Filed Oct. 24, 1994, Ser. No. 328,301

Int. Cl.⁶ A61K 31/70

U.S. Cl. 514—45

11 Claims

1. A compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

R₁ and R₂ are independently H, mono- or di-halogen, or OR₃, wherein R₃ is H, COR₄, P(O)_nR₅ wherein R₄ is substituted or unsubstituted alkyl of 1-5 carbon atoms or a substituted or unsubstituted aromatic ring structure, R₅ and R₆ are each H or alkyl of 1-5 carbon atoms and n is 2 or 3;

R₃ and R₄ are independently B, H or OR₇, where R₇ is H, COR₈, P(O)_mR₉R₁₀ wherein R₁₀ is substituted or unsubstituted alkyl of 1-5 carbon atoms or a substituted or unsubstituted aromatic ring structure and R₁₁ and R₁₂ are each H or alkyl of 1-5 carbon atoms and m is 2 or 3; and

B is selected from a naturally-occurring nucleobase or a substituted nucleobase wherein said substitutions are selected from the group consisting of H, halogen, C1-C6 alkyl, C2-C6 alkenyl, C1-C6 alkoxy, C3-C6 cycloalkyl-C1-C6 alkoxy, C3-C8 cycloalkoxy, C3-C8 cycloalkylthio, C1-C6 alkylthio, a substituted amino group, an aryl, aralkyl, aryloxy, aralkoxy, arylthio, aralkylthio, a heterocyclic ring and an amino group, provided that when the base is a pyrimidine, the atom at position 4 of the base can be sulfur and further provided that when the base is a purine, the atom at position 6 of the base may be sulfur;

provided that: only one of R₃ or R₄ can be B; when R₄ is B and B is 5-fluorouracil, then R₁ and R₂ cannot both be H; when R₁ and R₂ are each OH, R₃ is H and R₄ is B, then B cannot be A; and when R₁ and R₂ are each OH, R₄ is H and R₃ is B, then B cannot be A.

5,672,595

METHOD OF CONTROLLING MALE FERTILITY

Armelle Bonfils, Paris, and Daniel Philibert, La Varenne Saint Hilaire, both of France, assignors to Roussel UCLAF, France Division of Ser. No. 401,078, Mar. 8, 1995, Pat. No. 5,554,604.

This application Dec. 11, 1995, Ser. No. 570,134

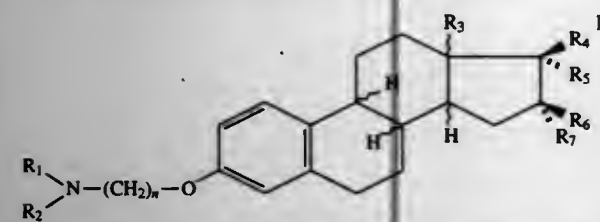
Claims priority, application France, Mar. 24, 1994, 94 03410

Int. Cl.⁶ A61K 31/58

U.S. Cl. 514—176

8 Claims

1. A method of controlling male fertility in warm-blooded animals comprising orally administering to male warm-blooded animals an amount of a compound selected from the group consisting of a compound of the formula



wherein R₁ and R₂ taken together with the nitrogen form a saturated 5 to 6 ring heterocycle optionally containing a second nitrogen or oxygen in the ring, R₃ is α- or β-methyl, n is an integer from 2 to 10, R₄ and R₅ together are =O or R₄ is selected from the group consisting of hydrogen, —OH and acyloxy of an organic carboxylic acid of up to 12 carbon atoms and R₅ is selected from the group consisting of hydrogen, —OH, acyloxy of an organic carboxylic acid of up to 12 carbon atoms and alkyl, alkenyl and alkynyl of up to 8 carbon atoms, R₆ and R₇ together are =O or are individually selected from the group consisting of hydrogen, —OH and acyloxy of an organic carboxylic acid of up to 12 carbon atoms or R₅ and R₆ form a double bond and R₄ and R₇ are hydrogen and their non-toxic, pharmaceutically acceptable acid addition salts in an amount sufficient to control male fertility by affecting the fertilizing power of the spermatozooids without hormonal activity.

5,672,596

BENZO-FUSED LACTAMS PROMOTE RELEASE OF GROWTH HORMONE

Matthew Wyvratt, Mountainside; Robert DeVita, Westfield; Richard Bochis, East Brunswick, and William Schoen, Edison, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J. PCT No. PCT/US93/07791, § 371 Date Apr. 18, 1995, § 102(e) Date Apr. 18, 1995, PCT Pub. No. WO94/05634, PCT Pub. Date Mar. 17, 1994

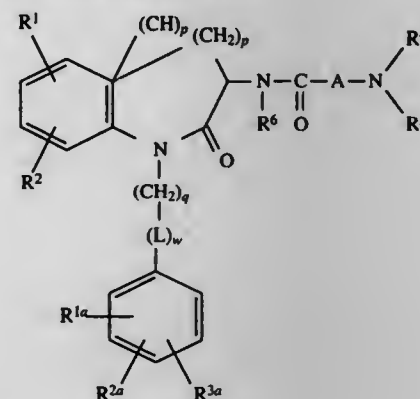
Continuation-in-part of Ser. No. 936,975, Aug. 28, 1992, Pat. No. 5,283,241. This PCT application Aug. 18, 1993, Ser. No. 392,961

Int. Cl.⁶ A61K 31/55; C07D 209/34; 215/227; 223/16

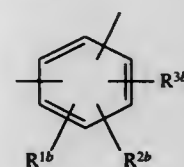
U.S. Cl. 514—183

22 Claims

1. A compound having the formula:



where L is



p is 0 to 3;

q is 0 to 4;

w is 0 or 1;

R¹, R², R^{1a}, R^{2a}, R^{1b} and R^{2b} are independently hydrogen, halogen, C₁-C₇ alkyl, C₁-C₃ perfluoroalkyl, C₁-C₃ perfluoroalkoxy, —S(O)_mR^{7a}, cyano, nitro, R^{7b}O(CH₂)_n—, R^{7b}COO(CH₂)_n—, R^{7b}OCO(CH₂)_n—, R⁴R⁵N(CH₂)_n—, R^{7b}CON(R⁴)(CH₂)_n—, R⁴R⁵NCO(CH₂)_n—, phenyl or substituted phenyl where the substituents are from 1 to 3 of halogen, C₁-C₆ alkyl, C₁-C₆ alkoxy, or hydroxy;

R^{7a} and R^{7b} are independently hydrogen, C₁-C₃ perfluoroalkyl, C₁-C₆ alkyl, substituted C₁-C₆ alkyl, where the substituents are phenyl or substituted phenyl; phenyl or substituted phenyl where the phenyl substituents are from 1 to 3 of halogen, C₁-C₆ alkyl, C₁-C₆ alkoxy, or hydroxy and v is 0 to 3;

R^{3a} and R^{3b} are independently hydrogen, R³, C₁-C₆ alkyl substituted with R³, phenyl substituted with R³, or phenoxy substituted with R³ with the proviso that either R^{3a} or R^{3b} must be a substituent other than hydrogen;

R³ is R^{4b}R^{12b}NCON(R^{12a})(CH₂)_n—, R^{4b}R^{12b}NCSN(R^{12a})(CH₂)_n—, R^{4b}R^{12b}NN(R^{12a})CSN(R^{12a})(CH₂)_n—, R^{4b}R^{12b}NN(R^{12a})CON(R^{12a})(CH₂)_n—, R^{4b}R^{12b}NN(R^{12a})COO(CH₂)_n—, R^{4b}R^{12b}NCOO(CH₂)_n—, or R¹³OCON(R^{12a})(CH₂)_n—, where v is 0 to 3;

R^{12a}, R^{12b} and R^{12c} are independently R^{3a}, OR^{3a}, or COR^{3a}, R^{12a} and R^{12b}, or R^{12b} and R^{12c}, or R^{12a} and R^{12c}, or R^{12b} and R^{12c}, or R^{12a}, or R^{12b}, or R^{12c}, or R¹³ and R^{12a} can be taken together to form —(CH₂)_n—B—(CH₂)_n— where B is CHR¹, O, S(O)_m, or

NR¹⁰, m is 0, 1 or 2, r and s are independently 0 to 3 and R¹ and R¹⁰ are as defined;

R¹³ is:

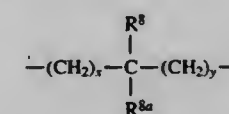
C₁-C₃ perfluoroalkyl, C₁-C₆ alkyl, substituted C₁-C₆ alkyl, where the substituents are hydroxy, NR¹⁰R¹¹, carboxy, phenyl or substituted phenyl; phenyl or substituted phenyl where the substituents on the phenyl are from 1 to 3 of halogen, C₁-C₆ alkyl, C₁-C₆ alkoxy or hydroxy;

and v is as defined above;

R⁴, R^{4b}, R⁵ and R^{5a} are independently hydrogen, phenyl, substituted phenyl, C₁-C₁₀ alkyl, substituted C₁-C₁₀ alkyl, C₃-C₁₀ alkenyl, substituted C₃-C₁₀ alkenyl, C₃-C₁₀ alkynyl, or substituted C₃-C₁₀ alkynyl where the substituents on the phenyl, alkyl, alkenyl or alkynyl are from 1 to 5 of hydroxy, C₁-C₆ alkoxy, C₃-C₇ cycloalkyl, fluoro, R¹, R² independently disubstituted phenyl C₁-C₃ alkoxy, R¹, R² independently disubstituted phenyl, C₁-C₂₀ alkanoyloxy, C₁-C₃ alkoxy carbonyl, carboxy, formyl or —NR¹⁰R¹¹ where R¹⁰ and R¹¹ are independently hydrogen, C₁-C₆ alkyl, phenyl, phenyl C₁-C₆ alkyl, C₁-C₃ alkoxy carbonyl or C₁-C₃ alkanoyl-C₁-C₆ alkyl; or R⁴ and R⁵ can be taken together to form —(CH₂)_n—B—(CH₂)_n— where B is CHR¹, O, S(O)_m, or N—R¹⁰, r and s are independently 1 to 3 and R¹ and R¹⁰ are as defined above;

R⁶ is hydrogen, C₁-C₁₀ alkyl, phenyl or phenyl C₁-C₁₀ alkyl;

A is



where x and y are independently 0-3;

R⁸ and R^{8a} are independently hydrogen, C₁-C₁₀ alkyl, trifluoromethyl, phenyl, substituted C₁-C₁₀ alkyl where the substituents are from 1 to 3 of imidazolyl, indolyl, hydroxy, fluoro, S(O)_mR^{7a}, C₁-C₆ alkoxy, C₃-C₇ cycloalkyl, R¹, R² independently disubstituted phenyl C₁-C₃ alkoxy, R¹, R² independently disubstituted phenyl, C₁-C₃ alkanoyloxy, C₁-C₃ alkoxy carbonyl, carboxy, formyl, or —NR¹⁰R¹¹ where R¹⁰ and R¹¹ are as defined above; or R⁸ and R^{8a} can be taken together to form —(CH₂)_n— where t is 2 to 6; and R⁸ and R^{8a} can independently be joined to one or both of R⁴ and R⁵ to form alkylene bridges between the terminal nitrogen and the alkyl portion of the A group wherein the bridge contains from 1 to 5 carbon atoms;

and pharmaceutically acceptable salts thereof.

5,672,597

ACETAMIDE DERIVATIVE

Nobuo Ishiyama; Toshihiro Koyama; Mitsuo Hayashida; Katsuyuki Otsuka; Masahiro Fujii; Kunio Kimura; Yoshiyuki Hata, and Nobuko Miyao, all of Kyoto, Japan, assignors to Kaken Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP93/01696, § 371 Date May 18, 1995, § 102(e) Date May 18, 1995, PCT Pub. No. WO94/12473, PCT Pub. Date Jun. 9, 1994

PCT Filed Nov. 18, 1993, Ser. No. 424,500

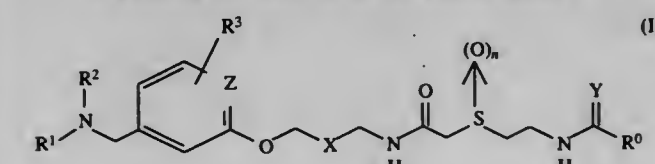
Claims priority, application Japan, Nov. 20, 1992, 4-312184; Apr. 27, 1993, 5-100804

Int. Cl.⁶ A01N 43/00; A61K 31/55; C07D 401/00

U.S. Cl. 514—210

7 Claims

1. An acetamide derivative having the general formula (I):



wherein each of R¹ and R² is a C₁₋₇ alkyl group, or R¹ and R² taken together join to form the formula —(CH₂)_m— wherein m is 4 to 6.

R³ is hydrogen atom, a halogen atom, a C₁₋₇ alkyl group, a C₁₋₄ alkoxy group, nitro group, amino group, cyano group, carboxyl group or acetyl group, which may be substituted for any hydrogen atom of the ring,

X is —CH₂— or —CH=CH—,

n is 0 or 1,

Y is oxygen atom, sulfur atom or —N—CN,

Z is CH or nitrogen atom, and

R⁰ is R⁴, —NHR⁵ or —OR⁶, wherein each of R⁴, R⁵ and R⁶ is hydrogen atom; a C₁₋₇ alkyl group; a C₂₋₆ alkenyl group; a C₂₋₆ alkynyl group; a C₁₋₄ alkoxy C₁₋₇ alkyl group; a C₁₋₅ acyloxy C₁₋₇ alkyl group; a C₂₋₁₆ aralkyl group; a phenyl or a heterocyclic group which may be substituted by a C₁₋₇ alkyl group, a halogen atom, a C₁₋₄ alkoxy group, nitro group, trifluoromethyl group, amino group, cyano group, carboxyl group or acetyl group; a C₁₋₇ alkyl group substituted by a heterocycle,

or a pharmacologically acceptable salt thereof.

5,672,598

LACTAM-CONTAINING HYDROXAMIC ACIDS

Biswanath De, Cincinnati; Christopher Thomas Wahl, Hamilton; Michael George Natchus, Cincinnati, and Menyan Cheng, West Chester, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 21, 1995, Ser. No. 407,839

Int. Cl.⁶ C07D 223/10; A61K 31/55

U.S. Cl. 514—212

2 Claims

1. A compound selected from:

(2R)-Isobutyl-3-(N-hydroxycarboxamido)-propanoic acid amide of 1N-(carbamethoxy-methyl)-caprolactam-(3S)-amine;
(2R)-Isobutyl-3-(N-hydroxycarboxamido)-propionic acid amide of 1N-(methyl-carboxamidomethyl)-caprolactam-(3S)-amine;
(2R)-Isobutyl-3-(N-hydroxycarboxamido)-propionic acid amide of 1N-(carbo-tert-butoxy-methyl)-caprolactam-(3S)-amine;
(2R)-Isobutyl-3-(N-hydroxycarboxamido)-propionic acid amide of 1N-Benzyl-caprolactam-(3S)-amine;
(2R)-Isobutyl-3-N-hydroxycarboxamidopropionic acid amide of 1N-(carbo-benzoyloxy-methyl)-caprolactam-(3S)-amine;
(2R)-Isobutyl-3-(N-hydroxycarboxamido)-propionic acid amide of 1N-(N-benzylcarboxamidomethyl)-caprolactam-(3S)-amine;

(2R)-Isobutyl-3-N-hydroxycarboxamidopropionic acid amide of 1N-(n-butyl-carboxamidomethyl)-caprolactam-(3S)-amine;
(2R)-N-Hydroxycarboxamidomethyl heptanoic acid amide of N-(carbamethoxymethyl)-caprolactam-(3S)-amine;
(2R)-N-Hydroxycarboxamidomethyldecanoic acid amide of 1N-(carbamethoxymethyl)-caprolactam-(3S)-amine;
(2R)-N-Hydroxycarboxamidomethyl decanoic acid amide of N-toluenesulfonyl-caprolactam-(3S)-amine;
(2R)-N-Hydroxycarboxamidomethyl decanoic acid amide of N-[(2-methoxy)ethyl]-caprolactam-(3S)-amine;
(2R)-N-Hydroxycarboxamidomethyl decanoic acid amide of 1N-n-butyl-caprolactam-(3S)-amine;

(2R)-Isobutyl-(3S)-[N-hydroxycarboxamido]-butanoic acid amide of (1N)-carbamethoxymethyl-caprolactam-(3S)-amine;
(2R)-Isobutyl-(3R)-[N-hydroxycarboxamido]-butanoic acid amide of (1N)-carbamethoxymethyl-caprolactam-(3S)-amine;

(2R)-Isobutyl-(3S)-[N-hydroxycarboxamido]-hexanoic acid amide of (1N)-carbamethoxymethyl-caprolactam-(3S)-amine;

(2R)-Isobutyl-(3S)-[N-hydroxycarboxamido]-6-hydroxyhexanoic acid amide of (1N)-carbamethoxymethyl-caprolactam-(3S)-amine;

(2R)-[(1S)-N-hydroxycarboxamido]-ethyldecanoic acid amide of 1N-(carbamethoxy-methyl)-caprolactam-(3S)-amine;

(2R)-[(1R)-N-hydroxycarboxamido]-ethyldecanoic acid amide of 1N-(carbomethoxy-methyl)-caprolactam-(3S)-amine;
 (2R)-[(1S)-N-Hydroxycarboxamido]-ethyldecanoic acid amide of N-(2-methoxyethyl)-caprolactam-(3S)-amine;
 (2R)-[(1R)-N-Hydroxycarboxamido]-ethyldecanoic acid amide of N-(2-methoxyethyl)-caprolactam-(3S)-amine;
 (2R)-Isobutyl-3-(N-hydroxycarboxamido)-propanoic acid amide of N-(carbomethoxymethyl)-valerolactam-(3S)-amine; and
 [(2R)-Isobutyl-3-(N-hydroxycarboxamido)]-propanoic acid amide of 2-oxo-3-amino-N-(carbomethoxymethyl)-pyridinone.

2. A method for preventing or treating a disease associated with unwanted matrix metalloproteinase activity in a human or other animal subject, the method comprising administering to said subject a safe and effective amount of a compound of claim 1.

5,672,599

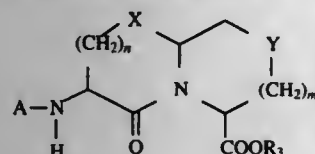
COMPOUNDS CONTAINING A FUSED BICYCLE RING
 Jeffrey A. Robl, Newtown, Pa., assignor to Bristol-Myers Squibb Co., Princeton, N.J.

Division of Ser. No. 238,764, May 5, 1994, Pat. No. 5,508,272, which is a continuation-in-part of Ser. No. 77,978, Jun. 15, 1993, abandoned. This application Nov. 22, 1995, Ser. No. 562,324

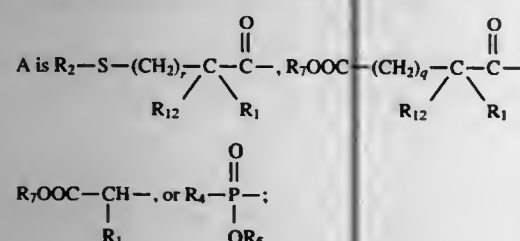
Int. Cl.⁶ C07D 413/02; 417/02; A61K 31/535; 31/54
 U.S. Cl. 514-227.2

15 Claims

1. A compound of the formula



or a pharmaceutically acceptable salt thereof wherein:

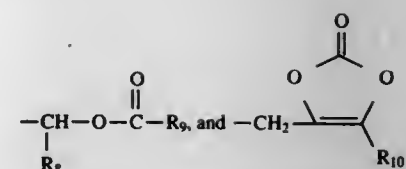


X is O or S-(O);

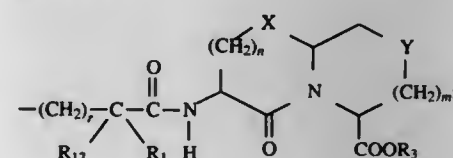
R₁ and R₁₂ are independently selected from the group consisting of hydrogen, alkyl, alkenyl, cycloalkyl, substituted alkyl, substituted alkenyl, aryl, substituted aryl, heteroaryl, cycloalkyl-alkylene-, aryl-alkylene-, substituted aryl-alkylene-, and heteroaryl-alkylene- or R₁ and R₁₂ taken together with the carbon to which they are attached complete a cycloalkyl ring or a benzofused cycloalkyl ring;

R₂ is hydrogen,or R₁₁-S-;

R₃, R₅ and R₇ are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, aryl-(CH₂)_p-, substituted aryl-(CH₂)_p-, heteroaryl-(CH₂)_p-,



R₄ is alkyl, cycloalkyl-(CH₂)_p-, substituted alkyl, aryl-(CH₂)_p-, substituted aryl-(CH₂)_p-, or heteroaryl-(CH₂)_p;
 R₆ is alkyl, substituted alkyl, cycloalkyl-(CH₂)_p-, aryl-(CH₂)_p-, substituted aryl-(CH₂)_p-, or heteroaryl-(CH₂)_p;
 R₈ is hydrogen, lower alkyl, cycloalkyl, or phenyl;
 R₉ is hydrogen, lower alkyl, lower alkoxy, or phenyl;
 R₁₀ is lower alkyl or aryl-(CH₂)_p;
 R₁₁ is hydrogen, alkyl, substituted alkyl, cycloalkyl-(CH₂)_p-, aryl-(CH₂)_p-, substituted aryl-(CH₂)_p-, heteroaryl-(CH₂)_p-, or -S-R₁₁ completes a symmetrical disulfide wherein R₁₁ is



m is zero or one;

Y is CH₂, S-(O), or O provided that Y is S-(O), or O only when m is one;

n is one;

p is zero or an integer from 1 to 6;

q is zero or an integer from 1 to 3;

r is zero or one; and

t is zero, one, or two.

5,672,600

ANTIMICROBIAL DITHIOCARBAMOYL QUINOLONES
 Thomas Prosser Demuth, Jr., Norwich, and Ronald Eugene White, South Plymouth, both of N.Y., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 696,985, May 2, 1991, Pat. No. 5,387,748, which is a continuation of Ser. No. 418,029, Oct. 12, 1989, abandoned, which is a continuation-in-part of Ser. No. 261,948, Oct. 24, 1988, abandoned. This application Oct. 21, 1994, Ser. No. 327,063

Int. Cl.⁶ A61K 31/47; 31/495; C07D 401/00; 403/00
 U.S. Cl. 514-224.5

33 Claims

1. A dithiocarbamate-containing compound having one of the following structures:

(I)

(II)

SEPTEMBER 30, 1997

CHEMICAL

3875

wherein

(A)

(1) X is the dithiocarbamate-containing moiety -R¹⁵-N(R¹⁶)(R¹⁷) or -R¹⁵-R¹⁸-N(R¹⁹)(R²⁰), where

(a)

(1) R¹⁵ is nil; C₁-C₈ alkyl; a 3-9 atom monocyclic or 7-17 atom polycyclic carbocycle; or a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N; and

(2) R¹⁶ is hydrogen; C₁-C₈ alkyl; C₂-C₈ alkenyl; a 3-9 atom monocyclic or 7-17 atom polycyclic carbocycle; a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N; or

(3) when X is R¹⁵-N(R¹⁶)(R¹⁷), R¹⁶ and R¹⁷ may together comprise a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle including the nitrogen atom to which R¹⁵ and R¹⁶ are bonded; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N; and

(b) R¹⁷ is -C(=S)-S-M, where M is a pharmaceutically-acceptable salt or biohydrolyzable ester; and

(c)

(1) R¹⁸ is C₁-C₈ alkyl; a 3-9 atom monocyclic or 7-17 atom polycyclic carbocycle; or a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N; and

(2) R¹⁹ is hydrogen; C₁-C₈ alkyl; C₂-C₈ alkenyl; a 3-9 atom monocyclic or 7-17 atom polycyclic carbocycle; or a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N; or

(3) R¹⁸ and R¹⁹ may together comprise a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle including the nitrogen atom to which R¹⁸ and R¹⁹ are bonded; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N;

(2) A¹ is N or C(R²); where

(i) R² is hydrogen, hydroxy, alkoxy, nitro, cyano, halogen, C₁-C₈ alkyl, or N(R⁸)(R⁹), and

(ii) R⁸ and R⁹ are, independently, R^{8a}; where R^{8a} is hydrogen; C₁-C₈ alkyl; C₂-C₈ alkenyl; a 3-9 atom monocyclic or 7-17 atom polycyclic carbocycle; or a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle; or R⁸ and R⁹ together comprise a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle that includes the nitrogen atom to which they are bonded; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N;

(3) A² is N or C(R²); where R² is hydrogen or halogen;

(4) A³ is N or C(R²); where R² is hydrogen;

(5) R¹ is hydrogen; C₁-C₈ alkyl; a 3-9 atom monocyclic or 7-17 atom polycyclic carbocycle; a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle; alkoxy; hydroxy; C₂-C₈ alkenyl; arylalkyl; or N(R⁸)(R⁹); wherein said heterocycles have one or more heteroatoms chosen from O, S, or N;

(6) R³ is hydrogen; halogen; C₁-C₈ alkyl; a 3-9 atom monocyclic or 7-17 atom polycyclic carbocycle; or a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N;

(7) R⁴ is hydroxy; and

(8) R⁶ is hydrogen, halogen, nitro or N(R⁸)(R⁹);

(B) and where

(1) when A¹ is C(R²), R¹ and R⁷ may together comprise a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle including N¹ and A¹; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N;

(2) when A² is C(R²), R² and R³ may together comprise -O-(CH₂)_n-O-, where n is from 1 to 4;

(3) when A³ is C(R²), R⁴ and R⁵ may together comprise a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle including the carbon atoms to which R⁴ and R⁵ are bonded and the carbon atom to which said carbon atoms are bonded; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N; and

(4) when A³ is C(R²), R¹ and R⁵ may together comprise a 4-9 atom monocyclic or 7-17 atom polycyclic heterocycle including N¹ and the adjacent carbon to which R⁵ is bonded; wherein said heterocycles have one or more heteroatoms chosen from O, S, or N; and

(C) provided that only one of A¹, A², or A³ is N; and pharmaceutically-acceptable salts and biohydrolyzable esters thereof, and hydrates thereof.

5,672,601

3-8-DIAZABICYCLO [3.2.1] OCTANE DERIVATIVES
 HAVING ANALGESIC ACTIVITY

Giorgio Cignarella, Milan, Italy, assignor to Riace Establishment, Vaduz, Liechtenstein

PCT No. PCT/EP95/00476, § 371 Date Aug. 22, 1996, § 102(e) Date Aug. 22, 1996, PCT Pub. No. WO95/23152, PCT Pub. Date Aug. 31, 1995

PCT Filed Feb. 10, 1995, Ser. No. 696,948

Claims priority, application Italy, Feb. 23, 1994, MI94A0326
 Int. Cl.⁶ A61K 31/495; C07D 487/08

U.S. Cl. 514-249

12 Claims

1. A compounds of the formula (I)

wherein

R and R₁, different from each other, are a straight or branched C₂-C₈ alkyl-carbonyl group; a group of formula

wherein:

A is a -CH=CH- group and B is a phenyl or naphthyl group optionally substituted, at the ortho-, meta- and para-positions, with one or more substituents, which are the same or different, selected from the group consisting of CONHR, carboxyl, cyano, nitro, NHCOR, or a non-benzo condensed 5 or 6-membered heterocyclic residue having at least one heteroatom selected from nitrogen, oxygen, sulfur; said heterocyclic group optionally having one or more substituents as described above for the phenyl group; or

A is a single carbon-carbon bond and B is an indenyl group or a benzocondensed heterocyclic group, the heterocyclic residue being as defined above; with the proviso that when one of R or R₁ is the propionyl group, the other cannot be the cinnamyl group or the p-nitrocinnamyl group, and when R is the propionyl group, R₁ cannot be o-, or m-nitrocinnamyl or 1-naphthyl; and the pharmaceutically acceptable salts thereof.

5,672,602

SUBSTITUTED PIPERAZINE DERIVATIVES

Timothy P. Burkholder, Fairfield; Tieu-Binh Le, and Elizabeth M. Kudlacz, both of Cincinnati, all of Ohio, assignors to Hoechst Marion Roussel, Inc., Cincinnati, Ohio

Continuation of Ser. No. 421,719, Apr. 13, 1995, abandoned.

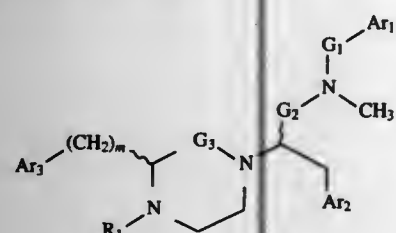
This application Apr. 30, 1996, Ser. No. 640,121

Int. Cl.⁶ A61K 31/495; C07D 403/06; 403/04; 241/04

U.S. Cl. 514—253

17 Claims

1. A compound of the formula



wherein

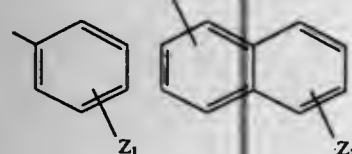
G₁ is —CH₂— or —C(O)—;

G₂ is —CH₂— or —C(O)—;

G₃ is —CH₂— or —C(O)—;

m is 0 or 1;

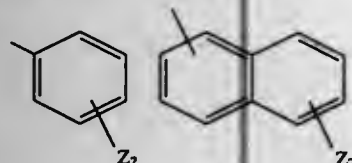
Ar₁ is a radical chosen from the group:



wherein

Z₁ is from 1 to 3 substituents each independently chosen from the group consisting of hydrogen, halogen, benzyloxy, hydroxy, CF₃, C₁–C₄ alkyl, and C₁–C₄ alkoxy;

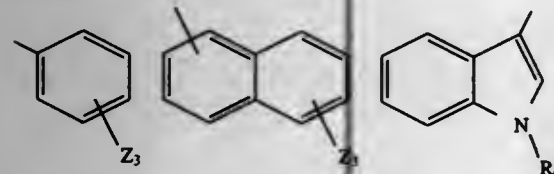
Ar₂ is a radical chosen from the group



wherein

Z₂ is from 1 to 3 substituents each independently chosen from the group consisting of hydrogen, halogen, benzyloxy, hydroxy, CF₃, C₁–C₄ alkyl, and C₁–C₄ alkoxy;

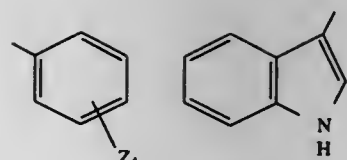
Ar₃ is a radical chosen from the group



wherein

Z₃ is from 1 to 3 substituents each independently chosen from the group consisting of hydrogen, halogen, benzyloxy, hydroxy, CF₃, C₁–C₄ alkyl, and C₁–C₄ alkoxy; R₆ is hydrogen, C₁–C₄ alkyl, or —CH₂C(O)Ar₄;

wherein q is an integer from 1 to 4 and Ar₄ is a radical of the formula



wherein

Z₄ is from 1 to 3 substituents each independently chosen from the group consisting of hydrogen, halogen, benzyloxy, hydroxy, CF₃, C₁–C₄ alkyl, and C₁–C₄ alkoxy;

or stereoisomers, or pharmaceutically acceptable salt thereof; with the proviso that, when G₁ is —C(O)—, then G₂ is not —C(O)—;

and with the further proviso that, when G₃ is —CH₂—, then G₁ and G₂ are —CH₂—.

5,672,603

APOPTOSIS REGULATING COMPOSITION

Satoru Nakai; Koutoku Aihara, both of Tokushima-ken; Hitomi Mori, Tokushima; Michiaki Tominaga, Tokushima-ken; Masakazu Adachi, Takasaki; Hiroyuki Ichikawa, Tokushima; Seiji Akamatsu, Naruto, and Fumio Saito, Takasaki, all of Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 989,028, Apr. 30, 1993, abandoned.

This application Jun. 6, 1995, Ser. No. 466,449

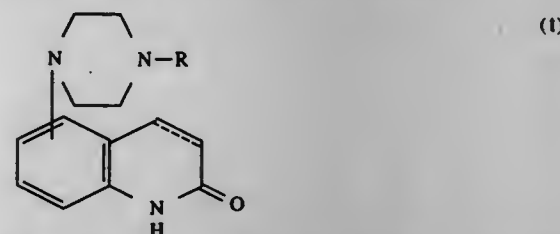
Claims priority, application Japan, Jul. 3, 1991, 3-162587; Feb. 20, 1992, 4-033469; Mar. 3, 1992, 4-045178; Mar. 25, 1992, 4-100585; WIPO, Jul. 2, 1992, PCT/JP92/00841

Int. Cl.⁶ A61K 31/499; 31/50

U.S. Cl. 514—254

6 Claims

1. A method for regulating apoptosis in a host in need of such regulation which comprises administering to said host an apoptosis regulating effective amount of at least one carbostyryl derivative represented by general formula (1) or a salt thereof:



wherein R is a benzoyl group which may optionally be substituted with a lower alkoxy group on the phenyl ring, and the carbon-carbon bond in the 3 and 4 positions of the carbostyryl skeleton is a single bond or a double bond.

5,672,604

1-PHENYLMETHYL BENZIMIDAZOLE PIPERAZINE DERIVATIVE

Aurelio Orjales-Venero, Neguri, and Rosa Rodas-Solanes, Guecho, both of Spain, assignors to Fabrica Espanola de Productos Quimicos y Farmaceuticos (FAES), Lejona, Spain

Continuation of Ser. No. 245,696, May 18, 1994, abandoned.

This application Jan. 22, 1996, Ser. No. 589,651

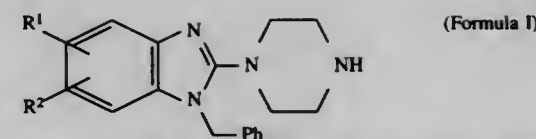
Claims priority, application Spain, May 21, 1993, 9301104

Int. Cl.⁶ A61K 31/495; C07D 403/04

U.S. Cl. 514—254

4 Claims

1. A method of inhibiting vomiting by antagonizing the action at 5HT₃ serotonin receptors which comprises administering an effective amount of a compound having the formula (I):



wherein R¹ is a halogen atom, a nitro group or a hydroxy group, and R² is a hydrogen atom, a halogen atom, a nitro group or a hydroxy group, or a pharmaceutically acceptable salt thereof.

5,672,605

MACROLIDE IMMUNOMODULATORS

Yat Sun Or; Jay R. Luly, both of Libertyville, and Rolf Wagner, Gurnee, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

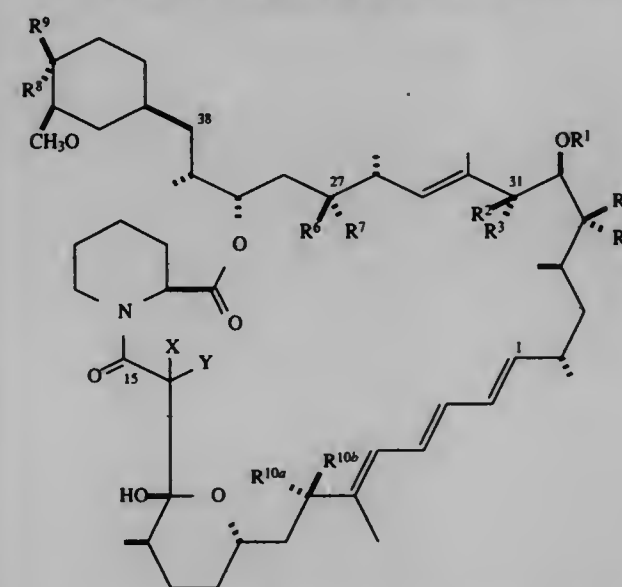
Division of Ser. No. 327,391, Oct. 26, 1994, which is a continuation-in-part of Ser. No. 155,064, Nov. 19, 1993, abandoned. This application Apr. 19, 1995, Ser. No. 424,931

Int. Cl.⁶ A61K 31/435; C07D 498/22

U.S. Cl. 514—291

6 Claims

1. A method of immunomodulatory treatment comprising administering to a mammal in need of such treatment a therapeutically effective amount of a compound having the formula:

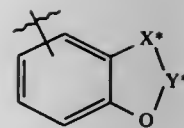


- (10) $-\text{O}(\text{CH}_2)_j(\text{CH}_2)_k\text{O}(\text{R}^{20})$ wherein j is zero or one and R^{20} is independently defined as above,
 (11) $-\text{O}(\text{CH}_2)_i\text{C}(\text{O})\text{N}(\text{R}^{24})(\text{R}^{25})$ wherein i , R^{24} and R^{25} are defined as above,
 (12) $-\text{O}(\text{CH}_2)_i\text{C}(\text{O})\text{N}(\text{OR}^{24})(\text{R}^{25})$ wherein i , R^{24} and R^{25} are defined as above,
 (13) $-\text{O}(\text{CH}_2)_i\text{C}(\text{O})\text{N}(\text{R}^{24})(\text{N}(\text{R}^{24})(\text{R}^{25}))$ wherein i , R^{24} and R^{25} are defined as above,
 (14) $-\text{O}(\text{CH}_2)_i\text{NHC}(\text{O})\text{N}(\text{R}^{24})(\text{R}^{25})$ wherein i , R^{24} and R^{25} are defined as above,
 (15) $-\text{O}(\text{CH}_2)_i\text{NHC}(\text{O})\text{N}(\text{OR}^{24})(\text{R}^{25})$ wherein i , R^{24} and R^{25} are defined as above,
 (16) $-\text{O}(\text{CH}_2)_i\text{NHC}(\text{O})\text{N}(\text{R}^{24})(\text{N}(\text{R}^{24})(\text{R}^{25}))$ wherein i , R^{24} and R^{25} are defined as above,
 (17) $-\text{OS}(\text{O})_2\text{N}(\text{R}^{24})(\text{R}^{25})$ wherein R^{24} and R^{25} are defined as above,
 (18) $-\text{O}(\text{CH}_2)_i\text{NHC}(\text{O})\text{R}^{24}$ wherein R^{24} is defined as above,
 (19) $-\text{OCH}(\text{R}^{24})\text{SH}$ wherein R^{24} is defined as above,
 (20) $-\text{OCH}(\text{R}^{24})\text{S}-\text{C}_1-\text{C}_{10}\text{-loweralkyl}$ wherein R^{24} is defined as above,
 (21) $-\text{OCH}(\text{R}^{24})\text{S-aryl}$ wherein R^{24} is defined as above and
 (22) $-\text{N}_3$;

R^{10a} is hydrogen and R^{10b} is hydrogen, hydroxy, protected hydroxy, C_1-C_{10} -alkoxy, C_2-C_{10} -alkenyl, C_2-C_{10} -alkenyloxy, halo or $-\text{SR}^{28}$ wherein R^{28} is independently defined as above or R^{10b} is hydrogen and R^{10a} is hydrogen, hydroxy, protected hydroxy, C_1-C_{10} -alkoxy, C_2-C_{10} -alkenyl, C_2-C_{10} -alkenyloxy, halo or $-\text{SR}^{28}$ wherein R^{28} is independently defined as above or R^{10a} and R^{10b} are both C_1-C_{10} -alkoxy or $-\text{SR}^{28a}$ wherein R^{28a} is C_1-C_{10} -loweralkyl, aryl or heterocyclic or R^{10a} and R^{10b} taken together are oxo; and

X is hydrogen and Y is hydrogen, hydroxy or protected hydroxy or Y is hydrogen and X is hydroxy or protected hydroxy or X and Y taken together are oxo

wherein at each occurrence the term "aryl" is independently selected from phenyl, naphthyl, fluorenyl, (1,2,3,4)-tetrahydronaphthyl, indenyl and indanyl which is either unsubstituted or substituted with one, two, or three substituents independently selected from the group consisting of C_1-C_{10} -loweralkyl, halo, halo- C_1-C_{10} -loweralkyl, halo- C_1-C_{10} -alkoxy, C_2-C_{10} -alkenyloxy, C_1-C_{10} -alkoxy, alkoxy- C_1-C_{10} -alkoxy, C_1-C_{10} -alkoxycarbonyl, C_1-C_{10} -alkoxycarbonylalkenyl, $(\text{C}_1-\text{C}_{10}\text{-alkoxycarbonyl})\text{thio}$, C_1-C_{10} -alkoxy, thio- C_1-C_{10} -alkoxy, amino, C_1-C_{10} -alkylamino, C_1-C_{10} -dialkylamino, aminocarbonyl, aminocarbonyl- C_1-C_{10} -alkoxy, alkanoylamino, aryl- C_1-C_{10} -alkoxy, aryloxy, mercapto, nitro, carboxaldehyde, carboxy, carboxy- C_2-C_{10} -alkenyl, carboxy- C_1-C_{10} -alkoxy, C_1-C_{10} -alkylsulfonylamino, cyano- C_1-C_{10} -alkoxy, (heterocyclic)- C_1-C_{10} -alkoxy, hydroxy, hydroxy- C_1-C_{10} -alkoxy, phenyl, phenyl-substituted C_2-C_{10} -alkenyl, phenyl-substituted C_2-C_{10} -alkynyl, heterocyclic, $-\text{S}(\text{O})_2\text{NH}_2$, tetrazolyl- C_1-C_{10} -alkoxy, tetrafluorophenyl and pentafluorophenyl and at each occurrence the term "heterocyclic" is independently selected from indolyl, quinolyl, isoquinolyl, tetrahydroquinolyl, benzofuryl, dihydrobenzofuryl, benzothienyl, azetidyl, oxetanyl, pyrrolyl, pyrrolinyl, pyrrolidinyl, pyrazolyl, pyrazolyl, pyrazolidinyl, imidazolyl, imidazolyl, imidazolidinyl, pyridyl, piperidinyl, homopiperidinyl, pyrazinyl, piperazinyl, pyrimidinyl, pyridazinyl, oxazolyl, oxazolidinyl, isoxazolyl, isoxazolidinyl, morpholyl, thiomorpholyl, thiazolyl, thiazolidinyl, isothiazolyl, isothiazolidinyl, indolyl, quinolyl, isoquinolyl, benzimidazolyl, benzothiazolyl, benzoxazolyl, furyl, thienyl, thiazolidinyl, isothiazolyl, triazolyl, tetrazolyl, isoxazolyl, oxadiazolyl, thiadiazolyl, pyrrolyl, pyrimidyl, benzothienyl, compounds of the formula



where X^* is $-\text{CH}_2-$ or $-\text{O}-$ and Y^* is $-\text{C}(\text{O})-$ or $[-\text{C}(\text{R}^*)_2-]$, where R^* is hydrogen or C_1-C_4 -alkyl and v is 1, 2 or 3, pyridin-2-on-1-yl, pyridin-4-on-1-yl, D-allose, D-altrose, D-glucose, D-mannose, D-gulose, D-idose, D-galactose, D-talose, D-ribose, D-arabinose, D-xylose, and D-lyxose wherein said heterocyclics are either unsubstituted or monosubstituted or disubstituted with substituents independently selected from hydroxy, halo, oxo ($=\text{O}$), amino, C_1-C_{10} -alkylamino, C_1-C_{10} -dialkylamino, C_1-C_{10} -alkoxy, alkoxy- C_1-C_{10} -alkoxy, alkoxy- C_1-C_{10} -alkyl, halo- C_1-C_{10} -alkyl, hydroxy, hydroxy- C_1-C_{10} -alkyl, C_3-C_{10} -cycloalkyl, aryl, aryl- C_1-C_{10} -alkyl, $-\text{COOH}$, $-\text{SO}_3\text{H}$, $-\text{C}(\text{O})\text{NH}_2$ and C_1-C_{10} -loweralkyl.

5,672,606

Patent Not Issued For This Number

5,672,607

ANTIVIRAL NAPHTHOQUINONE COMPOUNDS, COMPOSITIONS AND USES THEREOF

Michael R. Boyd, Ijamsville; John H. Cardellina, II, Walkersville; Kirk R. Gustafson, Mt. Airy, all of Md.; Laurent A. Decosterd, Nyon, Switzerland; Ian Parsons, Ithaca, N.Y.; Lewis Pannell, Silver Spring, Md.; James B. McMahon, Frederick, Md., and Gordon M. Cragg, Bethesda, Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

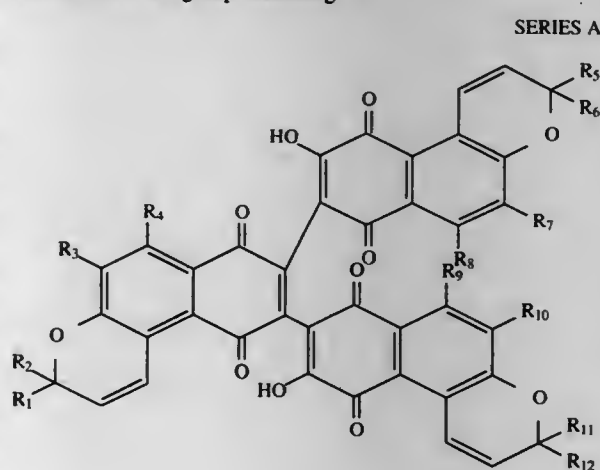
Filed Jan. 29, 1993, Ser. No. 11,183

Int. Cl. A61K 31/44; C07D 311/92

U.S. Cl. 514—305

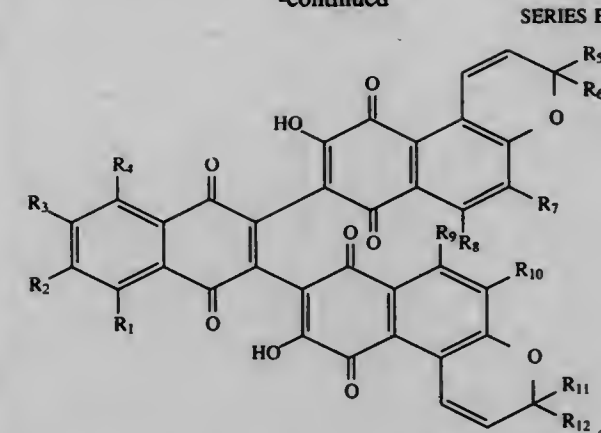
24 Claims

1. An antiviral naphthoquinone, in substantially pure form, selected from the group consisting of:



and

-continued



wherein each of R_1-R_{12} is the same or different, and each is H, a C_1-C_{10} straight-chain or branched-chain saturated or unsaturated alkyl, an aryl, OCH_3 , or OH.

5,672,608

ACENAPHTHYL SUBSTITUTED GUANIDINES AND METHODS OF USE THEREOF

Stanley M. Goldin, Lexington; Subbarao Katragadda, Belmont; Lain-Yen Hu, Bedford; N. Laxma Reddy, Malden; James B. Fischer, Cambridge; Andrew Gannett Knapp, Salem, and Lee David Margolin, Belmont, all of Mass., assignors to Cambridge NeuroScience, Inc., Cambridge, Mass.

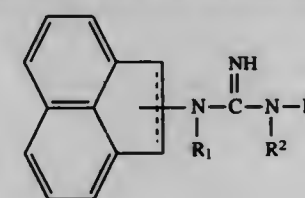
Division of Ser. No. 833,421, Feb. 10, 1992, Pat. No. 5,403,861, which is a continuation-in-part of Ser. No. 652,104, Feb. 8, 1991, abandoned. This application Nov. 22, 1994, Ser. No. 343,829

Int. Cl. A61K 31/47; 31/405; 31/36; 31/155

U.S. Cl. 514—313

21 Claims

1. A method for inhibiting the release of endogenous neurotransmitters comprising administering to an animal in need of such treatment an effective amount of a compound having the formula:



wherein R is cycloalkyl of 3 to 12 carbon atoms, carbocyclic aryl, alkaryl, aralkyl or heterocyclic having 6 to 18 carbon atoms and 1-3 separate or fused rings, and 0-5 O, N and/or S ring atoms in an aryl, alicyclic or mixed ring system;

R^1 and R^2 are the same or different and selected from the group consisting of hydrogen, lower C_{1-6} alkyl, lower C_{1-6} alkylamino, C_{5-10} aryl or substituted aryl;

wherein R and the acenaphthyl group are optionally substituted by hydroxy, acetate, oxo, amino, lower C_{1-6} alkyl, lower C_{1-6} alkyl amino, alkoxy of 1-6 carbon atoms, di-lower C_{2-12} alkyl amino, nitro, azido, sulphydryl, cyano, isocyanato, halogen, amido, sulfonate or carbamido.

5,672,609

PYRIDINE COMPOUNDS, INTERMEDIATES COMPOSITIONS AND METHODS OF USE

Henry Uhlman Bryant, Indianapolis; Don Richard Finley, Greenwood, and Ken Matsumoto, Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

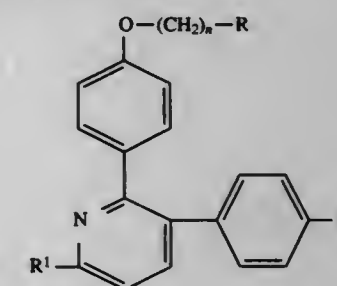
Filed Jul. 18, 1996, Ser. No. 683,326

Int. Cl. C07D 401/02; 213/02; A61K 31/44

U.S. Cl. 514—318

43 Claims

1. A compound of Formula I:



wherein:

 n is 2 or 3;

R is dimethylamino, diethylamino, 1-piperidinyl, 1-pyrrolidinyl, 4-morpholinyl, or 1-hexamethyleneimino;

R^1 is hydrogen, loweralkyl of C_1-C_4 , phenyl, or mono- or disubstituted phenyl wherein each substituent is independently halo, hydroxy, methyl, hydroxy, C_1-C_6 -alkoxy, benzyloxy, C_1-C_6 -alkanoyloxy, benzoyloxy, substituted benzoyloxy bearing 1 to 3 substituents each of which is independently halo, C_1-C_4 -loweralkyl, or C_1-C_4 -loweralkoxy, C_1-C_5 -alkoxycarbonyloxy, or C_4-C_6 -alkylsulfonyloxy;

R^2 is hydrogen, hydroxy, C_1-C_6 -alkoxy, benzyloxy, C_1-C_6 -alkanoyloxy, benzoyloxy, substituted benzoyloxy bearing 1 to 3 substituents each of which is independently halo, C_1-C_4 -loweralkyl, or C_1-C_4 -loweralkoxy, C_1-C_5 -alkoxycarbonyloxy, or C_4-C_6 -alkylsulfonyloxy; or a pharmaceutically acceptable acid addition salt thereof.

5,672,610

METHODS OF INCREASING MACROPHAGE FUNCTION

Steven H. Zuckerman, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

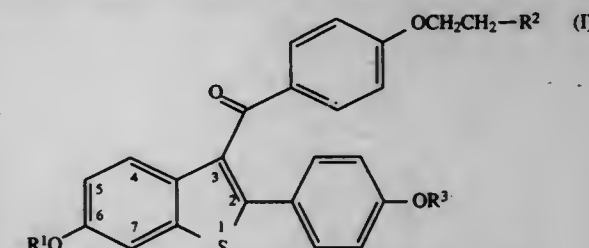
Filed Dec. 21, 1993, Ser. No. 170,605

Int. Cl. A61K 31/445; 31/40; 31/38

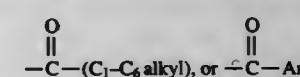
U.S. Cl. 514—324

8 Claims

1. A method of increasing macrophage function so as to augment a human defense comprising administering to a human in need thereof an effective amount of a compound having the formula



wherein R^1 and R^3 are independently hydrogen, $-\text{CH}_3$,



wherein Ar is optionally substituted phenyl; R^2 is selected from the group consisting of pyrrolidine, hexamethylenimine, and piperidine; or a pharmaceutically acceptable salt of solvate thereof.

5,672,611
TRICYCLIC COMPOUNDS USEFUL FOR INHIBITION
OF G-PROTEIN FUNCTION AND FOR TREATMENT OF
PROLIFERATIVE DISEASES

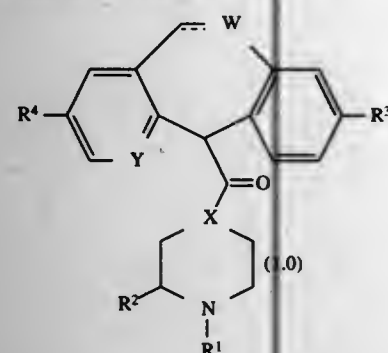
Ronald J. Doll, Maplewood; Alan K. Mallams, Hackettstown;
Adriano Afonso, West Caldwell; Dhanu F. Rane, Morgan-
ville; Randall R. Rossman, Nutley, and F. George Njoroge,
Union, all of N.J., assignors to Schering Corporation, Kenil-
worth, N.J.

Continuation of Ser. No. 418,973, Apr. 7, 1995. This applica-
tion May 22, 1995, Ser. No. 446,265
Int. Cl.⁶ A61K 31/445; C07D 211/06

U.S. Cl. 514—325

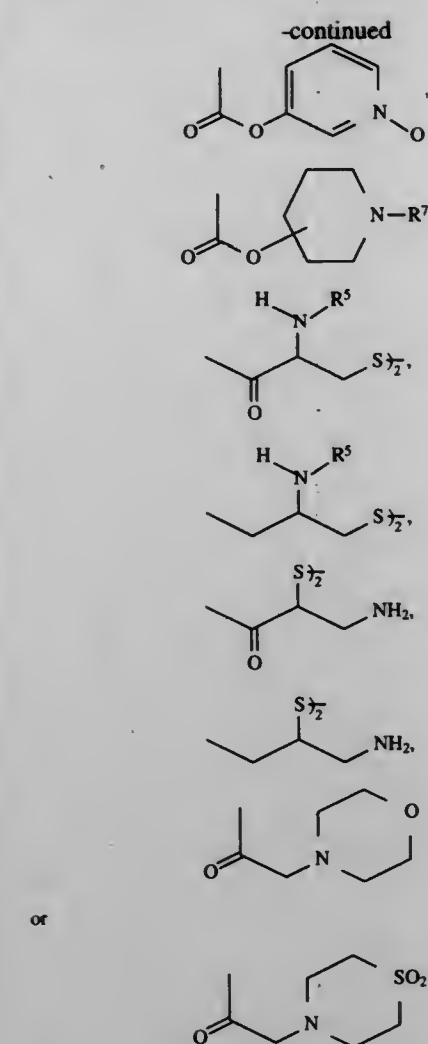
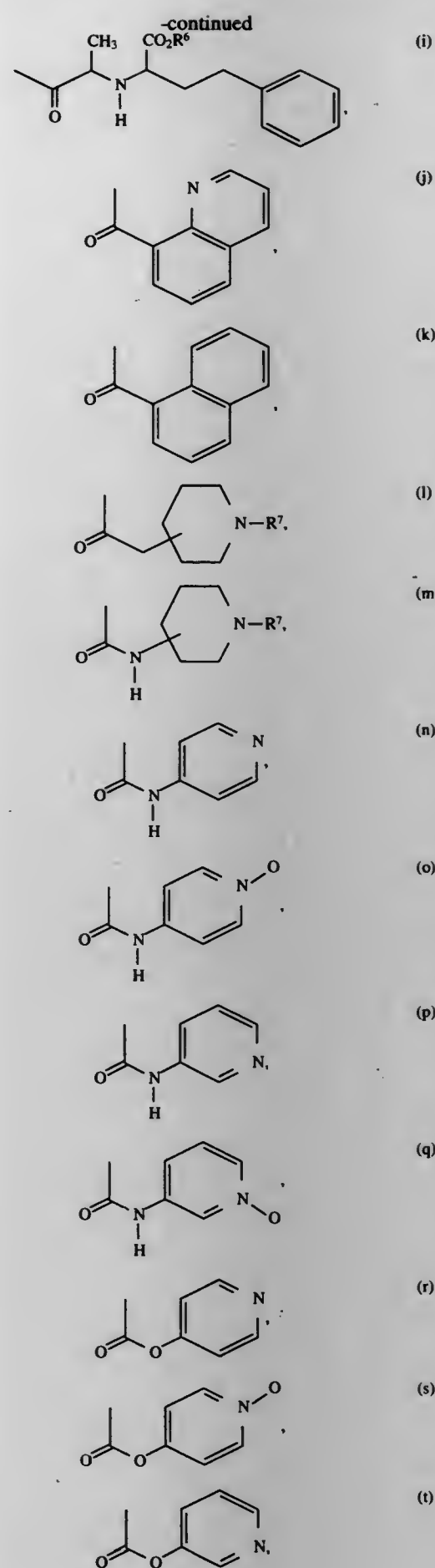
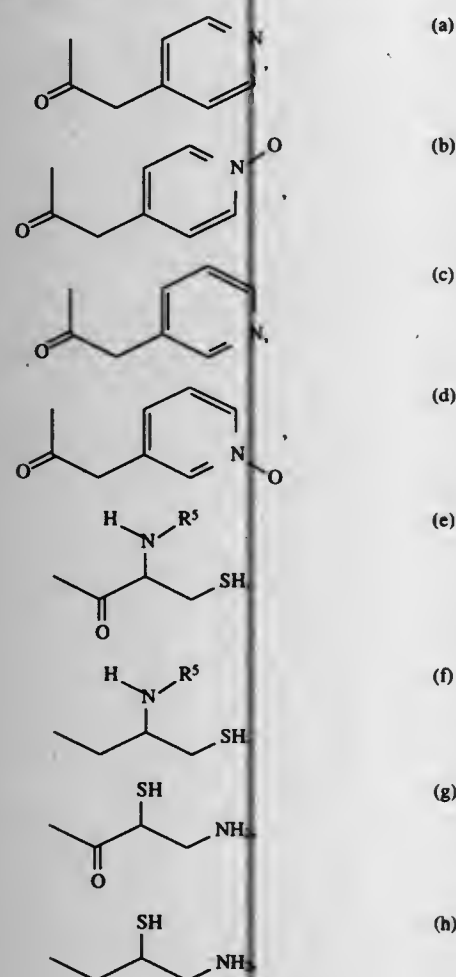
27 Claims

1. A compound of the formula:



or a pharmaceutically acceptable salt or solvate thereof, wherein:

(1) R¹ is a group selected from:



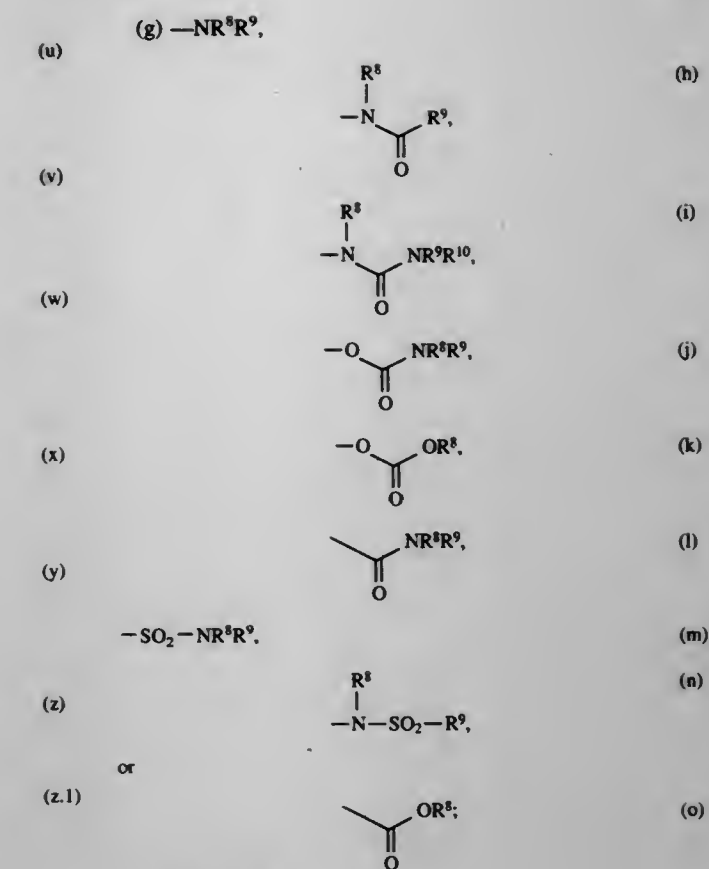
or
R² is selected from:

- (1) H,
- (2) C₁ to C₈ alkyl,
- (3) C₂ to C₈ alkenyl,
- (4) C₂ to C₈ alkynyl,

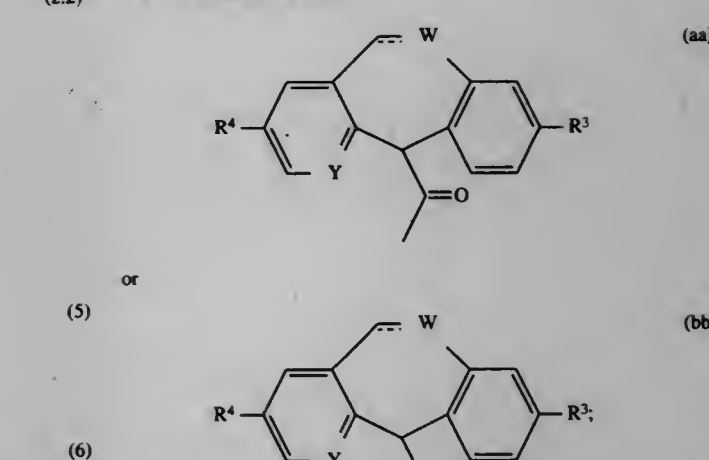


wherein said alkyl, alkenyl, or alkynyl is optionally substituted with one or more groups independently selected from:

- (a) aryl, aralkyl, heteroaryl, heteroarylalkyl or heterocycloalkyl; said aryl, aralkyl, heteroaryl, heteroarylalkyl or heterocycloalkyl optionally substituted with one or more groups independently selected from:
 - (1) C₁ to C₄ alkyl,
 - (2) (CH₂)_tOR⁸ wherein t is 1 to 4,
 - (3) (CH₂)_tNR⁸R⁹ wherein t is 1 to 4, or
 - (4) halogen,
- (b) C₃ to C₆ cycloalkyl,
- (c) —OR⁸,
- (d) —SR⁸,
- (e) —S(O)R⁸,
- (f) —SO₂R⁸,



or
R³ is halogen;
R⁴ is halogen;
R⁵ is selected from: H,



R⁶ is selected from H or C₁ to C₆ alkyl;
R⁷ is selected from H, C₁ to C₆ alkyl, haloalkyl, or —C(O)R¹¹ wherein R¹¹ is selected from C₁ to C₆ alkyl, C₁ to C₆ alkoxy or —NHR¹² (wherein R¹² is C₁ to C₆ alkyl or H), or R⁷ is an acyl radical of a naturally occurring amino acid;
R⁸, R⁹ and R¹⁰ are independently selected from H, C₁ to C₄ alkyl, C₃ to C₆ cycloalkyl, heteroaryl, heteroarylalkyl, heterocycloalkyl, aryl or aralkyl; said alkyl, cycloalkyl, heteroaryl, heteroarylalkyl, heterocycloalkyl, aryl or aralkyl are optionally substituted with C₁ to C₄ alkoxy, aryl, heteroaryl, heterocycloalkyl, cyclopropyl, halogen, —OH, —C(O)R¹³, —SO₂R¹³, or —NR¹⁴R¹⁵ wherein R¹³ is selected from C₁ to C₄ alkyl or aralkyl, and wherein R¹⁴ and R¹⁵ are independently selected from H, C₁ to C₄ alkyl or aralkyl; with the proviso that R⁸ is not H in substituents (e), (f) or (k), and with the proviso that R⁹ is not H in substituent (h) or (n), and with the proviso that R⁸, R⁹, or R¹⁰ is not —CH₂OH or —CH₂NR¹⁴R¹⁵ when R⁸, R⁹, or R¹⁰ is directly attached to a heteroatom;

unsubstituted or substituted alkyl-(=O)₂-, alkenyl-S(=O)₂-, alkynyl-S(=O)₂-, cycloalkyl-S(=O)₂-, cycloalkenyl-S(=O)₂-, heterocyclyl-S(=O)₂-, aryl-S(=O)₂-, hetaryl-S(=O)₂-;

unsubstituted or substituted alkyl-S(=O)₂-O-, alkenyl-O-S(=O)₂-O-, alkynyl-S(=O)₂-O-, cycloalkyl-S(=O)₂-O-, cycloalkenyl-S(=O)₂-O-, heterocyclyl-S(=O)₂-O-, aryl-S(=O)₂-O-, hetaryl-S(=O)₂-O-;

unsubstituted or substituted alkyl-O-S(=O)₂-, alkenyl-O-S(=O)₂-, alkynyl-O-S(=O)₂-, cycloalkyl-O-S(=O)₂-, cycloalkenyl-O-S(=O)₂-, heterocyclyl-O-S(=O)₂-, aryl-O-S(=O)₂-, hetaryl-O-S(=O)₂-;

unsubstituted or substituted alkyl-ON=CR⁸-, alkenyl-ON=ON=CR⁸-, alkynyl-ON=CR⁸-, cycloalkyl-ON=CR⁸-, cycloalkenyl-ON=ON=CR⁸-, heterocyclyl-ON=CR⁸-, aryl-ON=CR⁸-, hetaryl-ON=CR⁸-;

R⁸ is hydrogen, cyano;

unsubstituted or substituted alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, heterocyclyl, aryl or hetaryl;

unsubstituted or substituted alkoxy, alkenyloxy, alkynyloxy, cycloalkoxy, cycloalkenyloxy, cycloalkynyloxy, heterocyclyloxy, aryloxy or hetaryloxy;

Q is oxygen or a substituted nitrogen;

and its plant-tolerated acid addition products and base addition products.

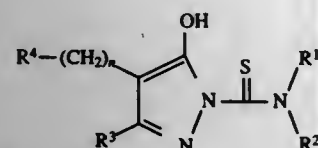
5,672,617

MEDICAMENTS CONTAINING 1-THIOCARBAMOYL-5-HYDROXY-PYRAZOLES AND THEIR USE AS AGENTS FOR COMBATING SEPTIC SHOCK

Peter Wachtler, Köln; Lutz Heuer, Krefeld; Martin Kugler, Leichlingen, and Heinrich Schrage, Krefeld, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Continuation-in-part of Ser. No. 284,080, Aug. 4, 1994, Pat. No. 5,510,365. This application Feb. 9, 1996, Ser. No. 598,878
Claims priority, application Germany, Aug. 11, 1993, 43 26 904.4; Mar. 31, 1994, 44 11 243.2; Apr. 28, 1994, 44 14 792.9; Mar. 20, 1995, 195 10 058.1

Int. Cl.⁶ A61K 31/415; C07D 231/20
U.S. Cl. 514-407

1. A thiocarbamoyl compound of the formula



in which

R¹, R² and R³ in each case independently of one another represent hydrogen or methyl and

R⁴ represents cyclopentyl

n represents the number 1

or a metal salt complex or an acid addition product thereof.

5,672,618

PROTEIN KINASE C INHIBITORS

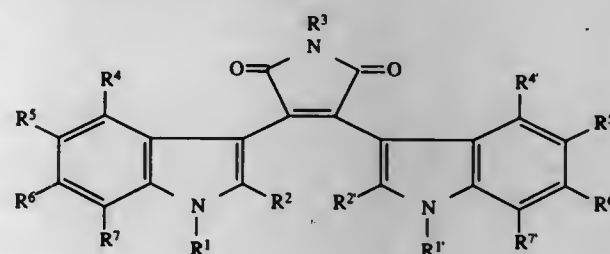
William F. Heath, Jr., Fishers; John H. McDonald, III, Carmel, both of Ind.; Michael Paal, Hamburg, Germany; Theo Schotten, Vierhöfen, Germany, and Wolfgang Stenzel, Reinbek, Germany, assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 324,948, Oct. 18, 1994, Pat. No. 5,545,636, which is a continuation-in-part of Ser. No. 173,741, Dec. 23, 1993, abandoned. This application May 25, 1995, Ser. No. 452,606

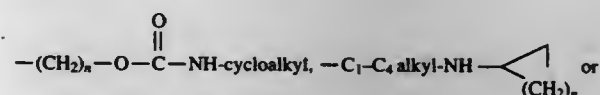
Int. Cl.⁶ A61K 31/40; 31/70; C07D 401/14; C07H 17/00
U.S. Cl. 514-414

6 Claims

1. A compound of the formula:



wherein:



R¹ is -(CH₂)_m-O-glycosyl; m=2, 3, or 4;

R¹ is hydrogen, C₁-C₄ alkyl, cyclopropylmethyl, aminoalkyl, monoalkylaminoalkyl, or dialkylaminoalkyl;

R² and R² are independently hydrogen, alkyl, alkoxyalkyl, hydroxyalkyl, C₁-C₃ alkylthio, S(O)C₁-C₃ alkyl, CF₃;

R³ is hydrogen or CH₃CO-;

R⁴, R⁵, R⁶, R⁶, R⁶, R⁷ and R⁷ are independently hydrogen, halogen, alkyl, hydroxy, alkoxy, -COO(C₁-C₃ alkyl), CF₃, nitro, amino, acetyl amino, monoalkylamino, dialkylamino, alkylthio, C₁-C₃ alkylthio, or S(O)C₁-C₃ alkyl;

n is 1, 2, 3, 4, 5 or 6; or

pharmaceutically acceptable salts or solvates thereof.

5,672,619

FUNGICIDAL ACTIVE COMPOUND COMBINATIONS

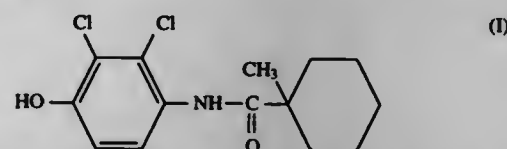
Wilhelm Brandes, Leichlingen; Heinz-Wilhelm Dehne, Monheim; Stefan Dutzmann, Hilden; Karl-Heinz Kuck, Langenfeld, and Bernd-Wieland Krüger, Gladbach, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Division of Ser. No. 462,408, Jun. 5, 1995, Pat. No. 5,532,262, which is a continuation of Ser. No. 232,923, Apr. 25, 1994, abandoned. This application Apr. 8, 1996, Ser. No. 629,245
Claims priority, application Germany, Apr. 28, 1993, 43 13 867.5

Int. Cl.⁶ A01N 37/18; 43/38

U.S. Cl. 514-417

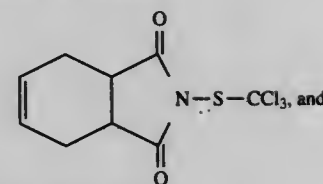
4 Claims

1. A synergistic fungicidal composition comprising synergistic fungicidally effective amounts of the combination of a compound of the formula

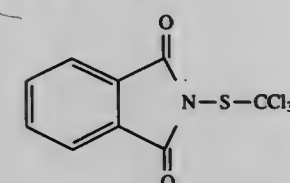


and a second compound selected from the group consisting of

(I) captan of the formula



(M) phaltan of the formula



wherein the weight ratio of the compound of formula I to captan or phaltan is 1:0.5 to 1:20.

5,672,620

DIHYDROBENZOFURAN AND RELATED COMPOUNDS USEFUL AS ANTI-INFLAMMATORY AGENTS

Michael Wiard Scherz, West Chester, and Laurence Ichih Wu, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

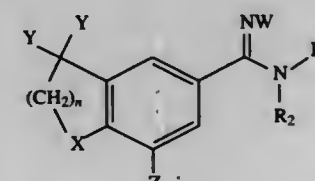
Filed Feb. 1, 1996, Ser. No. 595,086

Int. Cl.⁶ A61K 31/34; C07D 307/79

U.S. Cl. 514-422

20 Claims

1. A compound having the structure:



wherein

- n is from 1 to about 3;
- X is selected from the group consisting of O, SO, or SO₂;
- Y is independently hydrogen or straight or branched alkyl or cycloalkyl having from 1 to about 4 carbon atoms, or the Y's are bonded together to form a cycloalkyl ring having from 3 to about 7 atoms;
- Z is hydrogen or unsubstituted straight or branched alkyl or cycloalkyl having from 3 to about 10 atoms other than hydrogen;
- W is hydrogen or straight or branched alkyl cycloalkyl aryl, hydroxy or alkoxy; and
- R₁ and R₂ are independently hydrogen, straight or branched alkyl cycloalkyl, cycloalkylalicyl, or alkenyl having from one to 10 carbon atoms, aryl, heterocyclyl, heteroaryl, hydroxy, or alkoxy; or R₁ and R₂ are bonded together to form a ring having from 3 to about 7 atoms wherein one to three atoms may be heteroatoms.

5,672,621

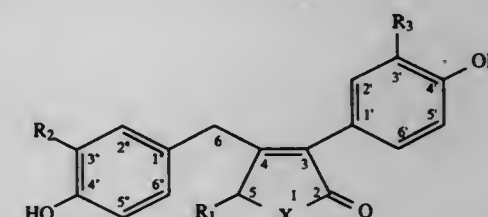
CARBONARIN ANTIINSECTAN METABOLITES

Ali A. Alfatafta, Amman, Jordan; Patrick F. Dowd, Peoria, Ill.; James B. Gloer, Iowa City, Iowa, and Donald T. Wicklow, Peoria, Ill., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C., and University of Iowa Research Foundation and Biotechnology Research and Development Corp., Peoria, Ill.
Continuation-in-part of Ser. No. 283,034, Jul. 29, 1994, Pat. No. 5,519,052. This application Feb. 27, 1996, Ser. No. 608,170

Int. Cl.⁶ A10N 43/16; A61K 31/40; C07D 207/46; 311/80
U.S. Cl. 514-422

27 Claims

1. A substantially pure carbonarin compound having the formula:



wherein: R₁ is a hydrogen atom or a hydroxy group; R₂ is a hydrogen atom or a methoxy group; R₃ is a hydrogen atom or a naphthopyrone group, and X is an oxygen atom.

5,672,622

TREATMENT OF MULTIPLE SCLEROSIS

Joseph Hedgepeth, San Francisco, Calif., and Helmut Wachtel, Berlin, Germany, assignors to Berlex Laboratories, Inc., Richmond, Calif.

Continuation of Ser. No. 231,969, Apr. 21, 1994, abandoned.

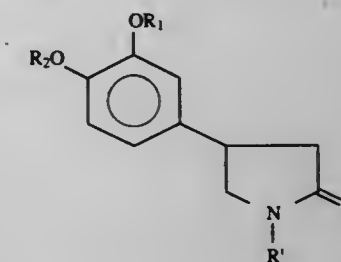
This application Oct. 21, 1994, Ser. No. 327,478

Int. Cl.⁶ A61K 31/40

U.S. Cl. 514-424

32 Claims

1. A method of treating multiple sclerosis, comprising administering to a host in need thereof an effective amount of a compound according to formula I



wherein:

R₁ and R₂ each are alike or different and are C₁₋₁₈-alkyl with at least one being other than methyl, a heterocyclic ring, or C₁₋₅-alkyl substituted by one or more of halogen atoms, hydroxy, carboxy, alkoxy, alkoxy carbonyl or an amino group; R' is a hydrogen atom, alkyl, aryl or acyl; and X is an oxygen atom or a sulfur atom.

5,672,623

Patent Not Issued For This Number

5,672,624

ENDOPEROXIDES USEFUL AS ANTIPARASITIC AGENTS

Gary H. Posner, Baltimore, Md., assignor to The Johns Hopkins University, Baltimore, Md.

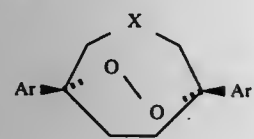
Filed Nov. 22, 1995, Ser. No. 562,275

Int. Cl.⁶ A61K 31/335; 31/075; C07D 321/12; 323/00

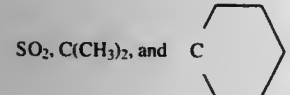
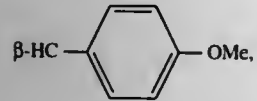
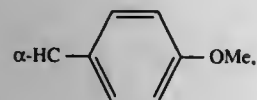
U.S. Cl. 514—450

4 Claims

1. A saturated bicyclo (3,2,2) endoperoxide compound of the formula:



wherein Ar is phenyl and X is selected from the group consisting of:



5,672,625

SULFONIC STILBENE DERIVATIVES IN THE TREATMENT OF VIRAL DISEASES

Alan D. Cardin, Cincinnati, Ohio, and A. Stanley Tyms, London, England, assignors to Merrell Pharmaceuticals Inc., Cincinnati, Ohio

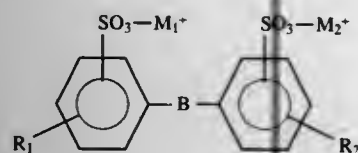
Division of Ser. No. 248,851, May 25, 1994, Pat. No. 5,494,932, which is a continuation of Ser. No. 8,254, Jan. 25, 1993, abandoned, which is a continuation of Ser. No. 829,132, Jan. 31, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 463,582

Int. Cl.⁶ A61K 31/165; 31/26

U.S. Cl. 514—514

4 Claims

1. A method of treating a viral infection selected from HSV and CMV, in a patient in need thereof comprising administering to the patient an antivirally effective amount of a compound of the formula



wherein

R₁ and R₂ are each independently a S=C=N— or CH₃C(O)NH— group,B is a —CH₂—CH₂— group, andM₁ and M₂ are each independently a hydrogen or pharmaceutically acceptable cation.

5,672,626

SUBSTITUTED SPIRODIENES FOR THE TREATMENT OF INFLAMMATION

Horng-Chih Huang, and David R. Reitz, both of Chesterfield, Mo., assignors to G. D. Searle & Co., Skokie, Ill.

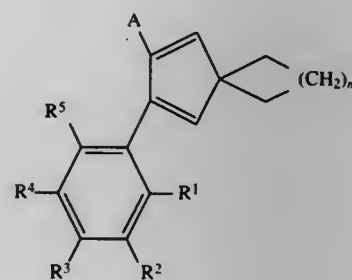
Division of Ser. No. 237,739, May 4, 1994, abandoned. This application Jul. 9, 1996, Ser. No. 674,700

Int. Cl.⁶ A61K 31/275; C07C 255/49; 307/02; 317/14

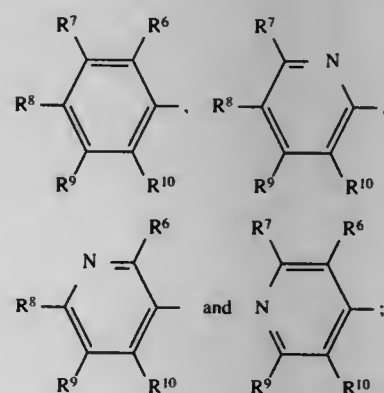
U.S. Cl. 514—520

18 Claims

1. A compound of Formula I



wherein A is selected from

wherein each of R¹ through R¹⁰ is independently selected from hydrido, halo, alkyl, alkoxy, alkylthio, cyano, haloalkyl, haloalkoxy, hydroxyalkyl, alkoxyalkyl, hydroxyl, mercapto, alkylsulfonyl, haloalkylsulfonyl and sulfamyl; and wherein n is a number selected from 0, 1, 2 and 3; or a pharmaceutically-acceptable salt thereof.

5,672,627

SUBSTITUTED SPIRODIENES FOR THE TREATMENT OF INFLAMMATION

Horng-Chih Huang, and David R. Reitz, both of Chesterfield, Mo., assignors to G.D. Searle & Co., Skokie, Ill.

Continuation of Ser. No. 237,739, May 4, 1994, abandoned.

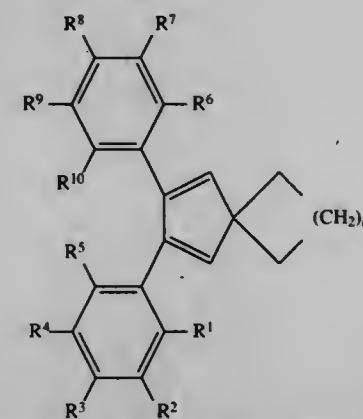
This application Jul. 9, 1996, Ser. No. 677,263

Int. Cl.⁶ A61K 31/275; C07C 255/49; 307/02; 317/14

U.S. Cl. 514—520

29 Claims

1. A compound of Formula II

wherein each of R¹, R², R⁴ and R⁵ is hydrido; wherein R³ is methylsulfonyl or sulfamyl; wherein each of R⁶ through R¹⁰ is independently selected from hydrido, halo, alkyl, alkoxy, alkylthio, cyano, haloalkyl, haloalkoxy, hydroxyalkyl, alkoxyalkyl, hydroxyl, and mercapto; and wherein n is 0; or a pharmaceutically-acceptable salt thereof.

5,672,628

METHOD FOR CONTROLLING A PEST POPULATION

Kalevi Heiskanen, deceased, late of Imatra, Finland, Hannu J. Salminen, legal representative, and Lauri Kangas, Raisio, Finland, assignors to Orion-Yhtymä Oy, Espoo, Finland

PCT No. PCT/FI94/00187, § 371 Date Nov. 14, 1995, § 102(e) Date Nov. 14, 1995, PCT Pub. No. WO94/26105, PCT Pub. Date Nov. 24, 1994

PCT Filed May 11, 1994, Ser. No. 549,780

Claims priority, application Finland, May 14, 1993, 932220 Int. Cl.⁶ A61K 31/135

U.S. Cl. 514—648

7 Claims

1. A method for controlling a rodent population comprising applying to an environment containing a rodent population which is to be controlled, a composition which inhibits the reproductive capacity of said rodent population, wherein said composition comprises (i) an effective amount of an orally active non-steroidal antiestrogen compound which comprises a triphenylethylene structure and (ii) an edible carrier material.

5,672,629

TWO-STAGE REFORMING OF METHANOL

Dietmar Heil, Schwendi, and Uwe Benz, Uhldingen, both of Germany, assignors to Daimler-Benz AG, Stuttgart, Germany

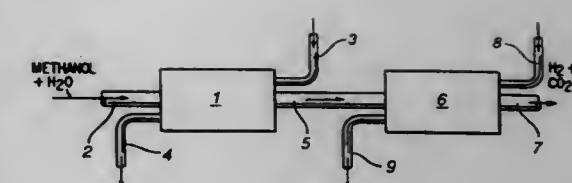
Filed Jun. 8, 1995, Ser. No. 488,660

Claims priority, application Germany, Jun. 15, 1994, 44 20 752.2; Jun. 15, 1994, 44 20 753.0

Int. Cl.⁶ C07C 27/00

U.S. Cl. 518—704

5 Claims

1. Two-stage process for the catalytic water vapor reforming of hydrocarbons with the application of heat to the water vapor/hydrocarbon mixture, comprising partially reacting in a reactor the hydrocarbon in the first stage in a heat-transfer-optimized process at a specific catalyst load of at least 10 Nm³/h H₂ per kg catalyst

mass, at a nominal load, a heat charge of 60%–90% of the supplied overall amount of heat and a catalyst mass of less than 50% of the overall catalyst mass, and in the second stage which contains more than 50% of the overall catalyst mass, a reaction is carried out at a lower specific catalyst load to thereby complete the overall reaction.

5,672,630

PROCESS FOR PRODUCING RECLAIMED RUBBER OR UNVULCANIZED RECLAIMED RUBBER

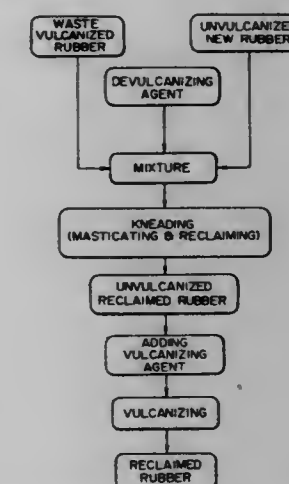
Makoto Mouri, Arimitsu Usuki, and Norio Sato, all of Aichi, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, Japan

Filed May 21, 1996, Ser. No. 651,057

Claims priority, application Japan, May 24, 1995, 7-150905 Int. Cl.⁶ C08J 11/04

U.S. Cl. 521—41

16 Claims



1. A process for producing unvulcanized reclaimed rubber, comprising the steps of: mixing a minor amount of waste vulcanized rubber with a major amount of unvulcanized new rubber, and a chemical devulcanizing agent; and kneading the resulting mixture in a heating atmosphere, thereby performing mastication of the unvulcanized new rubber and reclamation of the waste vulcanized rubber simultaneously to obtain unvulcanized reclaimed rubber.

5,672,631

METHOD FOR PROCESSING PACKAGING REMNANTS WITH RECOVERY OF MATERIALS

Mathias Pauls, Mooshaldenstrasse, and Torsten Kellner, Rinkenbachstrasse, both of Appenzell, Switzerland, CH-9050

Continuation of Ser. No. 137,187, Mar. 28, 1994, abandoned.

This application Apr. 2, 1996, Ser. No. 627,914

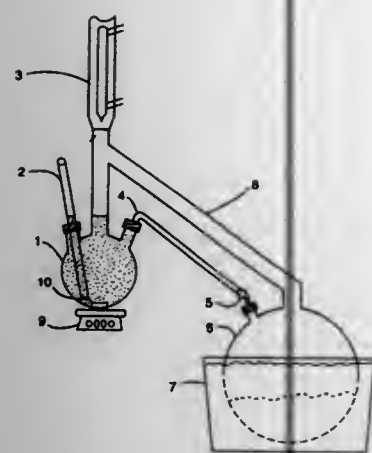
Claims priority, application Germany, Apr. 24, 1991, 41 13 397.8

Int. Cl.⁶ C08J 11/04; 3/00; B01D 1/00

U.S. Cl. 521—49

26 Claims

1. A method for the batch-wise or continuous processing of aerosol cans made of sheet metal holding polyurethane prepolymer



remnants while recovering aerosol can material and said polyurethane prepolymer remnants therefrom, said method comprising the following steps:

- introducing said cans into an operational vessel, said cans being opened thereby, and extracting said remnants using a solvent for dissolving polyurethane prepolymer remnants, thereby creating a residue-holding solvent; removing said opened cans from said operational vessel;
- transferring said residue-holding solvent from said operational vessel into a sump;
- concentrating said residue-holding solvent in said sump while evaporating said solvent and thereby forming an evaporated solvent;
- condensing said evaporated solvent;
- recycling said solvent into said operational vessel;
- following sufficient enrichment, recovering said remnants in concentrated form from said sump; and
- providing an inert gas atmosphere during processing of said aerosol cans, wherein at least said steps of opening said cans, extracting said remnants, evaporating said residue-holding solvent and condensing said evaporated solvent are conducted in said inert gas atmosphere.

5,672,632

INTEGRAL SKIN POLYURETHANE MOLDED ARTICLES
Valeri L. Volopli, Riverview, and Thirumurti Narayan, Grosse Ile, both of Mich., assignors to BASF Corporation, Mount Olive, N.J.

Filed Oct. 30, 1995, Ser. No. 550,334

Int. Cl.⁶ C08G 18/40

U.S. Cl. 521—51 18 Claims
1. An integral skin polyurethane molded article, obtained from the process comprising:

- providing an isocyanate component (a), comprising the reaction product of
 - (a1) a polyoxypropylated propylene glycol having an OH number from 200 to 300;
 - (a2) a diol selected from the group consisting of dipropylene glycol and tripropylene glycol;
 - (a3) a polyoxypropylated/ethoxylated glycerin having an OH number from 20 to 50;
 - (a4) a polyoxypropylated/ethoxylated glycol having an OH number from 15 to 45; and
 - (a5) diphenylmethane diisocyanate;
- providing a resin side (I) comprising:
 - an isocyanate reactive component (b);
 - a blowing agent (c) comprising water;
 - a polyether (d) selected from the group consisting of polytetrahydrofuran and polyethylene glycol having a number average molecular weight of from 200 to 2000; and
 - optionally, one or more additives (e) selected from the group consisting of catalysts, chain extenders, and mixtures thereof;

introducing the isocyanate component (a) and resin side (I) into a mold; and

reacting component (a) and resin side (I) together for a time sufficient to produce an integral skin polyurethane article; wherein the resulting integral skin polyurethane article is characterized by one or more of the following performance properties:

- (i) tensile strength of greater than or equal to 450;
- (ii) a Taber abrasion (mg loss) of less than 200.

5,672,633

POWDERY POLYMERS CAPABLE OF ABSORBING AQUEOUS LIQUIDS, A PROCESS FOR THEIR PRODUCTION AND THEIR USE AS ABSORBENTS

Helmut Brehm, Krefeld, and Hans-Georg Hartan, Krefeld, both of Germany, assignors to Chemische Fabrik Stockhausen GmbH, Krefeld, Germany

PCT No. PCT/EP94/03153, § 371 Date Mar. 26, 1996, § 102(e) Date Mar. 26, 1996, PCT Pub. No. WO95/09014, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 21, 1994, Ser. No. 615,249

Claims priority, application Germany, Sep. 29, 1993, 43 33 056.8

Int. Cl.⁶ C08J 9/00

U.S. Cl. 521—53 17 Claims

1. A powdery, insoluble, water-swellable, cross-linked polymer absorbing water, aqueous or serous liquids, which is formed of

- a) 55–99.9%-wt. polymerized unsaturated, polymerizable acid-groups-comprising monomers which are neutralized to the extent of at least 25 mol-%;
- b) 0–40%-wt. polymerized unsaturated monomers which are copolymerizable with a),
- c) 0.1–5.0%-wt. of a cross-linking agent, and
- d) 0–30%-wt. of a water-soluble polymer, with the weight amounts of a) to d) being relative to anhydrous polymer, and the polymer powder is heated with 0.1–5%-wt. of an at least bi-functional compound reactive with acid groups to a temperature of 150° C.–250° C. under cross-linkage of the surface, wherein the improvement comprising subjecting the polymer powder once more to the surface-cross-linking treatment with 0.1–5%-wt. of an at least bifunctional compound reactive with acid groups at a temperature of 150° C.–250° C.

5,672,634

CROSSLINKED PVP-I₂ FOAM PRODUCT

Susan Y. Tseng, Staten Island, N.Y., and Philip F. Wolf, Bridgewater, N.J., assignors to ISP Investments Inc., Wilmington, Del.

Filed Dec. 23, 1996, Ser. No. 774,064

Int. Cl.⁶ C08J 9/36

U.S. Cl. 521—53 4 Claims

1. A process of making a crosslinked PVP-I₂ foam product which comprises forming a shaped crosslinked PVP polymer hydrogel substantially free of residual monomer and non-crosslinked PVP, conditioning the hydrogel with moisture and acid, and then reacting the conditioned polymer with iodine crystals.

5,672,635

WATER-BLOWN POLYURETHANE SEALING DEVICES AND COMPOSITIONS FOR PRODUCING SAME

Thirumurti Narayan, Grosse Ile, and Steven Hicks, Trenton, both of Mich., assignors to BASF Corporation, Mount Olive, N.J.

Continuation of Ser. No. 461,793, Jun. 5, 1995, abandoned, which is a division of Ser. No. 367,036, Dec. 29, 1994. This application Oct. 23, 1995, Ser. No. 546,749

Int. Cl.⁶ C08G 18/10

U.S. Cl. 521—159 15 Claims

1. A polyurethane composition suitable for the preparation of a molded polyurethane article, the composition comprising:

- (I) an isocyanate prepolymer composition having a % free NCO of less than 20 and a viscosity of from 100 to 700 cPs, the composition comprising the result of reacting:
 - (a) an isocyanate blend comprising:
 - (i) 0 to 10 pbw 2,4'-diphenylmethane diisocyanate;
 - (ii) 30 to 80 pbw 4,4'-diphenylmethane diisocyanate; and
 - (iii) 1 to 10 pbw of a mixture of uretonimine containing molecules and carbodiimide containing molecules; and
 - (b) from 10 to 70 pbw of an ethoxylated and propoxylated glycerine having a number average molecular weight of between 1000 and 10,000 and a hydroxyl number of between 20 to 100, wherein all pbw are based on the total weight of (a) and (b);
- (II) an isocyanate-reactive component;
- (III) a chain extender; and
- (IV) a blowing agent comprised of water.

5,672,636

PRODUCTION OF LOW-FOGGING POLYURETHANE FOAMS, AND SPECIFIC POLY-OXYALKYLENE-POLYOLS WHICH CAN BE USED FOR THIS PURPOSE

Peter Horn, Heidelberg; Ludwig Jung, Mammendorf; Harald Larbig, Ludwigshafen; Rolf Lebkücher, Mannheim, and Gerhard Lehr, Schwegenheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Oct. 16, 1995, Ser. No. 565,208

Claims priority, application Germany, Oct. 22, 1994, 44 37 878.5

Int. Cl.⁶ C08G 18/32

U.S. Cl. 521—167 9 Claims

1. A process for the production of polyurethane foams by reacting

- a) at least one organic polyisocyanate with
 - b) at least one relatively high-molecular-weight polyhydroxyl compound containing at least two reactive hydrogen atoms and
 - c) optionally, low-molecular-weight chain extenders and/or crosslinking agents,
- in the presence of
- d) blowing agents,
- wherein the polyhydroxyl compound (b) comprises a polyoxyalkylene-polyol (b1) having a hydroxyl number of from 30 to 500, obtainable by alkoxylation of at least one initiator molecule from the group consisting of N,N'-bis(3-aminopropyl)ethylenediamine, tripropylenetetramine and tetrapropylene-pentamine using at least one alkylene oxide.

5,672,637

STABILIZED CATIONICALLY-CURABLE COMPOSITIONS

Wayne S. Mahoney, and Michael C. Palazzotto, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 78,738, Jun. 16, 1993, Pat. No. 5,494,943. This application Nov. 3, 1995, Ser. No. 552,632

Int. Cl.⁶ C08F 2/46

U.S. Cl. 522—25 18 Claims

1. A composition of matter comprising at least one salt of an organometallic complex cation wherein said cation comprises at least one carbon atom bonded to a transition metal atom and a Schiff base represented by formula VIII:



wherein each R² is hydrogen or a radical moiety which can be independently selected from C₁ to C₁₀ substituted and unsubstituted alkyl groups, and groups of one to four substituted or unsubstituted aromatic rings wherein two to four rings can be fused or unfused, or two R²s together can form at least one ring which is saturated or unsaturated and the ring can be substituted or unsubstituted with alkyl, alkenyl or alkynyl groups containing from 1 to 30 carbon atoms; the carbon atoms can be interrupted with up to 10 individual, non-catenated heteroatoms selected from O, S, and N; R³ is a radical moiety which can be independently selected from C₁ to C₁₀ substituted and unsubstituted alkyl groups, and groups of one to four substituted or unsubstituted aromatic rings wherein two to four rings can be fused or unfused, and the R³s taken together can form a heterocyclic ring having 5 to 7 ring atoms, or R³ can be a difunctional group selected from alkylene having 3 to 10 carbon atoms and phenylene groups, and wherein d is 1 or 2.

5,672,638

BIOCOMPATABILITY FOR SOLID SURFACES

Michel Verhoeven, Maastricht; Linda L. Cahalan, Geleen; Marc Hendriks, Hoensbroek; Benedicte Fouache, Maastricht, and Patrick T. Cahalan, Geleen, all of Netherlands, assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Aug. 22, 1995, Ser. No. 517,788

Int. Cl.⁶ A61F 2/02; C12N 11/08

U.S. Cl. 523—112 6 Claims

1. A method for making a medical device having a solid surface for contacting blood or tissue of a patient, the solid surface having applied thereto an immobilized biomolecule by the steps of:

- (a) reacting a polyalkyleneimine with a crosslinking agent which is at least difunctional in polymerizable vinyl groups, each of said polymerizable vinyl groups adjacent a strong electron-withdrawing group, the polyalkyleneimine present in stoichiometric excess in the reaction mixture such that less than about 1/4 of the total amine groups in the polyalkyleneimine are used in the reaction;
- (b) applying the reacted polyalkyleneimine to the solid surface; and

5,672,647

AQUEOUS NAIL VARNISH CONTAINING A FILM-FORMING POLYMERIC DISPERSION AND A PERFLUOROALKYL COMPOUND

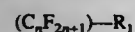
Valerie de La Poterie, Rungis, and Myriam Mellul, L'Hay les Roses, both of France, assignors to L'Oréal, Paris, France
Continuation-in-part of Ser. No. 248,877, May 25, 1994, Pat. No. 5,571,858. This application May 31, 1995, Ser. No. 455,905

Claims priority, application France, May 26, 1993, 93 06329
Int. Cl.⁶ C08K 5/02

U.S. Cl. 524—463 10 Claims

1. A colored aqueous nail varnish free from nitrocellulose and having spreading properties on the nail, said aqueous nail varnish consisting of:

- (a) 10 to 59 percent by weight of a film-forming polymer present in a dispersed state,
- (b) 0.01 to 1 percent by weight of a water-soluble perfluoroalkyl having the formula:



wherein C_nF_{2n+1} is linear or branched and n ranges from 4 to 16, and R_1 is a residue selected from the group consisting of:

- (i) $-SO_3^{\ominus}NH_4^{\oplus}$,
- (ii) $-SO_3^{\ominus}N^{\oplus}(R_3)_4$, wherein R_3 is C_1-C_4 alkyl,
- (iii) $-CO_2^{\ominus}NH_4^{\oplus}$,
- (iv) $-CO_2^{\ominus}N^{\oplus}(R_3)_4$, wherein R_3 has the meaning given above,

(v) $-SO_2N(R_3)CH_2-CO_2^{\ominus}X^{\oplus}$, wherein R_3 has the meaning given above and X represents hydrogen or an alkali metal,

(vi) $-SO_2NH(CH_2)_pN^{\oplus}(R_3)_4$, wherein p represents 1, 2, 3 or 4 and R_3 has the meaning given above, and

(vii) $-SO_2N(R_3)(CH_2CH_2O)_Y$, wherein Y represents hydrogen or C_1-C_4 alkyl, and R_3 has the meaning above,

- (c) 40 to 90 percent by weight of water,
 - (d) 0.05 to 5 percent by weight of an organic or inorganic pigment, and
 - (e) a cosmetic ingredient selected from the group consisting of a preserving agent, a perfume, a plasticizer, an auxiliary film-forming substance, a thickener, a hydrating agent, a wax, a drying accelerator, a UV filter, a silicone surface-active agent and a mixture thereof,
- the amounts of components (a), (b), (c) and (d) being based on the total weight of said nail varnish.

5,672,648

Patent Not Issued For This Number

5,672,649

PROCESS FOR PREPARING AQUEOUS COATING AGENTS USING MODULAR SYSTEMS

Thomas Brock, Hürth, and Jürgen Döbert, Sprockhövel, both of Germany, assignors to Herberts GmbH, Wuppertal, Germany

Continuation of Ser. No. 184,587, Jan. 21, 1994, abandoned.

This application Sep. 4, 1996, Ser. No. 707,268

Claims priority, application Germany, Jan. 26, 1993, 43 01 991.9

Int. Cl.⁶ C08L 75/00 18 Claims

U.S. Cl. 524—507 18 Claims

1. A process for preparing an adjustable optical effect aqueous coating agent comprising:

selecting at least one storage-stable, premixed, aqueous, special effect module A and at least one storage-stable, premixed, aqueous, binder module B, and

mixing at least modules A and B to form the coating agent, wherein

the aqueous special effect module A comprises at least one special effect pigment, at least one anionic or non-ionic stabilized water-dilutable polyurethane binder or a combination of at least one anionic binder and at least one non-ionic binder, at least one organic solvent and at least 20 wt-% of water, and the binder module B comprises at least one anionic or non-ionic stabilized water-dilutable polyurethane binder or a combination of at least one anionic binder and at least one non-ionic binder and water.

lized water-dilutable polyurethane binder or a combination of at least one anionic binder and at least one non-ionic binder, at least one organic solvent and at least 20 wt-% of water, and the binder module B comprises at least one anionic or non-ionic stabilized water-dilutable polyurethane binder or a combination of at least one anionic binder and at least one non-ionic binder and water.

5,672,650

VINYL CHLORIDE RESIN COMPOSITION

Keisuke Yagi, Takatsuki, Japan, assignor to Sumitomo Bakelite Company Limited, Tokyo, Japan

PCT No. PCT/JP89/01227, § 371 Date Aug. 8, 1990, § 102(e) Date Aug. 8, 1990

PCT Filed Dec. 7, 1989, Ser. No. 555,472

Claims priority, application Japan, Jun. 8, 1988, 63-139380; Jun. 8, 1988, 63-139381; Jun. 8, 1988, 63-139382

Int. Cl.⁶ C08L 67/00

U.S. Cl. 524—513 7 Claims

1. A rubbery elastic vinyl chloride resin composition having small a temperature dependence of hardness composed mainly of 100 parts by weight of a vinyl chloride resin comprising 8–90% by weight of a tetrahydrofuran-insoluble gel fraction and the remainder of a tetrahydrofuran-soluble fraction, 10–200 parts by weight of a copolyester resin and 25–200 parts by weight of a plasticizer.

5,672,651

DURABLE REPELLENT FLUORO-CHEMICAL COMPOSITIONS

Richard S. Smith, Mendota Heights, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 20, 1995, Ser. No. 545,917

Int. Cl.⁶ C08J 3/00; C08K 3/20; C08L 75/00; C08G 18/28

U.S. Cl. 524—590 10 Claims

1. A composition suitable for treating fibrous substrates to render them durably repellent to water and oil and durably resistant to dry soil, said composition comprising a fluorochemical polymer having at least one urea linkage formed by: (a) reacting a tri- or higher order isocyanate with one or more alcohols wherein the alcohols together comprise at least 50 mole percent fluorochemical alcohol; (b) reacting the resulting product with an amount of water sufficient to react with between 5 and 50% of the isocyanate groups present in the product compound; and (c) thereafter reacting the product with a difunctional poly(oxyalkylene)-containing material, wherein, both functionalities are isocyanate reactive.

5,672,652

TWO-PART MOISTURE CURABLE POLYURETHANE ADHESIVE

Shailesh S. Bhat, Troy, Mich., assignor to Essex Specialty Products Inc., Clifton, N.J.

Continuation of Ser. No. 373,146, Jan. 13, 1995, abandoned.

This application May 8, 1996, Ser. No. 644,393

Int. Cl.⁶ C08J 3/00; C08K 3/20; C08L 75/00; C08G 18/10

U.S. Cl. 524—590 6 Claims

1. A two-part adhesive comprising:

A. as a first part a polyurethane prepolymer having reactive isocyanate moieties;

B. as a second part a curative composition comprising:

i. from about 8 to about 50 parts by weight of a polyurea comprising the reaction product of a polyamine and a polyisocyanate dispersed in from about 50 to about 85 parts by weight a polyether polyol-based polyurethane prepolymer having reactive hydroxyl moieties, and containing

from about 0 to about 40 parts by weight of a plasticizer wherein the parts by weight are based on the total weight of the dispersion and the total parts by weight of the dispersion is 100;

- ii. a compound having at least one oxazolidine moiety capable of reacting with an isocyanate under curing conditions;
- iii. a catalyst capable of catalyzing the reaction of isocyanate and hydroxyl moieties in the presence of moisture.

5,672,653

ANIONIC WATERBORNE POLYURETHANE DISPERSIONS

Kurt C. Frisch, Grosse Ile; Bhikhubhai P. Suthar, Canton, and Han X. Xiao, Bloomfield Hills, all of Mich., assignors to Elf Atochem North America, Inc., Philadelphia, Pa.

Filed May 13, 1996, Ser. No. 645,438

Int. Cl.⁶ C08J 3/00; C08K 3/20; C08L 75/00; B32B 27/00

U.S. Cl. 524—591 9 Claims

1. An anionic waterborne polyurethane dispersion prepared by a process comprising the following steps:

- (A) forming a prepolymer consisting essentially of a hydroxyl terminated polybutadiene resin, an aliphatic isocyanate, and a diol containing acid groups;
- (B) neutralizing the prepolymer of step (A);
- (C) adding water to form a prepolymer dispersion of the neutralized prepolymer; and
- (D) chain extending said prepolymer dispersion with a diamine.

5,672,654

Patent Not Issued For This Number

5,672,655

PLASTIC OPTICAL MATERIAL AND PRODUCTION PROCESS THEREOF

Hiroki Katono; Masuhiro Shouji; Takeo Ogihara, and Teruo Sakagami, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

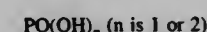
Filed Aug. 30, 1995, Ser. No. 521,570

Claims priority, application Japan, Sep. 13, 1994, 6-244579; Jan. 20, 1995, 7-025868

Int. Cl.⁶ C08K 5/098

U.S. Cl. 524—780 8 Claims

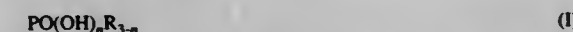
1. A plastic optical material comprising 100 parts by mass of an acrylic polymer containing a specific phosphate group represented by the formula



in a proportion of 0.5–60 mass %, and a metal ion component comprising a neodymium ion in a proportion of 0.04–10 parts by mass based on 100 parts by mass of the acrylic polymer;

wherein the specific phosphate group contained in the acrylic polymer is chemically bonded to a molecular structure constituting the acrylic polymer; and

the acrylic polymer is a copolymer obtained by polymerizing a monomer mixture composed of a monomer represented by the following formula I:



wherein R means a polymerizable functional group represented by the following formula II:



(X denotes a hydrogen atom or a methyl group, and m is an integer of 0–5) and n is 1 or 2, and at least one monomer copolymerizable therewith.

5,672,656

TEMPERATURE SENSITIVE WATER ABSORBING AND DISCHARGING POLYMER COMPOSITION

Telichi Murayama, and Takashi Maruyama, both of Yatsushiro, Japan, assignors to Kohjin Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/00183, § 371 Date Sep. 5, 1995, § 102(e) Date Sep. 5, 1995, PCT Pub. No. WO95/21876, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 10, 1995, Ser. No. 513,883

Claims priority, application Japan, Feb. 10, 1994, 6-036387; Sep. 28, 1994, 6-257349

Int. Cl.⁶ C08L 33/26; 33/02

U.S. Cl. 524—831 20 Claims

1. A temperature sensitive water absorbing and discharging polymer composition, comprising in an aqueous solution, a copolymer of N-alkyl acrylamide derivatives with acrylic acid, alkali metal salts of acrylic acid or mixtures thereof; said composition further comprising diacetone acrylamide, wherein said N-alkyl acrylamide derivatives are N-isopropyl acrylamide, N-N-diethyl acrylamide, or mixtures thereof.

5,672,657

Patent Not Issued For This Number

5,672,658

HIGHLY STIFF PROPYLENE-ETHYLENE BLOCK COPOLYMER COMPOSITION AND A PROCESS FOR PRODUCING THE SAME

Takahiro Oka; Shunji Kawazoe, and Yasuhiro Yamane, all of Chibaken, Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Aug. 17, 1995, Ser. No. 516,089

Claims priority, application Japan, Aug. 18, 1994, 6-217865; Mar. 31, 1995, 7-100106

Int. Cl.⁶ C08F 297/08

U.S. Cl. 525—53 1 Claim

1. In a process for producing a propylene-ethylene block copolymer characterized in that there is used a catalyst system having combined (A) a solid catalyst component containing Ti, Mg, halogen and a polyvalent carboxylic acid ester, B) an organoaluminum compound and (C) an organosilicon compound expressed by the formula $R^4R^5Si(OR^6)_2$, wherein R^4 and R^5 each represents a hydrocarbon radical, R^6 represents a hydrocarbon radical or a hydrocarbon radical containing a hetero atom, and $x+y+z=4$, $0 \leq x \leq 2$, $1 \leq y \leq 3$, $1 \leq z \leq 3$, the molar ratio of the organoaluminum compound (B) to the organosilicon compound (C) being represented by the formula (B)/(C) is equal to 1 to 15, and the following two polymerization steps are carried out:

a first polymerization step (I) directed mainly to propylene polymerization, wherein monomers in a ratio of ethylene/(ethylene+propylene)=0 to 5% by weight are fed in two or more polymerization vessels connected in series, to produce 60 to 95% of the total polymerized quantity, and

a second polymerization step (II) containing a relatively large quantity of ethylene, wherein monomers in a ratio of ethylene/(ethylene+propylene)=10 to 100% by weight are fed in one or more polymerization vessels, to produce 5 to 40% by weight of the total polymerized quantity,

the improvement wherein the process produces a highly stiff propylene-ethylene block copolymer composition characterized in that the composition is produced so that

the maximum value of the melt flow rates (hereinafter referred to as MFR(h)) of the polymers formed in the respective vessels of the polymerization step (I) and the minimum value thereof (hereinafter referred to as MFR(l)), have a relationship of

$$0.1 \leq \log(MFR(h)/MFR(l)) \leq 1$$

and the MFR(i) of the polymers formed at the polymerization step (I), directed mainly to propylene and the MFR(ii) of the polymers formed at the polymerization step (II) containing a relatively large quantity of ethylene, have a relationship of

$$3 \leq \log(\text{MFR(i)}/\text{MFR(ii)}) \leq 7.$$

5,672,659

IONIC MOLECULAR CONJUGATES OF BIODEGRADABLE POLYESTERS AND BIOACTIVE POLYPEPTIDES

Shalaby W. Shalaby, Pendleton, S.C.; Steven A. Jackson, Holliston, and Jacques-Pierre Moreau, Upton, both of Mass., assignors to Kinerton Limited, Ireland

PCT No. PCT/US94/00148, § 371 Date Jun. 29, 1995, § 102(e) Date Jun. 29, 1995, PCT Pub. No. WO94/15587, PCT Pub. Date Jul. 21, 1994

PCT Filed Jan. 5, 1994, Ser. No. 464,735

Claims priority, application Ireland, Jan. 6, 1993, 930005

Int. Cl.⁶ A61K 9/16; 9/52; 37/02

U.S. Cl. 525—54.1

32 Claims

1. A composition comprising a polyester containing one or more free COOH groups ionically conjugated with a bioactive polypeptide comprising at least one effective ionogenic amine, wherein said polyester contains a member selected from the group of L-lactic acid, D-lactic acid, DL-lactic acid, ε-caprolactone, p-dioxanone, ε-caproic acid, alkylene oxalate, cycloalkylene oxalate, alkylene succinate, β-hydroxybutyrate, substituted or unsubstituted trimethylene carbonate, 1,5-dioxopane-2-one, 1,4-dioxepan-2-one, glycolide, glycolic acid, L-lactide, D-lactide, DL-lactide, meso-lactide, and any optically active isomers, racemates or copolymers thereof, and at least 50%, by weight, of the polypeptide present in said composition is ionically conjugated to said polyester.

5,672,660

HYDROSILYLATION CROSSLINKING

Robert Eugene Medsker, Wadsworth, and Raman Patel, Akron, both of Ohio, assignors to Advanced Elastomer Systems, L.P., Akron, Ohio

Filed Dec. 1, 1995, Ser. No. 566,380

Int. Cl.⁶ C08L 83/05

U.S. Cl. 525—101

19 Claims

1. In a process for the hydrosilylation crosslinking of a composition comprising a blend of a thermoplastic resin and an unsaturated rubber by dynamic vulcanization, the improvement which comprises employing a hydrosilylation crosslinking agent and from about 0.01 to about 4 ppm, based on the weight of the rubber and expressed as platinum metal, of a platinum-containing hydrosilylation catalyst in combination with an EPDM rubber containing 5-vinyl-2-norbornene as a diene monomer, whereby a fully crosslinked rubber is obtained in a matrix of thermoplastic resin.

5,672,661

ACRYLIC RUBBER COMPOSITION

Hiroaki Ohata, and Harukazu Okada, both of Fukui-ken, Japan, assignors to Nissin Chemical Industry Co., Ltd., Fukui-ken, Japan

Filed Mar. 6, 1996, Ser. No. 610,544

Claims priority, application Japan, Mar. 8, 1995, 7-048041

Int. Cl.⁶ C08L 33/04

U.S. Cl. 525—288

14 Claims

1. An acrylic rubber composition suitable for hot-air vulcanization under normal pressure which comprises, as a uniform blend: (1) 100 parts by weight of an acrylic rubber polymer which is a copolymerization product of a monomer mixture consisting of (a) from 1 to 25% by weight of a first comonomer which is an alkoxy-substituted alkyl (meth)acrylate,

(b) from 55 to 99% by weight of a second comonomer which is an alkyl (meth)acrylate, and (c) from 0 to 20% by weight of a third comonomer which is selected from the group consisting of styrene, vinyl toluene, α-methyl styrene, vinyl naphthalene, (meth)acrylic acid, (meth)acrylamide, 2-hydroxyethyl (meth)acrylate, glycidyl (meth)acrylate, allyl glycidyl ether, (meth)acrylonitrile, ethylene, propylene, vinyl chloride, vinyl acetate, vinyl monochloroacetate, 2-chloroethyl vinyl ether, divinyl benzene, allyl (meth)acrylate and butane diol di(meth)acrylate, the total amount of the first to third comonomers being 100%; (2) from 0.1 to 20 parts by weight of an alkoxy silane compound having an ethylenically unsaturated group in the molecule; (3) from 10 to 200 parts by weight of a reinforcing filler; and (4) from 0.1 to 10 parts by weight of an organic peroxide.

5,672,662

POLY(ETHYLENE GLYCOL) AND RELATED POLYMERS MONOSUBSTITUTED WITH PROPIONIC OR BUTANOIC ACIDS AND FUNCTIONAL DERIVATIVES THEREOF FOR BIOTECHNICAL APPLICATIONS

J. Milton Harris, and Antoni Kozlowski, both of Huntsville, Ala., assignors to Shearwater Polymers, Inc., Huntsville, Ala.

Continuation-in-part of Ser. No. 499,321, Jul. 7, 1995, abandoned. This application Oct. 2, 1995, Ser. No. 642,231

Int. Cl.⁶ C08G 65/32; A61K 31/765

U.S. Cl. 525—408

25 Claims

1. An active ester of a polymer acid wherein said polymer acid has a single active ester, said active ester has a half life in water of from about 10 to 25 minutes at a pH of about 8 and at about 25 degrees Centigrade, and said active ester comprises a propionic or butanoic acid moiety attached to one of the terminae of a polymer moiety selected from the group consisting of poly(alkylene oxides), poly(oxyethylated polyols), poly(olefinic alcohols), and poly(acrylomorpholine), wherein said polymer moiety has about 44 or more recurring monomer units.

5,672,663

THERMOPLASTIC COMPOSITION WITH A GRANULAR SURFACE APPEARANCE LIKE MARBLE

Yoshio Ohtsuka, Ichikawa-machi, and Katsumi Oishi, Shimodate, both of Japan, assignors to General Electric Company, Pittsfield, Mass.

Division of Ser. No. 224,935, Apr. 8, 1994, Pat. No. 5,489,656.

This application Jan. 30, 1996, Ser. No. 594,045

Claims priority, application Japan, Apr. 20, 1993, 5-116536

Int. Cl.⁶ C08L 67/02

U.S. Cl. 525—438

3 Claims

1. A composition produced by mixing and dispersing 0.001–10 parts by weight of a cross-linked thermosetting epoxy resin with an average grain diameter of from 0.01 to 10mm with 100 parts by weight of a polyester resin whereby the composition has a granular surface appearance like marble and maintains the properties of the polyester resin.

5,672,664

COLOR IMPROVED POLYCARBONATE COMPOSITIONS AND MOLDED ARTICLES

James L. DeRudder, and Richard W. Howerly, both of Mt. Vernon, Ind., assignors to General Electric Company, Pittsfield, Mass.

Continuation of Ser. No. 259,419, Jun. 14, 1994, abandoned.

This application Jul. 15, 1996, Ser. No. 680,733

Int. Cl.⁶ C08L 69/00

U.S. Cl. 525—469

8 Claims

1. A method of preparing a thermally molded article having improved color, comprising:

a. formulating a thermoplastic molding composition which is a blend and which comprises: at least one polycarbonate resin which is a polycarbonate homopolymer or copolymer; and less than about 0.4% by weight of at least one polycarbonate copolymer of tetrahalo bisphenol A and bisphenol A, having a halogen content of about 27% by weight, effective to reduce yellowness index of the at least one polycarbonate resin; and b. thermally molding an article from the thermoplastic molding composition, wherein the article has a lower yellowness index than that of an article molded from a corresponding thermoplastic molding composition which does not contain any of the at least one copolymer.

5,672,665

PROCESS FOR TRANSITIONING BETWEEN INCOMPATIBLE POLYMERIZATION CATALYSTS

Agapios Kyriacos Agapiou, Humble; Michael Elroy Muhle, Kingwood, and Gary Thomas Renola, Seabrook, all of Tex., assignors to Exxon Chemical Patents, Inc., Wilmington, Del.

Division of Ser. No. 218,277, Mar. 25, 1994, Pat. No. 5,442,019. This application May 17, 1995, Ser. No. 443,136

Int. Cl.⁶ C08F 2/38

U.S. Cl. 526—82

6 Claims

1. A process for transitioning from at least two incompatible catalysts in a gas phase polymerization process occurring in at least one reactor having a fluidized bed, the process comprising the steps of:

- discontinuing the introduction of a Ziegler-Natta catalyst;
- contacting said fluidized bed with a reversible catalyst killer;
- contacting said fluidized bed with an irreversible catalyst killer;
- titrating said fluidized bed with an organometallic compound;
- introducing a metallocene catalyst into said reactor.

5,672,666

PROCESS FOR TRANSITIONING BETWEEN INCOMPATIBLE POLYMERIZATION CATALYSTS

Michael Elroy Muhle, Kingwood; Agapios Kyriacos Agapiou, Humble, and Gary Thomas Renola, Seabrook, all of Tex., assignors to Exxon Chemical Patents Inc., Houston, Tex.

Filed Jun. 5, 1995, Ser. No. 461,799

Int. Cl.⁶ C08F 2/34

U.S. Cl. 526—82

27 Claims

1. A process for transitioning from a polymerization reaction catalyzed by a first catalyst to one catalyzed by a second catalyst wherein said first and second catalysts are incompatible, said process comprising the steps of:

- discontinuing the introduction of the first catalyst into a reactor, wherein the first catalyst comprises a traditional Ziegler-Natta catalyst;
- introducing into and dispersing throughout the reactor a deactivating agent in an amount greater than about 1 molar equivalent, based on the total gram atom metal of the first catalyst in the reactor;
- purging the reactor; and
- introducing the second catalyst into the reactor in the absence of any scavenger, wherein the second catalyst comprises a metallocene catalyst.

5,672,667

MULTI-PHASE POLYMERIZATION PROCESS

Joseph M. DeSimone, Chapel Hill, and Timothy Romack, Durham, both of N.C., assignors to The University of North Carolina at Chapel Hill, Chapel Hill, N.C.

Continuation of Ser. No. 450,373, May 25, 1995, Pat. No. 5,530,077, which is a division of Ser. No. 409,880, Mar. 24,

1995, Pat. No. 5,527,865. This application Apr. 25, 1996, Ser. No. 637,896

Int. Cl.⁶ C08F 2/16

U.S. Cl. 526—89

16 Claims

1. A multi-phase mixture, said multi-phase mixture comprising: a carbon dioxide phase and a separate aqueous phase; and a water insoluble polymer.

5,672,668

PROCESS FOR THE PREPARATION OF POLYOLEFINS

Andreas Winter, Glashütten/Ts; Martin Antberg, Hofheim/Ts; Bernd Bachmann, Eppstein/Ts; Volker Dolle, Bensheim; Frank Küber, Oberursel; Jürgen Rohrmann, Kelkheim/Ts, and Walter Spaleck, Liederbach, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Filed Aug. 16, 1993, Ser. No. 107,187

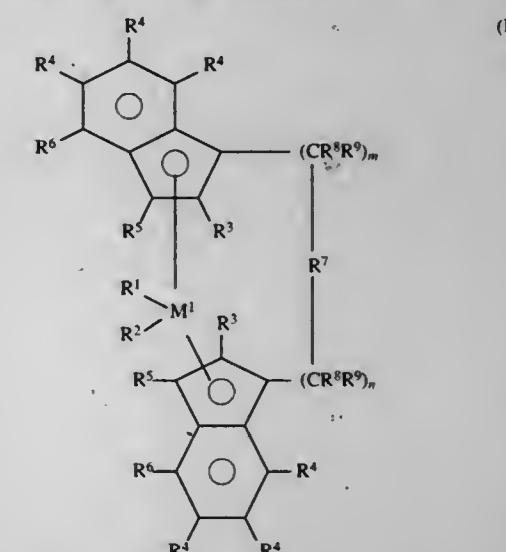
Claims priority, application Germany, Aug. 15, 1992, 42 27 049.9

Int. Cl.⁶ C08F 4/642

U.S. Cl. 526—127

10 Claims

1. A process for the preparation of an olefin polymer by polymerization or copolymerization of an olefin of the formula $R^a-CH=CH-R^b$, in which R^a and R^b are identical or different and are a hydrogen atom or a hydrocarbon radical having 1 to 14 carbon atoms, or R^a and R^b , together with the atoms connecting them, can form a ring, at a temperature of from -60° to 200° C., at a pressure of from 0.5 to 100 bar, in solution, in suspension or in the gas phase, in the presence of a catalyst formed from a metallocene in the meso-form or a meso:rac mixture, with meso:rac >1:99, as transition-metal compound and a cocatalyst, wherein the metallocene is a compound of the formula 1,



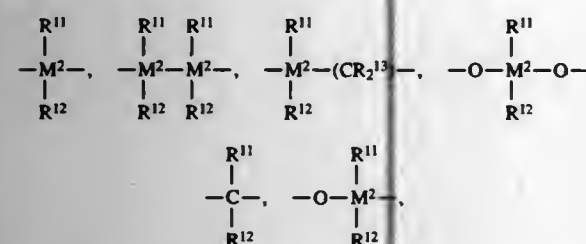
in which

M^1 is a metal from group IVb, Vb or VIb of the Periodic Table, R^1 and R^2 are identical or different and are a hydrogen atom, a C_1-C_{10} -alkyl group, a C_1-C_{10} -alkoxy group, a C_6-C_{10} -aryl group, a C_6-C_{10} -aryloxy group, a C_2-C_{10} -alkenyl group, a C_7-C_{40} -arylalkyl group, a C_7-C_{40} -alkylaryl group, a C_8-C_{40} -arylalkenyl group, or a halogen atom, the radicals R^4 and R^5 are identical or different and are a hydrogen atom, a halogen atom, a C_1-C_{10} -alkyl group, which may be halogenated, a C_6-C_{10} -aryl group, which may be halogenated, and an $-NR^{10}_2$, $-SR^{10}$, $-OSiR^{10}_3$, $-SiR^{10}_3$

or —PR^{10}_2 radical in which R^{10} is a halogen atom, a $\text{C}_1\text{—C}_{10}$ -alkyl group or a $\text{C}_6\text{—C}_{10}$ -aryl group.

R^3 and R^6 are identical or different and are as defined as for R^4 , with the proviso that R^3 and R^6 are not hydrogen, or two or more of the radicals R^3 to R^6 , together with the atoms connecting them, form a ring system.

R^7 is



$>\text{BR}^{11}$, $>\text{AlR}^{11}$, —Ge— , —Sn— , —O— , —S— , $>\text{SO}$, $>\text{SO}_2$, $>\text{NR}^{11}$, $>\text{CO}$, $>\text{PR}^{11}$ or $>\text{P(O)R}^{11}$,

where

R^{11} , R^{12} and R^{13} are identical or different and are a hydrogen atom, a halogen atom, a $\text{C}_1\text{—C}_{10}$ -alkyl group, a $\text{C}_1\text{—C}_{10}$ -fluoroalkyl group, a $\text{C}_6\text{—C}_{10}$ -aryl group, a $\text{C}_6\text{—C}_{10}$ -fluoroaryl group, a $\text{C}_1\text{—C}_{10}$ -alkoxy group, a $\text{C}_2\text{—C}_{10}$ -alkenyl group, a $\text{C}_7\text{—C}_{40}$ -arylalkyl group, a $\text{C}_8\text{—C}_{40}$ -arylalkenyl group or a $\text{C}_7\text{—C}_{40}$ -alkylaryl group, or R^{11} and R^{12} or R^{11} and R^{13} , in each case together with the atoms connecting them, form a ring.

M^2 is silicon, germanium or tin,

R^8 and R^9 are identical or different and are as defined for R^{11} , and

m and n are identical or different and are zero, 1 or 2, where m plus n is zero, 1 or 2.

5,672,669

SPRAY DRIED, FILLED METALLOCENE CATALYST COMPOSITION FOR USE IN POLYOLEFIN MANUFACTURE

Eric Paul Wasserman, Hopewell; Mark Wilton Smale, Bloomsbury; Timothy Roger Lynn, Hackettstown; Robert Converse Brady III, Morristown, and Frederick John Karol, Belle Mead, all of N.J., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Division of Ser. No. 197,922, Feb. 17, 1994, abandoned, which is a continuation-in-part of Ser. No. 173,626, Dec. 23, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 478,909

Int. Cl. C08F 4/42

U.S. Cl. 526—170

2 Claims

1. A process for producing ethylene homopolymers or copolymers, comprising the steps of:

contacting ethylene and optionally a higher alpha-olefin monomer under polymerization conditions with a spray dried catalyst composition comprising solid particles, each particle comprising a mixture of: a) a metallocene catalyst; b) a cocatalyst capable of activating said metallocene catalyst; and c) a particulate filler material having an average particle size of 0.0011–0.1 micrometers that is unreactive with the metallocene catalyst and the cocatalyst, wherein the average particle size of the catalyst composition is 5 to 500 micrometers.

5,672,670

Patent Not Issued For This Number

5,672,671

PROCESS FOR PRODUCING DIORGANOPOLYSILOXANE

Takaharu Nakano; Katsuyoshi Tsuchiya; Shunji Yoshimatsu, and Takeru Fuchigami, all of Kumamoto, Japan, assignors to Chisso Corporation, Osaka-fu, Japan

Filed Jun. 21, 1996, Ser. No. 668,163

Int. Cl. C08G 77/06

U.S. Cl. 528—14

4 Claims

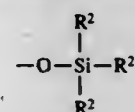
1. In a process for producing a diorganopolysiloxane, which comprises subjecting a cyclic siloxane expressed by formula (2)



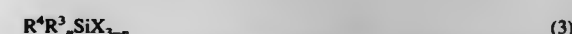
wherein R^3 represents methyl, ethyl or phenyl, and p is an integer of 3 or 4, containing as impurity a diorganopolysiloxane modified with a silanol group at both its terminals, to an anion living polymerization using an initiator expressed by formula (1)



wherein R^1 represents an alkyl group having 1 to 4 carbon atoms or a group expressed by the formula



in which R^2 represents an alkyl group having 1 to 4 carbon atoms, and terminating the anion living polymerization with an acid or a chlorosilane expressed by formula (3)



wherein R^3 is as defined above, R^4 represents a hydrogen atom or an organic functional group, X represents a halogen atom, and n is an integer of 0 to 2,

the improvement which comprises acetylating the diorganopolysiloxane modified with a silanol at both its terminals with an acetylating agent prior to initiation of the polymerization.

5,672,672

POLYMERIC OPTICAL MIXTURES, POLYMERIC OPTICAL MATERIALS AND POLYMERIC OPTICAL WAVEGUIDE

Michiyuki Amano, Funabashi; Toshio Watanabe, Mito; Mitsuo Usui, Tokyo; Shungo Sugawara, Mito; Sholchi Hayashida, Hitachinaka, and Saburo Imamura, Mito, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Filed Oct. 26, 1995, Ser. No. 548,451

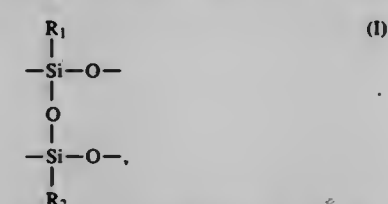
Claims priority, application Japan, Oct. 26, 1994, 6-284530; Mar. 20, 1995, 7-085979

Int. Cl. C08G 77/06

U.S. Cl. 528—16

32 Claims

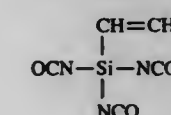
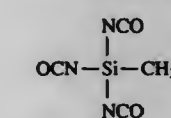
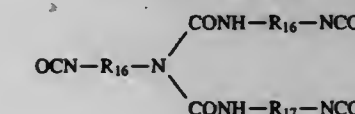
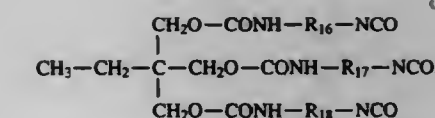
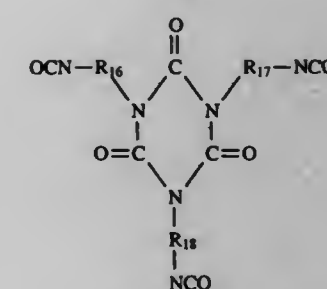
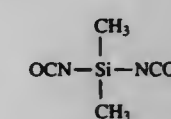
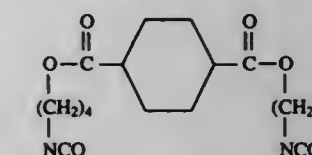
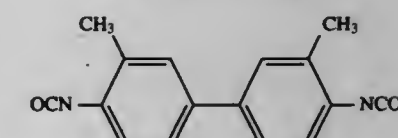
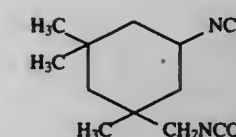
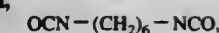
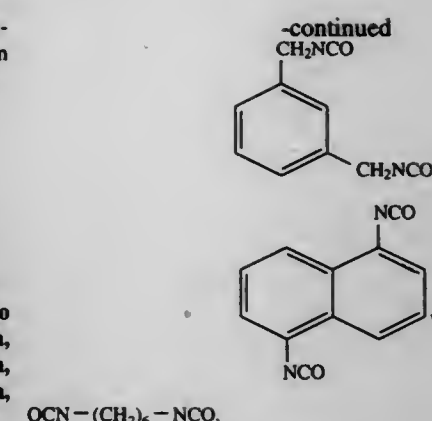
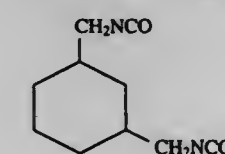
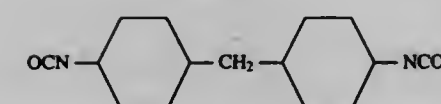
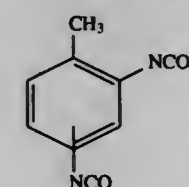
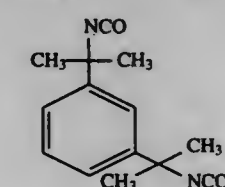
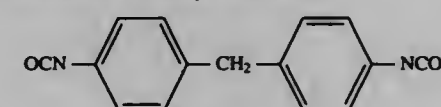
1. A polymeric optical mixture, comprising: a polysiloxane comprising a repeat unit represented by formula (1):

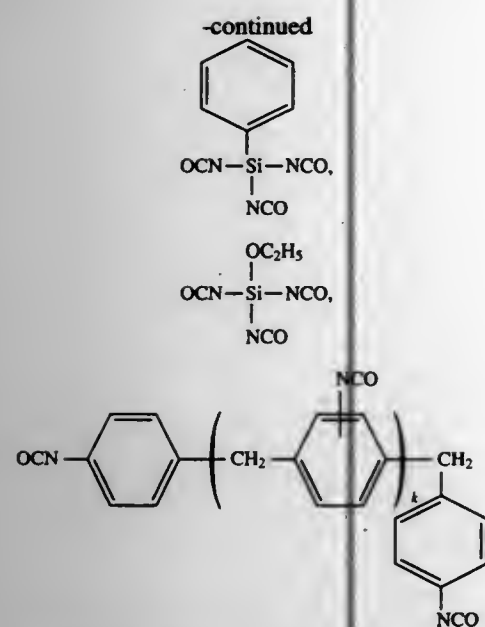


wherein each of R_1 and R_2 is independently (a) an alkyl, deuterated alkyl or halogenated alkyl group, or (b) a phenyl, deuterated phenyl or halogenated phenyl group; and

a cross-linking agent which is capable of cross-linking said polysiloxane, and which is selected from the group consisting of

(a) a polyisocyanate selected from the group consisting of compounds of formulae which follow:





and $\text{Si}(\text{NCO})_4$, wherein each of R_{10} , R_{17} , and R_{18} is independently an alkylene group or a phenylene group and K is a positive integer, and a substituted form of any of the foregoing compounds in which at least one of the hydrogen atoms of the alkylene or phenylene group is substituted by at least one group selected from halogen or deuterium;

- (b) a silane compound selected from the group consisting of an acetoxysilane, an alkoxysilane, an ketoximesilane, an aminosilane, an aminoxysilane, an silazane and an amidosilane;
- (c) an alkoxide compound selected from the group consisting of compounds represented by $\text{Ti}(\text{OZ})_4$, $\text{Zr}(\text{OZ})_4$ and $\text{Al}(\text{OZ})_3$, wherein Z is an alkyl or cycloalkyl group; and
- (d) a chelated compound selected from the group consisting of di-*i*-propoxy bis(acetylacetonate)titanate, di-*n*-butoxy bis(triethanolamine)titanate, Zr tetraacetylacetonate, ethyl acetoacetatoaluminum diisopropylate and aluminum tris(ethylacetoacetate).

5,672,673

FLUORINE-CONTAINING DISPERSANTS FOR AQUEOUS PAINTS AND COATING COMPOSITIONS

Stephan Kirchmeyer, Leverkusen; Jan Mazanek, Köln, and Karl-Heinz Käsler, Bergisch Gladbach, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jun. 17, 1996, Ser. No. 666,724

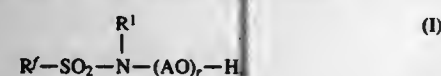
Claims priority, application Germany, Jun. 21, 1995, 195 22 476.0

Int. Cl. C08G 18/12

U.S. Cl. 528—70

1. A process for the preparing a water-soluble polyaddition compound containing perfluoroalkyl groups which comprises reacting

- A) a polyisocyanate component having an average NCO functionality of at least 2.5 and an NCO content of 5 to 50 wt. % with
- B) 0.1 to 50 equivalent %, based on the equivalents of isocyanate groups present in component A), of a fluorine-containing alcohol component corresponding to the formula



wherein R' represents a perfluoroalkyl group having 4 to 20 carbon atoms, R represents an alkyl group having 1 to 6 carbon atoms,

AO represents an alkylene oxide radical having 2 to 10 carbon atoms and

r is a number from 1 to 3,

- C) 5 to 90 equivalent %, based on the equivalents of isocyanate groups present in component A), of a monohydric alcohol component containing one or more monohydric polyether alcohols which have a number average molecular weight of 150 to 5000 and an ethylene oxide content of 50 to 99.5 wt. %, and have been prepared by alkoxylation of a monohydric starter molecule, provided that component C) is present in an amount such that the resulting polyaddition compound contains at least 30 wt. % of ethylene oxide units incorporated via component C),

- D) 5 to 80 equivalent %, based on the equivalents of isocyanate groups present in component A), of an amine component containing at least one tertiary amine having a molecular weight of 88 to 250 and containing at least one isocyanate-reactive group and

- E) 0 to 40 equivalent %, based on the equivalents of isocyanate groups present in component A), of one or more compounds which contain one or more isocyanate-reactive groups, are different from components B) to D), and have ethylene oxide content of less than 50 wt. % and a number average molecular weight of 32 to 3000,

at an isocyanate index of 80 to 200 to form urethane and optionally urea groups, and optionally reducing any NCO groups present in excess to a maximum content of 1.0 wt. % by means of secondary reactions carried out simultaneously or subsequently to the formation of the polyaddition compound.

5,672,674

ANTI-STAIN FINISHING OF POLYAMIDE-CONTAINING FIBRE MATERIALS, COMPOSITIONS THEREFOR AND POLYAMIDE-CONTAINING FIBRE MATERIALS THUS FINISHED

Klaus Walz, Leverkusen; Udo Winfried Hendricks, Odenthal, and Hans-Albert Ehler, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 13, 1995, Ser. No. 372,089

Claims priority, application Germany, Jan. 19, 1994, 44 01 390.6

Int. Cl. C08G 8/04; 14/02

U.S. Cl. 528—129

1. A process for the anti-stain finishing of polyamide-containing fibre materials, which comprises applying to said materials a ready-prepared mixture of a sulpho-containing aromatic formaldehyde condensation product along with the application of a polyacrylic acid, the application of the formaldehyde condensation product and the application of the polyacrylic acid being carried out in any desired order or simultaneously.

5,672,675

VINYL ETHER-TERMINATED POLYESTER OLIGOMER STABILIZERS FOR VINYL ETHER-BASED COATING SYSTEMS

George David Green, Cary; James Ronald Snyder, Chicago, and Raymond John Swedo, Mt. Prospect, all of Ill., assignors to AlliedSignal, Inc., Morris Township, N.J.

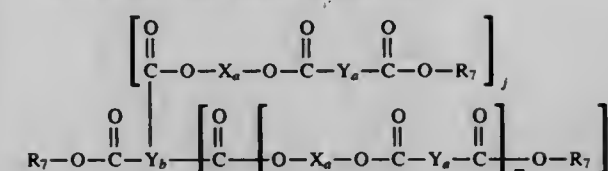
Continuation-in-part of Ser. No. 274,671, Jul. 13, 1994, Pat. No. 5,514,727. This application Apr. 10, 1996, Ser. No. 630,188

Int. Cl. C08G 63/137; C08F 2/50; C08L 67/07

U.S. Cl. 528—307

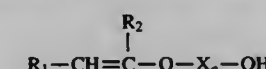
1. A vinyl ether terminated polyester oligomer consisting essentially of the reaction product of:

(a) a polybasic ester having the structure



wherein R_7 is chosen from the group consisting of phenyl and an alkyl group containing from 1 to 6 carbons, X_a , Y_a , and Y_b are radicals having a molecular weight of from 25 to about 500, each X_a , each Y_a , and Y_b being independently selected from the group consisting of alkylene, arylene, aralkylene and cycloalkylene radicals, j and m are 0 and w is 1;

- (b) 4,8-bis(hydroxymethyl)tricyclo-[5.2.1.0^{2,6}]-decane (BHTD);
- (c) a hydroxy monovinyl ether having the structure



wherein R_1 and R_2 are monovalent radicals selected from the group consisting of hydrogen and alkyl groups having 1 to 10 carbon atoms, and X_a is a divalent radical having a molecular weight in the range of from 25 to about 500 and is selected from the group consisting of alkylene, cycloalkylene, and alkylene ether radicals.

5,672,676

POLYESTERAMIDES WITH HIGH HEAT DEFLECTION TEMPERATURES

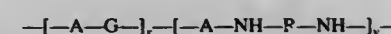
Sam Richard Turner, Kingsport, Tenn., assignor to Eastman Chemical Company, Kingsport, Tenn.

Filed Aug. 21, 1995, Ser. No. 517,393

Int. Cl. C08G 69/26

U.S. Cl. 528—335

1. Polyesteramides comprising:



wherein A is an organic dicarboxylic acid; G is a glycol selected from linear aliphatic diols and cycloaliphatic diols having 5 to 20 carbon atoms; R is selected from alkyl, cycloalkyl, aryl or aryl $\text{NH}-\text{R}-\text{NH}$ is derived from a low melting diamine; and x and y are whole numbers having an x/y ratio between about 9 to about 0.5 and sum of x and y is from about 2 to about 500.

5,672,677

LONG OPEN TIME POLYAMIDE COMPOSITIONS

Paul L. Morganelli, Newmarket, and Douglas E. Frost, Nottingham, both of N.H., assignors to The Dexter Corporation, Seabrook, N.H.

Filed Jan. 12, 1996, Ser. No. 585,873

Int. Cl. C08G 69/34; C08L 77/08

U.S. Cl. 528—339.3

1. A polyamide hot melt adhesive composition comprising the polyamide condensation product of substantially equivalent quantities of (a) an acid component comprising one or more polymeric fatty acids and one or more dicarboxylic acids and (b) an amine component comprising (i) two or more non-cyclic alkyl diamines and (ii) one or more amine-terminated polyglycol diamines, said amine component being substantially free of piperazine-containing polyamines, said composition having an open time of at least 120 seconds.

5,672,678

SEMICONDUCTIVE COPOLYMERS FOR USE IN LUMINESCENT DEVICES

Andrew Holmes; Donat Donat Bradley; Richard Henry Friend; Arno Kraft; Paul Burn, and Adam Brown, all of Cambridge, United Kingdom, assignors to Cambridge Display Technology Limited, Cambridge, United Kingdom

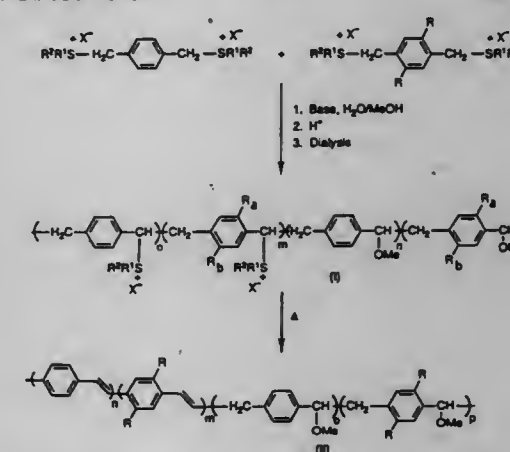
Continuation of Ser. No. 246,269, May 19, 1994, Pat. No. 5,512,654, which is a division of Ser. No. 748,777, Aug. 22, 1991, Pat. No. 5,401,827. This application Sep. 18, 1995, Ser. No. 506,201

Claims priority, application United Kingdom, Aug. 24, 1990, 9018698

Int. Cl. C08G 75/00

U.S. Cl. 528—373

18 Claims



1. An optical device which comprises a substrate, and at least one semiconductive conjugated copolymer layer supported by the substrate, wherein the copolymer comprises at least two chemically different monomer units each having different semiconductor bandgaps in their individual homopolymer forms, and wherein the proportion in the copolymer of said at least two chemically different monomer units forms the copolymer with a semiconductor bandgap that is spatially modulated from the semiconductor bandgap of each homopolymer form so that the optical properties of the copolymer are modulated, said copolymer being stable at operational temperatures within the range of about 0° C. to 150° C.

5,672,679

PROCESS FOR PRODUCING AMORPHOUS THERMOPLASTIC RESIN COMPOSITION

Kiyoshi Takagi; Koji Nishida, and Megumi Kojima, all of Mie, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Continuation of Ser. No. 272,134, Jul. 8, 1994, abandoned.

This application Dec. 1, 1995, Ser. No. 566,319

Claims priority, application Japan, Jul. 14, 1993, 5-174053; Sep. 27, 1993, 5-239360

Int. Cl. C08F 6/10

U.S. Cl. 528—501

17 Claims

1. A process for producing an amorphous thermoplastic resin composition comprising melt-kneading at least two amorphous resins which are selected from the group consisting of only amorphous resins and wherein said two amorphous resins are different from each other, in which said melt-kneading is conducted in the presence of not less than 1% by weight, based on the amorphous thermoplastic resin, of an organic solvent in a kneader having a vent hole(s) while maintaining at least one vent hole of the kneader under reduced pressure by means of an evacuator to remove the organic solvent so as to reduce the organic solvent content in the final composition to less than 1% by weight, wherein said organic solvent is added in an amount of from 2 to 30% by weight based on the amorphous resin and wherein said at least two amorphous resins have a glass transition point of not lower than 50° C. and a heat of fusion of less than 1 cal/g.

5,672,680

PENTACLETHRA MACROLOBA PROTEIN HAVING INSECTICIDAL PROPERTIES

Harold B. Rathburn, Norman, Okla.; Thomas H. Czapla, Urbandale, Iowa, and Karel R. Schubert, Norman, Okla., assignors to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Filed Nov. 20, 1995, Ser. No. 560,727

Int. Cl.⁶ A61K 38/04;38/00;35/78; C07K 1/00

U.S. Cl. 530—300

9 Claims

1. A purified trypsin inhibitor obtained from *Pentaclethra macroloba* comprising the steps of extracting sliced seeds from said *Pentaclethra macroloba*, extracting said sliced seeds with water to obtain a crude extract and purifying the crude extract to obtain trypsin inhibitor consisting of a plurality of active components whose molecular weights are in the ranges of 38–45 and 6–9 kDa.

5,672,681

CONFORMATIONALLY RESTRICTED MIMETICS OF GAMMA TURNS AND PEPTIDES CONTAINING THE SAME

Michael Kahn, Chicago, Ill., assignor to Molecumetics, Ltd., Bellevue, Wash.

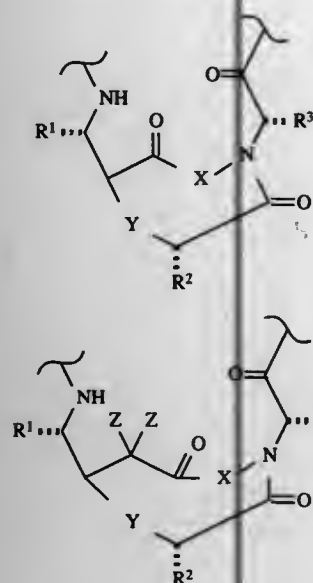
Division of Ser. No. 236,674, May 2, 1994, Pat. No. 5,475,085, which is a continuation of Ser. No. 926,350, Aug. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 651,800, Feb. 7, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 485,463

Int. Cl.⁶ A61K 38/12; C07K 5/00

U.S. Cl. 530—317

7 Claims

1. A gamma-turn mimetic having the structure:



wherein X is a linker moiety; Y is selected from —CH₂—, —NH— and —N(CH₃)—; Z is hydrogen or methyl; and R¹, R² and R³ are individually selected from naturally occurring amino acid side chain substituents.

5,672,682

CONOTOXIN PEPTIDE PVIIA

Heinrich Terlau, Göttingen, Germany; Ki-Joon Shon, Salt Lake City, Utah; Michelle Grilley, Salt Lake City, Utah, and Balamero M. Olivera, Salt Lake City, Utah, assignors to University of Utah Research Foundation, Salt Lake City, Utah

Filed Mar. 18, 1996, Ser. No. 619,936

Int. Cl.⁶ C07K 14/00;14/435

U.S. Cl. 530—324

3 Claims

1. A substantially pure κ -conotoxin peptide consisting of the amino acid sequence Cys-Arg-Ile-Xaa-Asn-Gln-Lys-Cys-Phe-Gln-His-Leu-Asp-Asp-Cys-Cys-Ser-Arg-Lys-Cys-Asn-Arg-Phe-Asn-Lys-Cys-Val (SEQ ID NO:1) where Xaa represents 4-trans-hydroxyproline.

5,672,683

TRANSFERRIN NEUROPHARMACEUTICAL AGENT FUSION PROTEIN

Phillip M. Friden, Bedford; Ruth M. Starzyk, Framingham, both of Mass.; Sherie L. Morrison, Los Angeles, Calif., and Eun-Chung Park, Cambridge, Mass., assignors to Alkermes, Inc., Cambridge, Mass., and The Regents of the University of California, Los Angeles, Calif.

Continuation-in-part of Ser. No. 999,803, Nov. 20, 1992, abandoned, which is a division of Ser. No. 846,830, Mar. 6, 1992, Pat. No. 5,182,107, which is a continuation-in-part of Ser. No. 404,089, Sep. 7, 1989, Pat. No. 5,154,924. This application Jul. 16, 1993, Ser. No. 94,534

Int. Cl.⁶ C07K 14/00;14/475

U.S. Cl. 530—350

11 Claims

1. A fusion protein comprising transferrin at the carboxyl terminus linked to a neuropharmaceutical agent at the amino terminus, wherein said neuropharmaceutical agent is either nerve growth factor (NGF) or ciliary neurotrophic factor (CNTF).

5,672,684

RECOMBINANT HUMAN ROTAVIRUS VP7 SEROTYPE 4

Michael Leigh Dyall-Smith, Kew; Chris Hum, Boronia; Ian Hamilton Holmes, Canterbury; Michael Anthony Johnson, North Ryde, and Peter Richard Reeves, Glebe, all of Australia, assignors to The University of Sydney, New South Wales, and The University of Melbourne, Victoria, both of Australia

Division of Ser. No. 899,216, Jun. 16, 1992, Pat. No. 5,332,658, which is a continuation of Ser. No. 473,959, Feb. 6, 1990, abandoned. This application Jul. 25, 1994, Ser. No. 280,016

Claims priority, application Australia, Aug. 10, 1987, PI3643/87

Int. Cl.⁶ C07K 14/14;7/00

U.S. Cl. 530—350

3 Claims

1. A polypeptide having a sequence of the VP7 protein of human rotavirus serotype 4.

5,672,685

SOURCE OF APOLIPOPROTEIN E AND METHOD OF ISOLATING APOLIPOPROTEIN E

William D. Matthew; Warren J. Strittmatter, and Catherine R. Gutman, all of Durham, N.C., assignors to Duke University, Durham, N.C.

Filed Oct. 4, 1995, Ser. No. 539,328

Int. Cl.⁶ C07K 1/22;14/47;14/775

U.S. Cl. 530—359

9 Claims

8. A method of isolating apolipoprotein E from a sample of human peritoneal fluid or human peritoneal wash fluid comprising the steps of:

- (a) adding fatty acids to a sample of human peritoneal fluid or human peritoneal wash fluid in an amount effective to minimize binding of albumin to Cibacron Blue F3GA dye;
- (b) contacting said sample from step (a) with Cibacron Blue F3GA dye under conditions which allow binding of apolipoprotein E to said dye; and
- (c) eluting apolipoprotein E bound to said dye.

5,672,686

BCL-Y - SPECIFIC ANTIBODIES

Thomas D. Chittenden, Brookline, Mass., assignor to Immunogen, Inc., Cambridge, Mass.

Continuation-in-part of Ser. No. 287,427, Aug. 9, 1994, abandoned. This application Oct. 11, 1994, Ser. No. 321,071

Int. Cl.⁶ C07K 16/18; C12N 5/20

U.S. Cl. 530—387.9

6 Claims

1. An antibody capable of binding to a protein having the amino acid sequence as shown in FIG. 4, SEQ ID NO: 16, wherein said protein is human Bcl-Y protein.

5,672,687

MAGNETIC PROTEIN CONJUGATES, A PROCESS FOR THE PREPARATION THEREOF, AND THE USE THEREOF

Peter Hermentin, Marburg; Reiner Dönges, Dautphetal; Karlheinz Enssle, Marburg; Roland Kurrie, Marburg, and Friedrich Robert Seiler, Marburg, all of Germany, assignors to Behringwerke Aktiengesellschaft, Marburg, Germany

Continuation of Ser. No. 182,368, Jan. 18, 1994, abandoned, which is a continuation of Ser. No. 832,625, Feb. 12, 1992, abandoned, which is a continuation of Ser. No. 320,450, Mar. 8, 1989, abandoned. This application Jan. 19, 1995, Ser. No. 375,232

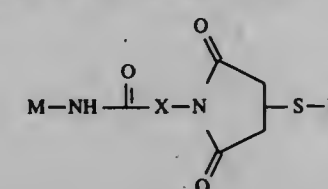
Claims priority, application Germany, Mar. 10, 1988, 38 07 904

Int. Cl.⁶ C07K 17/06; G01N 33/547;33/553; A61K 39/44

U.S. Cl. 530—391.5

13 Claims

1. A magnetic protein conjugate of the formula I:



in which

M is a dispersible magnetically reacting material or a magnetic particle which carries amino groups,

Ig is an immunoglobulin having one or more mercapto groups present in its hinge region, said one or more mercapto groups produced by the reduction of interchain disulfide linkages, and

X is selected from the group consisting of —(CH₂)₃—, phenylene, cyclohexane—CH₂—, and —CH₂—CH₂—CH₂—phenylene—,

wherein X chemically links the magnetic particle M covalently with said Ig.

5,672,688

IMMUNOGLOBULIN F_c FRAGMENT BOUND TO AN ALKYLATING, ANTIBIOTIC, OR ANTIMETABOLIC ANTITUMOR OR SUBSTANCE

Akira Kobayashi; Takao Ando, and Masahiko Fujii, all of Tokyo, Japan, assignors to Kureha Chemical Industry Co., Ltd., Tokyo, Japan

Filed Jul. 20, 1993, Ser. No. 93,885

Claims priority, application Japan, Jul. 23, 1992, 4-216650

Int. Cl.⁶ C07K 16/00;16/18

U.S. Cl. 530—391.7

6 Claims

1. A composition comprising a compound consisting of an immunoglobulin F_c fragment and an alkylating, antibiotic, or antimetabolic antitumor or substance bound thereto, and a pharmaceutically acceptable carrier.

5,672,689

NON-CLEAVABLE GP160 GLYCOPROTEINS OF HIV

Marie-Paule Kieny; Guy Rautmann, both of Strasbourg; Jean-Pierre Lecocq, Reichstett; Simon Wain Hobson, Montigny-le-Bretonneux; Marc Girard, Paris, and Luc Montagnier, Le Plessis-Robinson, all of France, assignors to Transgene S.A. and Institute Pasteur, Paris, France

Continuation of Ser. No. 856,572, Mar. 24, 1992, abandoned, which is a division of Ser. No. 765,413, Sep. 24, 1991, Pat. No. 5,169,763, which is a continuation of Ser. No. 143,079, Dec. 4, 1987, abandoned. This application May 17, 1995, Ser. No. 442,995

Claims priority, application France, Apr. 8, 1986, 86 05043; Oct. 29, 1986, 86 15106

Int. Cl.⁶ A61K 39/21; C07K 1/00;14/00;17/00

U.S. Cl. 530—395

23 Claims

1. A non-cleavable gp160 glycoprotein, consisting essentially of gp120-gp40 of a human immunodeficiency virus Type 1 (HIV-1), wherein said gp160 does not contain the amino acid sequence REKR found in natural gp160, and wherein the transmembrane region found in natural gp160 is replaced by the transmembrane region of the glycoprotein of the rabies virus.

5,672,690

Patent Not Issued For This Number

5,672,691

RECOMBINANT CORE STREPTAVIDIN

Erhard Kopetzki, Penzberg; Rainer Rudolph, Weilheim, and Adelbert Grossmann, Egging, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

Division of Ser. No. 211,833, Apr. 28, 1994, Pat. No. 5,489,528. This application May 4, 1995, Ser. No. 434,718

Claims priority, application Germany, Oct. 28, 1991, 41 35 543.1

Int. Cl.⁶ C07K 1/22;14/36; G01N 33/53

U.S. Cl. 530—413

2 Claims

1. A recombinant core streptavidin consisting of the amino acid sequence shown in SEQ ID NO: 2.

5,672,692

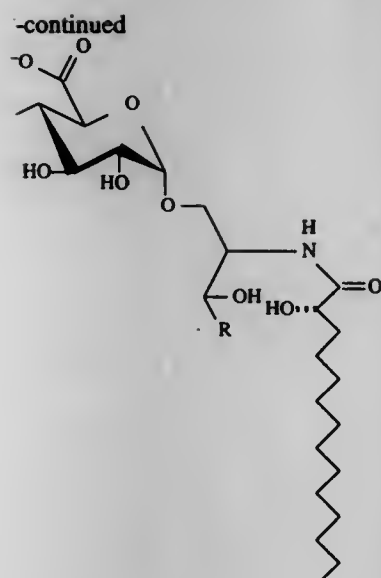
PURIFICATION OF HUMAN MYELOMONOCYTE INTERFERON GAMMA WITH AN IMMOBILIZED ANTIBODY

Masashi Kurimoto, and Masakazu Mitsuhashi, both of Okayama, Japan, assignors to Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo, Okayama, Japan Division of Ser. No. 476,040, Jun. 7, 1995, Pat. No. 5,554,515, which is a division of Ser. No. 336,224, Nov. 7, 1994, Pat. No. 5,518,899, which is a division of Ser. No. 62,323, May 17, 1993, Pat. No. 5,362,490, which is a continuation of Ser. No. 658,740, Feb. 22, 1991, abandoned, which is a continuation-in-part of Ser. No. 78,005, Jul. 21, 1987, abandoned, and Ser. No. 379,318, Jul. 13, 1989, abandoned. This application Apr. 1, 1996, Ser. No. 625,369

Claims priority, application Japan, Jul. 25, 1986, 61-176266; May 25, 1987, 62-125777; Jul. 23, 1988, 63-184069

Int. Cl.⁶ C07K 3/20; 17/00; C12P 21/04; G01N 33/53 U.S. Cl. 530—413 5 Claims

1. A method for purifying a human myelomonocyte interferon-gamma, comprising:
propagating an established human myelomonocyte which produces human myelomonocyte interferon-gamma; and
recovering the human myelomonocyte interferon-gamma by column chromatography using an antibody specific to human myelomonocyte interferon-gamma.



wherein R is:



5,672,693

GLYCOSPHINGOLIPIDS

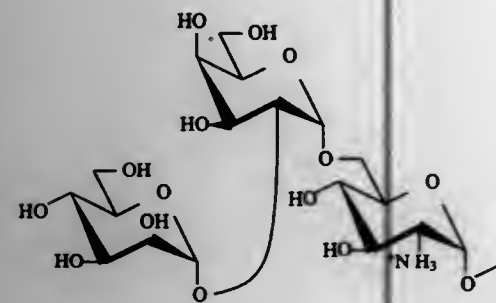
Kazuyoshi Kawahara, Tokyo, Japan, assignor to Kabushikikaisa Kibun Shokuhin, and The Khasato Institute, both of Tokyo, Japan

Continuation of Ser. No. 245,837, May 19, 1994, abandoned, which is a continuation of Ser. No. 90,104, Jul. 20, 1993, abandoned. This application May 26, 1995, Ser. No. 451,729

Claims priority, application Japan, Jan. 23, 1991, 3-006344 Int. Cl.⁶ C07H 1/04

U.S. Cl. 536—17.9 2 Claims

1. A glycosphingolipid represented by the following formula:



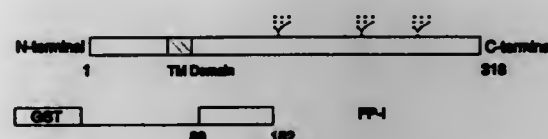
5,672,694

β-SARCOGLYCAN NUCLEIC ACID SEQUENCE, AND NUCLEIC ACID PROBES

Kevin P. Campbell; Leland Lim; Franck Duclos; Yoshihide Sunada, all of Iowa City, Iowa; Jacques S. Beckmann, Charenton-le-Pont, France; Odile Broux, L'Hay-les-Roses, France; Fernando M. S. Tome, Paris, France; Michel Fardeau, Sceaux, France, and Charles E. Jackson, Grosse Pointe, Mich., assignors to University of Iowa Research Foundation, Iowa City, Iowa

Filed Oct. 24, 1995, Ser. No. 547,182

Int. Cl.⁶ C07H 19/00; 21/02; 21/04; C12Q 1/68 U.S. Cl. 536—22.1 17 Claims



1. A substantially pure nucleic acid sequence encoding a mammalian 43 kDa non-dystrophin component of the dystrophin-glycoprotein complex which is characterized by the ability to hybridize to the DNA sequence of SEQ ID NO:1, or the fully complementary sequence thereof, under stringent hybridization conditions.

5,672,695

MODIFIED RIBOZYMES

Fritz Eckstein, Göttingen, Germany; Wolfgang Pieken, Boulder, Colo.; Fritz Benseler, Gleichen/Etzborn, Germany; David B. Olsen, West Point, Pa.; David M. Williams, Cambridge, England, and Olaf Heidenreich, Göttingen, Germany, assignors to Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V., Göttingen, Germany

PCT No. PCT/EP91/01811, § 371 Date Aug. 9, 1993, § 102(e) Date Aug. 9, 1993, PCT Pub. No. WO92/07065, PCT Pub. Date Apr. 30, 1992

PCT Filed Sep. 23, 1991, Ser. No. 965,411

Claims priority, application WIPO, Oct. 12, 1990, PCT/EP90/01731

Int. Cl.⁶ C07H 21/04; C12Q 1/68; A61K 48/00

U.S. Cl. 536—24.5 26 Claims

1. An RNA molecule with catalytic activity comprising at least one modified nucleoside, wherein the hydroxy group at the 2'-position of the ribose sugar is replaced by a modifier group, wherein said modifier group is a halo group.

7. An RNA molecule with catalytic activity comprising at least one modified nucleoside, wherein the hydroxy group at the 2'-position of the ribose sugar is replaced by a modifier group, wherein said modifier group is an amino group.

11. An RNA molecule with catalytic activity comprising at least one modified nucleoside, wherein the hydroxy group at the 2'-position of the ribose sugar is replaced by a modifier group, wherein said modifier group is a monosubstituted amino group.

15. An RNA molecule with catalytic activity comprising at least one modified nucleoside, wherein the hydroxy group at the 2'-position of the ribose sugar is replaced by a modifier group, wherein said modifier group is a disubstituted amino group.

19. An RNA molecule with catalytic activity comprising at least one modified nucleoside, wherein the hydroxy group at the 2'-position of the ribose sugar is replaced by a modifier group, wherein said modifier group is an azido group.

5,672,697

NUCLEOSIDE 5'-METHYLENE PHOSPHONATES

Chris Buhr, Daly City; Mark Matteucci, Burlingame; Norbert W. Bischofberger, San Carlos, and Brian Froehner, Belmont, all of Calif., assignors to Gilead Sciences, Inc., Foster City, Calif.

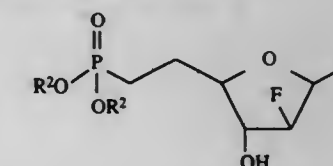
Filed Feb. 8, 1991, Ser. No. 652,978

Int. Cl.⁶ C07H 19/073; 19/173

U.S. Cl. 536—26.7

8 Claims

1. A compound having the formula:



wherein:

B is adenosine, N⁶-benzoyladenine, thymine, guanine, or N²-isobutyrylguanine; and
each R² is independently hydrogen, phenyl, alkyl (1-12C) or hydrogentriethylammonium ion.

5,672,698

PREPARATION OF 2',3'-DIDEHYDRO-3'-DEOXYTHYMIDINE FROM 5-METHYLURIDINE

Bang-Chi Chen, Manlius; Derron Ray Stark, Syracuse; Stephen Richard Baker, Cicero, and Sandra L. Quinlan, Manlius, all of N.Y., assignors to Bristol-Myers Squibb Co., New York, N.Y.

Continuation-in-part of Ser. No. 153,058, Nov. 15, 1993, abandoned, and Ser. No. 152,778, Nov. 15, 1993, abandoned. This application Sep. 23, 1994, Ser. No. 309,637

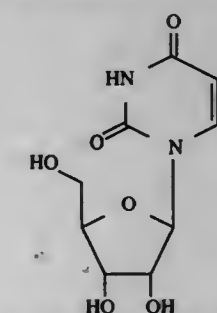
Int. Cl.⁶ C07H 1/00; 1/06; 19/073

U.S. Cl. 536—55.3

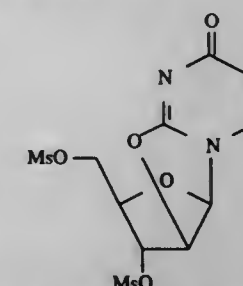
13 Claims

1. A process for producing 2',3'-didehydro-3'-deoxythymidine (d4T) comprising the steps of:

(a) reacting 5-methyluridine (X) with mesyl chloride in the



presence of an organic base with a pK_a value between about 5.5 and 8.0 to mesylate the 2',3' and 5' hydroxy groups, followed by treatment with hydroxide to provide the 2,2'-anhydro compound (VIII);



(b) displacing the 5'-mesyl group with benzoate anion followed by hydrobromination to give the 5'-benzoyl-2'-bromo compound (VI);

5,672,696

TREATMENT OF PARAFFIN EMBEDDED TISSUE FOR GENE ANALYSIS

Lu Wang, and Kazunari Hirayasu, both of Amagasaki, Japan, assignors to Wako Pure Chemical Industries, Ltd., Osaka, Japan

Filed Jul. 5, 1995, Ser. No. 498,775

Claims priority, application Japan, Jul. 6, 1994, 6-177578

Int. Cl.⁶ C07H 1/06; 1/08

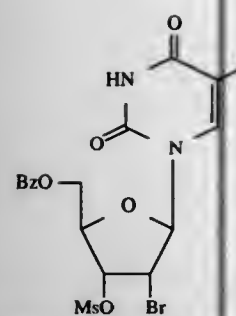
U.S. Cl. 536—25.42 10 Claims

1. A process for treating a paraffin-embedded tissue sample to be used for a gene analysis, which comprises

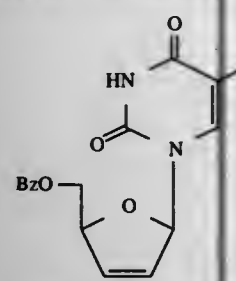
heating an aqueous suspension containing a surfactant having a protein-denaturational action and a deparaffinized tissue sample obtained from a paraffin-embedded tissue sample at 60° C. or higher,

reacting the heat-treated aqueous suspension with a protease, mixing the resulting reaction solution with a solution containing hydroxybenzoic acid.

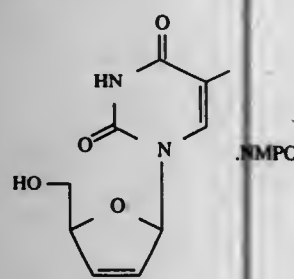
174-444 O.G.—97-14: QL3



(c) reducing the compound of Formula VI in the presence of zinc to provide the 5'-benzoate ester of d4T (III);



(d) treating (III) with butylamine followed by N-methylpyrrolidinone and butyl acetate to give the d4T.NMPO solvate (II);



and
(e) generation of d4T product (I) by desolvating the d4T.NMPO solvate (II) in alcoholic medium.

5,672,699 PROCESS FOR PREPARATION OF HYDROPHOBIC STARCH DERIVATIVES

Robert L. Billmers, Stockton, and Victor L. Mackewicz, California, both of N.J., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

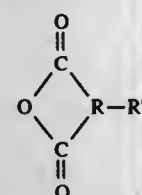
Filed Sep. 6, 1995, Ser. No. 524,281

Int. Cl.⁶ C08B 31/00; 33/00; 35/00; 35/04

U.S. Cl. 536—102

15 Claims
1. A method of preparing a hydrophobic starch derivative comprising reacting starch with an organic acid anhydride in an aqueous system wherein:

- starch is slurried in water at an acid pH of less than 7.0,
- an organic acid anhydride reagent having the following formula is added to the slurry,



where R is a dimethylene or trimethylene group and R' is a hydrocarbon group having 2 to 20 carbon atoms,

VI

- intimately contacting the starch and anhydride reagent by mixing to form a stable dispersion, and
- adding alkali material to the starch dispersion to adjust the pH to an alkaline pH of greater than 7.0 to initiate the reaction and adding further alkali material to maintain the pH at that level until the reaction is complete.

5,672,700

LORACARBEF ISOPROPANOLATE

William C. Henning, and Michael E. O'Dea, both of Lafayette, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 72,204, Jun. 4, 1993, Pat. No. 5,399,686.

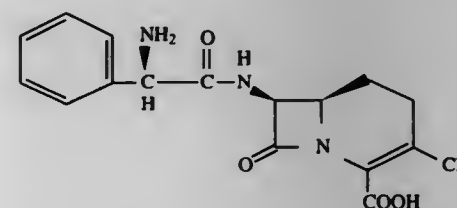
This application Dec. 1, 1994, Ser. No. 347,759

Int. Cl.⁶ C07D 487/04; A61K 31/435

U.S. Cl. 540—205

2 Claims

1. A crystalline isopropanolate form of the compound of formula (I)



(I)

5,672,701

4-SUBSTITUTED ALKYL CARBAPENEM ANTIBIOTICS
Alain Martel, Delson; Carol Bachand, Candiac, and Marcel Menard, Carignan, all of Canada, assignors to Bristol-Myers Squibb Company, Princeton, N.J.

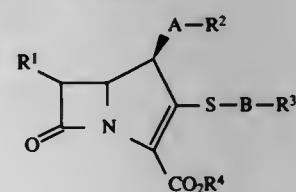
Continuation of Ser. No. 196,876, Feb. 15, 1994, abandoned, which is a continuation of Ser. No. 32,818, Mar. 15, 1993, abandoned, which is a continuation of Ser. No. 708,951, May 31, 1991, abandoned, which is a continuation-in-part of Ser. No. 613,921, Nov. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 466,017, Jan. 16, 1990, abandoned. This application Jan. 26, 1995, Ser. No. 378,899

Int. Cl.⁶ C01D 487/04

U.S. Cl. 540—350

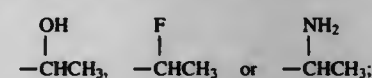
77 Claims

1. A compound of the formula



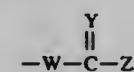
wherein

R¹ is hydrogen, C₁₋₂ alkyl, —CH₂OH, —CH₂NH₂,



A is an unsubstituted or hydroxy-substituted straight or branched C₁₋₁₀ alkylene group or a straight or branched C₁₋₁₀ alkylene group having an intervening heteroatom selected from oxygen, sulfur and nitrogen;

R² is hydroxy, halogen, C₁₋₄ alkoxy, nitrile, azido, a quaternary ammonio group, —NR³R⁶,



azetidiny, or a 5- or 6-membered heterocyclic group selected from heteroaromatic and heteroalicyclic joined through a carbon atom thereof;

B is a straight or branched C₁₋₆ alkylene group or a direct bond when R³ is joined to the sulfur atom through a carbon atom thereof;

R³ is a residue of an organic group;

R⁴ is hydrogen, a removable carboxy-protecting group or a physiologically hydrolyzable ester group;

R⁵ and R⁶ each are independently hydrogen, C₁₋₄ alkyl, C₁₋₄ alkoxy, hydroxyethyl, azidoethyl, aminoethyl, and when R⁵ is hydrogen or C₁₋₄ alkyl, R⁶ is hydroxy, C₁₋₄ alkoxy, amino, C₁₋₄ alkylamino, di(C₁₋₄)-alkylamino, substituted C₁₋₄ alkyl wherein said alkyl substituent is selected from hydroxy, azido, amino, guanidino, nitrile, carboxy, formimidoyl and phenyl, or an acyl residue of an amino acid or peptide; or R⁵ and R⁶, taken together with the nitrogen atom to which they are attached, is an unsubstituted or substituted heterocyclic group having 1 to 2 ring members and having up to four heteroatoms in each ring independently selected from oxygen, nitrogen and sulfur, wherein said substituent is selected from the group consisting of C₁₋₄ alkyl, C₁₋₄ alkoxy, trifluoromethyl, hydroxy, halogen, amino, nitrile, carboxy, formimidoyl, carbamido, carbamoyl, C₁₋₄ alkylamino and amino(C₁₋₄alkyl);

W is a direct bond, oxygen, sulfur or NR¹⁰;

Y is oxygen or NR¹⁰;

Z is hydrogen, hydroxy, C₁₋₄ alkyl, C₁₋₄ alkoxy, —NR⁷R⁸, amino(C₁₋₄alkyl), azido(C₁₋₄alkyl) or hydroxy(C₁₋₄alkyl);

R⁷ and R⁸ each are independently hydrogen, C₁₋₄ alkyl, hydroxy, benzyloxy or alkanoyl; and

R¹⁰ is hydrogen, C₁₋₄ alkyl, C₁₋₄ alkylamino or di(C₁₋₄alkylamino);

or a non-toxic pharmaceutically acceptable salt thereof.

5,672,702

PROCESS FOR PREPARING 3-AMINO-1,2,4-BENZOTRIAZINE DIOXIDE

Richard E. Phillon, Pottstown, Pa., assignor to Sanofi, Paris Cedex, France

Filed Dec. 4, 1995, Ser. No. 566,979

Int. Cl.⁶ C07D 253/065

U.S. Cl. 544—183

7 Claims

1. A process for the preparation of 3-amino-1,2,4-benzotriazine 1,4-dioxide comprising the steps of:

- adding a solution of benzofurazan-1 oxide in dimethylsulfoxide in a molar ratio of 1 to 3 to a solution of disodiumcyanamide in water in a molar ratio of 3 to 2 contained in a reaction vessel at a temperature of from about 55° to 65° C. to obtain the sodium salt of 3-amino-1,2,4-benzotriazine 1,4-dioxide as a precipitate;
- removing the precipitate and suspending it in excess water;
- adding about 3.5 mole equivalents of methanesulfonic acid to the suspension to obtain a solution;
- filtering the solution to remove acid insoluble impurities therefrom;
- charging the filtered solution into a buffered solution containing excess sodium acetate and allowing crystallization to occur;
- filtering and washing the crystalline particles with water;
- charging the washed crystalline particles back into said reaction vessel and stirring it with about five volume of water; and

h) filtering the crystalline particles and rinsing them with acetone to obtain the purified 3-amino-1,2,4-benzotriazine 1,4-dioxide.

5. A process for the preparation of 3-amino-1,2,4-benzotriazine 1,4-dioxide comprising the steps of:

- adding a solution of benzofurazan-1 oxide in dimethylsulfoxide in a molar ratio of 1 to 3 to an aqueous solution of cyanamide and sodium hydroxide having a molar ratio of 3 to 6 at a temperature of from about 55° C. to 65° C. to obtain the sodium salt of 3-amino-1,2,4-benzotriazine 1,4-dioxide as a partial suspension/solution;
- diluting the partial suspension/solution with water in a volume ratio of about 1 to 6 thereby obtaining a solution containing base-insoluble impurities;
- filtering the solution to remove the base-insoluble impurities therefrom;
- neutralizing the solution with a slight excess of glacial acetic acid to obtain a crude crystalline mixture;
- cooling the crystalline mixture and collecting the solids by filtration in the form of a damp cake;
- adding, with stirring, a mixture of acetone and acetic acid in the ratio of about 88:12;
- collecting the crystalline particles by filtration and rinsing them with the mixture of acetone and acetic acid having the ratio of about 88:12; followed by rinsing with water;
- adding about five volumes of water to the crystalline particles to obtain a suspension;
- acidifying the suspension with methanesulfonic acid in a 3.5 mol equiv. ratio;
- collecting the suspended crystalline particles by filtration, charging them into a well-stirred dilute sodium acetate solution, and allowing them to microcrystallize to form an average particle size of less than 190 nm; and
- collecting the microcrystalline particles by filtration and rinsing them with water, followed by rinsing with acetone to obtain the purified 3-amino-1,2,4-benzotriazine 1,4-dioxide.

5,672,703

1,3,5-TRIAZINE COMPOUNDS SUBSTITUTED WITH ACETAL AND/OR CYCLIZED ACETAL-BASED GROUPS
Subban Ramesh, Parsippany, N.J.; Laurence Lyman Williams, Stamford, Conn.; Ram Baboo Gupta, Bronx, N.Y., and Long-Tang Wilson Lin, Bethel, Conn., assignors to Cytec Technology Corp., Wilmington, Del.

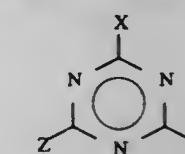
Filed Mar. 21, 1995, Ser. No. 408,323

Int. Cl.⁶ C07D 251/40

U.S. Cl. 544—194

22 Claims

1. A compound represented by the formula (I):



(I)

wherein

X is selected from the group consisting of hydrogen, halogen, alkyl, aralkyl, aryl, alkoxy, aralkoxy, aryloxy, alkylthio, aralkylthio, arylthio, amido, sulfonamido, sulfonate, amino, heterocyclic N-containing groups optionally containing a different hetero atom in the ring a group of the formula (II), a group of the formula (III), and a group of the formula (IV)

5,672,706

PROCESS FOR THE PREPARATION OF A SUBSTITUTED 2,5-DIAMINO-3-HYDROXYHEXANE

Anthony R. Haight, Mundelein; Owen J. Goodmonson, Buffalo Grove; Shyamal I. Parekh, Gurnee; Timothy A. Robbins, Waukegan, and Lou S. Seif, Buffalo Grove, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation of Ser. No. 283,109, Jul. 29, 1994, abandoned.

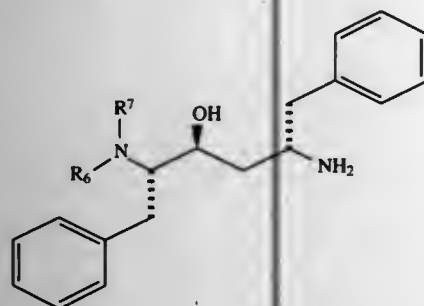
This application Apr. 17, 1994, Ser. No. 633,605

Int. Cl.⁶ C07D 209/44; 221/14; C07C 213/00; 209/68

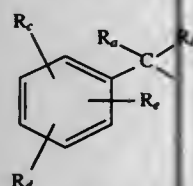
U.S. Cl. 546—99

15 Claims

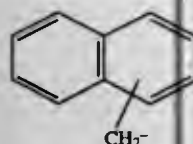
1. A process for the preparation of the substantially pure compound of the formula:



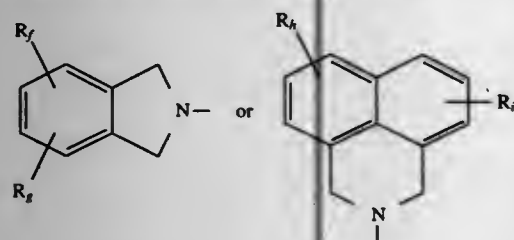
wherein R_6 and R_7 are independently selected from



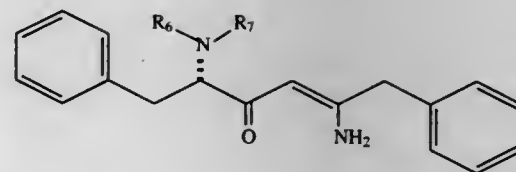
wherein R_6 and R_7 are independently selected from hydrogen, loweralkyl and phenyl and R_8 , R_d and R_e are independently selected from hydrogen, loweralkyl, trifluoromethyl, alkoxy, halo and phenyl; and



wherein the naphthyl ring is unsubstituted or substituted with one, two or three substituents independently selected from loweralkyl, trifluoromethyl, alkoxy and halo; or R_6 and R_7 taken together with the nitrogen atom to which they are bonded are



wherein R_6 , R_7 , R_8 and R_9 are independently selected from hydrogen, loweralkyl, alkoxy, halogen and trifluoromethyl; or an acid addition salt thereof, comprising reacting an enaminoketone compound of the formula:



wherein R_6 and R_7 are defined as above with hydrogen gas in the presence of a hydrogenation catalyst and an acid.

5,672,707

9-AMINOACRIDINE DERIVATIVES POSSESSING PSYCHOTROPIC, ANTIAMNESTIC AND LIPID-REGULATIVE ACTIVITY

Yury Valentinovich Burov, Moscow; Sergel Borisovich Goncharenko, Moskovskaya oblast; Tatyana Nikolaevna Robakidze, Moskovskaya oblast; Jury Nikolaevich Portnov, Moskovskaya oblast; Ljubov Vladislavovna Kadyshcheva, Moskovskaya oblast, all of Russian Federation; Ilmar Kharlevich Penke, Riga, Latvia; Eduard Maximovich Peganov, Moscow, Russian Federation; Svetlana Alexeevna Sukhanova, Moskovskaya oblast, Russian Federation; Galina Vasilievna Tananova, Moscow, Russian Federation; Anatoly Evgenievich Voronin, Moskovskaya oblast, Russian Federation; Anatoly Alexeevich Kotlobai, Moskovskaya oblast, Russian Federation; Yanis Fritsevich Oshis, Riga, Latvia, and Lidia Evgenievna Pchelintseva, Moskovskaya oblast, Russian Federation, assignors to Vserossiyskiy Nauchny Tsentr Po Bezopasnosti Biologicheskii Aktivnykh Veshchestv (Vntsbav), Moskovskaya, Russian Federation

Continuation of Ser. No. 211,127, Jan. 7, 1993, abandoned.

This application Oct. 29, 1993, Ser. No. 145,330

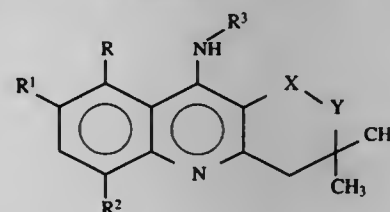
Claims priority, application Russian Federation, May 7, 1991, 4941883/04

Int. Cl.⁶ A61K 31/435; C07D 219/10

U.S. Cl. 546—105

1 Claim

1. Compounds of the formula



where $R=H$ or CH_3 ;

$R^1=H$, CH_3 or Br ;

$R^2=H$ or CH_3 ;

$R^3=C_1-C_5$ alkyl, diethylaminoethyl, phenylmethyl, or substituted phenylmethyl wherein the substituents of the phenyl group are Cl or CH_3 ;

$X=C=O$ or $CHOH$, $Y=CH_2$ or $X+Y=CH=CH$ and their pharmaceutically acceptable acid addition salts, thereof showing psychotropic, anti-amnesic and lipid-regulative activity.

5,672,708

PROCESS FOR THE PREPARATION OF N-ARYLAMINOACRYLIC ACID DERIVATIVES AND THE USE OF N-ARYLAMINOACRYLIC ACID DERIVATIVES THUS PREPARED FOR THE PREPARATION OF 4-QUINOLONE-3-CARBOXYLIC ACID DERIVATIVES

Günter Rauchschnalbe, Leverkusen; Bernhard Beitzke, Rösrath; Wolfgang Eymann, Köln, and Helmut Fiege, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 31, 1995, Ser. No. 521,941

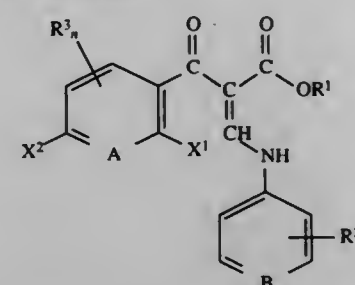
Claims priority, application Germany, Sep. 7, 1994, 44 31 821.9

Int. Cl.⁶ C07D 491/02; 307/00; C07C 205/00; 229/00

U.S. Cl. 546—115

5 Claims

1. A process for the preparation of a N-arylaminoacrylic acid derivative of the formula (I)



in which

R^1 denotes hydrogen or C_1-C_6 -alkyl,

R^2 and R^3 independently of one another each denote fluorine, chlorine, bromine, trifluoromethyl, cyano, nitro, C_1-C_6 -alkoxy, hydroxyl, imidazolyl, triazolyl or C_7-C_{10} -aralkoxy or R^2 and R^3 together denote an $-O-$, $-CH_2-$, $-CH_2O-$, $-OCH_2O-$ or $-OCH_2CH_2O-$ radical,

X^1 and X^2 independently of one another each denote fluorine, chlorine or bromine,

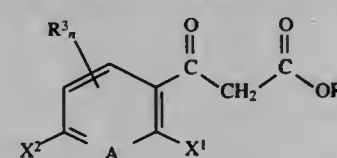
A denotes CH , N or CR^3 , where $R^3=$ fluorine, chlorine, bromine, trifluoromethyl, cyano, nitro, C_1-C_6 -alkoxy, hydroxyl, imidazolyl, triazolyl or C_7-C_{10} -aralkoxy,

B denotes CH , N or CR^2 , where $R^2=$ fluorine, chlorine, bromine, trifluoromethyl, cyano, nitro, C_1-C_6 -alkoxy, hydroxyl, imidazolyl, triazolyl or C_7-C_{10} -aralkoxy,

m denotes zero, 1, 2 or 3 and

n denotes zero, 1 or 2,

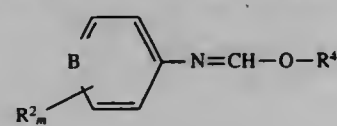
in which a benzoylacetic acid derivative of the formula



in which

R^1 , R^2 , X^1 , X^2 , A and n have the meaning given for formula (I),

is reacted with an N-arylimino ether of the formula



in which

R^2 , B and m have the meaning given for formula (I) and R^4 represents C_1-C_6 -alkyl.

5,672,709

HETEROCYCLIC COMPOUNDS AND THEIR PREPARATION AND USE

Charles A. Alt, Greenwood; Leander Merritt; Gary A. Rhodes, both of Indianapolis; Roger L. Robey; Eldon E. Van Meter, both of Greenwood; John S. Ward, Indianapolis, and Charles H. Mitch, Columbus, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

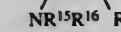
Division of Ser. No. 443,673, Jun. 1, 1995, abandoned, which is a continuation-in-part of Ser. No. 327,766, Oct. 24, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 470,789

Int. Cl.⁶ C07F 7/10

U.S. Cl. 548—110

3 Claims

1. A compound of formula IV



wherein

R^{15} and R^{16} are independently hydrogen, $R^{10}R^{11}R^{12}Si$, or $R^{13}R^{14}R^{15}Si$;

R is hydrogen, amino, halogen, NHR^6 , NR^6R^7 , $-OR^4$, $-SR^4$, $-SOR^4$, $-SO_2R^4$, C_3-10 -cycloalkyl, C_4-12 -(cycloalkylalkyl), $-Z-C_3-10$ -cycloalkyl or $-Z-C_4-12$ -(cycloalkylalkyl); or

R is phenyl or benzyloxycarbonyl, each of which is optionally substituted with one or more halogen, $-CN$, C_1-4 -alkyl, C_1-4 -alkoxy, $-OCF_3$, $-CF_3$, $-CONH_2$ or $-CSNH_2$ substituents; or

R is selected from the group consisting of $-OR^5Y$, $-SR^5Y$, OR^5-Z-Y , $-SR^5ZY$, $-O-R^5-Z-R^4$ and $-S-R^5-Z-R^4$

R^4 is C_1-15 -alkyl, C_2-15 -alkenyl, or C_2-15 -alkynyl, each of which is optionally substituted with one or more independently selected halogen, $-CF_3$, $-CN$, Y , phenyl or phenoxy substituents wherein phenyl or phenoxy is optionally substituted with one or more halogen, $-CN$, C_1-4 -alkyl, C_1-4 -alkoxy, $-OCF_3$, $-CF_3$, $-CONH_2$ or $-CSNH_2$ substituents;

R^5 is C_1-15 -alkylene, C_2-15 -alkenylene, or C_2-15 -alkynylene;

R^6 and R^7 independently are hydrogen or C_1-4 -alkyl; or R^6 and R^7 together form a C_3-C_5 -alkylene group which together with the nitrogen atom form a 4- to 6-membered ring;

R^{10} , R^{11} , R^{12} , R^{13} , R^{14} and R^{15} are independently C_1-C_6 -alkyl, aryl or aryl(C_1-C_3)alkyl;

Y is a 5 or 6 membered heterocyclic group; and

Z is oxygen or sulphur;

provided that: 1) when R is hydrogen, amino, or halogen, R^{16} cannot be hydrogen; and 2) when R is phenyl or substituted phenyl, R^{15} and R^{16} cannot both be hydrogen.

5,672,710

SULFIDES, SULFOXIDES AND SULFONES DISUBSTITUTED WITH A TETRAHYDRONAPHTHALENYL, CHROMANYL, THIOCHROMANYL OR TETRAHYDROQUINOLINYL AND SUBSTITUTED PHENYL OR HETEROARYL GROUP, HAVING RETINOID-LIKE BIOLOGICAL ACTIVITY

Richard L. Beard, Newport Beach; Diana F. Colon, Irvine, and Roshantha A. Chandraratna, Mission Viejo, all of Calif., assignors to Allergan, Waco, Tex.

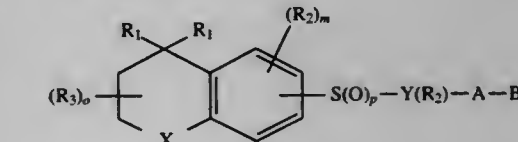
Filed Nov. 3, 1995, Ser. No. 552,965

Int. Cl.⁶ C07D 277/24

U.S. Cl. 548—188

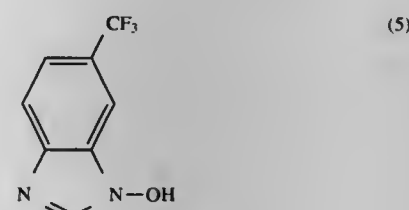
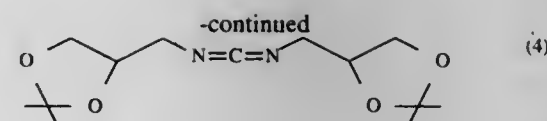
10 Claims

1. A compound of the formula



wherein

X is n where n is an integer between 0 and 2;
 R₁ is independently H or alkyl of 1 to 6 carbons;
 R₂ is hydrogen, lower alkyl of 1 to 6 carbons, F, Cl, Br, I, fluoro substituted alkyl of 1 to 6 carbons, OH, SH, alkoxy of 1 to 6 carbons, or alkylthio of 1 to 6 carbons;
 R₃ is hydrogen, lower alkyl of 1 to 6 carbons or F;
 m is an integer having the value of 0-3;
 o is an integer having the value of 0-4;
 p is an integer having the value of 0-2;
 Y is heteroaryl selected from a group consisting of pyridazinyl, pyrimidinyl, pyrazinyl, thiazolyl, oxazolyl, imidazolyl and pyrrolyl, said heteroaryl groups being optionally substituted with one or two R₂ groups;
 A is (CH₂)_q, where q is 0-5, lower branched chain alkyl having 3-6 carbons, cycloalkyl having 3-6 carbons, alkenyl having 2-6 carbons and 1 or 2 double bonds, alkynyl having 2-6 carbons and 1 or 2 triple bonds, and
 B is hydrogen, COOH or a pharmaceutically acceptable salt thereof, COOR₈, CONR₉R₁₀, —CH₂OH, CH₂OR₁₁, CH₂OCOR₁₁, CHO, CH(OR₁₂)₂, CHOR₁₃O, —COR₇, CRT(OR₁₂)₂, CR₇OR₁₃O, or tri-lower alkylsilyl, where R₇ is an alkyl, cycloalkyl or alkenyl group containing 1 to 5 carbons, R₈ is an alkyl group of 1 to 10 carbons or (trimethylsilyl)alkyl where the alkyl group has 1 to 10 carbons, or a cycloalkyl group of 5 to 10 carbons, or R₉ is phenyl or lower alkylphenyl, R₁₀ and R₁₁ independently are hydrogen, an alkyl group of 1 to 10 carbons, or a cycloalkyl group of 5-10 carbons, or phenyl or lower alkylphenyl, R₁₂ is lower alkyl, phenyl or lower alkylphenyl, R₁₃ is lower alkyl, and R₁₄ is divalent alkyl radical of 2-5 carbons.



wherein,

X is hydrogen, acetoxymethyl or 1,2,4-triazin-6-hydroxy-2-methyl-3-thiomethyl-5-one.

5,672,712

THIAZOLINE DERIVATIVES

Masakazu Sato; Akira Manaka; Keiko Takahashi; Yutaka Kawashima, and Katsuo Hatayama, all of Tokyo, Japan, assignors to Taisho Pharmaceutical Co., Ltd., Tokyo, Japan
 PCT No. PCT/JP95/01169, § 371 Date Dec. 12, 1996, § 102(e)
 Date Dec. 12, 1996, PCT Pub. No. WO95/34543, PCT Pub. Date Dec. 21, 1995

PCT Filed Jun. 12, 1995, Ser. No. 750,521

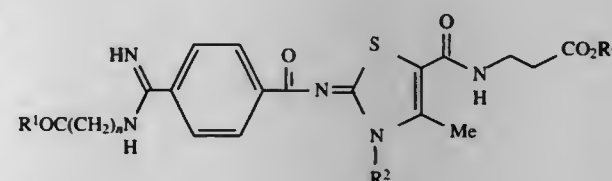
Claims priority, application Japan, Jun. 13, 1994, 6-130149; Aug. 29, 1994, 6-203586

Int. Cl.⁶ C07D 277/56

U.S. Cl. 548—195

5 Claims

1. A thiazoline derivative represented by the formula:



wherein R¹ is a hydroxyl group, an alkoxy group having 1 to 6 carbon atoms, a cycloalkoxy group having 3 to 6 carbon atoms or a group represented by the formula:



wherein R⁴ is a cycloalkyl group having 3 to 6 carbon atoms or a phenyl group, R² is an alkyl group having 1 to 14 carbon atoms, a cycloalkyl group having 3 to 6 carbon atoms or a phenylalkyl group having 7 to 10 carbon atoms, R³ is a hydrogen atom or an alkyl group having 1 to 6 carbon atoms, and n is an integer of 2 to 9 or a pharmaceutically acceptable salt thereof.

5,672,711

PROCESS FOR MANUFACTURING CEPHEM DERIVATIVES

Jung-Woo Kim, Kangseo-gu; Chong-Ryul Lee, Seocho-gu; Byung-Woo Jin, Kwanak-gu; Ki-Seok Park, Kyeonggi-do, and Moo-Il Qh, Kangnam-gu, all of Rep. of Korea, assignors to Chong Kun Dang Corporation, Rep. of Korea

Filed Jun. 28, 1996, Ser. No. 671,726

Claims priority, application Rep. of Korea, Jun. 30, 1995, 95-18434

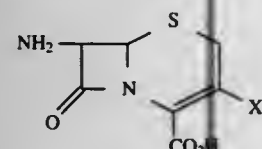
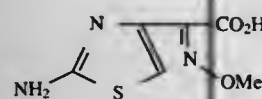
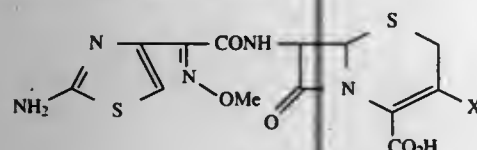
Int. Cl.⁶ C07D 277/56; 501/36; 277/593

U.S. Cl. 548—194

11 Claims

1. A process of manufacturing cephem derivatives of formula (1), which comprises:

- reacting a compound of formula (2) with a condensing agent of formula (4) and 1-hydroxy-6-trifluoromethyl benzotriazole of formula (5) to produce a mixture, and
- acylating the mixture with 7-aminocephosporanic acid of formula (3) or its derivatives



5,672,713

HERBICIDAL AND FUNGICIDAL SUBSTITUTED TRIAZOLINONES

Klaus-Helmut Müller, Düsseldorf; Klaus König, Odenthal; Kurt Findelsen; Hans-Joachim Santel, both of Leverkusen; Klaus Lürssen; Robert R. Schmidt, both of Bergisch-Gladbach, and Stefan Dutzmann, Hilden, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
 Division of Ser. No. 180,721, Jan. 13, 1994, Pat. No. 5,516,749, which is a continuation-in-part of Ser. No. 973,488, Nov. 9, 1992, abandoned, which is a continuation-in-part of Ser. No. 698,253, May 6, 1991, abandoned, and Ser. No. 852,120, Mar. 16, 1992, abandoned, which is a continuation of Ser. No. 516,503, May 1, 1990, abandoned. This application Mar. 1, 1996, Ser. No. 609,879

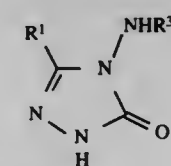
Claims priority, application Germany, May 24, 1989, 39 169 30.8; Jan. 6, 1990, 40 002 34.9; Mar. 23, 1991, 41 096 71.1

Int. Cl.⁶ C07D 249/14

U.S. Cl. 548—263.8

4 Claims

1. A 1-H-triazolinone of the formula



wherein

R¹ represents ethyl, n-propyl, isopropyl, or cyclopropyl and R³ represents methyl.

5,672,714

METHOD OF MANUFACTURING A 3-SUBSTITUTED-3-OXO-2-HALOPROPIONIC ACID AMIDE COMPOUND AND METHOD OF MANUFACTURING A 3-SUBSTITUTED-3-OXO-2-(5,5-DIMETHYLHYDANTOIN-3-YL) PROPIONIC ACID AMIDE COMPOUND

Katsuyoshi Yamakawa, and Tadahisa Sato, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa-ken, Japan

Filed Nov. 8, 1995, Ser. No. 555,062

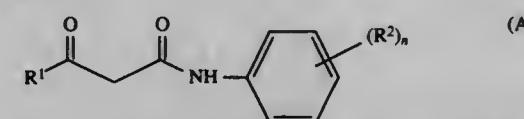
Claims priority, application Japan, Nov. 14, 1994, 6-302681

Int. Cl.⁶ C07D 233/40

U.S. Cl. 548—319.5

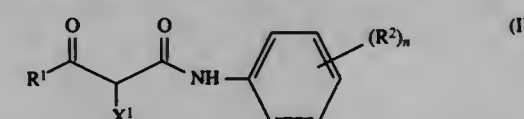
27 Claims

1. A method of preparation, which comprises: halogenating a 3-substituted-3-oxopropionic acid amide of formula (A):



wherein R¹ represents an alkyl group, a cycloalkyl group, an aryl group, an amino group, or an indoline-1-yl group, R² represents a substituent that is suitable for a photographic yellow coupler, and n is an integer in the range of from 0 to 5 with the proviso that when n is 2 or greater, the substituents represented by R² are the same or different;

with a 1,3-dihalo-5,5-dimethylhydantoin to form a 3-substituted-3-oxo-2-halopropionic acid amide of formula (I):



wherein R¹, R², and n are the same as in Formula (A) and X¹ represents a halogen atom.

5,672,715

HERBICIDAL SUBSTITUTED 3-ARYL-PYRAZOLES

Bruce C. Hamper, Kirkwood, and Lisa L. McDermott, Sullivan, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

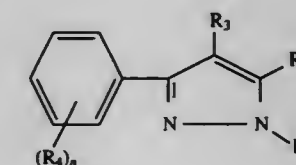
Filed Jun. 7, 1995, Ser. No. 476,522

Int. Cl.⁶ C07D 231/12

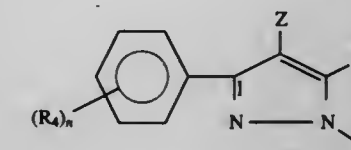
U.S. Cl. 548—374.1

4 Claims

1. Process for preparing a compound of Formula I:

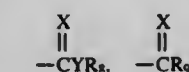


comprising reacting a compound of Formula A:



with a suitable base followed by reacting the resultant anion with a C₁₋₆ alkyl halide, di(C₁₋₆ alkyl)sulfate or di(C₁₋₆ alkyl)formamide; and wherein in Formula A and Formula I,

R₁ is independently C₁₋₈ alkyl; C₃₋₈ cycloalkyl, cycloalkenyl, cycloalkylalkyl, or cycloalkenylalkyl; C₂₋₈ alkenyl or alkynyl; benzyl; or said R₁ members substituted with halogen, amino, nitro, cyano, hydroxy, alkoxy, alkylthio,

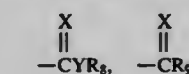


YR₁₀, or NR₁₁R₁₂;

R₂ is C₁₋₆ haloalkyl;

R₃ is C₁₋₆ alkyl, CHO or CH₂OH;

R₄ members are independently an R₁ member, thioalkyl, polyalkoxyalkyl, carbamyl, halogen, amino, nitro, cyano, hydroxy,



YR₁₀, or NR₁₁R₁₂ group;

X is O, S(O)_m, NR₁₉ or CR₂₀R₂₁;

Y is O, S(O)_m, or NR₂₂;

R₈₋₂₂ are hydrogen, C₁₋₈ alkyl, C₃₋₈ cycloalkyl, cycloalkenyl, cycloalkylalkyl, or cycloalkenylalkyl, C₂₋₈ alkenyl or alkynyl, benzyl, or said R₁ members substituted with halogen, amino, nitro, cyano, hydroxy, alkoxy, alkylthio, halogen, amino, nitro, cyano, hydroxy, aryl, alkyl, alkaryl, carboxyl, alkoxy-alkyl, alkylamino, dialkylamino, alkoxy, or carbamyl;

m is 0-2;

n is 1-5; and

Z is chlorine, bromine or iodine.

5,672,716

YELLOW DIKETOPYRROLOPYRROLE PIGMENTS

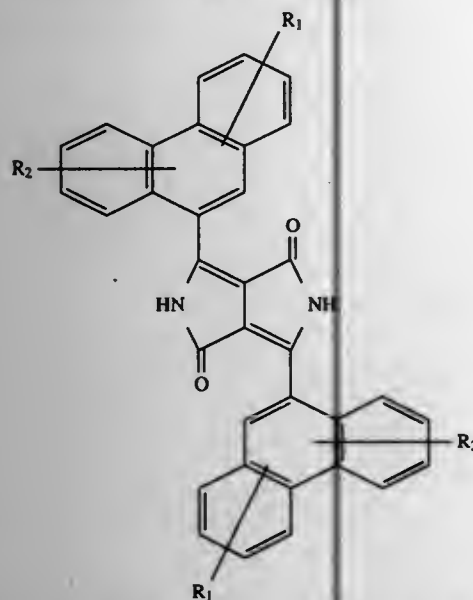
Bernad Lamatsch; Olof Wallquist, both of Marly, and Ingo Schlöder, Matran, all of Switzerland, assignors to Ciba-Geigy Corporation, Tarrytown, N.Y.

Filed Oct. 31, 1995, Ser. No. 551,192

Int. Cl.⁶ C07D 487/04

U.S. Cl. 548—453

1. A diketopyrrolo[3,4-c]pyrrole of formula



wherein R₁ and R₂ are each independently of the other hydrogen, halogen, C₁-C₆alkyl, cyano or —OR₃, —COOR₃, —CON(R₃)(R₄), —COR₃ or —N(R₃)(R₄) group, and R₃ and R₄ are each independently of the other hydrogen, C₁-C₆alkyl, phenyl which is unsubstituted or substituted by halogen or C₁-C₆alkyl.

5,672,717

PREPARATION OF PYRROL AND OXAZOLE COMPOUNDS; FORMATION OF PORPHYRINS AND C-ACYL-α-AMINO ACID ESTERS THEREFROM

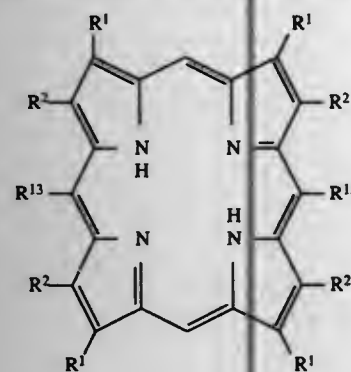
John Verkade, Ames, Iowa, and Jianseng Tang, Lisle, Ill., assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Continuation-in-part of Ser. No. 441,958, May 16, 1995, Pat. No. 5,554,764, which is a continuation of Ser. No. 291,409, Aug. 16, 1994, Pat. No. 5,446,166, which is a division of Ser. No. 142,775, Oct. 26, 1993, Pat. No. 5,367,084. This application Nov. 22, 1995, Ser. No. 691,002

Int. Cl.⁶ C07D 403/14

U.S. Cl. 548—518

1. A porphyrin compound of the general formula:



3 Claims

wherein R¹ and R² are each independently C₁-C₂₀ alkyl, F, Cl, Br, I, NO, NH₂, OH, OMe, OEt, SO₃H; substituted C₁-C₂₀ alkyl, C₁-C₁₀ aryl wherein the substitution includes one or more F, Cl, Br, I, NO₂, NH₂, OH, OMe, OEt, SO₃H groups; and R¹³ is CF₃, CH₂CF₃, CF₂CF₃, CF₃ substituted phenyl at the o, m or p position or a phenyl substituted with one or more F groups.

5,672,718

N-PHENYLACETAMINO NITRILES

Reiner Fischer, Monheim, and Gunther Beck, Leverkusen, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 140,633, Oct. 21, 1993, Pat. No. 5,508,436. This application Nov. 15, 1995, Ser. No. 558,300

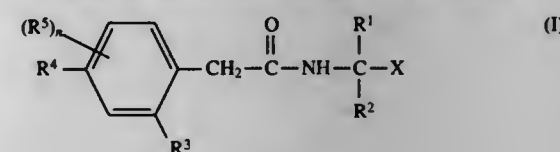
Claims priority, application Germany, Oct. 28, 1992, 42 36 400.0

Int. Cl.⁶ C07D 333/20

U.S. Cl. 549—28

12 Claims

1. An N-phenylacetamino nitrile or ester of the formula



in which

X is CN or —COO—C₁-C₆-alkyl.

R¹ and R², together with the carbon atom to which they are bonded, form an optionally substituted heterocyclyl radical wherein said heterocyclyl radical has 3 to 8 carbon atoms and 1 to 2 heteroatoms selected from the group consisting of oxygen or sulfur and the optional substituents are selected from the group consisting of halogen, straight-chain or branched alkyl having 1 to 6 carbon atoms, straight-chain or branched alkanoyl having 1 to 7 carbon atoms, straight-chain or branched alkanediyl having 3 to 8 carbon atoms, straight-chain or branched dioxyalkylene having 1 to 8 carbon atoms, straight-chain or branched halogenoalkyl having 1 to 6 carbon atoms and 1 to 13 identical or different halogen atoms, straight-chain or branched alkoxy having 1 to 6 carbon atoms, straight-chain or branched alkylthio having 1 to 6 carbon atoms, cycloalkyl having 3 to 8 carbon atoms or aryl having 6 to 10 carbon atoms.

R³ represents halogen, alkyl or alkoxy.

R⁴ represents hydrogen, halogen, alkyl, halogenoalkyl or alkoxy.

R⁵ represents halogen, alkyl or alkoxy, and

n represents a number 0, 1, 2 or 3.

5,672,719

PROCESS FOR THE PREPARATION OF ISOBENZOFURANDIONES

Josef Käsbaier, Wermelskirchen, and Helmut Fiege, Leverkusen, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Sep. 13, 1995, Ser. No. 528,388

Claims priority, application Germany, Jul. 24, 1995, 195 26 923.3

Int. Cl.⁶ C07D 307/77; 307/89

U.S. Cl. 549—240

8 Claims

1. Process for the preparation of an isobenzofurandione by the dehydrogenation of a tetrahydroisobenzofurandione in the presence of a catalyst at elevated temperature, characterized in that a solution of a distilled tetrahydroisobenzofurandione and a maleic acid derivative selected from the group consisting of maleic anhydride, maleimides, maleamic acid and alkyl maleates is contacted with a supported palladium catalyst, a supported platinum catalyst or both in a trickle-phase process at a temperature of 120° to 300° C.

5,672,720

Patent Not Issued For This Number

5,672,721

PREPARATION OF LOW-SOLVENT ALKYL DIKETENES

Roland Ettl, Hassloch; Wolfgang Kasel, Nussloch; Matthias Fankhänel, Ludwigshafen, and Wolfgang Reuther, Heidelberg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Apr. 26, 1996, Ser. No. 638,225

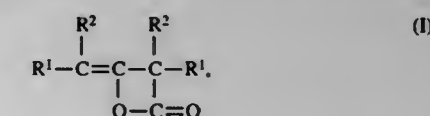
Claims priority, application Germany, May 3, 1995, 195 16 183.1

Int. Cl.⁶ C07D 305/12

U.S. Cl. 549—329

14 Claims

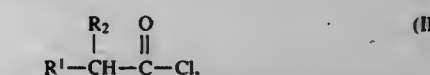
1. A process for the preparation of low-solvent alkyl diketenes of the general formula:



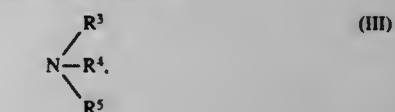
in which

R¹ denotes C₁₀-C₃₀ alkyl or C₁₀-C₃₀ alkenyl and

R² denotes hydrogen or C₁-C₈ alkyl, by causing carboxylic chlorides of the formula II



in which R¹ and R² have the aforementioned meanings, to react with tertiary amines of the formula III



in which

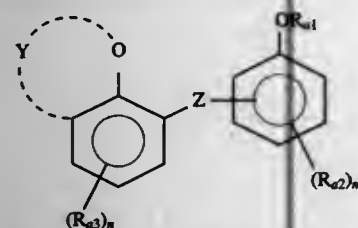
R³, R⁴, R⁵ denote C₁-C₁₂ alkyl or C₃-C₁₂ cycloalkyl and

R³ and R⁴ together denote a C₂-C₁₁ alkylene dichain optionally interrupted by oxygen or nitrogen,

in a substantially water-immiscible, inert solvent, wherein distillation is carried out in two stages, first at temperatures ranging from 80° to 130° C. and pressures ranging from 10 to 500 mbar and subsequently with the addition of water or steam.

5,672,722
COLOR FADE INHIBITOR
 Nobuo Seto; Yasuhiro Yoshioka, and Masakazu Morigaki, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
 Continuation-in-part of Ser. No. 337,472, Nov. 8, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 478,769
 Claims priority, application Japan, Nov. 12, 1993, 5-305999
 Int. Cl.⁶ C07D 311/64; 307/79; 311/58

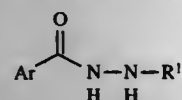
U.S. Cl. 549—398 6 Claims
 1. A compound represented by formula (A)



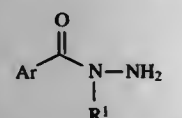
wherein R_{a1} represents a hydrogen atom or an alkyl group having 1 to 40 carbon atoms; R_{a2} represents an aliphatic group having 1 to 16 carbon atoms; R_{a3} represents an aliphatic group having 1 to 16 carbon atoms; Y represent non-metallic atomic group necessary for completing a coumaran or chroman ring, an oxygen atom, a sulfur atom, or $-C(R_{a4})(R_{a5})-$, wherein R_{a4} and R_{a5} , which may be the same or different, each represents a hydrogen atom or an aliphatic group having 1 to 16 carbon atoms; m represents an integer of from 0 to 4; n represents an integer of from 0 to 3; when m is 2 or more, plural R_{a2} 's may be the same or different; and when n is 2 or more, plural R_{a3} 's may be the same or different.

5,672,723
PROCESS FOR PREPARATION OF 1-ACYL-2-SUBSTITUTED HYDRAZINES
 Hiroki Hotta, Yono; Hiroyasu Sugizaki, Tokyo; Tetsuya Toya, Yono, and Mikio Yanagi, Okegawa, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, and Sankyo Company, Limited, both of Tokyo, Japan
 Continuation of Ser. No. 276,288, Jul. 18, 1994, abandoned.
 This application Feb. 21, 1996, Ser. No. 604,679
 Claims priority, application Japan, Jul. 20, 1993, 5-199974
 Int. Cl.⁶ C07D 311/04; C07C 241/02

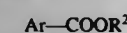
U.S. Cl. 549—402 16 Claims
 1. A process for separating a 1-acyl-2-substituted hydrazine compound represented by the formula (1)



wherein Ar is a phenyl or naphthyl group substituted by 1 to 5 substituents independently selected from the group consisting of hydrogen, halogen, (C_1-C_6) alkyl, (C_1-C_6) alkoxy, halo (C_1-C_6) alkyl and halo (C_1-C_6) alkoxy, or when two adjacent positions on the phenyl ring are substituted, these groups can form $-OCH_2CH_2O-$ or $-OCH_2CH_2CH_2-$, and R^1 is a (C_1-C_6) alkyl group, from a mixture of said hydrazine compound and a 1-acyl-1-substituted hydrazine represented by the formula (2):



wherein Ar and R^1 are as described above, said process comprising the following steps of: deriving a compound represented by the formula (3):



wherein Ar is as described above and R^2 is hydrogen or a (C_1-C_6) alkyl, from the 1-acyl-1-substituted hydrazine of the formula (2) by selective hydrolysis in the presence of an acid catalyst, or by selective alcoholysis in the presence of an acid catalyst; and separating said derived compound represented by the formula (3) from said 1-acyl-2-substituted hydrazine compound represented by the formula (1).

5,672,724
PROCESSES FOR PREPARING RANITIDINE
 Robert M. Strom, Midland, Mich., assignor to Hoechst Marion Roussel, Inc., Cincinnati, Ohio
 Continuation-in-part of Ser. No. 351,985, Dec. 8, 1994, abandoned. This application Nov. 16, 1995, Ser. No. 542,408
 Int. Cl.⁶ C07D 307/02

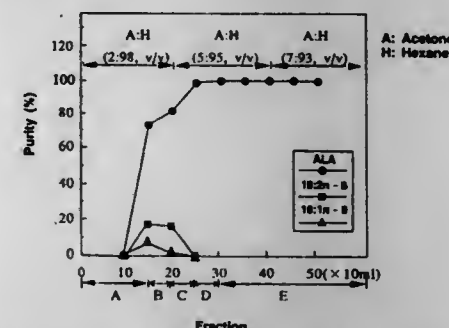
U.S. Cl. 549—492 6 Claims
 1. A process for preparing ranitidine, comprising: reacting 2-nitromethylene-thiazolidine with methylamine to give a reaction mixture and then reacting the reaction mixture with an appropriate 5-[(dimethylamino)methyl]-furan derivative.

5,672,725
PROCESS FOR PREPARING QUINONES
 David W. Polis, Redondo Beach, Calif., assignor to Hoechst Celanese Corp., Somerville, N.J.
 Filed Sep. 21, 1995, Ser. No. 531,507
 Int. Cl.⁶ C07C 50/04; 50/02

U.S. Cl. 552—293 15 Claims
 1. A process to prepare aromatic quinones from corresponding dihydroxy aromatic compounds, said process comprising: (a) preparing a mixture of said dihydroxy aromatic compound and sulfonyl chloride in a molar ratio range of about 1:2 to 1:5 respectively in a suitable apparatus in a substantial absence of added solvent; (b) subjecting said mixture to a temperature range between ambient temperature and reflux temperature of sulfonyl chloride for a time period of about 0.1–10 hours; and (c) isolating said quinone.

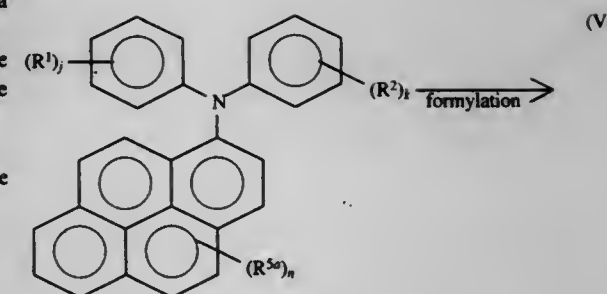
5,672,726
METHOD FOR SEPARATING AND PURIFYING α -LINOLENIC ACID FROM PERILLA OIL
 Su-Noh Ryu, Chungchongnam-do; Jung-Il Lee, Seoul; Bo-Young Jeong, Tongyoeng, and Han-Sun Hur, Suwon, all of Rep. of Korea, assignors to Republic of Korea Represented by Rural Development Administration, Suwon, Rep. of Korea
 Filed Aug. 9, 1995, Ser. No. 512,829
 Claims priority, application Rep. of Korea, Dec. 9, 1994, 1994-33544

Int. Cl.⁶ C07C 1/60 5 Claims
 U.S. Cl. 554—20



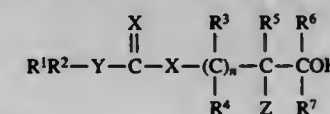
1. A method for separating and purifying α -linolenic acid (ALA) from ALA-containing fatty acid mixtures by using a column chromatography, comprises the steps of:

packing a column with silver nitrate ($AgNO_3$)-impregnated silica gel as a stationary phase; passing the ALA-containing fatty acid mixtures through the column to adsorb the fatty acids to the stationary phase in the form of Ag^+ -complexes; eluting the fatty acids with acetone-hexane mixtures; and collecting the fractions containing ALA having a purity of more than 95%.



5,672,727
DITHIOCARBAMOYL DIOLS AND BORATE ESTERS THEREOF FOR USE IN LUBRICANT COMPOSITIONS
 I-Ching Chiu, Houston, Tex., assignor to Pennzoil Products Company, The Woodlands, Tex.
 Division of Ser. No. 851,265, Mar. 13, 1992, Pat. No. 5,560,853, which is a continuation of Ser. No. 574,714, Aug. 30, 1990, abandoned. This application Jun. 20, 1996, Ser. No. 667,174
 Int. Cl.⁶ C07C 333/04; 333/06; 333/08

U.S. Cl. 558—236 8 Claims
 1. An alkyldithiocarbamoyl alkanol of the formula



wherein

Z is OH or H;

Y is N,

X is S;

R^1 and R^2 are, independent of one another, selected from the group consisting of H, (C_1-C_{40}) hydrocarbon group and (C_3-C_{50}) cycloalkyl, aryl and aralkyl, but only one of R^1 and R^2 can be H;

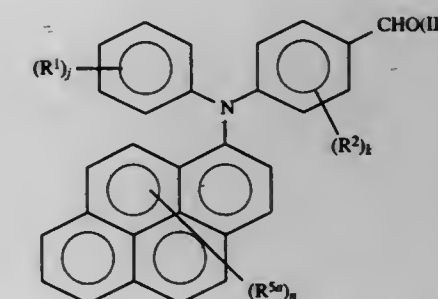
R^3 , R^4 , R^5 , R^6 and R^7 are, independent of one another, selected from the group consisting of H and (C_1-C_6) hydrocarbon group; and n is 0 to 4.

5,672,728
METHOD FOR PREPARING THE PYRENYLAMINE DERIVATIVES

Chiaki Tanaka, Shizuoka-ken; Masaomi Sasaki, Susono; Tamotsu Aruga, Mishima; Tomoyuki Shimada, Shizuoka-ken, and Hiroshi Adachi, Numazu, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan
 Division of Ser. No. 427,124, Apr. 24, 1995, Pat. No. 5,576,132, which is a division of Ser. No. 260,920, Jun. 15, 1994, Pat. No. 5,459,275, which is a continuation-in-part of Ser. No. 77,444, Jun. 17, 1993, abandoned, which is a continuation-in-part of Ser. No. 996,080, Dec. 23, 1992, Pat. No. 5,344,985. This application Jul. 11, 1996, Ser. No. 678,690
 Claims priority, application Japan, Dec. 28, 1991, 3-360363; Apr. 15, 1992, 4-121326; Jun. 8, 1992, 4-173818; Jun. 17, 1992, 4-183142; Jul. 17, 1992, 4-213528; Jul. 17, 1992, 4-213529; Aug. 10, 1992, 4-234323; Dec. 3, 1992, 4-350440; Jun. 15, 1993, 5-168513

Int. Cl.⁶ C07C 209/68 3 Claims

U.S. Cl. 558—376
 1. A method of preparing an aldehyde compound of formula (II) comprising the step of subjecting a diphenylaminopyrene compound of formula (VI) to formylation:



wherein R^1 and R^2 each represent hydrogen, a halogen atom, nitro group, cyano group, a dialkylamino group, a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted alkoxy group having 1 to 10 carbon atoms, or a substituted or unsubstituted phenyl group; R^{5a} represents hydrogen, or a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms; and j is an integer of 1 to 5, k is an integer of 1 to 4, n is an integer of 1 to 3, provided that when j , k or n is 2 or more, R^1 , R^2 or R^{5a} may be the same or different.

5,672,729
RECOVERY OF TEREPHTHALATE DIESTERS FROM GLYCOL RESIDUES

Andrius Algimantas Naujokas, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 14, 1996, Ser. No. 696,556
 Int. Cl.⁶ C07C 67/62

U.S. Cl. 560—78 7 Claims

1. A process for recovering terephthalate diester from a first mixture comprising terephthalyl monomers, terephthalyl oligomers and ethylene glycol oligomers comprising the steps of:

- contacting the first mixture with a second mixture comprising an alcohol and an alkali metal hydroxide at a temperature in the range of from 0° C. to the boiling point of the alcohol and a pressure in the range of 0 psig to 100 psig,
- allowing the mixture formed in step a) to react for a period of from 0.5 to 30 minutes, and
- separating the terephthalate diester formed in step b) from the liquid glycol residue.

5,672,730

THIOPROPIONATE SYNERGISTS

Kirkwood Storer Cottman, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

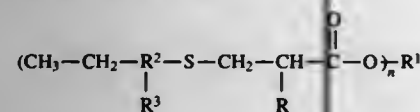
Filed Sep. 22, 1995, Ser. No. 532,972

Int. Cl.⁶ C07C 321/00

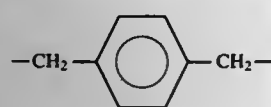
U.S. Cl. 560—152

12 Claims

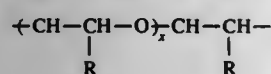
1. A compound of the formula



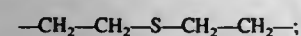
wherein n is 2, R is selected from the group consisting of hydrogen and methyl; R¹ is selected from the group consisting of alkylene radicals having 2 to 18 carbon atoms, cycloalkylene radicals having 5 to 12 carbon atoms, arylene radicals having 6 to 12 carbon atoms,



polyalkyl glycol ether radicals having the following structure



wherein x is an integer from 1 to 7, a thioether radical having the following structure



R² is an alkylene radical selected from the group consisting of 6 and 9 carbon atoms; R³ is an alkyl radical selected from the group consisting of 1 and 4 carbon atoms; with the proviso that the total sum of the number of carbon atoms for R² and R³ equal 10.

5,672,731

N-VINYLFORMAMIDE/ALKYL ACRYLATE MICHAEL ADDUCTS

Ning Chen, Allentown; Walter Louis Renz, Macungie, and Robert Krantz Pinschmidt, Jr., Allentown, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

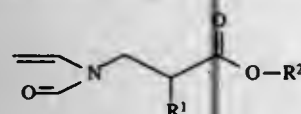
Continuation-in-part of Ser. No. 244,434, May 20, 1994, Pat. No. 5,463,110. This application Sep. 13, 1995, Ser. No. 527,311

Int. Cl.⁶ C07C 229/06

U.S. Cl. 560—172

8 Claims

1. N-vinyl compositions comprising the structural formula:



where R¹ is hydrogen or methyl, and R² is a linear or branched alkyl group containing from 9 to 20 carbon atoms, a cyclic or polycyclic alkyl, fluorinated alkyl, arylalkyl, or alkenyl group, each containing up to 20 carbon atoms.

5,672,732

PROCESS FOR THE CARBONYLATION OF BUTADIENE OR A BUTADIENE DERIVATIVE

Frank P. W. Agterberg, Gelders Overkwartier 9, 6118 EH Susteren; Otto E. Snelken, van Gelre Gulikstraat 61, 6137 HB Sittard, both of Netherlands; Michael B. D'Amore, 2406 Granby Rd., Wilmington, Del. 19810, and Harold S. Bruner, 10 Forest Creek Dr., Hockessin, Del. 19707

Continuation-in-part of Ser. No. 393,313, Feb. 22, 1995. This application Feb. 22, 1996, Ser. No. 605,590

Int. Cl.⁶ C07C 67/36

U.S. Cl. 560—207

16 Claims

1. A process for the preparation of a pentenoic acid or a pentenoate ester by carbonylating butadiene, a butadiene derivative, or a mixture thereof, said process comprising carbonylating said butadiene, butadiene derivative, or mixture thereof, in a reaction mixture in the presence of (i) carbon monoxide, (ii) an alcohol or water, and (iii) a catalyst system comprising palladium, a carboxylic acid, and a monodentate phosphine ligand, wherein in said reaction mixture,

the molar ratio of said butadiene, butadiene derivative, or mixture thereof to said palladium is less than about 70:1, the molar ratio of said carboxylic acid to said palladium is greater than about 10:1, and the molar ratio of said alcohol or water to said butadiene, butadiene derivative, or mixture thereof is less than about 2:1, said molar ratios being substantially maintained throughout said carbonylation.

5,672,733

PROCESS FOR THE PREPARATION OF ISOBORNYL (METH) ACRYLATE

Jean-Michel Paul, Metz, and Gérard Desire, Lens, both of France, assignors to Elf Atochem S.A., Puteaux, France

Filed Dec. 21, 1995, Ser. No. 575,952

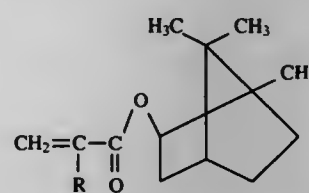
Claims priority, application France, Dec. 22, 1994, 94/15473

Int. Cl.⁶ C07C 69/52

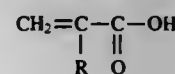
U.S. Cl. 560—220

11 Claims

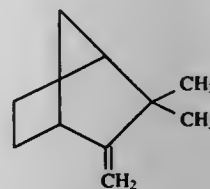
1. In a process for the preparation of isobornyl (meth)acrylate of the formula



in which R is a hydrogen atom or a methyl radical, by reaction of (meth)acrylic acid, of the formula



of the formula



with camphene in the presence of, as a catalyst, an acidic cationic ion exchange resin, the improvement comprising blending (meth)acrylic acid and camphene in a blending tank in order to obtain a mixture and placing the mixture in contact with the catalyst in a cartridge which is separate from the blending tank.

5,672,734

SURFACE IMPREGNATED CATALYST PROCESS FOR THE PRODUCTION THEREOF, AND USE THEREOF FOR THE PREPARATION OF VINYL ACETATE

Roland Abel, Oberhausen, and Karl-Fred Wörner, Hofheim, both of Germany, assignors to Hoechst Aktiengesellschaft, Germany

Division of Ser. No. 276,522, Jul. 18, 1994, Pat. No. 5,622,908.

This application May 17, 1995, Ser. No. 442,781

Claims priority, application Germany, Jul. 16, 1993, 43 23 980.1

Int. Cl.⁶ C07C 67/05

U.S. Cl. 560—245

13 Claims

1. A process for preparing vinyl acetate in the gas phase from ethylene, acetic acid and oxygen or oxygen-containing gases in the presence of a surface impregnated catalyst comprising palladium, potassium and cadmium on porous support particles, wherein the support particles are, while mixing intimately, sprayed once or a plurality of times with at least one solution of at least one salt of each of the three elements in the form of drops having an average diameter of at least 0.3 mm or in the form of liquid jets and are immediately dried after each spraying, with the dynamic viscosity of the solution being at least 0.003 Pa.s and the solution volume in each spraying being from 5 to 80% of the pore volume of the support particles.

5,672,735

PROCESS FOR THE PREPARATION OF A DICARBOXYLIC ACID DI-CHLORIDE

Marina Mauro; Carlo Felice Viscardi; Massimo Gatti, and Nicola Desantis, all of Mozzo, Italy, assignors to Fructamine S.p.A., Italy

Filed May 21, 1996, Ser. No. 651,474

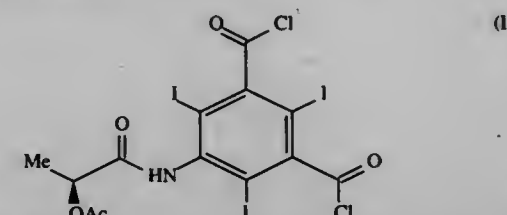
Claims priority, application Italy, May 23, 1995, MI95A1048; Aug. 4, 1995, RM95A0548

Int. Cl.⁶ C07C 67/14; 67/48

U.S. Cl. 560—252

17 Claims

1. Process for the preparation of S-(+)-5-[[2-(acetyloxy)-1-oxopropyl] amino]-2,4,6-triiodo-1,3-benzenedicarboxylic acid dichloride of formula (I)



comprising the reaction between S-(+)-5-[[2-(acetyloxy)] propionic acid chloride and 5-amino-2,4,6-triiodo-1,3-benzenedicarboxylic acid dichloride, in an aprotic dipolar solvent and in presence of a halogenhydric acid.

5,672,736

POLYISOCYANATES CONTAINING ALLOPHANATE GROUPS

Martin Brahm, Engelskirchen; Lutz Schmalstieg, and Josef Pedain, both of Köln, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Nov. 8, 1995, Ser. No. 555,200

Claims priority, application Germany, Nov. 18, 1994, 44 41 176.6

Int. Cl.⁶ C07C 263/00

U.S. Cl. 560—345

21 Claims

1. A process for preparing a polyisocyanate containing allophanate groups by reacting compound a), which

- contains urethane groups, but which is substantially free of hydroxyl groups and isocyanate groups,

- has an average of at least two urethane groups per molecule,
- is prepared by reacting an organic isocyanate a1) with an organic hydroxyl compound a2) and
- has an average molecular weight of at most 2,500, with an excess quantity, based on the urethane groups, of a distillable organic polyisocyanate b) to form a polyisocyanate containing allophanate groups and subsequently removing by distillation the unreacted excess of component b) to a residual content of less than 0.5 wt. %, provided that polyisocyanate a1) and polyisocyanate b) are different.

5,672,737

FRACTIONATION AND PURIFICATION OF MIXTURES OF AROMATIC POLYAMINES AND USE THEREOF

Hartmut Knöfel, Odenthal, and Michael Brockelt, Leverkusen, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 28, 1996, Ser. No. 623,285

Claims priority, application Germany, Apr. 7, 1995, 195 13 119.3

Int. Cl.⁶ C07C 209/86

U.S. Cl. 560—347

14 Claims

1. A process for the fractionation and purification of aromatic polyamine mixtures comprising:

- mixing the polyamine starting mixture in a first extraction stage with a two-phase system comprising
 - a hydrophobic solvent phase which consists essentially of an aromatic auxiliary amine which is slightly soluble in water and exhibits at normal pressure a boiling point which is at least 20° C. below the boiling point of the lowest-boiling component of the starting mixture, and optionally polyamine, and
 - an aqueous phase consisting essentially of water, a strong acid and optionally an auxiliary amine present at least in part in the salt form, and optionally polyamines present at least in part in the salt form,

with said first extraction stage operating on the countercurrent principle, and wherein said polyamine starting mixture is introduced into said first extraction stage with said aqueous phase, with the proviso that the sum of amine equivalents introduced via polyamine mixture, hydrophobic solvent phase and aqueous phase always exceeds the number of acid equivalents introduced via aqueous phase, and with the further proviso that a first aqueous phase and a first organic phase exit said first extraction stage,

- distilling said first organic phase in first distillation stage into
 - a first fraction consisting essentially of auxiliary amine, and
 - a distillation residue consisting essentially of a first polyamine fraction,
- neutralizing said first aqueous phase by adding a base thereto and phase separating the resultant mixture into
 - a second aqueous phase containing the acid in the form of its neutral salt, and
 - a second organic phase consisting essentially of polyamine and auxiliary amine, and
- separating said second organic phase in a second distillation stage into
 - a distillate consisting essentially of auxiliary amine, and
 - a distillation residue consisting essentially of a second polyamine fraction.

5,672,738

PROCESS FOR THE PREPARATION OF 3-(N-ARYL-AMINO)-PROPYL-2'-SULFATOETHYL-SULFONYL COMPOUNDS

Christian Schumacher; Michael Meier, both of Frankfurt am Main, and Werner Hubert Russ, Fürsheim, all of Germany, assignors to Hoechst Aktiengesellschaft, Germany

Filed Nov. 17, 1995, Ser. No. 560,539

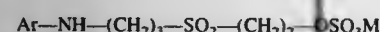
Claims priority, application Germany, Nov. 18, 1994, 44 41 147.2

Int. Cl.⁶ C07F 5/02

U.S. Cl. 562—45

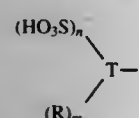
7 Claims

1. A process for the preparation of a compound of the formula (1)



in which

M is an alkali metal or hydrogen and Ar is an aromatic radical of the formula

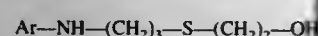


in which

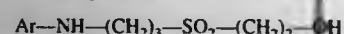
n is a number from 0 to 3, m is a number from 0 to 3.

R is C₁-C₄-alkyl, C₁-C₄-alkoxy, amino, C₁-C₄-alkylamino, di-(C₁-C₄)-alkylamino, C₆-C₁₀-aryl, C₁-C₄-acylamino, ureido, nitro or cyano, where C₁-C₄-alkyl and C₆-C₁₀-aryl optionally are substituted by one to three radicals selected from the group consisting of C₁-C₄-alkoxy, halogen, hydroxy, carboxy, sulfo, sulfato, nitro, cyano and a combination thereof, and

T is a substituted or unsubstituted benzene or substituted or unsubstituted naphthalene which comprises oxidizing a compound of the formula (3)



to give a compound of the formula (4)



and esterifying the compound of the formula (4) with at least one molar equivalent of sulfuric acid, oleum or halosulfonic acid to give a compound of the formula (1).

5,672,739

CLASS OF THREE TAIL SURFACTANTS LAW388

Ramesh Varadaraj, Flemington; Max Leo Robbins, South Orange, and Cornelius Hendrick Bruns, Washington, all of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

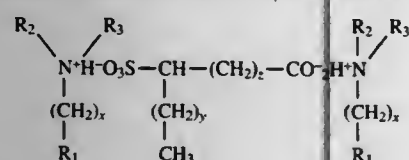
Filed Jul. 12, 1996, Ser. No. 678,837

Int. Cl.⁶ C07C 309/04

U.S. Cl. 562—106

4 Claims

1. A composition of matter having the general formula:



wherein

R₁ is H or an alkoxide of from 5 to about 20 carbon atoms; x is an integer of from about 8 to 22 when R₁=H and from about 2 to 5 when R₁ is an alkoxide

R₂ is selected independently from H, (CH₂CH₂O)_nH, and (CH₂CH(CH₃)O)_nH

R₃ is selected independently from H, (CH₂CH₂O)_nH, and (CH₂CH(CH₃)O)_nH;

m and n are integers from 1 to 50; y and z are integers from 2 to 10.

5,672,740

ALKOXYLATED ALKYL GLYCERYL ETHER SULFONATES AND METHOD OF PREPARING

Ravi Subramanyam, North Brunswick, and Suman Kumar Chopra, Dayton, both of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Division of Ser. No. 311,723, Sep. 28, 1994, Pat. No. 5,516,461, which is a continuation-in-part of Ser. No. 137,450, Oct. 15, 1993, Pat. No. 5,436,366. This application Jun. 6, 1995, Ser. No. 465,778

Int. Cl.⁶ C07C 305/00

U.S. Cl. 562—110

4 Claims

1. A composition comprising

(a) an alkoxyated sulfonated composition having as a major quantity of the alkoxyated components a sodium salt of



wherein R is alkyl or alkenyl of ten to twenty carbon atoms, R' is hydrogen, n has an average value of one, and

(b) a solvent consisting essentially of water,

wherein the solids content of the composition is from above 50 to not more than about 73 wt % of (a) and the viscosity of this said composition is less than or about the same as a composition with 50 wt % solids content.

5,672,741

PROCESS FOR THE HYDROLYSIS OF FLUORINATED SULPHONYL FLUORIDES

Sven Ivar Hommeltoft, Hillerød, and Ole Ekelund, Lyngby, both of Denmark, assignors to Haldor Topsoe A/S, Denmark

Filed Feb. 1, 1996, Ser. No. 593,143

Claims priority, application Denmark, Feb. 8, 1995, 0145/95

Int. Cl.⁶ C07C 303/32

U.S. Cl. 562—113

5 Claims

1. A process for base hydrolysis of a fluorinated sulphonyl fluoride by treatment of the fluoride with at least one mole equivalent of water in a basic solvent for a sufficient time to obtain a salt of a corresponding fluorinated sulphonic acid with the basic solvent and separating the obtained salt from the solution, wherein the basic solvent is selected from the group of tertiary amines.

5,672,742

PROCESS FOR PRODUCING α-(TRIFLUOROMETHYL)ARYLACETIC ACID

Takehiro Sonoi, Kitaibaraki, Japan; Futoshi Masaki, deceased, late of Hitachi, Japan, by Yoshiro Masaki, and Toshio Kubota, Hitachi, Japan, assignors to Nippon Mektron Limited, Tokyo, Japan

Filed Mar. 12, 1996, Ser. No. 615,557

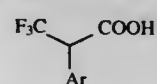
Claims priority, application Japan, Jun. 8, 1995, 7-166967

Int. Cl.⁶ C07C 53/34

U.S. Cl. 562—496

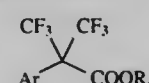
5 Claims

1. A process for producing α-(trifluoromethyl)arylacetic acid, represented by the following general formula:



wherein Ar is an aryl group, which comprises subjecting an α,α-bis(trifluoromethyl)arylacetic acid ester, represented by the follow-

ing general formula:



wherein Ar has the same meaning as defined above and R is a lower alkyl group, an aryl group or a benzyl group, to reaction with a base in the presence of water.

5,672,743

PROCESS FOR THE PRODUCTION OF ACETIC ACID

Carl Sherman Garland, Columbia, Md.; Martin Francis Giles, Middlesex, and John Glenn Sunley, North Humberside, both of England, assignors to BP Chemicals Limited, London, England

Filed Aug. 1, 1994, Ser. No. 284,078

Claims priority, application United Kingdom, Sep. 10, 1993, 9318809; May 5, 1994, 9408966

Int. Cl.⁶ C07C 51/10; 51/12

U.S. Cl. 562—519

29 Claims

1. A process for the production of acetic acid by carbonylation of methanol or a reactive derivative thereof which process comprises contacting methanol or a reactive derivative thereof with carbon monoxide in a liquid reaction composition in a carbonylation reactor characterised in that the liquid reaction composition comprises:

(a) acetic acid, (b) an iridium catalyst, (c) methyl iodide, (d) at least a finite quantity of water, (e) methyl acetate and (f) as promoter, at least one of ruthenium and osmium.

5,672,744

PROCESS FOR THE PREPARATION OF ACETIC ACID

Masahiro Kagotani, and Yasuteru Kajikawa, both of Hyogo, Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed Jun. 2, 1995, Ser. No. 459,161

Claims priority, application Japan, Jun. 2, 1994, 6-121054

Int. Cl.⁶ C07C 51/12

U.S. Cl. 562—519

8 Claims

1. A process for the preparation of acetic acid comprising the steps of:

carbonylating methanol with carbon monoxide in a first reactor in the presence of a reaction fluid comprising a rhodium catalyst, methyl iodide, an iodide salt, methyl acetate and water;

withdrawing a reaction fluid having carbon monoxide dissolved therein from the first reactor and introducing it into a second reactor;

carbonylating methanol in the second reactor with the carbon monoxide dissolved in the reaction fluid at a residence time of from 7 to 30 seconds and a temperature of from 150° to 220° C. and forming a crude acetic acid mixture; and

introducing the crude acetic acid mixture into a flash zone to separate it into a vapor phase and a liquid phase.

5,672,745

METHOD FOR THE CONTINUOUS PREPARATION OF METHIONINE OR METHIONINE DERIVATIVES

Hans-Albrecht Hasseberg, Rodenbach; Klaus Huthmacher, Gelnhausen; Stephan Rautenberg; Heinrich Petsch, both of Hanau, and Horst Weigel, Rodenbach, all of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main 1, Germany

PCT No. PCT/EP93/02838, § 371 Date May 23, 1995, § 102(e) Date May 23, 1995, PCT Pub. No. WO94/08957, PCT Pub. Date Apr. 28, 1994

PCT Filed Oct. 14, 1993, Ser. No. 416,900

Claims priority, application Germany, Oct. 20, 1992, 42 35 295.9

Int. Cl.⁶ C07C 321/00

U.S. Cl. 562—559

18 Claims

1. In process for the production of methionine or a salt thereof by hydrolysis of methionine nitrile to methionine amide in the presence of a ketone, followed by saponification with a base to form a crude methionine product mixture wherein the improvement comprises simultaneously drawing off ammonia, ketone and water at a temperature of ≥85° C. by application of a vacuum or vacuum or by distillation either during and/or after saponification of the amide.

5,672,746

ANTIPROLIFERATIVE AND NEUROTROPHIC MOLECULES

Heinz Nau, Berlin, Germany, and Ciaran M. Regan, Dublin, Ireland, assignors to American Biogenetic Sciences, Inc., Coplague, N.Y., and University College Dublin, Dublin, Ireland

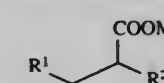
Filed Aug. 30, 1994, Ser. No. 298,108

Int. Cl.⁶ C07C 57/02

U.S. Cl. 562—598

15 Claims

1. Compounds of formula (I)



wherein

R¹ is —C≡CH, —CH=CH₂, or —CH₂—CH₃,

R² is a saturated, unsaturated, branched and/or unbranched C₁-C₃₀ alkyl group, optionally further comprising an aliphatic or aromatic C₃₋₉ cyclohydrocarbon or heterocyclic group comprising 3 to 9 atoms; and

M is a hydrogen or a metal atom,

and enantiomers thereof and pharmaceutical acceptable salts thereof; with the proviso that the compound of formula (I) is not 2-n-propyl-4-pentenoic acid, 2-benzylpentanoic acid, 4,4'-dienvalproic acid or 2-n-propyl-4-pentenoic acid (4-en-VPA), and when R¹ is —CH₂—CH₃, R² is C₅ to C₃₀.

5,672,747

PHOSGENE PROCESS

John E. Stauffer, 6 Pecksland Rd., Greenwich, Conn. 06831

Filed May 17, 1996, Ser. No. 649,157

Int. Cl.⁶ C07C 51/58

U.S. Cl. 562—847

6 Claims

1. A process for the production of phosgene comprising the following steps operated in tandem:

first, reacting perchloroethylene with hydrogen chloride and oxygen in the presence of a first catalyst to give hexachloroethane and water, separating the hexachloroethane, and second, reacting the hexachloroethane from the first step with carbon monoxide in the presence of a second catalyst to produce perchloroethylene and phosgene which is separated from the perchloroethylene before the latter is recycled to the first step.

5,672,748

PROCESS FOR PREPARING TRIFLUOROACETYL FLUORIDE

Frank Ebmeyer, Augsburg; Tobias Metzenthin, Frankfurt, and Günter Slegemund, Hofheim, all of Germany, assignors to Solvay, Brussels, Belgium

Filed Jun. 29, 1995, Ser. No. 496,634

Claims priority, application Germany, Jul. 4, 1994, 44 23 386.8

Int. Cl.⁶ C07C 51/58

U.S. Cl. 562—852

20 Claims

1. A process for preparing trifluoroacetyl fluoride by reacting trichloroacetyl chloride with anhydrous hydrogen fluoride in the gas phase, which comprises using a chromium- and magnesium-containing catalyst which is obtainable by precipitating out chromium (III) hydroxide by reacting 1 mol of a water-soluble chromium (III) salt with at least 1.5 mol of magnesium hydroxide or magnesium oxide in the presence of water, converting the reaction mixture into a paste which contains chromium hydroxide and a magnesium salt and then drying the paste and treating it with hydrogen fluoride at temperatures of 20° to 500° C.

5,672,749

PROCESS FOR PREPARING ACETYL CHLORIDE

W. Bryan Waites, St. Matthews; Robert E. Young, West Columbia, and Phillip R. DeVrou, Orangeburg, all of S.C., assignors to Albemarle Corporation, Richmond, Va.

Filed Apr. 9, 1996, Ser. No. 631,295

Int. Cl.⁶ C07C 51/58

U.S. Cl. 562—863

4 Claims

1. In a process for preparing acetyl chloride by reacting acetic anhydride with hydrogen chloride to form a mixture of acetyl chloride, acetic acid, acetic anhydride, and hydrogen chloride in a reactor, the improvement which comprises improving the yield of acetyl chloride by withdrawing acetyl chloride from the mixture as the reaction proceeds and recycling the remainder of the mixture to the reactor for reaction with additional hydrogen chloride.

5,672,750

PREPARATION OF AROMATIC AMIDES FROM CARBON MONOXIDE, AN AMINE AND AN AROMATIC CHLORIDE

Robert James Perry, Pittsford, N.Y., assignor to Eastman Chemical Company, Kingsport, Tenn.

Continuation of Ser. No. 357,897, Dec. 16, 1994, abandoned.

This application May 31, 1996, Ser. No. 656,594

Int. Cl.⁶ C07C 231/10; C07D 209/49

U.S. Cl. 564—132

23 Claims

1. A process for preparing an aromatic amide, said process comprising reacting:

(A) carbon monoxide;

(B) a primary or secondary amine having the structure:



wherein x is 1, 2 or 3; R is selected from the group consisting of an alkyl group having 2 to 23 carbon atoms and an aryl group having 6 to 14 carbon atoms; and R¹ is selected from the group consisting of hydrogen, an alkyl group having 1 to 20 carbon atoms and an aryl group having 5 to 14 carbon atoms; and

(C) an aromatic chloride having the following structure:



wherein y is 1, 2, or 3; z is 1 or 2; R² is selected from the group consisting of an alkyl group having 1 to 20 carbon atoms and an aryl group having 5 to 10 carbon atoms; and Ar is an aromatic

nucleus, provided that either R² or Ar contains at least one electron withdrawing group in addition to the chlorine, said electron withdrawing group having a Hammett sigma constant with a value greater than 0.10 and excluding halogen,

wherein said process is conducted at less than 30 psig carbon monoxide in the presence of an iodide salt, a transition metal catalyst, and a base, provided that the iodide salt is present in an amount of 0.01 to 5 equivalents based on the equivalents of aromatic chloride, the transition metal catalyst is present in an amount of 0.005 to 0.2 equivalents based on the equivalents of aromatic chloride, and the base is present in an amount of 0.1 to 100 equivalents based on the equivalents of aromatic chloride.

5,672,751

METHOD FOR PRODUCING ALKYL-SULFINYL-BENZAMIDES AND 1,2-BENZISOTHAZOL-3-ONES

Hirokazu Kagan; Hiroshi Goda, and Shigeki Sakaue, all of Kako-gun, Japan, assignors to Sumitomo Seika Chemicals Co., Ltd., Hyogo, and Sumitomo Chemical Co., Ltd., Osaka, both of Japan

Division of Ser. No. 342,038, Nov. 17, 1994, Pat. No.

5,508,416. This application Dec. 29, 1995, Ser. No. 581,109

Claims priority, application Japan, Nov. 24, 1993, 5-319179;

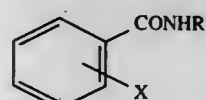
Dec. 29, 1993, 5-350932

Int. Cl.⁶ C07C 319/12

U.S. Cl. 564—162

5 Claims

1. A method for producing an alkylthiobenzamide represented by the general formula (II), comprising carrying out a reaction of a halobenzamide represented by the following general formula (I):



(I)

wherein X represents Cl or Br, and R¹ represents a hydrogen atom, or an alkyl group having 1 to 4 carbon atoms, an aryl group, or an aralkyl group,

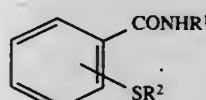
with an alkanethiol represented by the following general formula (II):



(II)

wherein R² represents an alkyl group having 1 to 4 carbon atoms, in the presence of a base and a phase-transfer catalyst in a heterogeneous solvent,

to give an alkylthiobenzamide represented by the following general formula (III):



(III)

wherein R¹ and R² are defined as above.

5,672,752

LIQUID ALKYLATED DIPHENYLAMINE ANTIOXIDANT

John T. Lal, Broadview Heights, and Deborah S. Filla, Twinsburg, both of Ohio, assignors to The BFGoodrich Company, Richfield, Ohio

Filed Sep. 13, 1995, Ser. No. 527,475

Int. Cl.⁶ C07C 209/68

U.S. Cl. 564—409

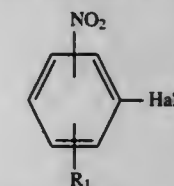
12 Claims

1. A process for alkylating diphenylamine, comprising: reacting unsubstituted diphenylamine with one or more linear olefins having from 6 to 18 carbon atoms and unsaturation between the first and second carbon atom in the presence of a clay catalyst at a temperature from about 130° to about 200° C. for at least one hour with a diphenylamine:linear olefin

mole ratio of from about 1:1 to about 1:1.9, and wherein said unsubstituted diphenylamine has less than 20 weight percent of monosubstituted diphenylamine and disubstituted diphenylamine, and

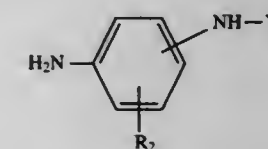
forming a mixture of diphenylamine and alkylated diphenylamines having at least 50 weight percent monoalkyl substituted diphenylamine, less than 50 weight percent of dialkyl-substituted diphenylamine, and from about 0.01 to about 5 weight percent of unsubstituted diphenylamine and wherein said weight percents are based on said mixture of diphenylamine and alkylated diphenylamine.

which process comprises reacting a compound of formula



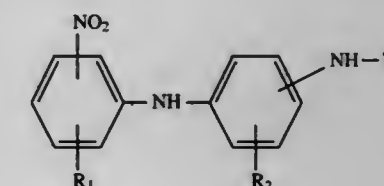
(2)

wherein Hal is halogen and R₁ has the meaning given above, with a compound of formula



(3)

in the presence of an alkali metal hydroxide, an alkali metal carbonate or an alkaline earth metal oxide, wherein Y is a saponifiable group and R₂ has the meaning given above, to give the compound of formula



(4)

wherein R₁, R₂ and Y have the meanings given above, and saponifying the compound of formula (4) to give the compound of formula (1).

5,672,753 METHOD OF PRODUCING RACEMIC AMINO ALCOHOLS

Karlheinz Drauz, Freigericht; Wilfried Jahn, Gelnhausen, and Michael Schwarm, Alzenau, all of Germany, assignors to Degussa Aktiengesellschaft, Germany

Filed Feb. 21, 1996, Ser. No. 603,554

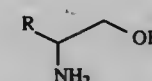
Claims priority, application Germany, Feb. 21, 1995, 195 05 992.1

Int. Cl.⁶ C07C 209/40

U.S. Cl. 564—394

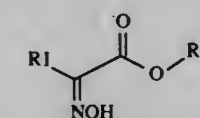
10 Claims

1. A method of producing racemic amino alcohols of general formula I



(I)

wherein R₁ is a straight-chain, branched or cyclic alkyl-, arylalkyl- or aryl group with up to 20C atoms, comprising reducing α-oximino carboxylic acids or their esters of general formula III



(III)

wherein R₁ has the meaning indicated above and R₂ stands for hydrogen or an alkyl group with up to four C atoms, wherein reduction is carried out with an alkali boron hydride in conjunction with hydrogen chloride or sulfuric acid as activator in a solvent.

5,672,754

PROCESS FOR THE PREPARATION OF AMINODIPHENYLAMINE COMPOUNDS

Guido Jordine, Frelburg, Germany, assignor to Ciba-Geigy Corporation, Tarrytown, N.Y.

Filed Sep. 15, 1995, Ser. No. 528,586

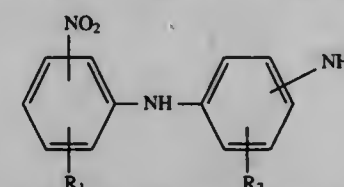
Claims priority, application Switzerland, Sep. 16, 1994, 2839/94

Int. Cl.⁶ C07C 209/50

U.S. Cl. 564—414

12 Claims

1. A process for the preparation of a compound of formula



(1)

in an aqueous medium, wherein R₁ is hydrogen, C₁-C₄-alkyl or sulfo, and R₂ is hydrogen or C₁-C₄-alkyl,

5,672,755 PROCESS FOR THE PURIFICATION OF (RR,SS)-2-DIMETHYL-AMINOMETHYL-1-(3-METHOXYPHENYL)CYCLOHEXANOL AND ITS SALTS

Ori Lerman, Ramat Gan; Michael Tennenbaum, Rosh Haayin; Erez Gal, and Joseph Kaspi, both of Givataim, all of Israel, assignors to Chemagis Ltd., Bnei Brak, Israel

Filed Nov. 14, 1996, Ser. No. 746,575

Claims priority, application Israel, Dec. 7, 1995, 116281

Int. Cl.⁶ C07C 209/82

U.S. Cl. 564—425

14 Claims

1. A process for the purification and isolation of (RR,SS)-2-dimethylaminomethyl-1-(3-methoxyphenyl)cyclohexanol from mixtures also containing the (RS,SR) isomer comprising:

- reacting the above mixture in a solvent at elevated temperature under acidic conditions, whereby the (RS,SR) isomer is selectively converted to the (RR,SS) isomer, 1-(3-methoxyphenyl)-2-dimethylaminomethylcyclohex-6-ene, 1-(3-methoxyphenyl)-2-dimethyl-aminomethylcyclohex-1-ene or a mixture thereof;
- selectively precipitating the desired (RR,SS) isomer as an amine acid salt; and
- recrystallizing the purified product.

5,672,756

TRIPHENYLAMINE COMPOUND FOR USE IN ELECTROPHOTOGRAPHIC PHOTOCONDUCTORS

Tomoyuki Shimada, Shizuoka-ken; Mamomi Sasaki, Susono; Tamotsu Aruga, Mishima; Masafumi Ohta, Susono; Mitsutoshi Anzal, and Akihiro Imai, both of Kawasaki, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, and Hodogaya Chemical Co., Ltd., Kawasaki, both of Japan

Division of Ser. No. 528,093, Sep. 14, 1995, Pat. No. 5,604,065.

This application Jul. 25, 1996, Ser. No. 686,711

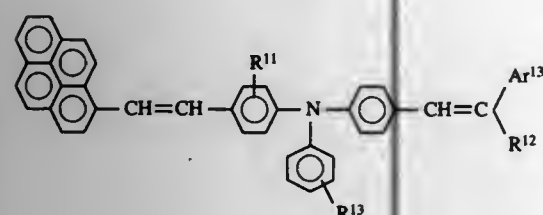
Claims priority, application Japan, Sep. 14, 1994, 6-247261; Sep. 14, 1994, 6-247262; Sep. 11, 1995, 7-258173; Sep. 11, 1995, 7-258174

Int. Cl.⁶ C07C 211/54

U.S. Cl. 564—426

6 Claims

I. A triphenylamine compound of formula (II):



wherein Ar¹³ is an aryl group which may have a substituent; R¹¹ and R¹³ each is a hydrogen atom, an alkyl group or an alkoxy group; and R¹² is a hydrogen atom, an alkyl group which may have a substituent, or an aryl group which may have a substituent.

5,672,757

N-METHYLDEACETYLCHOLICINAMIDE DERIVATIVES

Kiyoshi Akiyama, Komatsu, Japan, assignor to Ohgen Research Laboratories, Ltd., Ishikawa-ken, Japan

Division of Ser. No. 367,999, Jan. 3, 1995, Pat. No. 5,523,320,

which is a continuation of Ser. No. 49,851, Apr. 23, 1993,

abandoned. This application Mar. 1, 1996, Ser. No. 609,687

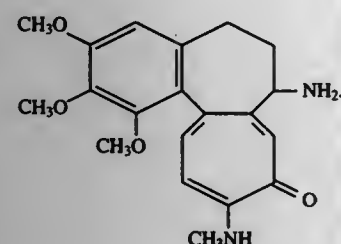
Claims priority, application Japan, Jan. 20, 1993, 5-24754

Int. Cl.⁶ C07C 225/20

U.S. Cl. 564—427

1 Claim

I. A compound of the formula



5,672,758

BISAMINOTHIOPHENOL COMPOUND, PROCESS FOR PRODUCING THE SAME AND CURING AGENT FOR FLUORINE-CONTAINING ELASTOMER COMPRISING THE SAME

Takehiro Sonoi, Haruyoshi Tatsu, both of Ibaraki, Japan; Lev Solomonovich German, deceased, late of Moscow, Russian Federation, by Elena N. German, executrix, and Valerii Romanovich Polishchuk, deceased, late of Lod, Israel, by Margarita Polishchuk, executrix, assignors to Nippon Mektron, Limited, Tokyo, Japan

Filed Oct. 31, 1995, Ser. No. 550,870

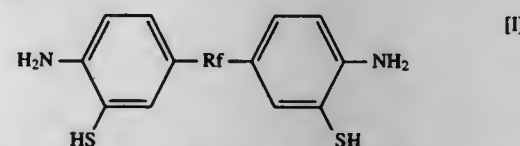
Claims priority, application Japan, Nov. 17, 1994, 6-308199

Int. Cl.⁶ C07C 323/34

U.S. Cl. 564—440

5 Claims

I. A bisaminothiophenol compound represented by the following general formula [I]:



wherein R_f is a perfluoroalkylidene group having 1 to 10 carbon atoms.

5,672,759

DYE COMPOSITION FOR KERATINIC FIBRES CONTAINING SULFURED METAPHENYLENEDIAMINES, DYEING PROCESS AND NEW SULFURED METAPHENYLENEDIAMINES AND PREPARATION METHOD THEREOF

Alex Junino, Livry-Gargan; Alain Genet, Aulnay-sous-Bois, and Alain Lagrange, Chaton, all of France, assignors to L'Oreal, France

Division of Ser. No. 456,814, Jun. 1, 1995, Pat. No. 5,534,037,

which is a continuation of Ser. No. 133,051, Oct. 13, 1993,

abandoned. This application Jan. 19, 1996, Ser. No. 605,264

Claims priority, application France, Feb. 14, 1992, 92 01704;

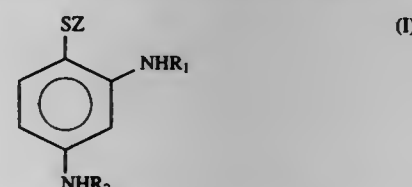
Feb. 14, 1992, 92 01705

Int. Cl.⁶ C07C 323/32; 233/03

U.S. Cl. 564—440

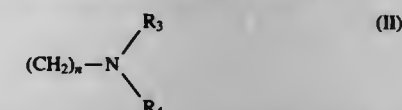
2 Claims

I. A sulfur-containing meta-phenylenediamine having the formula



wherein

Z represents C₁—C₁₈ alkyl, aralkyl wherein the alkyl moiety has 1—6 carbon atoms, C₁—C₆ monohydroxyalkyl, C₂—C₆ polyhydroxyalkyl, aryl, aminoalkyl having the formula



wherein n is an integer ranging from 1 to 6 and R₃ and R₄, each independently, represent hydrogen, C₁—C₄ alkyl, C₁—C₄ hydroxyalkyl or C₂—C₆ acyl;

R₁ and R₂, each independently, represent hydrogen, C₁—C₆ alkyl, C₁—C₆ monohydroxyalkyl, C₂—C₆ polyhydroxyalkyl, C₁—C₆ monocarbonylalkyl, C₂—C₆ dicarbonylalkyl, C₁—C₆ aminoalkyl, C₂—C₆ acyl, C₂—C₆ carbalkoxy, carbamyl or mono(C₁—C₆)alkylcarbamyl, with the proviso that R₁ and R₂ do not simultaneously represent hydrogen when Z represent alkyl or hydroxyalkyl; or

an acid addition salt of said sulfur-containing metaphenylenediamine of formula (I).

X is chloride, bromide or iodide, and n is 1 to the total number of replaceable hydrogens in R.

5,672,760

ABLATIVELY PHOTODECOMPOSABLE COMPOSITIONS

Francis Charles Burns, Apalachin, N.Y.; William Weathers Fleming, Virginia Beach, Va.; Victor Yee-Way Lee, San Jose, Calif., and Randy William Snyder, Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 476,760, Jun. 7, 1995. This application

Apr. 9, 1996, Ser. No. 629,649

Int. Cl.⁶ C07C 317/32

U.S. Cl. 564—440

1 Claim

I. A method for making 4-[(2-hydroxyethyl)ethylamino]-4'-(trifluoromethylsulfonyl)tolane comprising the following steps:

- first providing (2-hydroxyethyl)ethylaniline;
- iodinating the (2-hydroxyethyl)ethylaniline to produce 4-[(2-hydroxyethyl)ethylamino]iodobenzene;
- adding a trimethylsilyl group to the 4-[(2-hydroxyethyl)ethylamino]iodobenzene to produce 4-[(2-trimethylsiloxyethyl)ethylamino]iodobenzene;
- substituting a trimethylsilyl group for the iodo group on 4-[(2-trimethylsiloxyethyl)ethylamino]iodobenzene to produce 4-[(2-trimethylsiloxyethyl)ethylamino]trimethylsilylbenzene;
- removing the trimethylsilyl groups on the 4-[(2-trimethylsiloxyethyl)ethylamino]trimethylsilylbenzene to produce 4-[(2-hydroxyethyl)ethylamino]ethynylbenzene;
- adding 4-trifluoromethylsulfonyl benzene to 4-[(2-hydroxyethyl)ethylamino]ethynylbenzene to produce 4-[(2-hydroxyethyl)ethylamino]-4'-(trifluoromethylsulfonyl)tolane.

5,672,761

METHOD FOR REDUCING THE VISCOSITY OF HIGH VISCOSITY POLYETHER POLYOLS

Rick L. Adkins, New Martinsville, and William E. Slack, Moundsville, both of W. Va., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed May 2, 1996, Ser. No. 642,140

Int. Cl.⁶ C07C 209/16

U.S. Cl. 564—475

4 Claims

I. A method for reducing the viscosity of a polyether polyol comprising

- converting at least one terminal hydroxyl group of a polyether polyol characterized by a viscosity greater than 500 mPa·s at 25° C. and at least 20% terminal propylene oxide groups to a leaving group, and
- reacting the product of a) with a primary amine or ammonia at a temperature of from about 70° to about 250° C.

5,672,762

HYDROGENATION OF NITRILES TO TERTIARY AMINES

Gamini Ananda Vedage, Bethlehem, and John Nelson Armor, Orefield, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Apr. 12, 1996, Ser. No. 631,280

Int. Cl.⁶ C07C 209/48

U.S. Cl. 564—490

20 Claims

I. In a process for producing tertiary amines in the catalytic hydrogenation of a saturated or unsaturated aliphatic nitrile comprising contacting the nitrile with hydrogen in the presence of a hydrogenation catalyst, the improvement which comprises:

adding an organic halide having the formula RX_n, wherein R is an aliphatic or aromatic group having 1 to 10 carbon atoms,

PROCESS FOR THE PREPARATION OF 2-SUBSTITUTED CYCLOPENTANONES

Nikolaus Müller, Monheim, and Thomas Essert, Overath, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jun. 21, 1996, Ser. No. 668,959

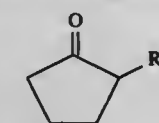
Claims priority, application Germany, Jun. 28, 1995, 195 23 448.0

Int. Cl.⁶ C07C 45/45

U.S. Cl. 568—355

9 Claims

I. A process for the preparation of a 2-substituted cyclopentanone of the formula



in which R¹ represents straight-chain or branched C₁—C₆ alkyl, C₃—C₇ cycloalkyl or unsubstituted or halogen-substituted C₇—C₁₂ aralkyl,

in which an adipic ester of the formula



in which the two R² are identical or different and each represent straight-chain or branched C₁—C₁₀ alkyl, C₇—C₁₂ aralkyl which are unsubstituted or substituted by up to 3 identical or different substituents selected from the group consisting of the halogens and the C₁—C₆ alkyl, C₁—C₆ alkoxy and nitro groups, or C₆—C₁₀ aryl which is unsubstituted or substituted by up to 3 identical or different substituents selected from the group consisting of the halogens and the C₁—C₆ alkyl, C₁—C₆ alkoxy and nitro groups,

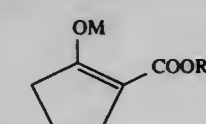
is reacted in the presence of an inert solvent with an alkoxide of the formula (III)



in which M represents an alkali metal or an alkaline earth metal,

R³ represents C₁—C₁₀ alkyl, C₃—C₁₀ cycloalkyl or C₇—C₁₂ aralkyl and

n, depending on the valency of M, represents 1 or 2, a salt of the cyclopentanone-2-carboxylic ester of the formula (IV) is thus obtained



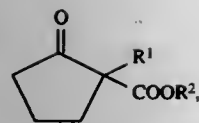
in which R² has the meaning given under formula (II), and M represents one equivalent of an alkali metal or alkaline earth metal,

this, without isolation, is alkylated with an alkylating agent of the formula (V),



in which R¹ has the meaning given under formula (I) and X represents halogen, C₁—C₆ alkylsulphonate, or C₆—C₁₀ arylsulphonate which are unsubstituted or substituted by up to two C₁—C₄ alkyl groups,

a 2-R¹-cyclopentanone-2-carboxylic ester of the formula (VI) is thus obtained



in which

R² has the meaning given under formula (II) and R¹ has the meaning given under formula (I), and this, without isolation, is hydrolyzed and decarboxylated by treating it with an acid and heating to give I in an overall yield of 80% or higher.

5,672,764

SELECTIVE ALDOLIZATION OF ACETONE TO DIACETONE ALCOHOL BY A SOLID BASIC CATALYST
Rémy Teissier, Francheville; Didier Tichit, Montpellier Cedex; François Figueras, and Jacques Kervennal, both of Lyons, all of France, assignors to Elf Atochem S.A., Puteaux, France
Filed Jan. 5, 1996, Ser. No. 584,900

Claims priority, application France, Jan. 6, 1995, 95 00094
Int. Cl.⁶ C07C 45/45

U.S. Cl. 568—388

4 Claims

1. A process for the selective aldolization of acetone to diacetone alcohol which comprises the step of reacting acetone in the presence of a solid basic catalyst which has the general formula:



wherein $0.20 \leq x \leq 0.33$ and $n < 1$.

5,672,765

PROCESS FOR THE PREPARATION OF AROMATIC FLUORINATED COMPOUNDS AND NOVEL DIAMIDES
Albrecht Marhold, Leverkusen, Germany; Marianne Löhr, Selly Oak, United Kingdom, and Heinrich Wamhoff, St. Augustin, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Filed Jul. 14, 1995, Ser. No. 502,341

Claims priority, application Germany, Jul. 22, 1994, 44 26 133.0

Int. Cl.⁶ C07C 45/63

U.S. Cl. 568—426

8 Claims

1. A process for the preparation of aromatic, ring-fluorinated compounds by reaction of corresponding chlorine compounds or bromine compounds with alkali metal fluorides in a solvent, comprising using a diamide as a solvent.

5,672,766

METHOD FOR PRODUCING ALDEHYDES
Tomoyuki Mori; Masaki Takai, and Tomohiko Inoue, all of Okayama, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan
Filed Dec. 7, 1995, Ser. No. 568,970

Claims priority, application Japan, Dec. 12, 1994, 6-307707; Apr. 4, 1995, 7-079052

Int. Cl.⁶ C07C 45/50

U.S. Cl. 568—454

28 Claims

1. A method for producing aldehydes, which comprises reacting an olefinic unsaturated compound with carbon monoxide and hydrogen for hydroformylation in the presence of a rhodium-phosphite complex catalyst to obtain a reaction product solution containing the rhodium-phosphite complex catalyst and an aldehyde product, and separating from the reaction product solution at least one component selected from the group consisting of carbon monoxide, hydrogen, an unreacted olefinic unsaturated compound, the aldehyde product, a solvent, a medium-boiling by-product and

(VI)

a high-boiling by-product by a separating operation, wherein at least one separating operation is carried out substantially in the absence of water, and the temperature and the residence time in the separating operation are selected to be within such ranges that value P calculated from the following formula (1) would be at most 1:

$$P = 5.0 \times 10^3 \times \exp[-5000/(T_1 + 273)] \times \theta T_1 \quad (1)$$

where T₁ is the maximum temperature (°C.) in the separating operation, and θT₁ is the residence time (minutes) of the liquid in the separating operation.

5,672,767

PROCESS FOR PREPARING POLYETHER COMPOUNDS
Richard Dickinson Chambers, Durham, and Andrew Keith Joel, Preston, both of United Kingdom, assignors to BNFL Fluorochemicals Ltd., United Kingdom
Continuation of Ser. No. 332,594, Oct. 26, 1994, abandoned.

This application Jul. 5, 1996, Ser. No. 675,842

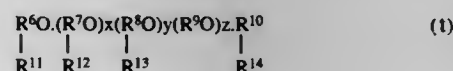
Claims priority, application United Kingdom, Feb. 26, 1993, 9303916; Feb. 26, 1993, 9303917

Int. Cl.⁶ C07G 43/11; C08G 73/24

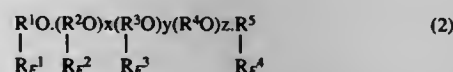
U.S. Cl. 568—615

12 Claims

1. In a process for the preparation of a perfluoropolyether having the formula:



wherein R⁶ to R¹⁴ each represents a fully fluorinated hydrocarbon group, x is an integer and each of y and z is zero or an integer, and the sum of x, y and z is at least 2 and not greater than 100, which process includes direct fluorination with elemental fluorine of a polyether having the formula:



wherein R¹, R², R³, R⁴ and R⁵ each represent substituted or unsubstituted hydrocarbon groups, which groups may differ, R_F¹, R_F², R_F³, and R_F⁴ each represent fluorine-containing hydrocarbon groups containing at least two carbon atoms and at least two fluorine atoms, which groups may differ, or the combination R¹—R_F¹ or the combination R⁵—R_F⁴ or both represent a fluorine-containing alkyl or alkenyl group, x is an integer and each of y and z is zero or an integer, and the sum of x, y and z is at least 2 and not greater than 100,

the improvement wherein the fluorination is carried out in the presence of a solvent which is a fluorinated ether having at least one substituent R_F group, wherein R_F is a fluorinated hydrocarbon group, and wherein under the reaction conditions fluorination of the solvent takes place at the same time as the fluorination of the polyether (2).

5,672,768
LOW-ODOR, HIGHER MOLECULAR WEIGHT POLYETHER POLYOLS, A PROCESS FOR PRODUCING THEM, AND THEIR USE FOR THE PRODUCTION OF POLYMERS, COSMETICS AND PHARMACEUTICAL PRODUCTS SYNTHESIZED FROM POLYETHER POLYOLS

Pramod Gupta, Bedburg; Gundolf Jacobs, Rürsath, both of Germany, and Joël Leuridan, Antwerp, Belgium, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Division of Ser. No. 700,718, Aug. 13, 1996. This application Jan. 8, 1997, Ser. No. 780,760

Claims priority, application Germany, Aug. 18, 1995, 195 30 388.1

Int. Cl.⁶ C07C 43/11; 43/18; 43/20

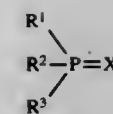
U.S. Cl. 568—621

8 Claims

1. A process for the production of a low odor polyether polyol which may be monofunctional or polyfunctional, and having an average molecular weight of from about 750 to 18,000, and a viscosity at 25° C. of about 40 to 25,000 mPa.s, comprising

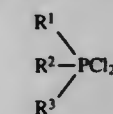
1) distilling an unpurified polyether polyol at temperatures of about 110° to 150° C. and at pressures of about 10 to 70 hPa, wherein about 5 to 30.0% by weight of water, based on the quantity of unpurified polyether polyol present, is metered into said polyether polyol over a time period of about 1 hour up to about 5 hours, said water being in finely divided form and having a droplet diameter of 5 to 100 μ,

wherein the resultant polyether polyol contains a) less than about 1.5 ppm of 2-methyl-2-pentenal, b) less than about 1.0 ppm of allyl alcohol, c) less than about 15 ppm of allyloxypropanol, d) less than about 50 ppm of dipropylene glycol allyl ether, and e) less than about 1.0 ppm of propionaldehyde.

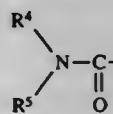


in which X denotes an oxygen or sulphur atom and R¹, R² and R³, which are identical or different, denote a substituted or unsubstituted aromatic radical,

the trisubstituted phosphine dichlorides of general formula (II)



in which R¹, R² and R³ have the abovementioned meaning, the formamides of general formula (III)



in which each of R⁴ and R⁵, which are identical or different, denotes a C₄–C₁₀ aliphatic radical or a cyclohexyl radical, the products of reaction of the formamides of formula (III) with chlorinating agents, and mixtures thereof.

5,672,769

FATTY ACID ANALOGS AND PRODRUGS
Sean T. Nugent, Grayslake, and Richard A. Mueller, Glencoe, both of Ill., assignors to G. D. Searle & Co., Skokie, Ill.

Continuation of Ser. No. 410,450, Aug. 24, 1995, Pat. No. 5,599,947, which is a continuation-in-part of Ser. No. 4,370, Jan. 14, 1993, abandoned. This application Nov. 4, 1996, Ser. No. 743,584

Int. Cl.⁶ C07C 43/04

U.S. Cl. 568—496

5 Claims

1. A compound of the formula (CH₃O(CH₂)₇—X—(CH₂)₃—Y wherein X is CH₂ or O, and Y is COCH₃ or CH₂OH.

5,672,770

PROCESS FOR THE PREPARATION OF METHYL 1,1-DICHLOROMETHYL ETHER OR OF ETHYL 1,1-DICHLOROMETHYL ETHER

Annick Dabec, Itteville; Patricia Gauthier, Cerny, and Jean-Pierre Senet, Buthiers, all of France, assignors to Societe Nationale des Poudres et Explosifs, Paris Cedex, France
Filed Oct. 19, 1995, Ser. No. 545,478

Claims priority, application France, Nov. 4, 1994, 94 13210
Int. Cl.⁶ C07C 43/04; 43/12

U.S. Cl. 568—676

12 Claims

1. Process for the preparation of methyl 1,1-dichloromethyl ether or of ethyl 1,1-dichloromethyl ether, characterized in that methyl formate or ethyl formate is reacted with phosgene, diphosgene, triphosgene or oxalyl chloride, or one of their mixtures, at a temperature of between 40° C. and 100° C., in the presence of a catalyst chosen from the group consisting of:

the trisubstituted phosphine oxides and sulphides of general formula (I)

5,672,771
INTEGRATED PROCESS FOR THE PRODUCTION OF TER-AMYL ALKYL ETHERS

Roberto Trotta, Milan; Gianni Donati, Rho; Renato Paludetto, Pioltello, and Paolo Chiudaroli, S. Donato Milanese, all of Italy, assignors to Enichem S.p.A., Milan, and Snamprogetti S.p.A., S. Donato Milanese
Filed Oct. 23, 1995, Ser. No. 546,989

Claims priority, application Italy, Dec. 21, 1994, MI94A2589
Int. Cl.⁶ C07C 41/32

U.S. Cl. 568—697

15 Claims

1. Integrated process for the production of ter-amyl alkyl ethers which comprises:

- feeding a C₅ hydrocarbon stream, basically consisting of 2-methyl-1-butene and/or 2-methyl-2-butene (reactive isoamylenes), linear pentenes, 3-methyl-1-butene and pentanes to a synthesis section of ter-amyl alkyl ethers together with a stream consisting of an aliphatic alcohol;
- separating the ether produced and the possible non-reacted alcohol from the hydrocarbon stream;
- sending the remaining hydrocarbon stream, in vapour phase, or a fraction thereof, to a separation section with molecular sieves for the separation of the pentanes from the pentenes and recovery of the pentenes;
- sending the hydrocarbon stream containing the recovered pentenes, together with the possible non-fed fraction in step (c), to a skeleton isomerization section for the transformation of the linear pentenes to reactive isoamylenes;
- recycling the isomerized stream to the synthesis reactor of the ter-amyl alkyl ether after mixing with the charge C₅ hydrocarbon stream.

5,672,772

PROCESS FOR REMOVAL OF NITRILES FROM ETHERIFICATION FEEDSTOCKS

Stanley J. Frey, Palatine; Paul R. Cottrell, Arlington Heights, and David A. Hamm, Hinsdale, all of Ill., assignors to UOP, Des Plaines, Ill.

Continuation-in-part of Ser. No. 237,532, May 3, 1994, Pat. No. 5,569,790. This application Apr. 10, 1996, Ser. No.

630,288

Int. Cl.⁶ C07C 41/00

U.S. Cl. 568—699

18 Claims

1. A process for the removal of nitriles including acetonitrile, propionitrile and mixtures thereof from an etherification zone feedstream comprising C₄–C₆ hydrocarbons and said nitriles, said process comprising:

- passing said feedstream at water wash conditions including a water wash temperature to a water wash zone and contacting therein said feedstream with a regenerated water stream to provide a hydrocarbon feedstream depleted in said nitriles and spent water stream enriched in said nitriles relative to said regenerated water stream;
- passing at least a portion of said spent water stream at water regeneration conditions including a water regeneration temperature to a water regeneration zone and contacting therein a nitrile-lean stream to absorb at least a portion of said nitriles from the spent water stream and to provide a nitrile-rich raffinate stream and a nitrile-lean water stream; and
- admixing at least a portion of the nitrile-lean water stream with a make up water stream to provide the regenerated water stream and introducing said regenerated water to the water wash zone.

5,672,773

Patent Not Issued For This Number

5,672,774

PHENOL TAR PROCESSING METHOD

Arkady S. Dyckman; Vadim P. Boyarsky, both of St. Petersburg; Alexander S. Malinovsky, Novokuibishevsk; Yuri I. Petrov, Novokuibishevsk; Leontii M. Krasnov, Novokuibishevsk; Andrey V. Zinenkov, St. Petersburg; Boris I. Gorovits, St. Petersburg; Sergey N. Chernukhin, St. Novokuibishevsk; Anatoly D. Sorokin, Novokuibishevsk, all of Russian Federation, and John W. Fulmer, Mt. Vernon, Ind., assignors to General Electric Company, Pittsfield, Mass.

Filed Oct. 24, 1995, Ser. No. 547,252

Int. Cl.⁶ C07C 37/68

U.S. Cl. 568—749

10 Claims

1. A method for recovery of valuable products from phenol tar, obtained from a phenol and acetone manufacturing process, comprising charging a phenol tar into a thermocracking process column-type reactor, heating the bottoms of the reactor to a temperature of from 200° C. to 360° C., maintaining the reactor at a pressure of from 0.1 to 5 atmospheres absolute and cracking the tar in the presence of 0.1 to 1.0 weight percent of phosphoric acid preferably 0.1–0.2 wt %, preheated to 50° C.–180° C., with such phosphoric acid being added whereby it dehydrates and polymerizes to its non-volatile polyphosphoric acid analogs.

5,672,775

METHOD OF SEPARATING PHENOL FROM HIGHLY CONCENTRATED PHENOL SOLUTION

Huen Lee, and Ji-Ho Yoon, both of Taejon, Rep. of Korea, assignors to Korea Advanced Institute of Science and Technology, Taejon, Rep. of Korea

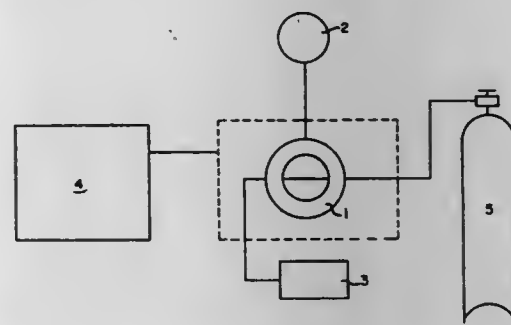
Filed Jan. 29, 1996, Ser. No. 591,964

Claims priority, application Rep. of Korea, Feb. 14, 1995, 95-2670

Int. Cl.⁶ C07C 37/70

U.S. Cl. 568—749

5 Claims



1. A method of separating phenol from a highly concentrated phenol solution which comprises the step of forming a solid clathrate of phenol by adding high pressure carbon dioxide to the phenol solution.

5,672,776

METHOD FOR PURIFYING 1,1,1-TRIS(4-HYDROXYPHENYL)-ALKANES

Patrick Joseph McCloskey, Watervliet, and Julia Lam Lee, Niskayuna, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 27, 1996, Ser. No. 722,282

Int. Cl.⁶ C07C 37/68;39/12

U.S. Cl. 568—756

15 Claims

1. A method for further purifying a tris(4-hydroxyphenyl)alkane of at least about 90% by weight purity which comprises: forming an adduct by contacting said tris(4-hydroxyphenyl)alkane with a molar excess of a C₁₋₄ primary alkyl tertiary amine, and recovering purified tris(4-hydroxyphenyl)alkane from said adduct by thermal or aqueous acid-promoted cracking.

5,672,777

CATALYSTS FOR PRODUCTION OF PHENOL AND ITS DERIVATIVES

Alexander Sergeevich Kharitonov; Gennady Ivanovich Panov; Galina Anatolevna Sheveleva; Larisa Vladimirovna Pirutko; Tatyana Pavlovna Voskresenskaya, and Vladimir Ivanovich Sobolev, all of Novosibirsk, Russian Federation, assignors to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 419,361, Apr. 10, 1995, abandoned. This application Feb. 28, 1996, Ser. No. 608,541

Int. Cl.⁶ C07C 37/60

U.S. Cl. 568—800

5 Claims

1. A method for the catalytic production of phenol or derivative thereof comprising reacting benzene or derivative thereof with nitrous oxide in the presence of a zeolite catalyst wherein, prior to said reaction, the catalyst performance has been enhanced by hydrothermal treatment with a gas comprising 3 to 100 mole percent water at a temperature of 350° to 950° C.

5,672,778

PROCESS FOR INCREASED YIELDS OF OXYGENATED PRODUCTS IN TWO-STEP OXIDATION OF HYDROCARBONS

James E. Lyons, Wallingford; Paul E. Ellis, Jr., Downingtown, and Manoj V. Bhinde, Boothwyn, all of Pa., assignors to Sun Company, Inc. (R & M), Philadelphia, Pa.

Continuation-in-part of Ser. No. 398,024, Mar. 3, 1995, Pat. No. 5,550,301, which is a continuation-in-part of Ser. No. 223,090, Apr. 4, 1994, Pat. No. 5,395,988. This application Aug. 26, 1996, Ser. No. 703,423

Int. Cl.⁶ C07C 29/48;31/02;27/10

U.S. Cl. 568—835

57 Claims

1. A method for converting alkanes and alkylaromatics to oxygenated hydrocarbons comprising the steps of:

- oxidizing a feedstock comprising alkane or alkylaromatics, or a combination thereof, to form a first reaction mixture comprising organic hydroperoxide and unreacted feedstock;
- drying said first reaction mixture to obtain a dried reaction mixture in which water comprises approximately 1 weight percent or less of said dried reaction mixture;
- decomposing said organic hydroperoxide in the presence of a catalyst and said unreacted feedstock such that:
 - a first portion of said organic hydroperoxide is decomposed to form a second reaction mixture comprising oxygen and a mixture of oxygenated hydrocarbons comprising alcohol, and
 - a second portion of said organic hydroperoxide is decomposed with concomitant oxidation of said unreacted feedstock to form additional oxygenated hydrocarbons comprising alcohol.

5,672,779

ESTER COMPOUND, ACTIVE AGENT FOR CONTROLLING NOXIOUS INSECT PESTS CONTAINING THE SAME AS ACTIVE INGREDIENT, INTERMEDIATE FOR PRODUCTION OF THE ESTER COMPOUND AND PROCESS FOR PRODUCING THE INTERMEDIATE

Tomonori Iwasaki; Masaya Suzuki; Takashi Furukawa, all of Takarazuka; Kazunori Tsushima, Sanda; Takao Ishiwatari, Minoo, and Toru Tsuchiya, Takarazuka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Division of Ser. No. 294,934, Aug. 23, 1994, Pat. No.

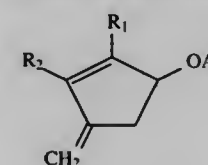
5,550,258. This application May 1, 1996, Ser. No. 641,431
Claims priority, application Japan, Aug. 24, 1993, 5-209742; Jun. 22, 1994, 6-140004

Int. Cl.⁶ C07C 13/12

U.S. Cl. 568—838

6 Claims

1. A compound represented by the formula:



wherein R₁ represents a hydrogen atom or a methyl group; R₂ represents a 1-methyl-2-propenyl group, a 1-methyl-2-propynyl group, a 3,3-dihalogeno-1-methyl-2-propenyl group or a C₁–C₆ alkyl group which may be substituted with at least one halogen atom; and A' represents a hydrogen atom or a protecting group for a hydroxyl group.

5,672,780

PURIFICATION OF ETHYLENE GLYCOL RECOVERED FROM POLYESTER RESINS

William James Gamble, Rochester, and Andrius Algimantas Naujokas, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 26, 1996, Ser. No. 687,822

Int. Cl.⁶ C07C 27/26

U.S. Cl. 568—871

7 Claims

1. A process for removing dimethyl terephthalate contaminants from ethylene glycol recovered from scrap polyester by low pressure methanolysis, the process comprising

- adding an ester exchange catalyst to an otherwise catalyst-free mixture of dimethyl terephthalate and ethylene glycol and
- heating the mixture to convert dimethyl terephthalate to bis(hydroxyethyl) terephthalate.

5,672,781

PROCESS FOR THE PRODUCTION OF FATTY ALCOHOLS BASED ON VEGETABLE FATS AND OILS BY FRACTIONATION

Michael Koehler; Karl-Heinz Schmid, both of Mettmann; Guenther Demmerling, Solingen; Horst-Dieter Komp, Langenfeld, and Hans-Peter Kubersky, Solingen, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP94/03348, § 371 Date May 9, 1996, § 102(e) Date May 9, 1996, PCT Pub. No. WO95/11210, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 12, 1994, Ser. No. 633,733

Claims priority, application Germany, Oct. 20, 1993, 43 35 781.4

Int. Cl.⁶ C07C 29/80;31/125

U.S. Cl. 568—885

2 Claims

1. An improved process for making a fatty alcohol of the formula I

R¹OH

(I)

wherein R¹ is a saturated or unsaturated, linear or branched aliphatic radical having from about 8 to about 22 carbon atoms which comprises hydrogenating a fatty acid, a fatty acid methyl ester or a combination thereof to form a fatty alcohol wherein the improvement comprises removing a head fraction from said fatty acid, said fatty acid methyl ester or said fatty alcohol in such a quantity that said fatty alcohol has an iodine value of from about 20 to about 110 and less than about 4.5% by weight of conjugated compounds.

5,672,782

PROCESS FOR PRODUCING TERTIARY ALCOHOL AND FOR PREPARING CATALYST THEREFOR

Akitaka Hattori; Kazuhiro Nakamura; Tomohiro Washiyama, all of Mie-ken; Takao Kato, Chiba-ken; Toshihiro Saito, Tokyo, and Shoji Arai, Mie-ken, all of Japan, assignors to Tosoh Corporation, Yamaguchi-ken, Japan

Continuation of Ser. No. 86,890, Jul. 7, 1993, abandoned. This application Aug. 16, 1994, Ser. No. 291,022

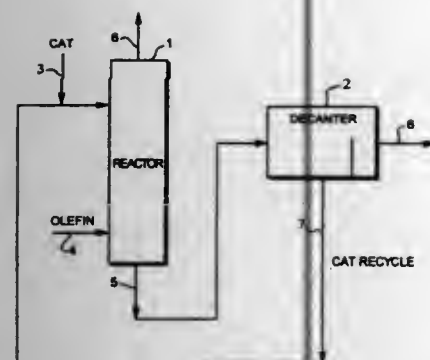
Claims priority, application Japan, Jul. 13, 1992, 4-206953; Dec. 14, 1992, 4-332961

Int. Cl.⁶ C07C 29/04

U.S. Cl. 568—899

7 Claims

1. A process for preparing a tertiary alcohol comprising hydrating an olefin in the presence of polystyrenesulfonic acid or poly-



vinylsulfonic acid as a catalyst in liquid form which is soluble in water or the olefin.

5,672,783

METHOD FOR PRODUCING 3,7-DIMETHYL-5,7-OCTADIENE-1-OL OR ROSE OXIDE

Hiroyuki Matsuda, Kanagawa, and Takashi Yamamoto, Tokyo, both of Japan, assignors to Takasago International Corporation, Tokyo, Japan

Filed Aug. 29, 1996, Ser. No. 705,205

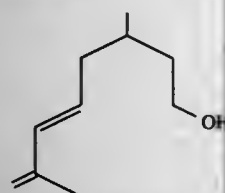
Claims priority, application Japan, Aug. 29, 1995, 7-242393

Int. Cl.⁶ C07C 29/00

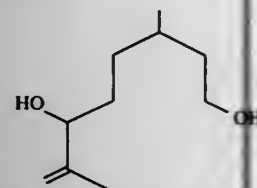
U.S. Cl. 568-903

4 Claims

1. A method for producing 3,7-dimethyl-5,7-octadiene-1-ol having the chemical formula:



characterized in that 3,7-dimethyl-6-hydroxy-7-octene-1-ol having the chemical formula:



is dehydrated in the presence of a zero-valent or divalent phosphine-palladium complex.

5,672,784

SYNTHESIS OF TETRAFLUOROETHYLENE

Patrick Michael Murphy, Parkersburg, W. Va.; Henry Max Schleinitz, Kennett Square, Pa., and David John Van Bramer, Belpre, Ohio, assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 390,017, Feb. 17, 1995, abandoned. This application May 6, 1996, Ser. No. 643,687

Int. Cl.⁶ C07C 17/04

U.S. Cl. 570-159

6 Claims

1. Process comprising pyrolyzing CF_3HCl to obtain tetrafluoroethylene as desired reaction product and C_2F_6 as undesired reaction product, and further comprising co-feeding C_2F_6 along with said CF_3HCl to the pyrolysis reaction in an amount effective to reduce the formation of C_2F_6 as said undesired reaction product, essentially without consuming C_2F_6 in the pyrolysis reaction, thereby

increasing the yield of said tetrafluoroethylene reaction product, said CF_3HCl and said C_2F_6 co-fed with said CF_3HCl being the essential compounds fed to the pyrolysis reaction, said pyrolysis reaction being carried out under a total pressure of 0.8 to 1.2 atmospheres to a conversion of CF_3HCl of from 10% to 50%, the concentration of said C_2F_6 being 5% to 10% based on the combined weight of C_2F_6 and CF_3HCl .

5,672,785

PROCESS FOR PRODUCING 1,1-DICHLORO-1,2,2,2-TETRAFLUOROETHANE

Shinsuke Morikawa, Yokohama; Shunichi Samejima, Tokyo; Masaru Yoshitake, Yokohama, and Shin Tatematsu, Tokyo, all of Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Continuation of Ser. No. 139,881, Oct. 22, 1993, abandoned, which is a continuation of Ser. No. 873,684, Apr. 24, 1992, abandoned, which is a continuation of Ser. No. 496,179, Mar. 20, 1990, abandoned, which is a continuation of Ser. No. 275,388, Nov. 23, 1988, abandoned. This application Feb. 17, 1995, Ser. No. 390,422

Claims priority, application Japan, Nov. 26, 1987, 62-296182

Int. Cl.⁶ C07C 17/37; 17/358; 17/20

U.S. Cl. 570-163

14 Claims

1. A process for producing 1,1-dichloro-1,2,2,2-tetrafluoroethane, which comprises:

- 1) isomerizing and disproportionating 1,1,2-trichloro-1,2,2-trifluoroethane to form a mixture comprising 1,1,1-trichloro-2,2,2-trifluoroethane, 1,1,1,2-tetrachloro-2,2-difluoroethane and 1,1-dichloro-1,2,2,2-tetrafluoroethane;
- 2) introducing said mixture from step 1) into a reactor; and
- 3) fluorinating said mixture from step 1) comprising 1,1,1-trichloro-2,2,2-trifluoroethane, 1,1,1,2-tetrachloro-2,2-difluoroethane and 1,1-dichloro-1,2,2,2-tetrafluoroethane with hydrofluoric acid.

5,672,786

PRODUCTION OF DIFLUOROMETHANE

David William Boniface; John David Scott, both of Cheshire, and Michael John Watson, Chester, all of United Kingdom, assignors to Imperial Chemical Industries PLC, United Kingdom

PCT No. PCT/GB94/00497, § 371 Date Sep. 6, 1995, § 102(e)

Date Sep. 6, 1995, PCT Pub. No. WO94/21579, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 14, 1994, Ser. No. 507,429

Claims priority, application United Kingdom, Mar. 24, 1993, 9306072; Mar. 24, 1993, 9306089

Int. Cl.⁶ C07C 17/08

U.S. Cl. 570-165

10 Claims

1. A process for the production of difluoromethane comprising (a) contacting dichloromethane with hydrogen fluoride in the presence of a fluorination catalyst to produce a product stream comprising difluoromethane, monochloromonofluoromethane and unreacted starting materials and (b) separating difluoromethane from the product stream from step (a), wherein sufficient hydrogen fluoride is employed in the process such that during step (b) the molar ratio of hydrogen fluoride to monochloromonofluoromethane is at least about 100:1.

5,672,787

PROCESS FOR PREPARING 1,1,1,4,4,4-HEXAFLUOROBUTANE IN THE LIQUID PHASE

Dietmar Bielefeldt, Ratingen; Norbert Lui, Köln, and Albrecht Marhold, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation of Ser. No. 456,894, Jun. 1, 1995, abandoned.

This application Jun. 17, 1996, Ser. No. 664,877

Claims priority, application Germany, Jun. 21, 1994, 44 21 702.1

Int. Cl.⁶ C07C 19/08

U.S. Cl. 570-175

8 Claims

1. A process for preparing 1,1,1,4,4,4-hexafluorobutane (R 356) which comprises reacting 1,1,1,4,4,4-hexafluorobutene in the liquid phase with hydrogen in the presence of a noble metal catalyst and in the absence of a solvent, in a stainless steel reaction vessel which, prior to its use, is treated with nitric acid, and wherein a product is produced with a purity of over 99% and at a yield above 99%.

5,672,788

TWO-STEP PROCESS FOR MANUFACTURING 1,1-DIFLUOROETHANE

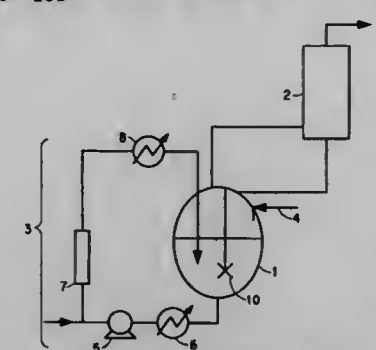
Mario Joseph Nappa, Newark, and Klaus Guenter Wuttke, Wilmington, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jun. 7, 1995, Ser. No. 476,770

Int. Cl.⁶ C07C 17/08; 17/20

U.S. Cl. 570-168

8 Claims



1. A low tar process for producing 1,1-difluoroethane comprising:

- a) reacting chloroethene with HF or HCl in a liquid phase in the presence of catalyst in a first reaction zone under conditions sufficient to form at least one of 1,1-dichloroethane and 1-chloro-1-fluoroethane;
- b) reacting said 1,1-dichloroethane and 1-chloro-1-fluoroethane with HF in a liquid phase in the presence of catalyst in a second reaction zone under conditions sufficient to form a product stream comprising 1,1-difluoroethane; and
- c) recovering 1,1-difluoroethane from said product stream.

5,672,789

CATALYST FOR FLUORINATION OF 1,1-DICHLORO-1-FLUOROETHANE AND PROCESS FOR THE PREPARATION OF 1,1,1-TRIFLUOROETHANE USING THE SAME

Hoon Sik Kim; Byung Gwon Lee; Honggon Kim, and Hyunjoon Lee, all of Seoul, Rep. of Korea, assignors to Korea Institute of Science and Technology, Seoul, Rep. of Korea

Filed Mar. 28, 1996, Ser. No. 623,105

Claims priority, application Rep. of Korea, Mar. 28, 1995, 6718/1995

Int. Cl.⁶ C07C 17/08

U.S. Cl. 570-168

5 Claims

1. A process for preparing 1,1,1-trifluoroethane (HFC-143a), characterized in that HF and 1,1-dichloro-1-fluoroethane are

reacted in a molar ratio of 3:1 to 15:1 at a reaction temperature of 120°-300° C. in the presence of a catalyst which is obtained by mixing chromic hydroxide ($\text{Cr}(\text{OH})_3 \cdot \text{H}_2\text{O}$) and an aqueous solution of magnesium chloride, reacting such mixture with a solution of HF and then calcining the resulting product.

5,672,790

PROCESS FOR THE HYDROGENOLYSIS OF CHLOROFLUOROCARBONS AND OF CHLOROFLUOROHYDROCARBONS

Dominique Guillet, Vernaison, and Serge Hub, Lyons, both of France, assignors to Elf Atochem S.A., France

Filed Mar. 15, 1996, Ser. No. 616,564

Claims priority, application France, Mar. 17, 1995, 95 03117

Int. Cl.⁶ C07C 17/10; C07K 19/08

U.S. Cl. 570-176

12 Claims

1. Process for the gas-phase hydrogenolysis of chlorofluorocarbons or of chlorofluorohydrocarbons in the presence of a palladium-based catalyst deposited on a support, comprising sulfur is incorporated into the catalyst.

5,672,791

PROCESS FOR THE PREPARATION OF NUCLEAR-HALOGENATED BENZOTRICHLORIDES FROM THE CORRESPONDING BENZOTRIFLUORIDES

Fritz Döring, Odenthal; Reinhold Gehring, Wuppertal, and Josef Heinrich, Solingen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 24, 1996, Ser. No. 590,860

Claims priority, application Germany, Jan. 31, 1995, 195 02 942.9

Int. Cl.⁶ C07C 17/00

U.S. Cl. 570-191

11 Claims

1. A process for the preparation of a nuclear-halogenated benzotrichloride from the corresponding nuclear-halogenated benzotrifluoride, in which the nuclear-halogenated benzotrifluoride is reacted with silicon tetrachloride in the presence of a catalytic amount of aluminium trichloride.

5,672,792

PROCESS FOR PREPARING CHLOROPRENE

Jean-Pierre Tassara, Villeurbanne, and Michel Baudouin, Saint Genis les Ollières, both of France, assignors to Enichem Elastomeres France SA, Courbevoie, France

Filed Sep. 19, 1994, Ser. No. 308,307

Claims priority, application France, Sep. 17, 1993, 93 11303

Int. Cl.⁶ C07C 17/25; 21/21

U.S. Cl. 570-229

6 Claims

1. A process for preparing chloroprene, said process comprising dehydrochlorinating 3,4-dichloro-1-butene in the presence of lime and at least one glycol selected from the group consisting of (poly)ethylene glycol, (poly)propylene glycol and sugars in a substantially non-aqueous medium.

5,672,793 STABILIZATION OF HYDROCARBONS BY THE ADDITION OF HYDRAZINE

Joseph E. Bares; Byron G. Johnson, both of Bartlesville, Okla., and Frederick J. Cornforth, Sweeny, Tex., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 261,595, Jun. 17, 1994, Pat. No. 5,470,457. This application Jun. 7, 1995, Ser. No. 486,734 Int. Cl.⁶ C07C 7/20

U.S. Cl. 585—5

8 Claims

1. A composition comprising at least one hydrocarbon fluid, at least one nitrogen containing heteroaromatic, at least one hydrazine additive selected from the group consisting of hydrazine and substituted hydrazines, and at least one antioxidant additive.

5,672,794 RECOVERY OF STYRENE FROM WASTE POLYSTYRENE

Andreas Northemann, Ludwigshafen, Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Germany

Continuation of Ser. No. 319,653, Oct. 7, 1994, abandoned. This application Aug. 29, 1996, Ser. No. 697,718

Claims priority, application Germany, Oct. 21, 1993, 43 35 972.8 Int. Cl.⁶ C07C 4/22; 1/00

U.S. Cl. 585—241

4 Claims

1. A process for recovering monomeric styrene from plastics waste containing styrene polymers by thermal depolymerization, wherein the waste in liquid or solid form is transported into a fluidized bed of magnesium aluminum silicate heated to 400°–700° C. and is cracked or depolymerized in an average residence time of less than 60 seconds and styrene is recovered from the gaseous crack products.

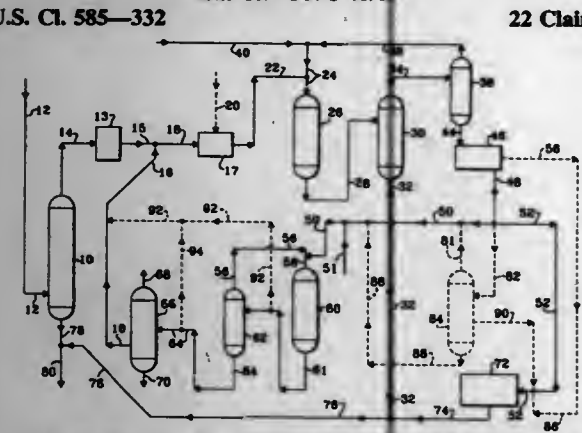
5,672,795 BALANCED ALKYLATION FEED FROM ETHERIFICATION AND ISOMERIZATION

Bipin V. Vora, Darien; Tamotsu Imai, Mount Prospect, and Peter R. Pujado, Palatine, all of Ill., assignors to UOP, Des Plaines, Ill.

Continuation of Ser. No. 222,991, Apr. 5, 1994, which is a continuation-in-part of Ser. No. 998,172, Dec. 29, 1992, abandoned. This application Sep. 25, 1995, Ser. No. 533,291

U.S. Cl. 585—332

22 Claims



1. A process for the production of ether and alkylate from a feedstream including C₄ to C₆ normal alkene, isoalkene, normal alkane and isoalkane isomers, said process consisting of:

(a) mixing an etherification input stream comprising C₄ to C₆ isoalkenes, normal alkenes, isoalkanes, and normal alkanes with a C₁–C₃ monohydroxy alcohol to produce a combined feed and contacting said combined feed with an etherification catalyst in an etherification zone at etherification conditions to react isoalkenes with said alcohol and produce an etherifica-

tion effluent stream comprising ether and isoalkane, normal alkane, and normal alkene isomers;

(b) passing a separation zone input stream comprising at least a portion of said etherification effluent stream and including normal alkane, normal alkene and isoalkane isomers to a first separation zone, distilling said separation input stream to separate ether from said separation zone input stream and withdrawing a high boiling first stream comprising said ether from said separation zone, and a second stream comprising said isoalkane, normal alkane and normal alkene isomers;

(c) passing a first aliquot portion of said second stream equal to 10 to 50% of said second stream to an alkylation zone and contacting said first aliquot portion stream with an alkylation catalyst at alkylation conditions to produce an alkylate product stream comprising high octane motor fuel components;

(d) passing a second aliquot portion of said second stream to an isomerization reaction zone for the skeletal isomerization of normal alkenes and contacting said second portion of said second stream with an isomerization catalyst at isomerization conditions;

(e) withdrawing an isomerization zone effluent stream comprising isoalkenes from said isomerization zone and passing at least a portion of said isomerization zone effluent to said etherification reaction zone; and

(f) passing said feedstream including normal alkene, isoalkene, normal alkane and isoalkane isomers into at least one of said etherification zone, said separation zone and said isomerization zone.

5,672,796 CATALYST AND PROCESS FOR HYDROCARBON AROMATIZATION

Gilbert Fernand Alphonse Froment, Martens Latem, and Wilfried Jozef Hippolyte Dehertog, Tervuren, both of Belgium, assignors to Amoco Corporation, Chicago, Ill.

Continuation of Ser. No. 252,746, Jun. 2, 1994, abandoned, which is a continuation of Ser. No. 126,117, Sep. 23, 1993, abandoned, which is a continuation of Ser. No. 952,922, Sep. 28, 1992, abandoned, which is a continuation of Ser. No. 835,228, Feb. 13, 1992, abandoned. This application Dec. 18, 1995, Ser. No. 574,120

U.S. Cl. 585—419

20 Claims

1. A one-stage process to convert C₃ to C₆ alkanes to a low methane-containing hydrocarbon product rich in aromatics comprising:

contacting a feed comprising at least one C₃ to C₆ alkane under conversion conditions, without addition of hydrogen, with a catalyst component consisting essentially of a hydrogen-form, Pt/Re-loaded crystalline aluminosilicate molecular sieve, having the MFI crystal structure and a Si/Al ratio between about 40 to about 600, which has been partially sulfided.

15. A one-stage process to convert C₃ to C₆ alkanes to a low-methane containing hydrocarbon product rich in aromatics comprising:

contacting a hydrocarbon feed comprising at least one C₃ to C₆ alkane under conversion conditions, without addition of hydrogen,

with a catalyst component consisting essentially of a hydrogen-form, crystalline aluminosilicate molecular sieve having the MFI crystal structure and a Si/Al ratio between about 40 to about 600,

on which has been exchanged platinum ions and which has been impregnated with a rhenium compound such that the catalyst composition contains about 0.1 to about 0.5 wt. % platinum and rhenium, and which has been partially sulfided.

5,672,797 ALKYLATION OF AROMATICS USING A METAL CATION-MODIFIED FRIEDEL-CRAFTS TYPE CATALYST

Joseph A. Kocal, Gurnee, Ill., assignor to UOP, Des Plaines, Ill. Continuation-in-part of Ser. No. 265,161, Jun. 24, 1994, abandoned, which is a continuation-in-part of Ser. No. 93,150, Jul. 19, 1993, abandoned. This application Sep. 25, 1995, Ser. No. 533,576

U.S. Cl. 585—467

28 Claims

1. A process of alkylating an alkylatable aromatic compound with an alkylating agent comprising reacting in the liquid phase the alkylatable aromatic compound with the alkylating agent under alkylating conditions in the presence of an alkylation catalyst comprising: a) a refractory inorganic oxide, b) the reaction product of a first metal halide and bound surface hydroxyl groups of said refractory inorganic oxide, c) a second metal cation, and d) optionally a zerovalent third metal; where said refractory inorganic oxide is selected from the group consisting of alumina titania, zirconia, chromia, silica, boria, silica-alumina, and combinations thereof; said first metal halide is a fluoride, chloride, or bromide of aluminum; said second metal cation is selected from the group consisting of a) monovalent metal cations in an amount from 0.0026 up to about 0.20 gram atoms per 100 grams refractory inorganic oxide for lithium, potassium, cerium, rubidium, silver, and copper, and in an amount from 0.012 to about 0.12 gram atoms for sodium, and b) alkaline earth metal cations in an amount from about 0.0013 up to about 0.01 gram atoms per 100 grams of refractory inorganic oxide for beryllium, strontium, and barium and an amount from about 0.004 up to about 0.1 gram atoms per 100 grams support for magnesium and calcium, and any combination thereof; and said third metal is selected from the group consisting of platinum, palladium, nickel, ruthenium, rhodium, osmium and iridium, and any combination thereof.

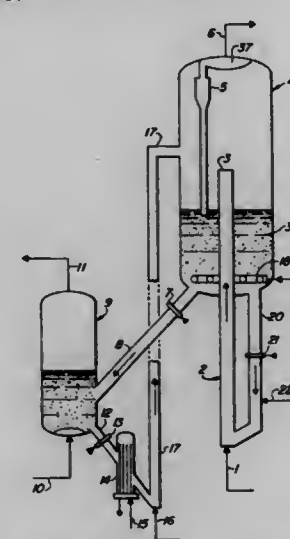
5,672,798 FLUIDIZED BED SOLID CATALYST MOTOR FUEL ALKYLATION PROCESS

Scott Yu-Feng Zhang, Carol Stream; Christopher David Gosling, Roselle; Paul Alvin Sechrist, Des Plaines, and Gregory A. Funk, Carol Stream, all of Ill., assignors to UOP, Des Plaines, Ill.

Continuation-in-part of Ser. No. 323,437, Oct. 14, 1994, Pat. No. 5,489,732. This application Feb. 5, 1996, Ser. No. 597,048

U.S. Cl. 585—467

10 Claims



1. A process for the alkylation of a feed hydrocarbon which comprises the steps:

a. passing a first catalyst stream, comprising regenerated catalyst, and a feed stream comprising the feed hydrocarbon and

an alkylating agent into the bottom of a vertical riser-reaction zone maintained at reaction conditions and producing a reaction zone effluent stream comprising used catalyst, the feed hydrocarbon and a product hydrocarbon;

b. discharging the reaction zone effluent stream into a separation zone in which used catalyst is separated from liquid phase hydrocarbons and thereby forming a liquid-phase separation zone effluent stream comprising the feed and product hydrocarbons, with the thus separated used catalyst descending downward within the separation zone;

c. transferring the used catalyst downward through a mild regeneration zone wherein the used catalyst is contacted with feed hydrocarbon containing dissolved hydrogen to form partially regenerated catalyst;

d. transferring a portion of the used catalyst into a high temperature regeneration zone wherein the used catalyst is contacted with vapor phase hydrogen at vapor phase regeneration conditions to form regenerated catalyst, and withdrawing regenerated catalyst from the high temperature regeneration zone as a second catalyst stream;

e. commingling the second catalyst stream with partially regenerated catalyst and employing at least a portion of the resulting admixture as the first stream of catalyst, which is admixed with the feed stream as per step (a); and

f. recovering the product hydrocarbon from the separation zone effluent stream.

5,672,799 PROCESS FOR THE PREPARATION OF CUMENE

Carlo Perego, Carnate; Giannino Pazzuconi, Pavia; Gianni Girotti, Bologna, and Giuseppe Terzoni, Piacenza, all of Italy, assignors to Eniicerche S.p.A., Milan, and EniChem Synthesis S.p.A., Palermo, both of Italy

Continuation of Ser. No. 257,151, Jun. 9, 1994, abandoned. This application Jul. 17, 1996, Ser. No. 683,740

U.S. Cl. 585—467

7 Claims

1. A process for the preparation of cumene comprising the steps of: reacting benzene and propylene in the presence of a zeolite Beta catalyst having the formula:



wherein y is from 5 to 100, w is less than or equal to 4, M=Na⁺, K⁺, Ca²⁺ or Ni²⁺ and x has a value of from 0.25 to 0.50; carrying out said reaction at a temperature of from 150° to 300° C., a pressure of from 10 to 50 atm and a total WHSV feeding rate of reagents of from 0.1 to 200 hrs⁻¹.

5,672,800 ALKENE OLIGOMERIZATION

Georges Marie Karel Mathys, Bierbeek; Luc Roger Marc Martens, Meise; Marleen Augusta Baes, Oud-Heverlee; Johannes Petrus Verduijn, Leeftaard, and Diane Renata Cornelia Huybrechts, Oud-Turnhout, all of Belgium, assignors to Exxon Chemical Patents Inc., Wilmington, Del.

PCT No. PCT/EP93/00177, § 371 Date Aug. 29, 1994, § 102(e) Date Aug. 29, 1994, PCT Pub. No. WO93/16020, PCT Pub. Date Aug. 19, 1993

PCT Filed Jan. 27, 1993, Ser. No. 256,950

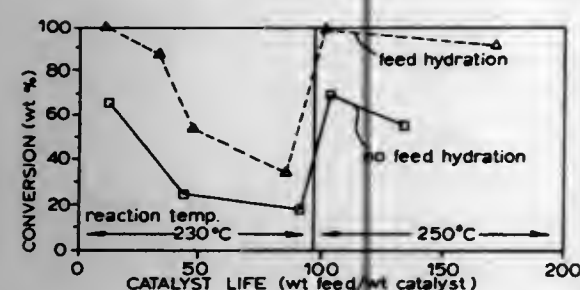
Claims priority, application European Pat. Off., Jan. 30, 1992, 92300797

Int. Cl.⁶ C07C 2/02

U.S. Cl. 585—520

8 Claims

1. A process for oligomerising C₂–C₁₂-alkenes to produce olefins of initial boiling point in the range 30° to 310° C., comprising contacting a C₂–C₁₂-alkene-containing feedstock having a water



content of from 0.05 to 0.25 molar %, based on the hydrocarbon content of the feedstock, with a zeolite structure catalyst selected from the group consisting of TON, MFI, MEL, MTW, EUO, H-ZSM-57, ferrierites, offretites, H-ZSM-4, H-ZSM-18, Zeolite Beta, faujasites, zeolite L, mordenites, erionites and chabazites.

5,672,801 CATALYST REGENERATION PROCESS AND USE OF THE CATALYST IN HYDROCARBON CONVERSION PROCESSES

Blaise Didillon, Rueil Malmaison, France, assignor to Institut Français Du Pétrole, Rueil Malmaison, France
Division of Ser. No. 573,658, Dec. 18, 1995, Pat. No. 5,573,988, which is a continuation of Ser. No. 348,235, Nov. 28, 1994, abandoned. This application Aug. 6, 1996, Ser. No. 692,470

Claims priority, application France, Nov. 26, 1993, 93 14281
Int. Cl.⁶ C07C 5/333; B01J 38/44

U.S. Cl. 585—660 15 Claims

1. A process for the dehydrogenation or dehydrocyclization of a hydrocarbon feedstock comprising paraffins of 3 to 8 carbon atoms per molecule, comprising contacting said feedstock with a catalyst containing at least one metallic element selected from the group formed by platinum, palladium, ruthenium, rhodium, osmium, iridium and nickel on a refractory oxide based support, said catalyst having been deactivated by coke deposition and regenerated by a process comprising burning off of deposited coke, and conducting oxychlorination, by simultaneously effecting oxychlorination whenever burning off deposited coke, by treating the catalyst with a gas containing at least chlorine and molecular oxygen, at a temperature generally between 20° C. and 800° C. and a total gas flow rate, expressed in liters of gas per hour per gram of catalyst, of between 0.05 and 20.

5,672,802 PROCESS FOR THE PREPARATION OF ALPHA OLEFINS

Eugene Frederick Lutz, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Mar. 19, 1996, Ser. No. 618,179
Int. Cl.⁶ C07C 6/04

U.S. Cl. 585—643 18 Claims

1. A process for the preparation of an alpha olefin product having a narrow molecular weight range which comprises: a) metathesizing an internal olefin having in the range of from about 6 to about 30 carbon atoms under non-equilibrium conditions and thereby producing a lower boiling internal olefin product which is removed as formed, and a high boiling mid-chain internal olefin product, and b) contacting and reacting the high boiling mid-chain internal olefin product with ethylene, thereby producing an alpha olefin product having a narrow molecular weight range.

5,672,803 METHOD FOR MAKING TRANS NON-CONJUGATED DIOLEFINS

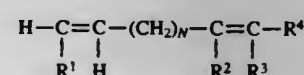
Robert Scott Smith, and Jos Peter Wristers, both of Houston, Tex., assignors to Exxon Chemical Patents Inc., Wilmington, Del.

Continuation of Ser. No. 176,166, Dec. 30, 1993, abandoned.
This application Nov. 27, 1995, Ser. No. 562,675

Int. Cl.⁶ C07C 6/00; 6/02

U.S. Cl. 585—646 20 Claims

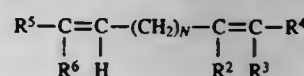
1. A method for making trans non-conjugated diolefins of structure



where N is a positive integer from 1 to 5 and R², R³, and R⁴ are each hydrogen or an alkyl of 1 to 5 carbons and R¹ is an alkyl of 1 to 5 carbons

which comprises:

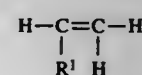
a. selecting isomerizable non-conjugated diolefin with structure



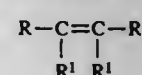
where N is a positive integer from 1 to 5 and R², R³, R⁴ and R⁵ are each hydrogen or an alkyl of 1 to 5 carbons and R¹ and R⁶ are each an alkyl of 1 to 5 carbons and R², R³, and R⁴ are the same as in the trans non-conjugated diolefin and when R⁵ is hydrogen and R⁶ is an alkyl, the adjacent double bond is greater than 50% cis;

b. selecting a first olefin from the group consisting of:

(1) olefins having the structure



(2) olefins having the structure:

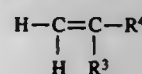


and

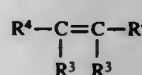
(3) mixtures of olefin 1 and olefin 2 where R¹ is the same as R¹ of the trans non-conjugated diolefin;

c. selecting a second olefin which is different than the first olefin from the group consisting of

(1) an olefin having the structure:



(2) an olefin having the structure:



and

(3) mixtures of olefin 1 and olefin 2 where R³ and R⁴ are the same as R³ and R⁴ of the diolefin selected in step a;

d. mixing the selected diolefin with the selected first olefin and the selected second olefin in a mole ratio of first olefin to diolefin within the range of about 0.2/1 to 100/1 and a mole ratio of the selected second olefin to diolefin within the range of about 0.2/1 to 100/1 to form an olefin reaction mixture; and

e. contacting the olefin reaction mixture in a reaction vessel at a temperature in the range of -30° to 200° C. at a pressure in the range of 140 to 2,000 psig (1,070 to 14,000 kPa) with a non-acidic metathesis catalyst selected from the group consisting of homogeneous metal catalysts and heterogeneous

metal catalysts wherein the metal is selected from the group consisting of W, Mo, Co, Ta, Nb, Cr, and Re to form the selected trans nonconjugated diolefin isomer product.

5,672,804 PROCESS FOR THE REMOVAL OF POLYNUCLEAR AROMATIC COMPOUNDS FROM A VAPOR EFFLUENT FROM A NORMALLY GASEOUS HYDROCARBON DEHYDROGENATION REACTION ZONE

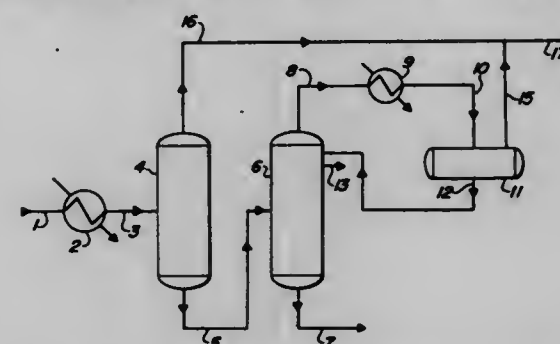
Bryan K. Glover, Algonquin, Ill., assignor to UOP, Des Plaines, Ill.

Filed Jul. 17, 1995, Ser. No. 502,992

Int. Cl.⁶ C07C 7/00

U.S. Cl. 585—655

8 Claims



1. A process for the removal of trace quantities of polynuclear aromatic compounds from the vapor effluent of a hydrocarbon dehydrogenation zone comprising normally gaseous olefinic

hydrocarbons, trace mononuclear aromatic compounds and trace polynuclear aromatic compounds which process comprises:

- cooling substantially all of said vapor effluent to condense at least a portion thereof up to about 5 weight percent;
- introducing the resulting cooled stream from step (a) into a vapor-liquid separator to produce a vapor stream comprising normally gaseous olefinic hydrocarbons and having a reduced concentration of polynuclear aromatic compounds and a liquid stream comprising mononuclear and polynuclear aromatic compounds;
- separating said liquid stream comprising mononuclear and polynuclear aromatic compounds recovered in step (b) in a separation zone to produce a stream rich in mononuclear aromatic compounds; and
- recovering said vapor stream comprising normally gaseous olefinic hydrocarbons having a reduced concentration of polynuclear aromatic compounds.

5,672,805 TRANSGENIC MICE EXPRESSING THE NEUROTOXIC C-TERMINUS OF β-AMYLOID PRECURSOR PROTEIN

Rachael L. Neve, Irvine, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Filed Jul. 18, 1991, Ser. No. 732,404

Int. Cl.⁶ C12N 5/00; 15/00; A61K 49/00

U.S. Cl. 800—2

8 Claims

1. A transgenic mouse whose somatic and germ cells contain a transgene encoding an about 100 amino acid neurotoxic C-terminal fragment of the β-amyloid precursor protein, wherein said transgene is operably linked to a brain tissue promoter, and wherein expression of said transgene results in the formation of punctate deposits in neuronal processes of the mouse's brain.

ELECTRICAL

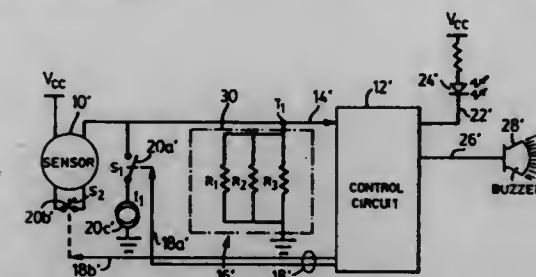
5,672,806 METHOD AND APPARATUS FOR CALIBRATING A GAS DETECTOR SENSOR

Patrick Hung, Richmond Hill, Canada, assignor to Patrick
Plastics Inc., Weston, Canada

Filed Oct. 31, 1994, Ser. No. 332,030
Int. Cl.⁶ G01N 1/00

U.S. Cl. 73-1 G

3 Claims



1. A method for calibrating a gas detector having a sensor exhibiting electrical characteristics in response to exposure to gas and having an array of fixed resistors for calibrating the electrical output characteristics of the sensor, said method comprising the steps of:

- exposing the sensor to a predetermined concentration of a selected gas;
- applying heat to the sensor;
- allowing the sensor to cool to an optimal sensing temperature;
- taking a measurement of the electrical output characteristic of the sensor while the sensor is at the optimal temperature;
- removing the sensor from the predetermined concentration of gas;
- comparing the measurement to a chart having a list of resistor combinations corresponding to electrical output characteristics of the sensor; and
- implementing a resistor configuration within the array indicated by said chart to produce a desired electrical output characteristic of the sensor.

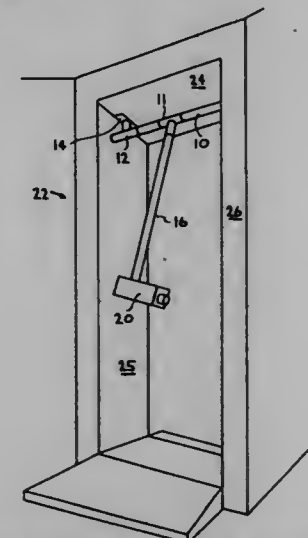
5,672,807 PENDULUM DETECTOR TESTING DEVICE

John M. Gonsalves, Modesto, Calif., assignor to Regents of the
University of California, Oakland, Calif.

Filed Dec. 18, 1995, Ser. No. 579,028
Int. Cl.⁶ G01N 33/00

U.S. Cl. 73-1 R

20 Claims



1. A detector testing device for an associated walk-through detection system, comprising:
a holder constructed to retain an associated test object;

a rigid support means adapted to be secured in such an associated walk-through detection system;
a member movably mounted on said support means; and
at least one rigid member interconnecting said movably mounted member and said holder;
whereby movement in a pendulum motion through such an associated walk-through detection system of the holder retaining such an associated test object past an associated detector to be tested of such an associated walk-through detection system results in testing of the associated detector.

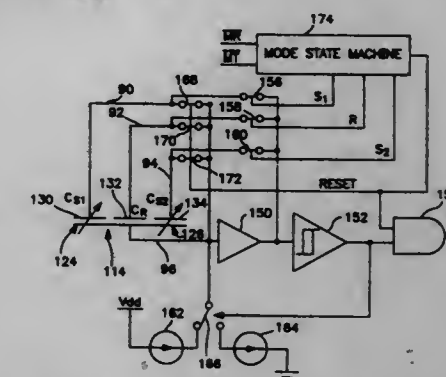
5,672,808 TRANSDUCER HAVING REDUNDANT PRESSURE SENSORS

Philip R. Klauder, Ambler; James O. Moore, Worcester, and
Christopher J. O'Brien, New Britain, all of Pa., assignors to
Moore Products Co., Spring House, Pa.

Filed Jun. 11, 1996, Ser. No. 661,851
Int. Cl.⁶ G01L 27/00

U.S. Cl. 73-4 R

6 Claims



1. A method for detecting defects in a fluid pressure sensor comprising the steps of:

- measuring an applied differential pressure using a pressure transducer having a fluid pressure sensor comprising first and second variable pressure sensors for providing an electrical output as a function of an applied differential fluid pressure, the first and second variable sensors being substantially identical;
- applying a differential fluid pressure to the first and second variable sensors via a valve;
- generating a first signal whose frequency is proportional to the electrical output of the first variable sensor and a second signal whose frequency is proportional to the electrical output of the second variable sensor;
- determining whether the difference between the first signal and the second signal is within a preselected range; and
- determining whether the fluid pressure sensor is damaged based upon whether the second signal is outside the limits of the preselected range.

5,672,809 METHOD AND APPARATUS FOR DETERMINING THE PERFORMANCE OF SPORTS BATS AND SIMILAR EQUIPMENT

Richard A. Brandt, 221 W. 13th St., New York, N.Y. 10011

Filed Feb. 29, 1996, Ser. No. 608,672
Int. Cl.⁶ G01N 3/30

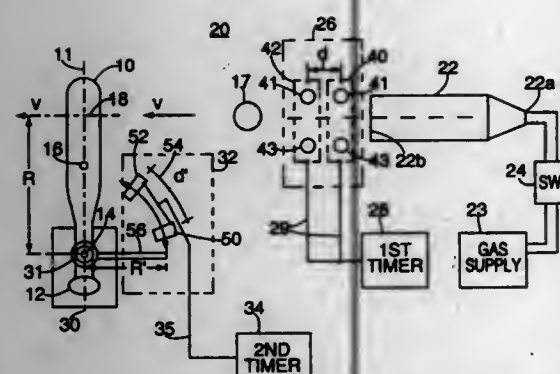
U.S. Cl. 73-12.01

28 Claims

1. A method of determining a performance of a first object comprising known characteristics of a Moment of Inertia, a weight, and a location of a Center of Mass, the method comprising the steps of:

- causing an impact between the first object and a second object so as to cause the first object to rebound, the second object having known physical characteristics including a

3935



known Coefficient of Restitution, and a predetermined velocity relative to the first object just before the impact;
 (b) measuring the velocity of the first object during the rebound thereof from the impact;
 (c) determining a Coefficient of Restitution between the first and second objects using the rebound velocity of the first object measured in step (b) and the predetermined velocity of the second object; and
 (d) determining a performance factor for the first object from the known characteristics of the second object and the Coefficient of Restitution between the first and second objects determined in step (c).

5,672,810 GAS CHROMATOGRAPH APPARATUS FOR A LIQUID SAMPLE CONTAINING A SOLVENT

Shigeaki Shibamoto, Kyoto, Japan, assignor to Shimadzu Corporation, Kyoto, Japan

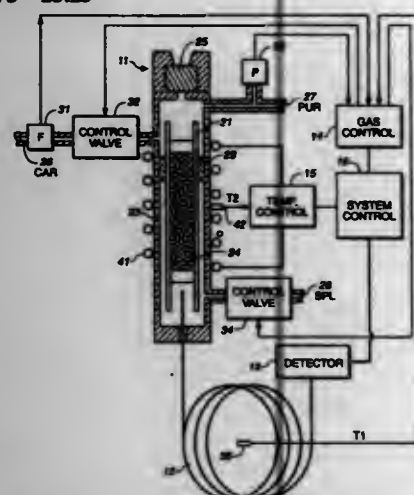
Filed May 15, 1996, Ser. No. 649,768

Claims priority, application Japan, Jul. 18, 1995, 7-205259

Int. Cl.⁶ G01N 30/04

U.S. Cl. 73—23.25

6 Claims



1. A gas chromatograph for analyzing a target component in a liquid sample also containing a solvent, said apparatus comprising:
 a sample injection port containing a pre-column filled with a packing material capable of holding said liquid sample injected into said pre-column, and having a carrier gas inlet, a split discharge outlet and a column-connecting opening connected to a column;
 temperature control means for controlling temperature of said sample injection port;
 split ratio control means for controlling the split ratio defined as the ratio between gas flow rates through said column-connecting opening into said column and through said split discharge outlet out of said sample injection port; and
 vaporization control means for controlling said temperature control means and said split control means in coordination with

each other according to the boiling point of said target component and the boiling point of said solvent;
 wherein said vaporization control means causes said temperature control means to keep the temperature of said sample injection port below the boiling point of said solvent before said sample is injected into said pre-column, causes said split ratio control means to keep the split ratio at a large value and said temperature control means to raise the temperature of said sample vaporization above the boiling point of said solvent after said sample is injected into said pre-column so as to cause a large portion of said solvent to be discharged from said sample injection port mostly through said split vent, and causes said split ratio control means to reduce the split ratio to a smaller value than said large value and said temperature control means to raise the temperature of said sample injection port above the boiling point of said target component after a specified length of time depending on the amount of said sample which was injected.

5,672,811 METHOD OF MEASURING A GAS COMPONENT AND SENSING DEVICE FOR MEASURING THE GAS COMPONENT

Nobuhide Kato, Aichi-ken, and Kunihiko Nakagaki, Nagoya, both of Japan, assignors to NGK Insulators, Ltd., Japan

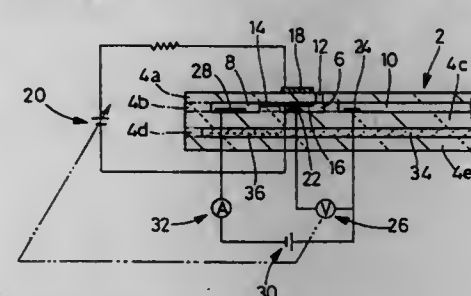
Continuation-in-part of Ser. No. 422,956, Apr. 17, 1995, abandoned. This application Jul. 23, 1996, Ser. No. 681,363

Claims priority, application Japan, Apr. 21, 1994, 6-083069; Jan. 31, 1995, 7-014598; Mar. 8, 1995, 7-048551; Feb. 23, 1996, 8-036753

Int. Cl.⁶ G01N 27/41

U.S. Cl. 73—31.05

57 Claims



1. A method of measuring a concentration of NO_x as a gas component of a measurement gas, comprising the steps of:
 introducing the measurement gas containing the NO_x component from an external measurement-gas space into a first internal space under a first diffusion resistance;
 controlling an amount of oxygen in the measurement gas within said first internal space to produce an atmosphere which does not substantially affect measurement of the NO_x component and which does not substantially decompose NO;
 introducing said atmosphere from said first internal space into a second internal space under a second diffusion resistance; and
 determining the concentration of NO present in the atmosphere in said second internal space by (i) contacting the gas in said second internal space with an NO_x decomposition catalyst so as to disassociate oxygen from the NO and (ii) measuring the oxygen in said second internal space.

5,672,812 SPARKPLUG/PRESSURE SENSOR DEVICE

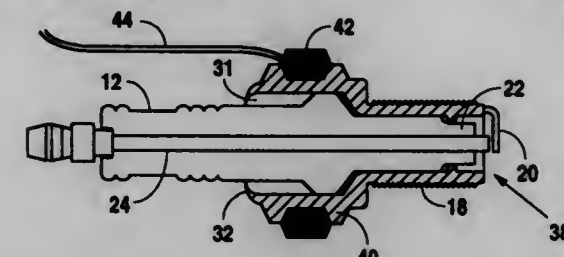
Roy C. Meyer, Milwaukee, Wis., assignor to Southwest Research Institute, San Antonio, Tex.

Filed Oct. 10, 1995, Ser. No. 541,331

Int. Cl.⁶ G01L 23/22

U.S. Cl. 73—35.07

3 Claims



1. A transducer for measuring stress waves indicative of characteristics of combustive events present within an internal combustion engine, said transducer comprising:

- a ceramic cylinder;
 - a first electrode coaxially surrounded by said ceramic cylinder, and exposed at both a first and second end of said ceramic cylinder;
 - a magnetized ferromagnetic collar surrounding and adhered to a section of said ceramic cylinder, said collar comprising a threaded section appropriate for insertion into threaded apertures present in internal combustion engine cylinder heads, and a bolt section appropriate for receiving standard spark-plug wrenches in a manner that allows said transducer to be inserted into said cylinder head;
 - a second electrode electrically conductive with and attached to said magnetized ferromagnetic collar, said second electrode positioned near said second end of said ceramic cylinder to form a spark gap between said first and second electrodes; and
 - a wire coil wound on a bobbin, said bobbin removably surrounding said magnetized ferromagnetic collar, said wire coil terminating in signal conductors directed away from said transducer, said wire coil and said bobbin encased in a pliable boot, said boot configured to receive said first end of said ceramic cylinder and said first electrode exposed therein, and to position said coil around said magnetized ferromagnetic collar, said boot further encasing said signal conductors and directing said conductors away from said transducer;
- wherein said combustive events impart stress waves into said ceramic cylinder and said stress waves travel into said magnetized ferromagnetic collar and therein generate magnetic field fluctuations that in turn generate current flow in said wire coil, the said current flow having timing and amplitude characteristics indicative of said characteristics of said combustive events.

5,672,813 TURF ANALYSIS METHOD EMPLOYING SUBSTANTIALLY UNDISTURBED CORE SAMPLES AND STRATA THEREOF

David L. Doherty, 3301 W. 91st St., Leawood, Kans. 66206

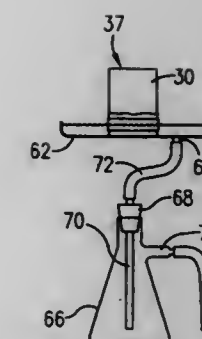
Division of Ser. No. 430,338, Apr. 28, 1995, abandoned. This application May 20, 1996, Ser. No. 650,187

Int. Cl.⁶ G01N 15/08; 33/24

U.S. Cl. 73—38

11 Claims

1. A soil analysis method comprising the steps of:
 obtaining a core sample of soil having an essentially undisturbed, naturally occurring compaction and stratification;
 subjecting at least a portion of said core sample, while the core sample is maintained in said essentially undisturbed condition, to at least one test selected from the group consisting of a water permeability test, a water holding capacity test, and a porosity test;
 thereafter dividing said core sample into a plurality of vertically aligned strata; and



separately analyzing each of said strata using at least one test selected from the group consisting of organic content, silt content, clay content and sand content tests.

5,672,814 SOIL ANALYSIS METHOD INCLUDING SATURATION/ DRYING TEST USING UNDISTURBED CORE SAMPLE

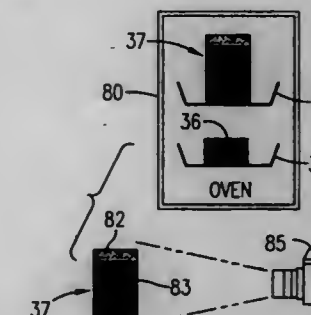
David L. Doherty, 3301 W. 91st St., Leawood, Kans. 66206

Division of Ser. No. 430,338, Apr. 28, 1995. This application May 20, 1996, Ser. No. 650,191

Int. Cl.⁶ G01N 15/08; 33/24

U.S. Cl. 73—38

2 Claims



1. A soil analysis method comprising the steps of:
 obtaining a core sample of soil having an essentially undisturbed, naturally occurring compaction and stratification; and
 subjecting at least a portion of said core sample to a saturation and drying test while said portion is maintained in said essentially undisturbed condition,
 said saturation and drying test comprising the steps of soaking said portion in water until the portion is saturated, allowing water to gravitate from the saturated portion until a moisture equilibrium is reached in the portion, drying the moisture-equilibrated portion, and, during said drying step, observing and recording the appearance of a dark layer of organic and other water holding material in the portion.

5,672,815 METHOD AND APPARATUS FOR MEASURING OUTSIDE DIMENSIONS AND THE CENTER OF GRAVITY OF A PACKAGE

Victor Nicolas Prutu, Bethel, Conn., assignor to United Parcel Service of America, Inc., Atlanta, Ga.

Continuation of Ser. No. 478,234, Jun. 7, 1995, abandoned.

This application Oct. 12, 1996, Ser. No. 683,696

Int. Cl.⁶ G01N 1/00; 1/16; 1/38

U.S. Cl. 73—65.07

13 Claims

1. A method for approximating the location of a gravity center point of a rectangular package having a substantially planar lower surface, said method comprising the steps of:



transferring said package across a conveyor having two nonparallel supporting surfaces meeting at an upwardly-directed crest such that said lower surface of said package is in contact with said crest;
approximating the instant at which said package becomes unstable and begins tilting away from contact with said first surface towards said second surface; and
approximating the location of said gravity center by use of said instant approximation.

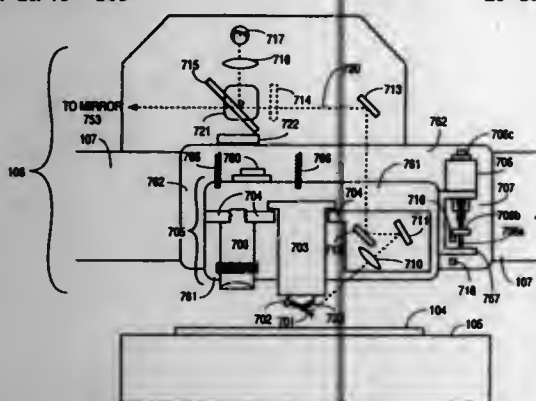
5,672,816

LARGE STAGE SYSTEM FOR SCANNING PROBE MICROSCOPES AND OTHER INSTRUMENTS

Sang-il Park, Palo Alto; Ian R. Smith, Los Gatos, and Michael D. Kirk, San Jose, all of Calif., assignors to Park Scientific Instruments, Sunnyvale, Calif.

Continuation of Ser. No. 325,132, Oct. 20, 1994, abandoned, which is a continuation of Ser. No. 897,657, Jun. 12, 1992, abandoned, which is a continuation-in-part of Ser. No. 850,677, Mar. 13, 1992, Pat. No. 5,448,399. This application May 23, 1995, Ser. No. 448,004

Int. Cl.⁶ G02B 21/06; G01B 9/04; G01N 21/84; 21/01
U.S. Cl. 73—105 23 Claims



1. A scanning probe microscope comprising:
a sample stage;
a probe for analyzing a surface of a sample mounted on the sample stage; and
a reflective surface positioned above the probe and oriented such that light from an illumination source is reflected by the reflective surface to the probe to illuminate an optical view of the probe.

5,672,817

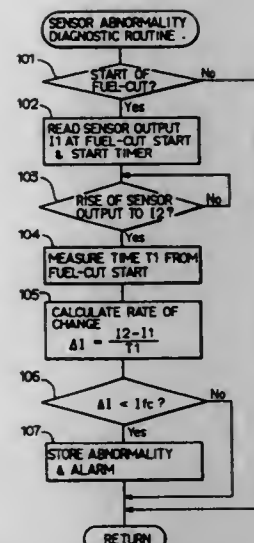
SELF-DIAGNOSTIC APPARATUS OF AIR-FUEL RATIO CONTROL SYSTEM OF INTERNAL COMBUSTION ENGINE

Yasuo Sagisaka, Komaki; Masaaki Nakayama, Toyooka; Yasuo Mukai, Kariya; Yukihiko Yamashita, Kariya, and Hisashi Iida, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Dec. 13, 1995, Ser. No. 574,211
Claims priority, application Japan, Dec. 28, 1994, 6-328086
Int. Cl.⁶ F02D 41/14; G01M 15/00

U.S. Cl. 73—118.1 26 Claims

1. In combination:
a sensor for detecting an air-fuel ratio within an exhaust gas of an internal combustion engine, said sensor having an output which varies proportionally with the detected air-fuel ratio; and



a self-diagnostic apparatus of an air-fuel ratio control system of said internal combustion engine for self-diagnosing an abnormality of said air-fuel ratio control system which feedback-controls an air-fuel mixture supplied to said internal combustion engine by said output of said sensor, said self-diagnostic apparatus comprising:
detecting means for detecting a change in an amount of fuel supplied to said internal combustion engine,
rate-of-change determining means for determining a rate of change of the output of said sensor after said detecting means detects said change in the amount of supplied fuel by said detecting means, and
abnormality determining means for determining an existence of an abnormality of said sensor on the basis of the rate of change of the output of said sensor determined by said rate-of-change determining means.

5,672,818

THROTTLE VALVE ADJUSTING UNIT

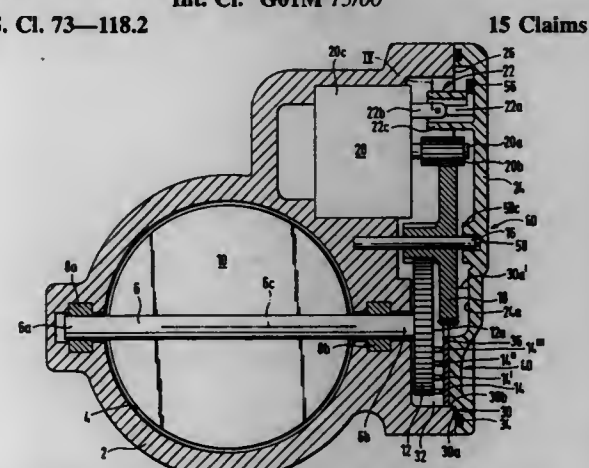
Wolfgang Schaefer, Grossbottwar; Klaus Kaiser, Markgroeningen; Martin Benda, Heilbronn, and Eckard Reiling, Eisingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Jul. 12, 1996, Ser. No. 678,802

Claims priority, application Germany, Jul. 13, 1995, 95 25 510.0

Int. Cl.⁶ G01M 15/00

U.S. Cl. 73—118.2



1. A throttle control valve, having a throttle valve secured to a throttle valve shaft rotatably supported in a throttle valve stub; a control motor, supported on the throttle valve stub, said control motor includes a drive gear coupled to the throttle valve shaft, for adjusting the throttle valve shaft; a potentiometer (40), including at least one wiper and at least one potentiometer path, for detecting

and adjusting a position of the throttle valve shaft; a connection chamber, an electrical connection to which the control motor (20) and the potentiometer (40) are connected in said connection chamber; a lid (24) that closes off the connection chamber, the at least one potentiometer path (42, 42', 42'', 42''') is mounted on the lid (24), and a coupling part (44) belonging to the electrical connection is formed onto the lid (24); at least one motor plug contact (22a, 23a) is also provided on the lid (24), said motor plug contact, when the lid (24) is mounted on the throttle valve stub (2), is in electrical contact with a motor counterpart plug contact (22b) connected to the control motor (20).

5,672,819

FORMATION EVALUATION USING PHASE SHIFT PERIODIC PRESSURE PULSE TESTING

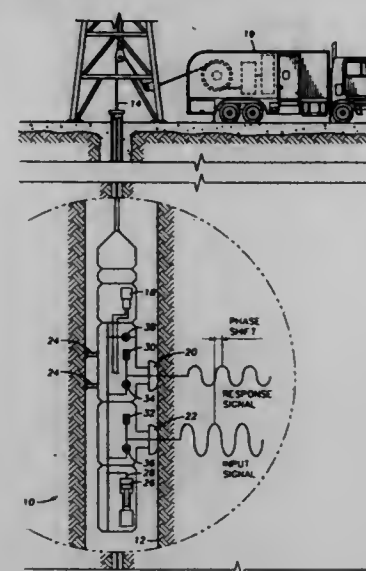
Wilson C. Chin, and Mark A. Proett, both of Houston, Tex., assignors to Halliburton Energy Services, Inc., Houston, Tex.

Filed Mar. 13, 1996, Ser. No. 615,655

Int. Cl.⁶ E21B 49/00

U.S. Cl. 73—152.41

23 Claims



1. A formation tester comprising:
a means for generating a pressure wave in a geological formation;
a first probe in contact with said geological formation, said first probe operably connected to said pressure wave generating means and a means for sensing at least two properties of said generated pressure wave; and
a second probe located a predetermined distance from and within the same azimuthal angle as said first probe, said second probe operably connected to a means sensing at least two properties of said generated pressure wave.

5,672,820

OBJECT LOCATION IDENTIFICATION SYSTEM FOR PROVIDING LOCATION DATA OF AN OBJECT BEING POINTED AT BY A POINTING DEVICE

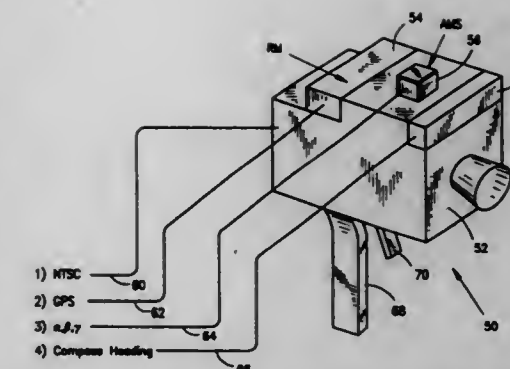
John H. Rossi, Los Altos; Mark E. Innocenzi, Anaheim; Steven L. Goodfriend, Anaheim Hills, and Douglas E. Lowe, Irvine, all of Calif., assignors to Boeing North American, Inc., Seal Beach, Calif.

Continuation-in-part of Ser. No. 442,273, May 16, 1995, abandoned. This application Apr. 30, 1996, Ser. No. 642,071
Int. Cl.⁶ G01C 21/00; G06G 7/78

U.S. Cl. 73—178 R

18 Claims

1. An object location identification system, comprising:



a) a receiving module (RM) for receiving information specifying a user's location and providing RM output data in terms of latitude, longitude and altitude (x_0, y_0, z_0);
b) an angular measuring system (AMS) securely mountable to a pointing device for measuring the orientation of said pointing device and providing AMS output data in at least heading and depression angles (α, β) in real-time;
c) a computational element for processing said RM output data and said AMS output data and providing location data of an object being pointed at by said pointing device, said location data being in terms of latitude, longitude and altitude; and
d) a map referencing element (MRE) for receiving said location data and retrieving graphic map displays associated with the object's specific location,
whereby the latitude and longitude of the pointing device are utilized as inputs to the map database to show the location of a field of view of the pointing device in real-time.

5,672,821

LAMINAR FLOW DEVICE

Isao Suzuki, Tokyo, Japan, assignor to MKS Japan, Inc., Tokyo, Japan

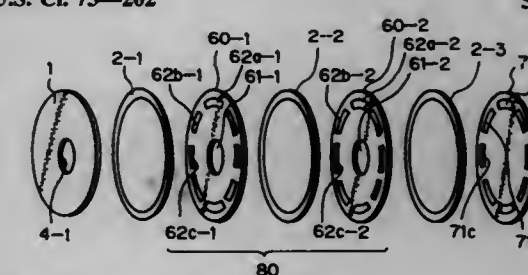
Filed Dec. 12, 1995, Ser. No. 571,235

Claims priority, application Japan, Dec. 12, 1994, 6-331459; Apr. 3, 1995, 7-077576

Int. Cl.⁶ G01F 5/00

U.S. Cl. 73—202

5 Claims



5. A laminar flow device comprising:
a plurality of disks and a plurality of spacers alternately stacked together;
each of said disks having a predetermined pattern of holes formed therethrough;
said holes in each of said disks being disposed out of registry with said holes in a said disk disposed adjacent thereto;
each said spacer comprising a thin, narrow ring having an outer diameter the same as an outer diameter of said disks; and
all said holes in said disks being located inwardly of an inner periphery of each said ring.

5,672,828
STRENGTH DETERMINATION OF SHEET MATERIALS
BY ULTRASONIC TESTING

Russell J. Allan, Alphington, Australia, assignor to Amcor Limited, Victoria, Australia

PCT No. PCT/AU94/00596, § 371 Date Jan. 30, 1996, § 102(e) Date Jan. 30, 1996, PCT Pub. No. WO95/11453, PCT Pub. Date Apr. 27, 1995

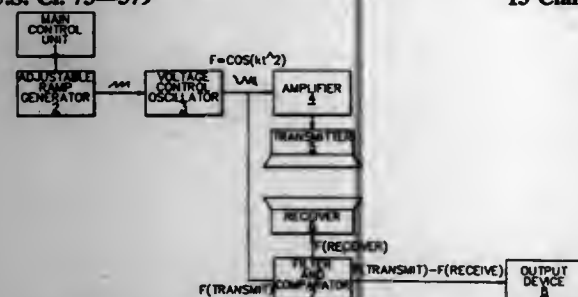
PCT Filed Oct. 3, 1994, Ser. No. 586,765

Claims priority, application Australia, Oct. 22, 1993, PM-1972

Int. Cl.⁶ G01N 29/18

U.S. Cl. 73-579

13 Claims



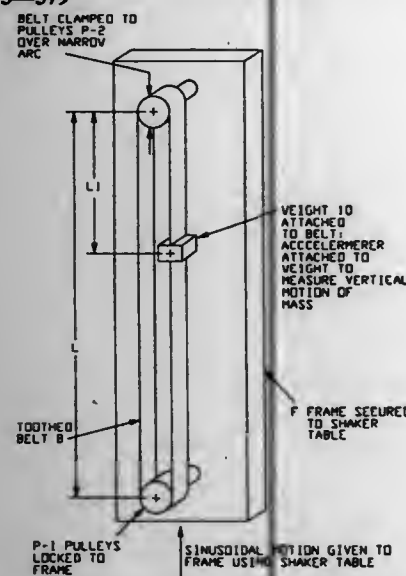
1. A method of measuring strength characteristics and related properties in a sheet product including the steps of:
 - (a) providing a continuous sonic swept frequency wave within the sheet product;
 - (b) receiving the continuous sonic swept frequency wave;
 - (c) taking measurements in order to ascertain the time the wave takes to reach the receive after transmission and determining the strength characteristics and related properties from said measurements.

5,672,829
CALCULATING DAMPING FOR BELTS
 Michael N. Tranquilla, 16823 Fitzgerald, Livonia, Mich. 48154
 Division of Ser. No. 418,221, Apr. 6, 1995, Pat. No. 5,554,807.
 This application Aug. 26, 1996, Ser. No. 697,548

Int. Cl.⁶ G01H 1/00

U.S. Cl. 73-579

9 Claims



1. Apparatus for dynamically calculating the damping coefficient of a web, this apparatus including: a series of pulley units for mounting the specimen web; shaking means for imparting oscillating shaking to said apparatus at resonant frequency; transducer means for indicating displacement during said shaking; and a test mass arranged to be attached to said web at variable distances L, from one of said pulley units, whereby to shake said apparatus,

web and test mass at frequencies including resonance frequency, and so determine said damping coefficient for each said distance L.

5,672,830
MEASURING ANISOTROPIC MECHANICAL
PROPERTIES OF THIN FILMS

John A. Rogers, Castle Rock, Colo.; Keith A. Nelson, Newton, Mass., and Lisa Dhar, Northbrook, Ill., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

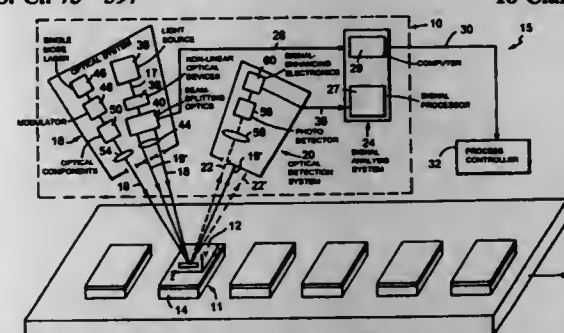
Continuation of Ser. No. 318,021, Oct. 4, 1994, abandoned.

This application Dec. 11, 1996, Ser. No. 763,873

Int. Cl.⁶ G01N 29/18

U.S. Cl. 73-579

18 Claims



1. A method for determining the anisotropy between an out-of-plane and an in-plane material property of a thin sample, wherein an exposed surface of said thin sample extends substantially along said plane, comprising:
 - exciting time-dependent waveguide acoustic modes in the sample by directing two time-coincident laser pulses onto the sample so that they overlap in an excitation region and interfere to form an excitation field having a known wavevector, detecting said waveguide acoustic modes by directing a probe beam onto the excitation region so that it is diffracted, said probe beam having a temporal width that is comparable to the detectable presence of said waveguide acoustic modes;
 - analyzing the diffracted probe beam to measure phase velocities of said waveguide acoustic modes, and determining the anisotropy between the out-of-plane and the in-plane mechanical property of said sample by:
 - proposing stiffness tensors in directions of interest, calculating phase velocities based on said proposed stiffness tensors,
 - comparing said calculated phase velocities to said measured phase velocities,
 - repeating said proposing, calculating, and comparing until said calculated phase velocities match said measured phase velocities to a desired degree, and
 - determining the anisotropy between the out-of-plane and the in-plane mechanical property in the direction of interest from the stiffness tensors for which the calculated phase velocities match the measured phase velocities to said desired degree.

5,672,831
CAPACITIVE FLOW SENSOR
 George Codina, North Hollywood, Calif.; Chandrasekar Ramamoorthy, Normal, and Donna J. Murr, Dunlap, both of Ill., assignors to Caterpillar Inc., Peoria, Ill.

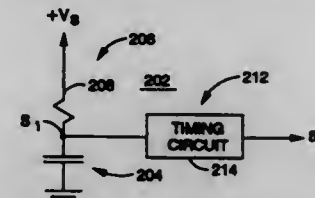
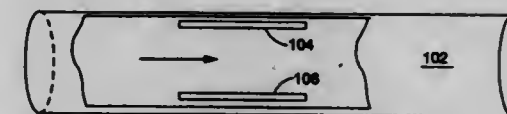
Filed Aug. 31, 1995, Ser. No. 522,024

Int. Cl.⁶ G01F 1/56

U.S. Cl. 73-861.12

2 Claims

1. An apparatus for measuring the flow rate of a dielectric liquid in a line, comprising:
 - a pair of electrodes contained within the line and oppositely spaced, forming a capacitor;
 - charging means, coupled to said capacitor, for producing a charging current of constant magnitude and charging said capacitor to a predetermined voltage; and,



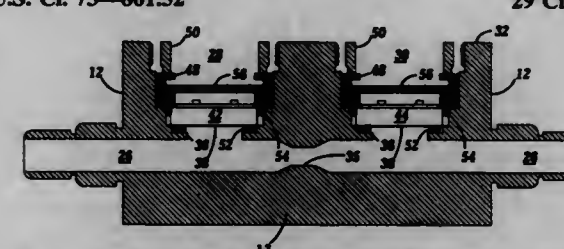
- timing means, connected to said capacitor, for detecting the time at which said charging means begins to produce said charging current and the time at which said capacitor has been charged to said predetermined voltage, and for producing a pulse width modulated signal, the magnitude of said pulse width modulated signal being indicative of a charging time, said charging time defined as the time between the start of said constant current and the time at which said capacitor has been charged to said predetermined voltage and being indicative of the flow rate of the liquid flowing through the container.

5,672,832
CHEMICALLY INERT FLOW METER WITHIN CAUSTIC
FLUIDS HAVING NON-CONTAMINATING BODY
 Gerald R. Cucchi, and Diane L. Englund, both of Minneapolis, Minn., assignors to NT International, Inc., Fridley, Minn.
 Filed Feb. 15, 1996, Ser. No. 601,786

Int. Cl.⁶ G01L 7/00; G01F 1/44

U.S. Cl. 73-861.52

29 Claims



25. A chemically inert fluid flow meter adapted to be connected in-line with a fluid flow circuit, comprising:
 - a chemically inert housing having a longitudinal bore of a first predetermined cross-sectional area extending through said housing forming a fluid flow conduit, wherein an inlet end and an outlet end of the conduit are adapted for connection to the fluid flow circuit, said housing further having first and second spaced apart cavities each extending transversely from an external surface of said housing into the longitudinal bore of said housing, the longitudinal bore having a constriction disposed between said first and second cavities, the constriction having a second bore being of a second cross-sectional area that is less than the first predetermined cross-sectional area;
 - a chemically inert flexible membrane contained within each of said first and second cavities, proximate the longitudinal bore of said housing, thereby isolating an interior of said first and second cavities from fluid flowing in the fluid flow conduit, each membrane having first and second opposed major surfaces, said first major surface being exposed to fluid flowing in the fluid flow conduit;
 - first means for sensing a first pressure within the flow circuit, said first means for sensing being contained within said first cavity;
 - second means for sensing a second pressure within the flow circuit, said second means for sensing being contained within said second cavity;
 - means for constraining the first and second means for sensing in a fixed position within the cavities of the housing; and

- (f) an electronic circuit contained within the housing and coupled to the first and second means for sensing, whereby the electronic circuit receives signals proportional to the sensed first and second pressures within the bore and thereafter produces an electrical signal proportional to a rate of fluid flow within the bore determined from the sensed first and second pressures.

5,672,833
PEAK FLOW METER FOR MEASURING VENTILATORY
CAPACITY

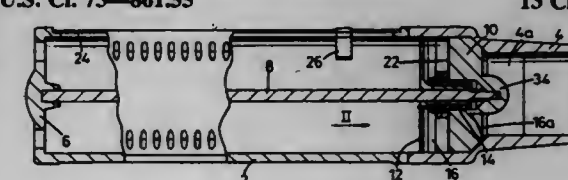
Stephen William Byerley, Harlow, England, assignor to Clement Clark International, Ltd., Harlow, England
 Filed Jan. 30, 1996, Ser. No. 593,911

Claims priority, application United Kingdom, Feb. 16, 1995, 9502996

Int. Cl.⁶ A61B 5/087

U.S. Cl. 73-861.55

13 Claims



1. A meter for measuring the ventilatory capacity of a subject, comprising a hollow body, the hollow of said body providing a chamber, an air inlet passage to the chamber, a piston having an end position within the chamber adjacent said air inlet passage, resilient biasing means urging the piston towards said end position in the chamber, the piston being displaceable from said end position by the subject blowing through the inlet air passage into the chamber, a boundary wall of said hollow body defining said chamber extending away from said inner inlet passage, an air exit slot extending along said boundary wall of the chamber away from said air inlet passage for the escape of air from the chamber, said exit slot being increasingly opened by said displacement of the piston from its end position, indicator means for indicating the maximum said displacement of the piston, deflection means in said air inlet passage for concentrating the air flow towards said first exit slot along said boundary wall of the chamber.

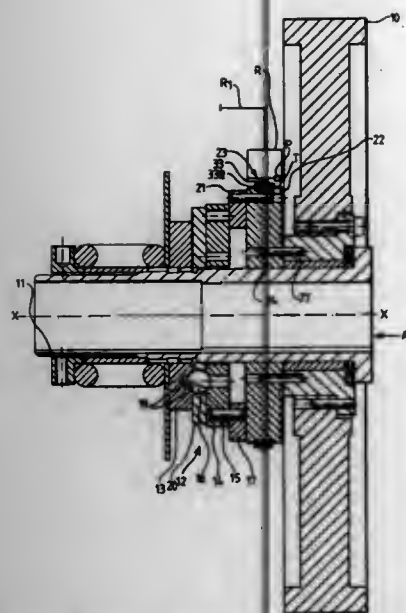
5,672,834
TORQUE INDICATING DEVICE
 Bryan Norman Searle, Shipton-under-Wychwood, and David John Fortune, Weston, both of United Kingdom, assignors to British Autogard Limited, Gloucestershire, United Kingdom
 Continuation-in-part of Ser. No. 215,330, Mar. 21, 1994, abandoned. This application Jan. 26, 1995, Ser. No. 378,482
 Claims priority, application United Kingdom, Jan. 29, 1994, 9401708; Aug. 5, 1994; 9415883

Int. Cl.⁶ G01L 1/22

U.S. Cl. 73-862.338

19 Claims

1. A torque indicating device comprising first and second parts connected in torque transmitting relationship, torque transmitting means connecting said first and second parts, torque sensing means, provided on said torque transmitting means and responsive to torque transmitted by said torque transmitting means, to produce a signal dependent on said transmitted torque,



communicating means including a transmitter of electro-magnetic radiation receiving said signal produced by said torque sensing means, and communicating an output signal dependent on said torque to receiving means which provides an output responsive to said transmitted torque;

said communicating means including an aerial and wherein the electro-magnetic radiation is of radio frequency transmitted from said aerial, and said transmitter includes a radio frequency oscillator which transmits an output signal to a receiving means;

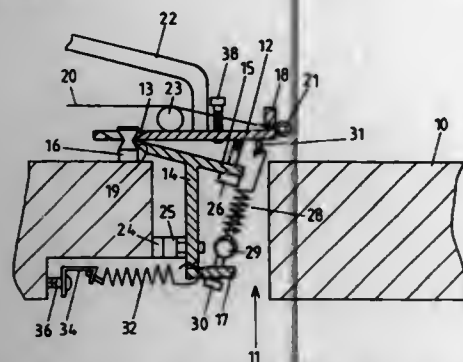
said device is rotatable about an axis and the first part comprises a radially inner part, relative to said axis, and the second part comprises a radially outer part, relative to said axis, and the torque transmitting means comprises at least one radially and circumferentially extending torque transmitting element extending between said parts to transmit torque therebetween; and

said inner part and outer part are further interconnected by a plurality of radially and axially extending webs which provide axial stability to the torque indicating device and which have a thickness in the circumferential direction of the device which is less than their width in the axial direction thereof.

5,672,835
TREMOLO DEVICES
 Colin David Doughty, 140 Wellington Road, Wainuiomata, Wellington, New Zealand
 Filed Aug. 25, 1995, Ser. No. 519,166
 Int. Cl.⁶ G10D 3/00

U.S. Cl. 84-313

15 Claims



1. A tremolo device for a guitar having a body, neck, strings and head, the device comprising:

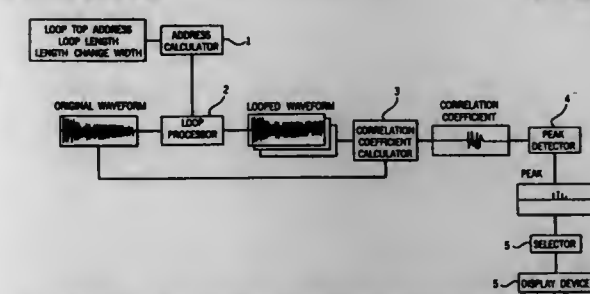
- an upper plate having a leading edge toward said head and a trailing edge away from said head pivotal about a first pivot point, said first pivot point being mountable on said guitar body, said upper plate having a retaining means at or near said trailing edge of said upper plate for releasably retaining an end of each of the strings of said guitar whereby said strings pivot said upper plate upwardly,
- a lower plate having a leading edge toward said head and a trailing edge away from said head pivotal about a second pivot point, said second pivot point being mountable either on said guitar body or on said upper plate,
- said upper plate having a lowermost plane, said lower plate having an uppermost plane, said lowermost plane of said upper plate intersecting with said uppermost plane of said lower plate to form a relative angle of pivot therebetween,
- a tremolo arm mounted in said upper plate so as to be able to pivot said upper plate about said first pivot point,
- limiting means operable between said upper plate and said lower plate to limit the relative angle of pivot between said upper and lower plates,
- first spring means on said lower plate and mountable in said guitar body to urge said lower plate downwardly into a stopped position relative to said guitar body,
- said tremolo device being adapted to be fitted to said guitar body with said strings mounted thereon whereby:
 - a) when said tremolo device is in a neutral position, said lower plate is retained in said stopped position by said first spring means and said upper plate is retained by tension in said guitar strings and by said limiting means so that said relative angle of pivot is at a maximum limit;
 - b) when said tremolo device is pivoted in a first direction from said neutral position, said upper and lower plates pivot upwardly while said relative angle of pivot remains at said maximum limit; and
 - c) when said tremolo device is pivoted in a second opposite direction from said neutral position, said lower plate remains in said stopped position and said upper plate pivots downwardly thereby reducing said relative angle of pivot.

5,672,836
TONE WAVEFORM PRODUCTION METHOD FOR AN ELECTRONIC MUSICAL INSTRUMENT AND A TONE WAVEFORM PRODUCTION APPARATUS
 Toshiya Yoshida, Shizuoka-ken, Japan, assignor to Kabushiki Kaisha Kawai Gakki Seisakusho, Japan
 Filed May 14, 1996, Ser. No. 647,566
 Claims priority, application Japan, May 23, 1995, 7-146887; May 26, 1995, 7-151123

Int. Cl.⁶ G10H 7/00

U.S. Cl. 84-607

4 Claims



1. A method, for forming a repeated waveform that is employed for an electronic musical instrument, comprising the steps of: setting, as basic data, a loop top address, an initial value of a loop length, and a length change range; forming an original waveform; changing said loop length within said length change range; forming repeated waveforms that are obtained after cross-fading is performed with respect to the original waveform in consonance with the changing loop length;

acquiring correlation coefficients of said repeated waveforms, which are obtained by cross-fading, and waveforms at corresponding portions of the original waveform; and selecting a predetermined number of waveforms beginning at a waveform that is most correlative with respect to the original waveform to determine a repeated waveform.

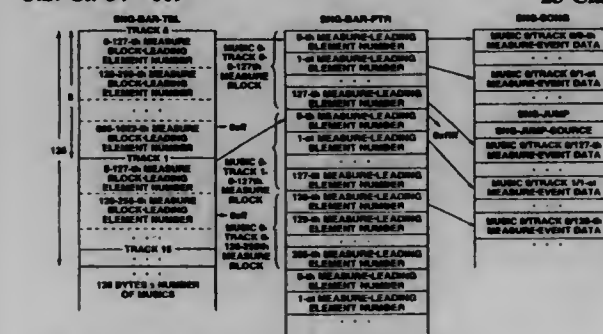
5,672,837
AUTOMATIC PERFORMANCE CONTROL APPARATUS AND MUSICAL DATA STORING DEVICE
 Masaru Setoguchi, Mizuhomachi, and Yoshinori Yashiro, Tokyo, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Dec. 21, 1995, Ser. No. 576,481
 Claims priority, application Japan, Dec. 29, 1994, 6-339364; Dec. 29, 1994, 6-340418

Int. Cl.⁶ G10H 1/26; 1/40

U.S. Cl. 84-609

23 Claims



13. A musical data storing device comprising: first memory for storing plural measure data each containing plural event data, each event data including time data counted from a leading position in the measure data; second memory for storing plural measure-data designating data which designate locations in said first memory where event data contained in the measure data are stored; a series of measure-data designating data which are continuously stored in said second memory being grouped into plural measure blocks, each measure block containing a group of measure-data designating data; and third memory for storing measure-block designating data which designate locations in said second memory where the groups of measure-data designating data contained in the respective measure blocks are stored.

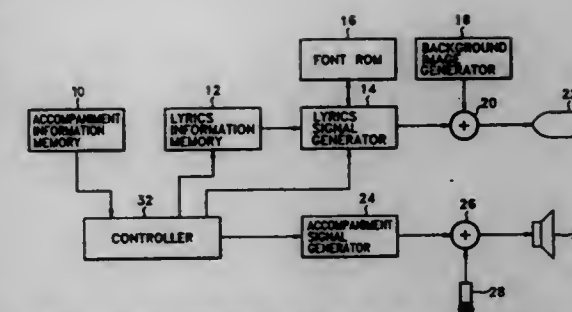
5,672,838
ACCOMPANIMENT DATA FORMAT AND VIDEO-SONG ACCOMPANIMENT APPARATUS ADOPTING THE SAME
 Deok-hyun Lee, Seoul, and Hong-soon Park, Suwon, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea
 Filed May 5, 1995, Ser. No. 435,780
 Claims priority, application Rep. of Korea, Jun. 22, 1994, 94-14325

Int. Cl.⁶ G10H 7/00

U.S. Cl. 84-645

6 Claims

1. An accompaniment data format of a video-song accompaniment apparatus having a controller reading accompaniment information contained in a first memory and controlling display and successive color conversion of a lyrics sequence stored in a second memory to thereby display a lyrics signal sequence synchronized with an accompaniment signal sequence, said accompaniment data format comprising: a display flag for instructing display of a respective portion of the lyrics signal sequence corresponding to a respective next measure of the accompaniment signal sequence;



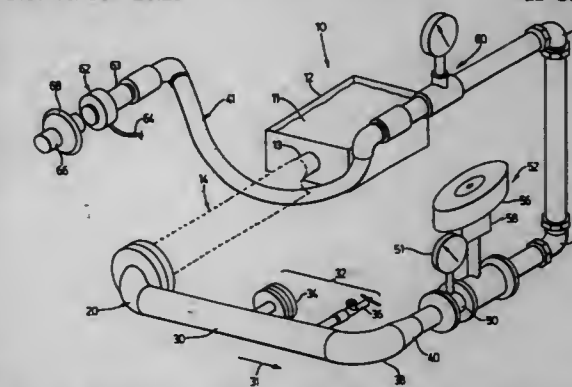
a color conversion flag for instructing successive conversion of respective characters in said displayed portion of the lyrics signal sequence from a first color to a second color; and an erasure flag for instructing erasure of a respective displayed portion of the lyrics signal sequence corresponding to a currently reproduced measure of the accompaniment signal sequence.

5,672,839
METHOD AND APPARATUS FOR CONTROLLED REFINING OF EXPLOSIVE COMPOSITIONS
 Alan Hooper, North Bay; Les Collins, Corbell; Earl Reckzin; Andrew Richard, both of North Bay; Mark Kelly, Callander; Tom Palangio, Bonsfield, and Grant Simpson, North Bay, all of Canada, assignors to ETI Explosives Technologies (Canada) Ltd., North Bay, Canada

Filed Oct. 26, 1995, Ser. No. 548,673
 Claims priority, application Canada, Oct. 27, 1994, 2134493
 Int. Cl.⁶ F42B 3/00

U.S. Cl. 86-20.15

11 Claims



1. An apparatus for pumping and thickening pumpable explosive compositions, the apparatus comprising: a pump means for pumping said pumpable explosive; a conduit for transporting said explosive composition away from said pump; a refining means located in said conduit; a control means for measuring a parameter which is related to the amount of refining occurring in said refining means the control means comprising a first sensor upstream of said refining means, and a second sensor downstream of said refining means; and an adjuster associated with said refining means to permit real time control of the refining of the pumpable explosive wherein said adjuster is adjusted to cause said refining means to produce a predetermined optimum value of said measured parameter.

5,672,840

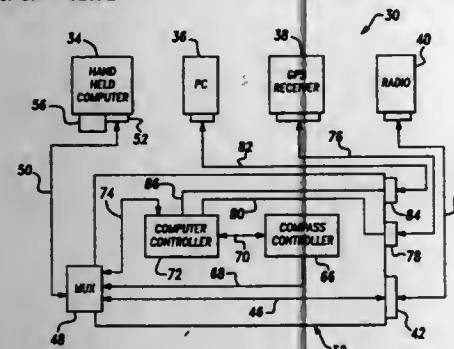
METHOD AND APPARATUS FOR AUTOMATICALLY ORIENTING A COMPUTER DISPLAY

John Sage, Huntington Beach; Jack Alles, Garden Grove; Mike Gonzalez, Temecula; Henry Liverpool, Jr., Rancho PV; Neil Siegel, Rancho Palos Verdes, and Pirom Supakooha, Carson, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Dec. 21, 1994, Ser. No. 362,085
Int. Cl.⁶ F41G 3/00; G06F 101/06

U.S. Cl. 89—41.01

13 Claims



1. A system for automatically orienting a computer display, said system comprising:

- a first computer that is portable and includes the computer display that is oriented in an initial direction, said first computer being operative to reorient the direction of the display in response to computer signals;
- an electronic compass secured to the first computer, and being operative to generate compass signals with reference to a particular compass direction in response to movement of the first computer; and
- a second computer, said second computer including a compass controller and a computer controller, said compass controller being responsive to the compass signal from the electronic compass and being operative to generate computer signals indicative of the compass signals, said first computer being responsive to the computer signals from the computer controller so as to reorient the positional direction of the display so it is aligned in accordance with a particular direction with the movement of the first computer, said computer controller being responsive to computer signals, and processing the computer signals to be sent to the first computer on a single line in accordance with an interleaving scheme.

5,672,841

INFLATOR INITIATOR WITH ZENER DIODE ELECTROSTATIC DISCHARGE PROTECTION

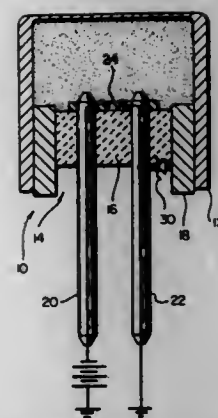
David B. Monk, Kaysville; Mark B. Woodbury, North Salt Lake, and David D. Hansen, Clearfield, all of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Dec. 15, 1995, Ser. No. 574,426
Int. Cl.⁶ F42B 3/18; F42C 19/12

U.S. Cl. 102—202.4

11 Claims

1. An initiator with electrostatic discharge protection comprising: a generally cup-shaped housing having an open end and containing pyrotechnic material; sealing means for closing said housing open end and encapsulating said pyrotechnic material within said housing; a pair of electrodes in contact with said pyrotechnic material and extending through said sealing means; and a zener diode coupled in electrical circuit between said housing and one of said electrodes to provide a path for electrostatic discharge and to prevent electrostatic discharge from adversely affecting said pyrotechnic material; wherein said zener diode comprises a discrete component mounted to said initiator in a position extending between an inner surface of said housing and said one of



said electrodes, and has an anode electrode electrically in series with said housing and a cathode electrode electrically in series with said one electrode of said initiator.

5,672,842

CASE FOR PROPELLANT CHARGE

Bernard Brion, and Michel Hossard, both of Bourges, France, assignors to Giat Industries, Versailles, France
Continuation of Ser. No. 536,783, Sep. 29, 1995, abandoned.

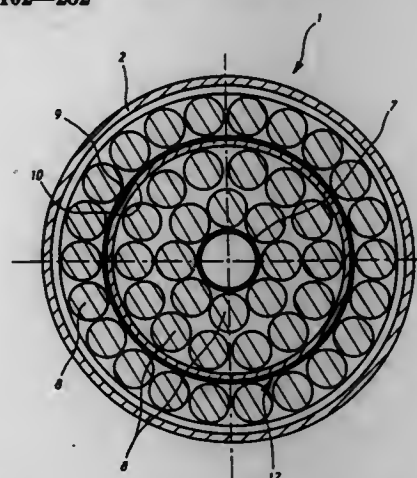
This application Jan. 9, 1997, Ser. No. 781,139

Claims priority, application France, Oct. 6, 1994, 94 11937

Int. Cl.⁶ F42B 5/00

U.S. Cl. 102—282

3 Claims



1. A case in combination with a propellant charge, the propellant charge disposed within a substantially cylindrical envelope that is formed from a combustible material, comprising:

- at least one support that is formed from a combustible material and coated on at least one reception section with an anti-wear additive; and
 - means for positioning the support spaced from the substantially cylindrical envelope such that, after assembly, at least one empty space is defined between an inner surface of the envelope and the anti-wear additive, the means for positioning being formed from a combustible material;
- said means for positioning comprising a radial stop defined by a plurality of sticks of propellant charge between said inner surface of said substantially cylindrical envelope and said at least one support.

5,672,843

SINGLE CHARGE PYROTECHNIC

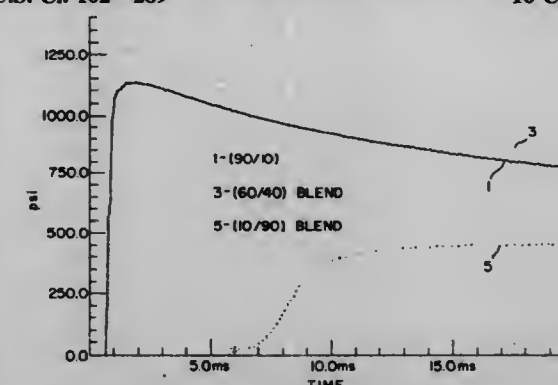
John Harold Evans, Harleysville, and Michael Albert Lehmick, Havertown, both of Pa., assignors to ICI Americas Inc.

Filed Oct. 5, 1994, Ser. No. 318,466

Int. Cl.⁶ C06D 5/06; C06B 33/06

U.S. Cl. 102—289

16 Claims



1. A single charge pyrotechnic composition comprising (a) about 5 to 55 percent by weight metal fuel selected from titanium, zirconium, magnesium, aluminum, hafnium, and chromium or combinations thereof, (b) about 35 to 80 percent by weight oxidizer selected from an alkali or alkali metal perchlorate, chlorate or nitrate, or combinations thereof, and (c) about 1 to 30 percent by weight of a secondary fuel selected from boron, silicon or carbon, or combinations thereof.

5,672,844

APPARATUS FOR THE SUPPRESSION OF ELECTROMAGNETIC INTERFERENCE IN AN ELECTRONIC SYSTEM

Pär-Håkan Persson, Research Triangle Park, and Nils Rutger Rydbeck, Cary, both of N.C., assignors to Ericsson Inc., Research Triangle Park, N.C.

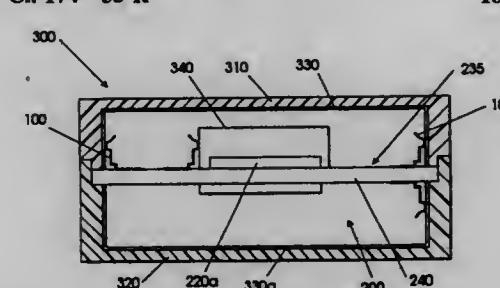
Continuation of Ser. No. 165,967, Dec. 10, 1993, abandoned.

This application Jan. 2, 1997, Ser. No. 778,584

Int. Cl.⁶ H05K 9/00; 5/02

U.S. Cl. 174—35 R

18 Claims



1. An electronic system shielded from electromagnetic interference comprising:

- a housing having a conductive surface;
- a circuit board enclosed within said housing having a mounting surface, said circuit board including at least one electronic component sensitive to electromagnetic interference and a first grounding site on said mounting surface, and further including a conductive component housing enclosing said at least one sensitive component and a second grounding site on said mounting surface positioned adjacent said component housing; and

a first conductive shielding unit electrically connected to said first circuit board grounding site and configured for slidable contact with said housing conductive surface, and a second conductive shielding unit electrically connected to said second grounding site and configured for slidable contact with said conductive component housing, said first and second shielding units being positioned on said circuit board to shield said device from electromagnetic radiation.

5,672,845

LOCAL DISTRIBUTION UTILITY CENTER FOR A RAISED FLOOR

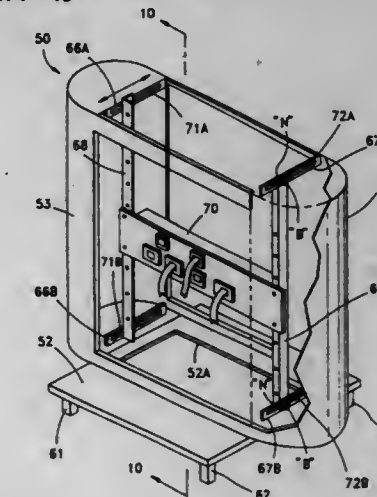
Sherwood S. Greenfield, 13411 Portside Ct., Charlotte, N.C. 28278, and Kevin J. Voll, 249 Wainsley Pl., Matthews, N.C. 28105

Continuation-in-part of Ser. No. 361,640, Dec. 22, 1994, Pat. No. 5,548,086. This application Apr. 8, 1996, Ser. No. 629,295

Int. Cl.⁶ H02G 3/08

U.S. Cl. 174—48

17 Claims



1. In combination with a raised floor for accommodating data and telecommunications wiring in an area between the raised floor and a supporting subfloor, a utility center located intermediate a communications wiring closet and at least one work station of a work group for distributing wiring to communications equipment of the at least one work station, said utility center comprising:

- (a) an enclosure having a base, and an access opening formed in the base for receiving wiring from the communications wiring closet, and for delivering wiring to the at least one work station of the work group;
- (b) distribution panel support means carried in said enclosure;
- (c) distribution panel means carried by said distribution panel support means in vertically spaced relation above the access opening for operatively interconnecting wiring of the wiring closet and the communications equipment of the at least one work station; and
- (d) distribution panel adjustment means cooperating with said distribution panel support means for adjusting a horizontal orientation of said distribution panel means above the access opening of said base.

5,672,846

ELECTRICAL CONNECTOR

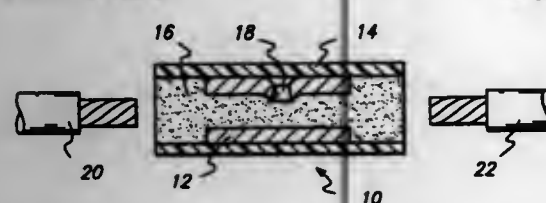
Christian Arthur Marie-Louise Deblaut, Cary, N.C., assignor to Raychem Corporation, Menlo Park, Calif.

Continuation of Ser. No. 324,420, Oct. 18, 1994, which is a continuation of Ser. No. 933,285, Aug. 21, 1992, Pat. No. 5,357,057, which is a continuation of Ser. No. 396,575, Aug. 21, 1989, Pat. No. 5,140,746, which is a continuation of Ser. No. 183,546, Apr. 18, 1988, Pat. No. 4,864,725, which is a continuation of Ser. No. 38,415, Apr. 9, 1987, abandoned, which is a continuation of Ser. No. 756,519, Jul. 17, 1985, abandoned, which is a continuation of Ser. No. 507,433, Jun. 23, 1983, abandoned, which is a continuation-in-part of Ser. No. 504,000, Jun. 13, 1983, Pat. No. 4,634,207, which is a continuation-in-part of Ser. No. 434,011, Oct. 12, 1982, Pat. No. 4,600,261. This application Jun. 2, 1995, Ser. No. 459,584

Int. Cl.⁶ H02G 15/06; 15/10

U.S. Cl. 174—84 R

4 Claims



3. An article for splicing electrical wires comprising:

(a) an electrical connector which is adapted to receive electrical wires and to be mechanically deformed to electrically connect said electrical wires received therein, said electrical wires selected from the group consisting of: electrical wires with insulation, electrical wires with the insulation removed, and combinations thereof;

(b) an insulating sleeve adapted to surround and retain said electrical connector; and

(c) an encapsulant disposed and positioned within said insulating sleeve and enveloping said electrical connector, so that said electrical wires received therein penetrate the encapsulant to be environmentally sealed, said encapsulant having been prepared by curing reactive silicones with non-reactive extender silicones to form a solid having a cone penetration value from 150 to 350 (10^{-1} mm) and an ultimate elongation of at least 200%.

5,672,847

COMPUTER CABLE BENDER

John Allen Piatt, 226 Getchell St., Santa Cruz, Calif. 95060

Filed Nov. 13, 1995, Ser. No. 555,913

Int. Cl.⁶ F16L 3/10

U.S. Cl. 174—135

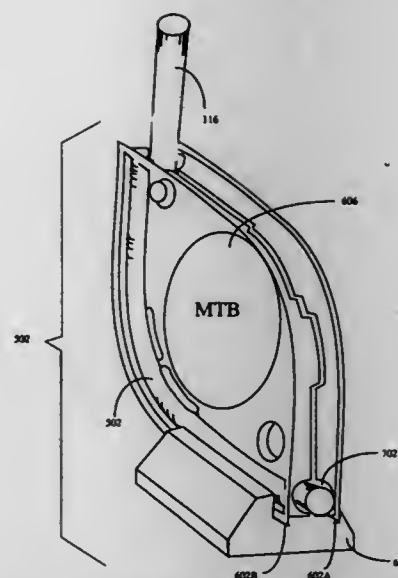
11 Claims

1. A computer cable bender for supporting above a surface and generating slack in an insulated cable coupling a computer device to a computer system, comprising:

a first bending half, having a perimeter consisting of two arcuate sides, having a first key, a first keyhole, and a first channel bending from a first plane towards a second plane for bending the insulated cable in an arc in a plane above said surface;

a second bending half having a perimeter consisting of two arcuate coupled to the first bending half having a second key coupled to said first keyhole, a second keyhole coupled to said first key, and a second channel opposing said first channel bending in parallel with said first channel from said first plane towards said second plane for bending the insulated cable in said arc; and

a base coupled at a bottom of the first bending half and the second bending half for supporting the first and second bending halves above the surface and thereby supporting above the



surface and generating slack in the insulated cable coupling the computer device to the computer system.

5,672,848

CERAMIC CIRCUIT BOARD

Hiroshi Komorita, Yokohama; Tadashi Tanaka, Matsudo; Takayuki Naba, Kawasaki, and Takashi Hino, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

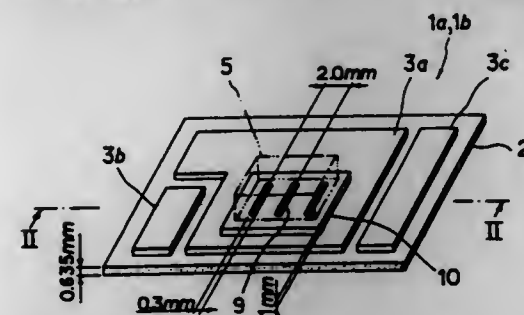
Filed Dec. 28, 1994, Ser. No. 365,483

Claims priority, application Japan, Dec. 28, 1993, 5-336723

Int. Cl.⁶ H01L 23/00

U.S. Cl. 174—260

21 Claims



1. A ceramic circuit board comprising:

a ceramic substrate;
a copper circuit plate directly bonded with heating onto a predetermined position of said ceramic substrate;
a copper plate element directly bonded at a semiconductor element mounting portion of said copper circuit plate, said copper plate element being formed with grooves thereon;
a semiconductor element bonded on said copper plate element, wherein the semiconductor element is integrally bonded on a surface of a grooved side of said copper plate element through a solder layer.

5,672,849

PATIENT WEIGH SCALE

L. Dale Foster, and Ryan Anthony Reeder, both of Brookville, Ind., assignors to Hill-Rom Company, Inc., Batesville, Ind.

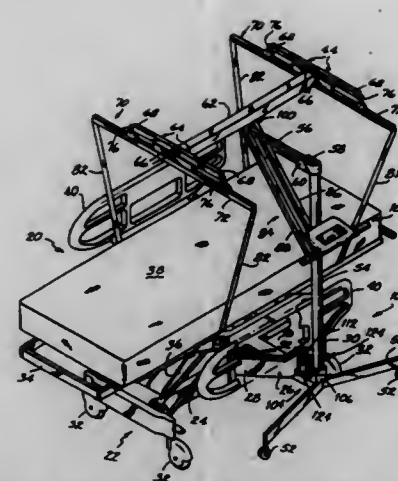
Filed Mar. 31, 1994, Ser. No. 221,748

Int. Cl.⁶ G01G 19/52; 21/22

U.S. Cl. 177—144

26 Claims

25. In combination:
a hospital bed having a raisable and lowerable frame means supporting a substantially rigid patient support; and



a weigh scale having an overbed portion means connectable by drop means to said patient support;
wherein when said overbed portion means of said weigh scale is rigidly connected to said substantially rigid support by said drop means and said bed frame means is lowered out from under said support, a patient supported by said patient support is weighed with no vertical relative movement of the patient relative to a supporting floor and no hammocking of the patient support.

5,672,850

WEIGHT SENSOR WITH ELECTROSTATIC CAPACITANCE

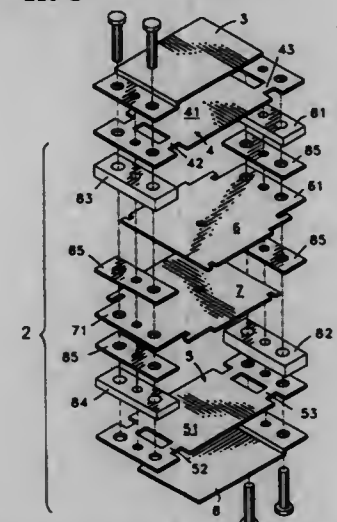
Chung-Kuang Llu, P.O. Box 10780, Taipei, Taiwan

Filed Jun. 1, 1995, Ser. No. 457,579

Int. Cl.⁶ G01G 3/14

U.S. Cl. 177—210 C

6 Claims



1. A weight sensor with electrostatic capacitance, comprising:

a baseplate;
a fixed portion coupled and secured to said baseplate, said fixed portion having an upper portion and a lower portion;
a movable portion having an upper portion and a lower portion;
a loaded element coupled to and supported on said movable portion;
a sheet-like upper support plate having two end portions respectively coupled to the upper portions of said fixed portion and said movable portion;
a sheet-like lower support plate having two end portions respectively coupled to the lower portions of said fixed portion and said movable portion;
a stationary electrode having one end thereof secured to said fixed portion;

5,672,851

GAUGE HAVING VERTICALLY SUSPENDED MAINSPRING

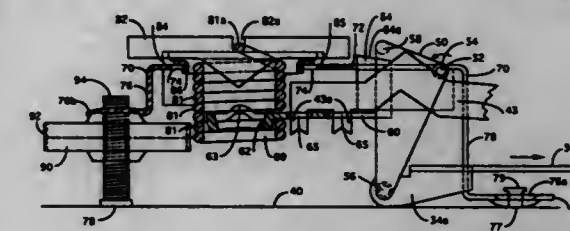
Rodney E. Smith, Rte. 3, Box 268A, Quitman, Miss. 39355, and Donald Ivy, P.O. Box 212, Waynesboro, Miss. 39367

Filed Mar. 1, 1994, Ser. No. 205,290

Int. Cl.⁶ G01G 3/00; 23/26; F16F 1/06

U.S. Cl. 177—225

25 Claims



1. In a weighing apparatus comprising a base, said base supporting balancing link means, said balancing link means being operatively engaged with rocker means, whereby vertical deflection of said balancing link means from a weight applied thereto is translated into horizontal motion of said rocker means, said rocker means being coupled to rack means driving pinion means, said pinion means including indicator means for indicating a measure of said weight applied to said balancing link, the improvement comprising main spring means suspended vertically from bracket means, said bracket means being supported by said base at two or more points, said bracket means including an opening through which said main spring means may pass, said main spring means being vertically suspended on said bracket means by hanger means traversing said opening and supported by said bracket means, said main spring means including means for operatively engaging said main spring means, whereby said balancing link means deflect proportionally to said weight applied to said balancing link means.

5,672,852

POSITION POINTING DEVICE INCLUDING A MEMORY AND A POSITION DETECTING DEVICE COUPLED BY AC FIELDS TO THE POINTING DEVICE

Yasuhiro Fukuzaki, and Yuji Katsurahira, both of Saitama-ken, Japan, assignors to Wacom Co., Ltd., Saitama-ken, Japan

Filed Mar. 17, 1995, Ser. No. 406,203

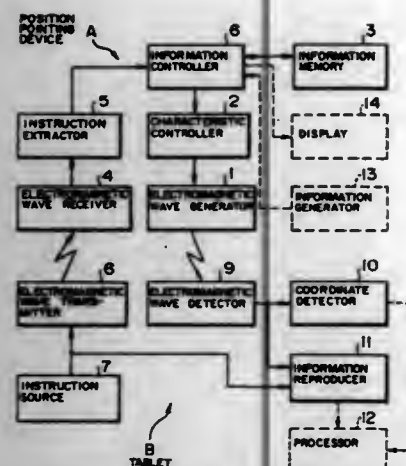
Claims priority, application Japan, Mar. 18, 1994, 6-049477

Int. Cl.⁶ G08C 21/00; G09G 3/02

U.S. Cl. 178—19

19 Claims

1. A position detecting device wherein a position pointing device emits an AC field having a certain spatial distribution which corresponds to the coordinate value of a position pointed by the position pointing device, a tablet detects the AC field to determine the coordinate value of the position pointed by said position pointing device, and said position pointing device controls the intensity characteristic, frequency characteristic, or the time-dependent changes of these characteristics of said AC field in accordance with predetermined individual information, and the



tablet detects them to determine the predetermined individual information from said position pointing device:

said position pointing device comprising:

a memory for storing predetermined individual information, an AC field receiver for receiving an AC field transmitted from the tablet and which contains predetermined individual information and a write instruction therefor or a read instruction for said predetermined individual information, an instruction extractor for extracting the predetermined individual information and the write instruction therefor or the read instruction for said predetermined individual information from said received AC field, and

an information controller for writing the predetermined individual information to said memory in accordance with said extracted write instruction and for reading the predetermined individual information from said memory as said predetermined individual information in accordance with said extracted read instruction; and

said tablet comprising:

an instruction source for creating predetermined individual information and a write instruction therefor or a read instruction for reading said predetermined individual information, and

an AC field transmitter for transmitting to the position pointing device an AC field, which contains said predetermined individual information and the write instruction therefor or the read instruction for said predetermined individual information, and

an information reproducer for reproducing the predetermined individual information from the intensity characteristic, frequency characteristic or time-dependent changes of these characteristics of the detected AC field.

5,672,853

ELEVATOR CONTROL NEURAL NETWORK

Bradley L. Whitehall, Glastonbury; David J. Sirag, Jr., South Windsor, and Bruce A. Powell, Canton, all of Conn., assignors to Otis Elevator Company, Farmington, Conn.

Continuation of Ser. No. 224,224, Apr. 7, 1994, abandoned.

This application May 6, 1996, Ser. No. 643,397

Int. Cl.⁶ B66B 1/16; 1/18; 1/34

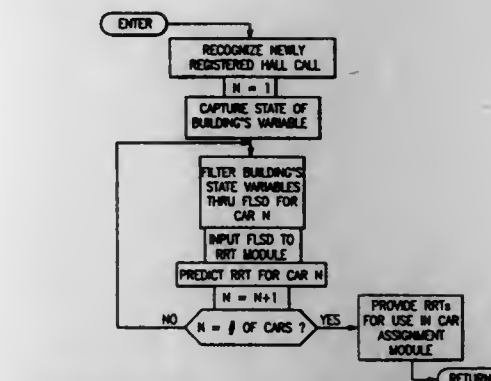
U.S. Cl. 187—380

13 Claims

10. A method for estimating a remaining response time for an elevator car in answering a hall call in a building, comprising the steps of:

providing fixed length stop description input signals representing filtered information relating to the elevator car and conditions in the building at a time of a registration of a hall call for an instant assignment, wherein said fixed length stop description input signals are fixed in length regardless of the size of the building and the number of elevator cars therein;

weighting each of the fixed length stop description input signals with weighted signals preselected according to an iterative



training scheme for a neural network, for providing weighted fixed length stop description input signals;

summing the weighted fixed length stop description input signals, for providing a remaining response time signal representing information relating to a remaining response time for the elevator car to answer the hall call in the building;

performing the preceding steps for a plurality of remaining elevator cars in the building;

providing a selected remaining response time signal to an elevator assignment module to determine a selected elevator car to answer the hall call in the building; and

assigning instantly the selected elevator car to answer the hall call in the building in response to the selected remaining response time signal.

5,672,854

SLIDE SWITCH

Minoru Nishio, Niwa, Japan, assignor to Kabushiki Kaisha

Tokai-Rika-Denki-Seisakusho, Aichi-ken, Japan

Continuation of Ser. No. 240,486, May 10, 1994, abandoned.

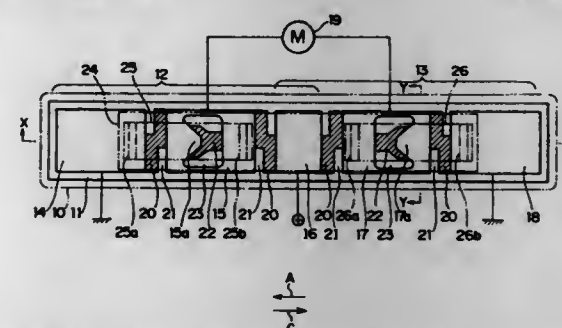
This application Aug. 1, 1996, Ser. No. 690,998

Claims priority, application Japan, May 11, 1993, 5-024191

Int. Cl.⁶ H01H 1/36

U.S. Cl. 200—16 R

16 Claims



1. A slide switch for opening and closing a circuit for supplying electricity to a load comprising:

a movable contact which is slidable; and

a stationary contact which said movable contact contacts and separates therefrom, said stationary contact being integrally formed with an arc generating portion for generating arc between said arc generating portion and said movable contact when said circuit is opened or closed and including an insulating section, said insulating section including a recess in said stationary contact,

said arc generating portion protruding in a direction in which said movable contact moves and defining a base portion near a protrusion from the stationary contact and a tip portion opposite from the base, said arc generating portion having a width which gradually decreases from its base portion towards its tip portion, wherein said recess includes a substantially first portion, which is substantially complementary in shape to said arc generating portion.

5,672,855

CANCELING MECHANISM FOR A VEHICULAR TURN SIGNAL SWITCH

Norio Uchiyama, and Yoshio Hattori, both of Tokyo, Japan, assignors to Niles Parts Co., Ltd., Tokyo, Japan

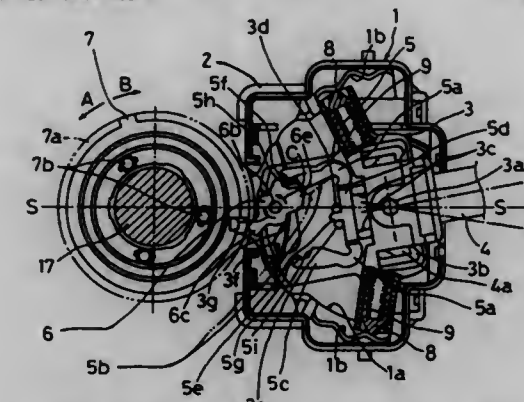
Filed Apr. 12, 1996, Ser. No. 631,053

Claims priority, application Japan, Aug. 7, 1995, 7-221075

Int. Cl.⁶ B60Q 1/40

U.S. Cl. 200—61.3

7 Claims



1. A canceling mechanism for a vehicular turn signal switch, comprising:

a movable platen fitted to an end of a lever and pivotally supported by a case and a lid;
a cam guide mounted on said movable platen;
a cancel cam mounted on said movable platen and supported by said lid; and
a cancel pin that rotates with a steering shaft;
wherein said cam guide has elastic arms for contacting with said cancel cam.

5,672,856

TILT SWITCH WITH INCREASED ANGULAR RANGE OF CONDUCTION AND ENHANCED DIFFERENTIAL CHARACTERISTICS

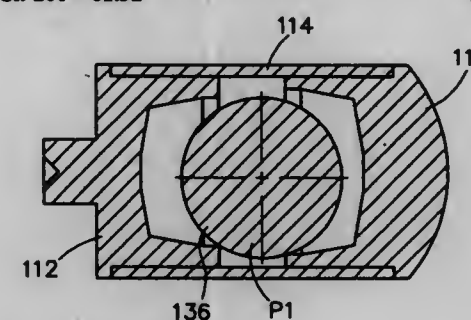
Edgar C. Kolb, Freeport, and James S. Robinson, Freeport, both of Ill., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 2, 1995, Ser. No. 552,181

Int. Cl.⁶ H01H 35/02; 35/14

U.S. Cl. 200—61.52

18 Claims



1. A tilt switch, comprising:

a first electrically conductive member having a first contact point defined by the intersection of two surfaces of said first electrically conductive member;

a second electrically conductive member having a second contact point, said first and second electrically conductive members being aligned along a common axis;

means, attached to said first and second electrically conductive members, for supporting said first and second electrically conductive members in nonconducting relation with each other; and

an electrically conductive sphere which is disposable in contact with said first and second contact points, said electrically conductive sphere being movable in response to a first change

in position of said common axis relative to a horizontal reference between a first position defined by said electrically conductive sphere being in contact relation with said first and second contact points and a second position defined by said electrically conductive sphere being in contact relation with said first contact point and in noncontact relation with said second contact point, said common axis is spaced farther from said first contact point than from said second contact point.

5,672,857

SWITCH ACTUATING MECHANISM FOR TWO SEQUENTIALLY ACTIVATED SWITCHES

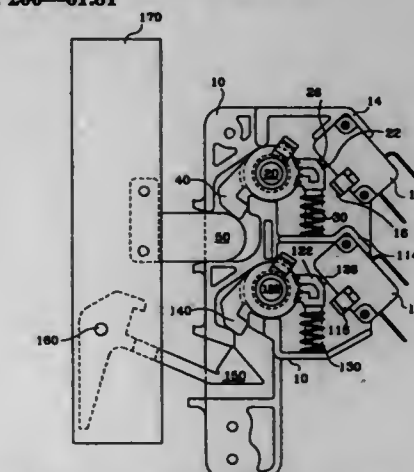
Richard L. Frost; Edgar C. Kolb, and James S. Robinson, all of Freeport, Ill., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Apr. 26, 1996, Ser. No. 639,355

Int. Cl.⁶ H01H 3/06

U.S. Cl. 200—61.81

17 Claims



1. A switch actuation mechanism, comprising:

a support structure, said support structure being rigidly attached to a stationary structure;

a first switch attached to said support structure, said first switch having a first actuating plunger;

a first pivotable member rotatably attached to said support structure and movable between a first rest position and a first actuating position, said first pivotable member having a first actuating surface which is movable into force transmitting contact with said first actuating plunger to actuate said first switch when said first pivotable member is in said first rest position, said first pivotable member having a first protrusion;

a first resilient member disposed in contact with said first pivotable member to urge said first pivotable member to said first rest position, said first pivotable member being movable into said first actuating position to deactivate said first switch in response to movement of a first actuator into contact with said first protrusion;

a second switch attached to said support structure, said second switch having a second actuating plunger;

a second pivotable member rotatably attached to said support structure and movable between a second rest position and a second actuating position, said second pivotable member having a second actuating surface which is movable into force transmitting contact with said second actuating plunger to actuate said second switch when said second pivotable member is in said second rest position, said second pivotable member having a second protrusion; and

a second resilient member disposed in contact with said second pivotable member to urge said second pivotable member to said second rest position, said second pivotable member being movable into said second actuating position to deactivate said second switch in response to movement of a second actuator into contact with said second protrusion.

5,672,858
APPARATUS AND METHOD FOR READING INDICIA
USING CHARGE COUPLED DEVICE AND SCANNING
LASER BEAM TECHNOLOGY

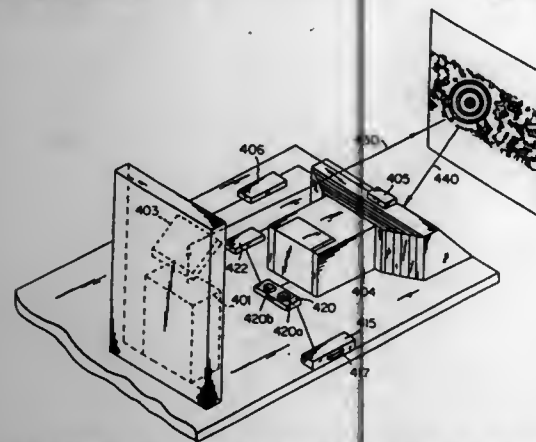
Yajun Li, Oakdale; Joseph Katz, Stony Brook; Jerome Swartz, Old Field, and Daniel McGlynn, Brooklyn, all of N.Y., assignors to Symbol Technologies Inc., Holtsville, N.Y.

Filed Jun. 30, 1994, Ser. No. 269,170

Int. Cl.⁶ G06K 7/10

U.S. Cl. 235—462

46 Claims



1. A scanning device for reading indicia of differing light reflectivity comprising:

- a single light emitter for generating a scanning light beam to visually illuminate sequential portions of the indicia;
- a sensor for detecting light reflected from portions of the indicia by scanning a field of view and for generating an electrical signal representative of spatial intensity variations of said portions of the indicia; and
- a controller for automatically varying the rate of scanning of said sensor to read said indicia.

5,672,859
REPRODUCTION APPARATUS WITH MICROWAVE
DETECTION

Johan Samyn, Roeselare, and Walter Van Loock, Laarne, both of Belgium, assignors to N.V. Bekaert S.A., Zwevegem, Belgium

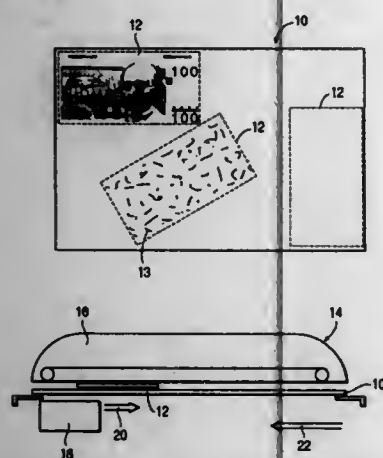
Filed Feb. 13, 1995, Ser. No. 388,254

Claims priority, application European Pat. Off., Mar. 4, 1994, 94200555; Oct. 14, 1994, 94202985

Int. Cl.⁶ G06K 7/10; G03G 21/00

U.S. Cl. 235—468

18 Claims



1. A reproduction apparatus for reproducing documents which comprise a base material, said apparatus comprising:

a reproduction platen located in a microwave scanning area for positioning a document comprising a base material on one side of said platen;

scanning means for scanning the scanning area, said scanning means being positioned on one major side of said platen;

means for obtaining relative movement between said scanning means and the document in order to allow for said scanning, said scanning means comprising a microwave system for detecting the presence in said base material of particles having electromagnetic properties which are substantially different from electromagnetic properties of said base material, said particles being capable of functioning as electrical dipoles, said microwave system comprising a number of microwave sources for generating microwaves, a number of microwave emitters for emitting microwaves to the scanning area, a number of microwave receivers for receiving only microwaves which are reflected, and a number of microwave detectors for detecting only reflected microwaves,

the number of microwave emitters and the number of microwave receivers being respectively greater than the number of microwave sources, and being respectively greater than or equal to the number of microwave detectors,

the position and number of the microwave emitters and the microwave receivers being such that said number of microwave detectors detect the presence of particles functioning as electrical dipoles and being incorporated in at least a part of the base material of the document, irrespective of the position and size of the document in the scanning area.

5,672,860
INTEGRATED HAND-HELD BAR CODE PROCESSING
DEVICE CAPABLE OF AUTOMATIC SCAN AND DATA
DISPLAY

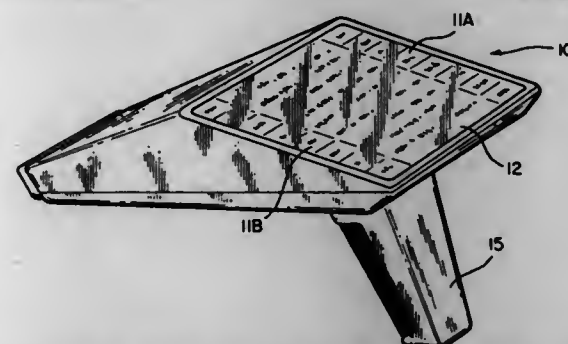
Phillip Miller; Jerry L. Walter; Darrell L. Boatwright, and Darald R. Schultz, all of Cedar Rapids, Iowa, assignors to Norand Corporation, Cedar Rapids, Iowa

Continuation of Ser. No. 257,433, Jun. 8, 1994, abandoned, which is a continuation of Ser. No. 832,052, Feb. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 600,053, Oct. 17, 1990, abandoned, which is a continuation of Ser. No. 136,097, Dec. 21, 1987, abandoned, said Ser. No. 832,052 is a continuation-in-part of Ser. No. 305,302, Jan. 31, 1989, abandoned. This application Jan. 12, 1995, Ser. No. 371,747

Int. Cl.⁶ G06K 7/10

U.S. Cl. 235—472

19 Claims



1. In a data capture system, a hand-held automatic scan reader unit for scanning an optical segment and having a pistol configuration with a barrel having a longitudinal axis, and a handgrip adapted to be held in one hand of an operator, said handgrip having a free end and a handgrip axis directed generally transversely to said longitudinal axis of said barrel,

said barrel having a first end arranged proximally to the operator and a second end arranged distally to the operator and oriented towards the optical segment when said reader unit is held by the operator in a normal scanning/data entry position, said barrel of the pistol configuration containing an optical scanner means comprising optical source means for directing

illumination along a path extending past said second end and onto the optical segment essentially instantaneously and sensor means for reading reflected optical information therefrom, said barrel having an upper surface disposed above and a lower surface disposed below said longitudinal axis, said upper surface extending from said first end toward said second end, said handgrip including a trigger manually actuable to cause said optical source means to direct said illumination,

an array of data entry keys at a data entry region of said upper surface, each of said keys requiring a manually applied thrust generally in the direction of said handgrip by the other hand of the operator, said handgrip being affixed to said barrel at said lower surface so as to be located beneath said data entry region of said upper surface when said reader unit is held in its normal scanning/data entry position; and

said data entry region of said upper surface sloping away from said longitudinal axis with reference to a direction viewed from said first end toward said second end so that with said first end disposed proximally to the operator and with said reader unit in the normal scanning/data entry position, the operator can simultaneously view directly said data entry region, comfortably grasp said handgrip to balance and support said reader unit, manually actuate said trigger with the one hand and readily manually actuate selected of said data entry keys with the other hand.

5,672,861
METHOD AND APPARATUS FOR AUTOMATIC
FOCUSING OF A CONFOCAL LASER MICROSCOPE

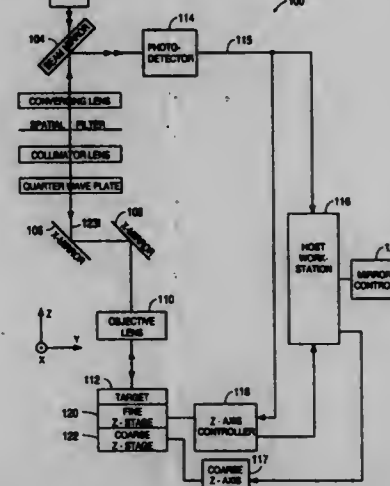
Christopher R. Fairley; Timothy V. Thompson, both of San Jose, and Ken K. Lee, Los Altos, all of Calif., assignors to Ultrapointe Corporation, San Jose, Calif.

Continuation-in-part of Ser. No. 183,536, Jan. 18, 1994, Pat. No. 5,483,055. This application Jan. 17, 1995, Ser. No. 373,145

Int. Cl.⁶ G01J 1/20

U.S. Cl. 250—201.3

30 Claims



1. A method for automatic focusing of a confocal microscope, said microscope transmitting a laser beam through a lens and through a pinhole of a spatial filter to a surface of a target, said method comprising the steps of:

moving a target relative to a lens of said microscope, said target being moved in a predetermined first direction through a predetermined first distance;

generating an electronic focus signal during movement of said target, the magnitude of said electronic focus signal being a function of the magnitude of light from said laser beam that is reflected from said surface and passes through said pinhole;

recording a plurality of first values of the magnitude of said electronic focus signal during the movement of said target in said first direction; and

stopping said movement of said target when said target has travelled through said first predetermined distance, said first predetermined distance being greater than the depth of focus of said lens, said depth of focus being larger than the distance between two adjacent positions at which said first values are recorded, wherein after stopping, said target is at a position other than a position at which said microscope is focused.

5,672,862
OPTICAL APPARATUS HAVING IMAGE SHAKE
PREVENTING FUNCTION

Toru Ohara; Akhiro Fujikawa; Hidefumi Notagashira; Toshimi Iizuka; Yasuhiro Tamekuni, all of Kanagawa-ken; Yoshiki Kino, Tokyo; Tsuyoshi Morofuji, Kanagawa-ken; Katsumi Azusawa, Saitama-ken, and Hidekage Sato, Kanagawa-ken, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

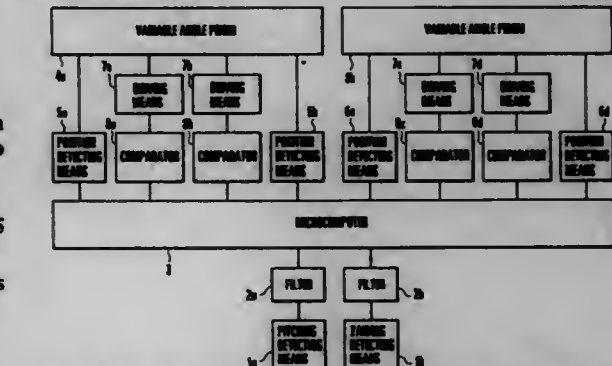
Filed Jul. 26, 1994, Ser. No. 280,470

Claims priority, application Japan, Jul. 30, 1993, 5-190097; Jul. 30, 1993, 5-190103; Aug. 2, 1993, 5-206130; Sep. 10, 1993, 5-225853; Sep. 16, 1993, 5-230255; Dec. 21, 1993, 5-322038; Dec. 27, 1993, 5-333579; Dec. 27, 1993, 5-333580; Dec. 27, 1993, 5-333581; Dec. 27, 1993, 5-333582; Dec. 28, 1993, 5-337247

Int. Cl.⁶ G02B 23/00; 27/64

U.S. Cl. 250—204

19 Claims



1. A device applicable to an optical apparatus in which first and second optical members which deflect different light beams are operated according to a signal corresponding to shake, comprising: an association device for associating the operation of the first optical member according to the signal corresponding to the shake to the operation of the second optical member according to the signal corresponding to the shake.

5,672,863
ANTI-DITHER OPTICAL CONTAINER SENSOR WITH
SENSORS SEPARATION MEASUREMENT

Timothy J. Nicks, Maumee; John L. Waugaman, Perrysburg, and Alan D. Ahl, Toledo, all of Ohio, assignors to Owens-Brockway Glass Container Inc., Toledo, Ohio

Continuation of Ser. No. 476,925, Jun. 7, 1995, abandoned. This application Nov. 20, 1996, Ser. No. 752,770

Int. Cl.⁶ G01N 9/04

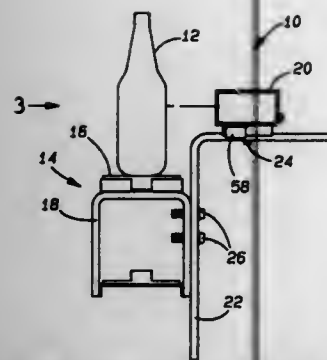
U.S. Cl. 250—223 B

8 Claims

1. Apparatus for detecting and counting containers of preselected diameter on a moving conveyor comprising:

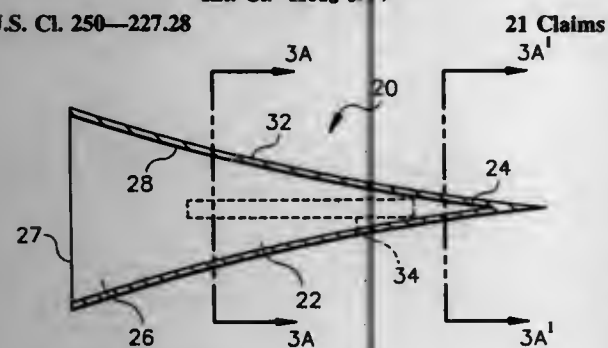
a pair of optical proximity sensors and means including support means for both of said sensors for positioning said sensors adjacent to the container conveyor such that light energy from said sensors is incident sequentially on the containers as the containers pass on the conveyor adjacent to said sensors, and such that said light energy is reflected sequentially by such containers back to said sensors for detecting proximity of the containers to said sensors,

means for adjustably positioning one of said sensors with respect to the other such that said sensors are spaced from



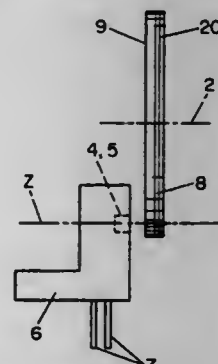
each other in the direction of container motion on the conveyor by a distance such that said sensors do not detect proximity of a container at the same time, including a scale affixed to said support means and bearing indicia in units of container diameter at less than full scale for measuring separation between such sensors, and electronic circuit means coupled to said sensors for detecting passage of and counting containers on the conveyor while ignoring any dithering of the containers on the conveyor.

5,672,864
LIGHT INTEGRATOR
Martin Charles Kaplan, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 26, 1996, Ser. No. 606,671
Int. Cl. H01J 3/4
U.S. Cl. 250—227.28



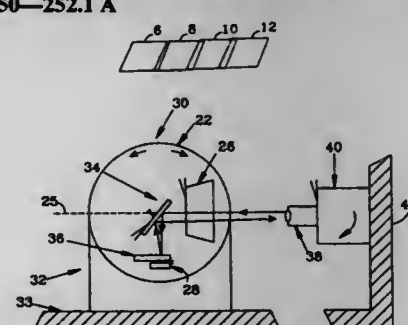
1. A light integrator comprising:
an elongated tapered solid core having first and second ends and an elongated surface therebetween, down which a decreasing total proportion of light can propagate by total internal reflection at the elongated surface;
a layer of reflective material positioned adjacent at least a portion of the elongated surface, which reflective layer is of a first material having sufficient porosity, with pores which are vacant or contain a second material having an index of refraction lower than that of the core, such that the layer reduces total internal reflection in the core less than it would be reduced using a non-porous layer of the same dimensions of only the first material; and
first and second light ports defined by regions of the core not covered by the reflective material, positioned such that light can pass through the first port, propagate down the core by total internal reflection at the elongated surface, while an increasing total proportion passes through the elongated surface to be reflected by the reflective material and escape through the second port.

5,672,865
TIMING DEVICE FOR CONTROLLING MACHINERY AND OTHER SERVOMECHANICAL DEVICES AND METHOD OF MANUFACTURE THEREFOR
Paul-Wilhelm Braun, Lindlau Str. 23, D-53842, Troisdorf, Germany
Filed Mar. 26, 1996, Ser. No. 622,064
Claims priority, application Germany, Mar. 27, 1995, 295 04 883.2
Int. Cl. G01D 5/30
U.S. Cl. 250—233
20 Claims



1. A timing device comprising:
a timing control element having a light sensitive layer including thereon a plurality of transparent windows and opaque windows arranged in at least one pattern, a reflective means disposed behind said light sensitive layer for reflecting light, and a carrier material disposed behind said reflecting means;
a transmitter for emitting light toward said timing control element;
means for operating said timing control element to controllably select one of said transparent and opaque windows in said at least one pattern to be in a path of the emitted light, the emitted light propagating through the selected window and being reflected by said reflective means only when the selected window is transparent; and
a receiver, disposed adjacent to said transmitter, for generating an electrical signal in response to the reflected light.

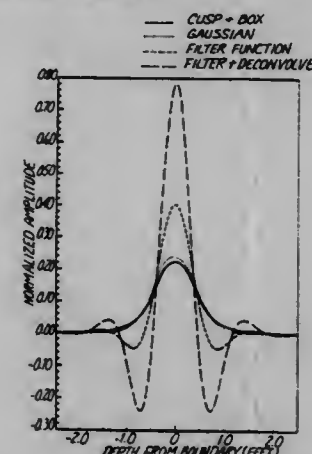
5,672,866
SYSTEM AND METHOD FOR REMOTE IMAGE SENSING AND AUTO-CALIBRATION
Peter V. Messina, Santa Monica, Calif., assignor to Hughes Electronics, Los Angeles, Calif.
Filed Mar. 19, 1996, Ser. No. 618,647
Int. Cl. G01D 18/00
U.S. Cl. 250—252.1 A
22 Claims



1. An airborne gimbal mounted step and stare imaging system, the gimbal supported from an aircraft by a gimbal support, comprising:
a rotatable gimbal platform attached to the gimbal support to provide an axis of isolation from angular disturbances,
imaging optics comprising a telescope, scanning mirror and imager which are affixed to the gimbal's platform and rotate along with the platform,

a positioning system which positions the imaging optics in relation to an inertial reference frame,
an imager positioned to receive images from the imaging optics, and
an autocalibration system, comprising reference mirror, IMU, and beam aligner, distributed between the gimbal platform and the gimbal support for calibration of the imaging system's inertial position.

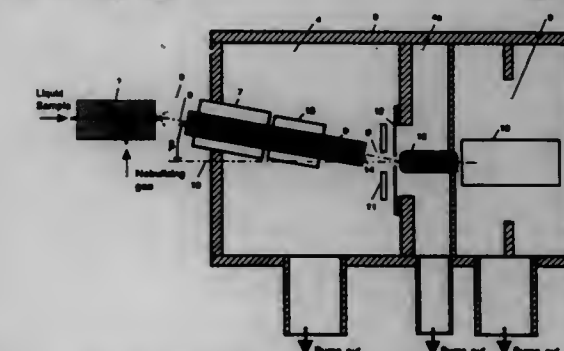
5,672,867
METHOD FOR FILTERING GAMMA RAY WELL LOGGING TOOL RESPONSE TO ENHANCE VERTICAL DETAIL WHILE SUPPRESSING STATISTICAL NOISE
Larry L. Gadeken, Houston; Larry A. Jacobson, Richmond, and Gulamabbas A. Merchant, Houston, all of Tex., assignors to Halliburton Logging Services, Inc., Houston, Tex.
Continuation of Ser. No. 937,770, Sep. 1, 1992. This application Sep. 26, 1994, Ser. No. 312,446
Int. Cl. G01V 5/04
U.S. Cl. 250—262
6 Claims



1. A method for enhancing vertical resolution while minimizing the increase in statistical noise in gamma ray logging tool count rate data obtained as a function of depth in a well borehole wherein the method comprises the steps of:

- moving a well logging tool having a gamma ray detector along a well borehole and detecting gamma radiation to produce count rate data in the well borehole;
- storing the count rate data as a function of depth in the well borehole;
- processing a selected depth interval of the count rate data by applying thereto in a single pass a robust smoothing filter and an inverse cusp function filter having a predetermined depth interval associated therewith and wherein said filter smooths statistical noise fluctuations in the count rate data while the inverse cusp function enhances the essential spatial information of the data;
- recording the processed data as a function of tool depth in the well borehole; and
- repeating steps (c) and (d) to form an output record of processed count rate data for a selected depth interval in the well borehole.

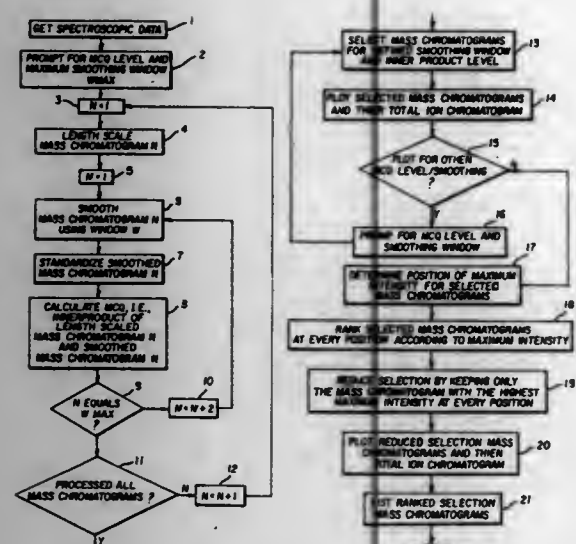
5,672,868
MASS SPECTROMETER SYSTEM AND METHOD FOR TRANSPORTING AND ANALYZING IONS
Alexander Mordehai, Mountain View, and Sidney E. Buttrill, Jr., Palo Alto, both of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.
Filed Feb. 16, 1996, Ser. No. 605,346
Int. Cl. H01J 49/00
U.S. Cl. 250—281
18 Claims



1. A mass spectrometer system comprising:
an ion source for generating ions in an ionization region;
a vacuum chamber disposed in proximity to said ion source, said vacuum chamber having at least a pair of vacuum regions with a progressively reduced pressure from a front region to a back region of said pair, wherein the front region is adjacent to said ion source;
an ion sampling device comprising an inlet and an outlet openings with a narrow passage therebetween, said passage defining a central axis of said device for transporting ions contained in gas from the ionization region to said vacuum chamber;
a radio-frequency ion guide for passing ions to said back region, said ion guide positioned along a main axis within an intermediate region between the front and back regions and being adjacent to said outlet opening of said sampling device, wherein a space between the outlet opening of said ion sampling device and an entrance of said radio-frequency ion guide is defined an aerodynamic jet region; said aerodynamic jet region having a pressure in a range of about 10^{-4} to 10^{-5} torr; the central axis of said ion sampling device being tilted toward the main axis of said radio-frequency ion guide, whereby a trajectory of ion flow is altered by said ion guide and ions are directed along the main axis; and
mass analyzer for analyzing ions received from said radio-frequency ion guide, said mass analyzer positioned along a core axis within the back region of said vacuum chamber.

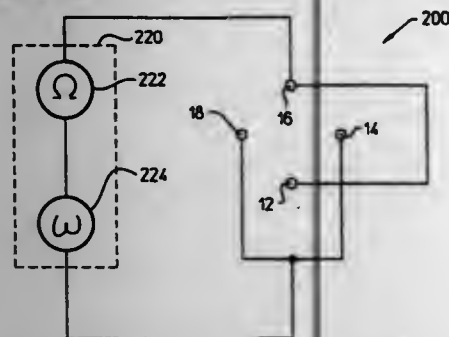
5,672,869
NOISE AND BACKGROUND REDUCTION METHOD FOR COMPONENT DETECTION IN CHROMATOGRAPHY/ SPECTROMETRY
Willem Windig, Rochester, and Alan W. Payne, Fairport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Apr. 3, 1996, Ser. No. 627,852
Int. Cl. B01D 59/94; H01J 49/00
U.S. Cl. 250—282
7 Claims

1. A method of identifying and quantifying the chemical components of a mixture of organic materials comprising:
a first step of subjecting said organic material to chromatography to separate components of said mixture and a second step of subjecting the separated materials to spectrometry to detect and identify said components, wherein said chromatography and spectrometry is performed by
a) injecting a sample into a column;
b) separating components by partitioning at different rates in the column;
c) passing separated components into a spectrometer;



- d) obtaining a series of spectra to detect all species present; and
- e) storing the spectra in a computer file; the improvement comprising enhancing the spectral data by a variable selection using the following steps:
- smooth the spectroscopic variables;
 - obtain the mean value of the intensity of the spectroscopic variables;
 - subtract the mean value obtained in step ii from the smoothed variables obtained in step i;
 - normalize the output of step iii and the original spectroscopic variables;
 - compare the values of step iv to obtain a measure of similarity for each spectroscopic variable;
 - determining a threshold value of similarity measurement so as to reject unwanted signals;
 - select only those spectroscopic variables whose similarity measurement is over the threshold value; and
 - plot the sum of the selected variables versus time to obtain the enhanced chromatogram.

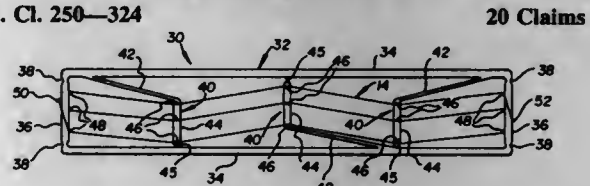
5,672,870
MASS SELECTIVE NOTCH FILTER WITH QUADRUPOLE EXCISION FIELDS
 Curt A. Flory, Los Altos; Stuart C. Hansen, Palo Alto, and Carl Myerholtz, Cupertino, all of Calif., assignors to Hewlett Packard Company, Palo Alto, Calif.
 Filed Dec. 18, 1995, Ser. No. 573,703
 Int. Cl.⁶ B01D 59/44; H01J 49/00
 U.S. Cl. 250-292



1. A notch filter for selectively removing a target ion with a specific mass-to-charge ratio from an ion beam, comprising:
- (a) a quadrupole having an inlet end and an outlet end, the ion beam can be directed to traverse from the inlet end to the outlet end, the quadrupole having two pairs of parallel electrodes adapted to have opposite polarities in oscillating elec-

- trical potential, each pair having two parallel oppositely facing electrodes of equal oscillating electrical potential;
- (b) an ion source for emitting an ion beam into the quadrupole;
- (c) a power supply for driving the oscillating electrical potential of the quadrupole electrodes, generating an oscillating electrical potential which is a superposition comprising an rf quadrupole frequency component and an excision frequency component, the two parallel electrodes in each pair being positioned opposite to each other and adjacent to the parallel electrodes of the other pair, one pair of electrodes being connected to one pole of the power supply and the other pair of electrodes being connected to the opposite pole of the power supply, such that the rf quadrupole frequency component causes ions of above a selected mass-to-charge ratio to be guided along the quadrupole and the excision frequency component causes the target ion to be removed from the ion beam before exiting the quadrupole, the target ion having a dominant resonant frequency in response to the rf quadrupole frequency component, the excision frequency being the second harmonic of the dominant resonant frequency of the target ion; and
- (d) a detector for detecting the ions exiting the quadrupole.

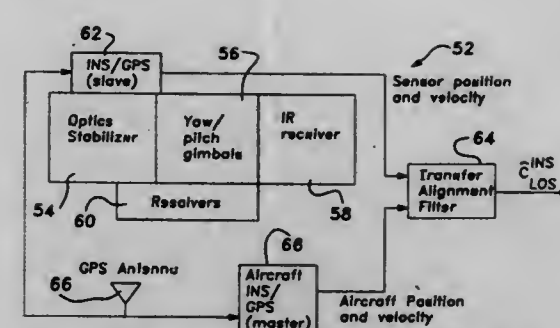
5,672,871
CORONA WIRE HANDLING DEVICE
 Michael E. Jacobs, and John W. May, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
 Filed Feb. 29, 1996, Ser. No. 609,073
 Int. Cl.⁶ H01J 19/04
 U.S. Cl. 250-324



1. A device for handling a corona charger wire in order to facilitate the placement of a corona wire in operative association within a corona charger, said corona wire handling device comprising:
- means for supporting the ends of at least one corona wire;
- means, associated with said corona wire end supporting means, for supporting an intermediate portion of said at least one corona wire; and
- means for controlling tension on said corona wire, supported on said corona wire end supporting means, induced by said corona wire intermediate portion support means, whereby when said corona wire end supporting means is associated with a corona charger for insertion of a corona wire operatively therein and said tension controlling means is activated, tension increase in said corona wire, which would be induced by insertion of said corona wire in said corona charger, is controlled to balance corona wire tension in order to substantially prevent corona wire damage or breakage.

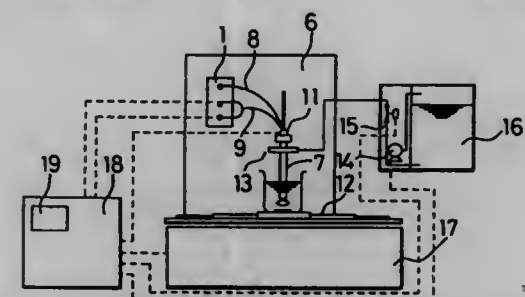
5,672,872
FLIR BORESIGHT ALIGNMENT
 Yeong-Wei A. Wu, Rancho Palos Verdes; David F. Hartman, Chatworth, and Mark Youhanale, Playa Del Rey, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.
 Filed Mar. 19, 1996, Ser. No. 618,646
 Int. Cl.⁶ F41G 1/54
 U.S. Cl. 250-330

1. A boresight alignment system for aligning an optical sensor boresight to a navigation reference frame associated with an aircraft, said system comprising:
- a pod secured to the aircraft, said optical sensor being positioned within the pod;



- a pod inertial navigation system positioned in the pod and providing signals of the position and velocity of the pod;
- an aircraft inertial navigation system positioned on the aircraft and being separate from the pod, said aircraft inertial navigation system providing signals of the position and velocity of the aircraft; and
- a transfer alignment filter, said transfer alignment filter being responsive to the position and velocity signals from both the pod inertial navigation system and the aircraft inertial navigation system and providing a signal to the pod of a difference in attitude between pod INS coordinates from the pod position and velocity signals and reference navigation coordinates from the aircraft position and velocity signals.

5,672,873
METHOD AND APPARATUS FOR QUANTITATIVE DETERMINATION OF COMPONENTS IN RESIDUAL FUEL OILS
 Seigo Yamazoe, Saitama, Japan, assignor to Cosmo Research Institute, and Cosmo Oil Co., Ltd., both of Tokyo, Japan
 Filed Jul. 12, 1996, Ser. No. 679,502
 Claims priority, application Japan, Jul. 13, 1995, 7-199258
 Int. Cl.⁶ G01N 21/25; 21/27
 U.S. Cl. 250-339.12



1. A method of determining a content of an aliphatic hydrocarbon insoluble matter in a residual fuel oil, the method comprising the steps of:
- (a) measuring absorbances of a sample solution having an aliphatic hydrocarbon insoluble matter suspended in the sample solution at two spaced wavelengths of light in a wavelength range from 500 nm to 1,000 nm; and
- (b) performing an operation to determine the content of the aliphatic hydrocarbon insoluble matter in the sample solution by inserting the measured absorbances (K_3 and K_4) into one of two correlations:

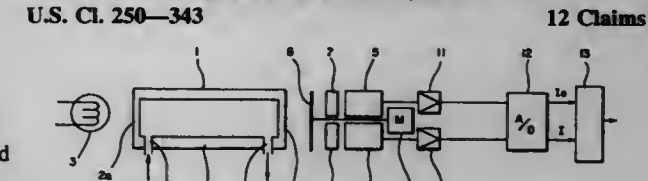
$$\text{the content of the aliphatic hydrocarbon insoluble matter} = \{a(bK_3 - cK_4)\} \times 100 / \{d((K_4 - K_3) \times 100 / K_3) + e\}$$

where a is 0.015 to 0.035; b is 1 to 10; c is 0.5 to 7; d is -10 to -0.1; and e is 50 to 300; or

$$\text{the content of the aliphatic hydrocarbon insoluble matter} = \{a(bK_3 - cK_4)\} \times 100 / \{d(K_4 \times 100 / K_3) + e\}$$

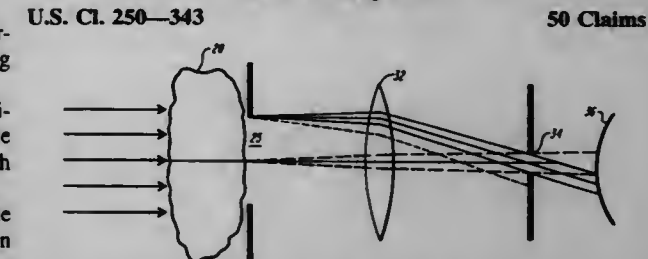
where a is 0.015 to 0.035; b is 1 to 10; c is 0.5 to 7; d is -800 to -500; and e is 500 to 1,000.

5,672,874
INFRARED OIL-CONCENTRATION METER
 Hiroshi Fujii, Ryosuke Fukushima; Tatsuhide Tsutsui; Masabiko Ishida, and Shuzi Takada, all of Kyoto, Japan, assignors to Horiba, Ltd., Kyoto, Japan
 Filed Mar. 30, 1995, Ser. No. 413,633
 Claims priority, application Japan, Mar. 30, 1994, 6-085459
 Int. Cl.⁶ G01N 21/35; 33/26
 U.S. Cl. 250-343



1. An oil-concentration meter comprising:
- a sample cell for receiving an oil sample;
- a light source for applying infrared rays to the sample cell, where a sample containing oils in solvents is supplied, said light source being arranged on one end side of said cell;
- a measuring detector and a reference detector for receiving infrared rays, which have been transmitted through the sample cell, respectively, are provided on the other end side of the sample cell;
- a first interference filter having an optical filter with a design wavelength of 3.4 μm which transmits only absorption wavelengths characteristics of said oil sample is provided in an optical path of said measuring detector; and
- a second interference filter having flat transmission characteristics over a range of 1 μm to 5 μm , including said absorption wavelengths by the oil sample is provided in an optical path of said reference detector, whereby the outputs of the measuring detector and the reference detector are used to determine the oil concentrations in the sample.

5,672,875
METHODS OF MINIMIZING SCATTERING AND IMPROVING TISSUE SAMPLING IN NON-INVASIVE TESTING AND IMAGING
 Myron J. Block, North Salem, N.H., and Lester Sodickson, Waban, Mass., assignors to Optix LP, Jensen Beach, Fla.
 Continuation-in-part of Ser. No. 333,758, Nov. 3, 1994, which is a continuation-in-part of Ser. No. 182,572, Jan. 14, 1994, Pat. No. 5,424,545, which is a continuation-in-part of Ser. No. 130,257, Oct. 1, 1993, Pat. No. 5,434,412, which is a continuation-in-part of Ser. No. 914,926, Jul. 17, 1992, Pat. No. 5,334,287. This application Jun. 7, 1995, Ser. No. 479,955
 Int. Cl.⁶ G01J 3/02
 U.S. Cl. 250-343



1. A method of measuring the concentration in a sample of a selected substance which absorbs radiation in a particular region of the spectrum, said sample further containing a plurality of sites which scatter radiation in said particular region, said method comprising the steps of:
- illuminating said sample with radiation from a radiation source which provides radiation in said particular region of the spectrum, said radiation source being selected and located to provide illumination of said sample;
- collecting radiation which is transmitted from said sample with a detector, said detector being selected and located such that said detector collects radiation only from a limited solid

angle, said radiation being collected from an area having a diameter or width at least comparable in size to the thickness of said sample; and
determining concentration of said selected substance from said detected radiation;
whereby the ratio of directly transmitted radiation to diffusely scattered radiation collected by said detector from said sample is higher than if said method is not used.

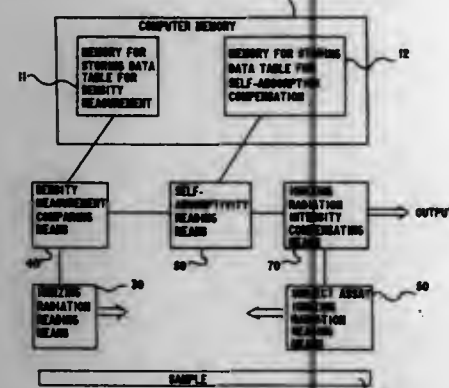
5,672,876
METHOD AND APPARATUS FOR MEASURING DISTRIBUTION OF RADIOACTIVE NUCLIDE IN SUBJECT

Shigeo Baba, Tokyo, Japan, assignor to Nemoto & Co., Ltd., Tokyo, Japan
PCT No. PCT/JP94/01796, § 371 Date Jun. 20, 1995, § 102(e) Date Jun. 20, 1995, PCT Pub. No. WO95/12121, PCT Pub. Date May 4, 1995

PCT Filed Oct. 26, 1994, Ser. No. 464,638
Claims priority, application Japan, Oct. 26, 1993, 5-266999
Int. Cl. G01T 1/19

U.S. Cl. 250—358.1

4 Claims



1. A method of measuring a distribution of a radioactive nuclide in a subject, comprising
determining a density of each part of a subject sample by measuring the intensity of ionizing radiation which passes through said subject sample after being emitted from a first radioactive nuclide of ^{147}Pm , such that said first radioactive nuclide emits ionizing radiation to each part of said subject sample in the same amount,
measuring the intensity of ionizing radiation emitted from a second radioactive nuclide ^{14}C present in each part of said subject sample, and
determining an amount of said second radioactive nuclide in said each part by compensating the measured intensity of the ionizing radiation from said second radioactive nuclide based on a self-absorptivity of said each part corresponding to the density thereof.

5,672,877
COREGISTRATION OF MULTI-MODALITY DATA IN A MEDICAL IMAGING SYSTEM

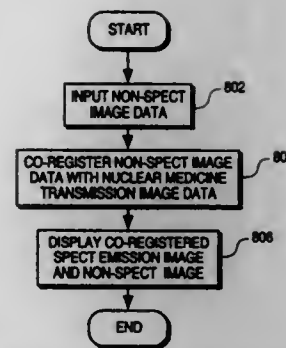
John R. Liebig, San Jose; Steven M. Jones, Pleasanton, and Xiaohan Wang, Alameda, all of Calif., assignors to ADAC Laboratories, Milpitas, Calif.

Filed Mar. 27, 1996, Ser. No. 623,908
Int. Cl. G01T 1/16

U.S. Cl. 250—363.04

22 Claims

1. A method of coregistering medical image data of different modalities, the method comprising the steps of:
performing an emission scan of an object using a nuclear medicine imaging system to acquire single-photon emission computed tomography (SPECT) image data;



performing a transmission scan of the object using the nuclear medicine imaging system to acquire nuclear medicine transmission image data that is coregistered with the SPECT image data;

providing image data of a third modality, wherein the third modality is a modality other than SPECT or nuclear medicine transmission imaging; and

coregistering the nuclear medicine transmission image data with the image data of the third modality, such that the image data of the third modality becomes coregistered with the SPECT image data.

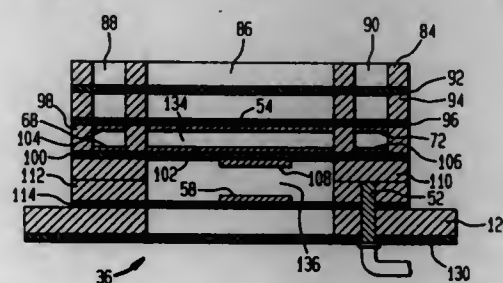
5,672,878
IONIZATION CHAMBER HAVING OFF-PASSAGEWAY MEASURING ELECTRODES

Jonathan Yi Yao, Pleasant Hill, Calif., assignor to Siemens Medical Systems Inc., Iselin, N.J.

Filed Oct. 24, 1996, Ser. No. 740,084
Int. Cl. G01T 1/185

U.S. Cl. 250—385.1

19 Claims



1. An ionization chamber for monitoring a radiation beam comprising:

a housing having a primary beam passageway through said housing and having a plurality of secondary beam cells adjacent to said primary beam passageway;

a plurality of first beam measuring electrodes within said housing and located along said primary beam passageway, said first beam measuring electrodes having outputs responsive to energy of a first portion of said radiation beam directed through said primary beam passageway; and

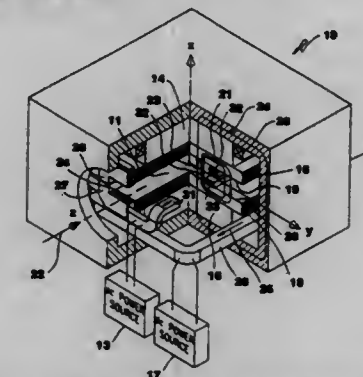
a plurality of second beam measuring electrodes located within said secondary beam cells, said second beam measuring electrodes having outputs responsive to energy of a second portion of said radiation beam.

5,672,879
SYSTEM AND METHOD FOR PRODUCING SUPERIMPOSED STATIC AND TIME-VARYING MAGNETIC FIELDS

Hilton F. Glavish, 803 Tyner Way, Incline Village, Nev. 89450
Filed Jun. 12, 1995, Ser. No. 489,348
Int. Cl. H01J 37/147

U.S. Cl. 250—396 ML

28 Claims



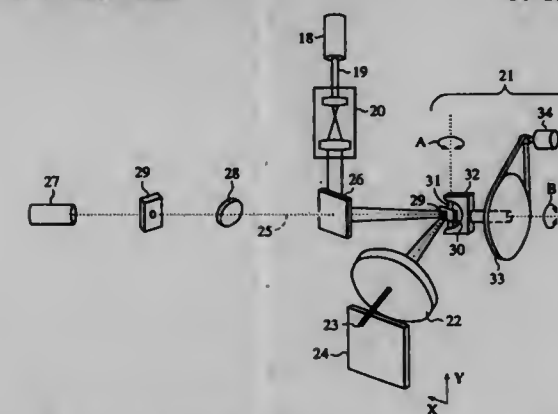
1. An apparatus for producing a magnetic field having static and high frequency time-varying components comprising:
two magnetic poles defining a gap therebetween, the poles being formed with electrically insulating material for confining any high frequency induced eddy currents to limited values in local paths in the poles;
an ac coil associated with the magnetic poles for producing a time-varying magnetic field in the gap;
a magnetic structure including a yoke and two cores which are respectively coupled to the two poles, the magnetic structure being formed of solid material, with a high magnetic saturation level; and
dc coils associated with the cores of the magnetic structure for producing a static magnetic field in the gap.

5,672,880
FLUORESCENCE IMAGING SYSTEM
Robert C. Kain, San Jose, Calif., assignor to Molecular Dynamics, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 351,603, Dec. 8, 1994, abandoned. This application Mar. 15, 1996, Ser. No. 616,174
Int. Cl. G01N 21/64

U.S. Cl. 250—458.1

30 Claims



1. An optical scanning system for microscopy of a sample comprising,
a photodetector,
a source for emitting an incident beam of light,
a telecentric objective disposed proximate to said sample, defining an optical axis, a high numerical aperture and a single pupil, with said single pupil located external to said objective in said optical axis, said objective being positioned to receive said incident beam therethrough to illuminate a region of said

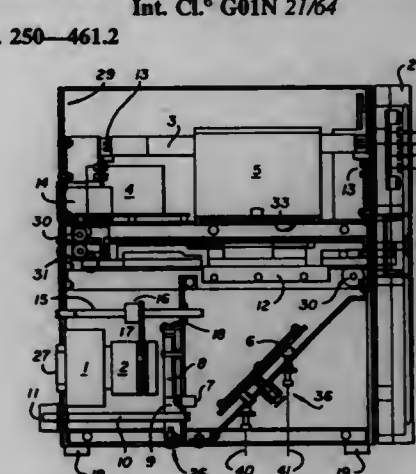
sample, said objective being afocal at said pupil and adapted to collect light emitted from said region forming a retro-beam, means, positioned at said pupil, for scanning said region across said sample, with substantially all light associated with said retro-beam impinging upon said scanning means,
means, positioned in said optical axis between said source and said objective, for separating said incident beam from said retro-beam, wherein said objective directs said retro-beam onto said separating means, with said separating means directing said retro-beam toward said photo-detector, said photo-detector producing signals representing light impinging thereon, and
means, connected to receive said signals, for producing a visual display of said sample.

5,672,881
CHARGE-COUPLED DEVICE IMAGING APPARATUS
Steven K. Striepeke, Sebastopol; Peter Edridge, Fairfax; Christopher M. Starr, Sonoma, and John C. Klock, Nicasio, all of Calif., assignors to Glyko, Inc., Novato, Calif.

Continuation of Ser. No. 306,068, Sep. 14, 1994, abandoned. This application Mar. 6, 1996, Ser. No. 612,195
Int. Cl. G01N 21/64

U.S. Cl. 250—461.2

8 Claims

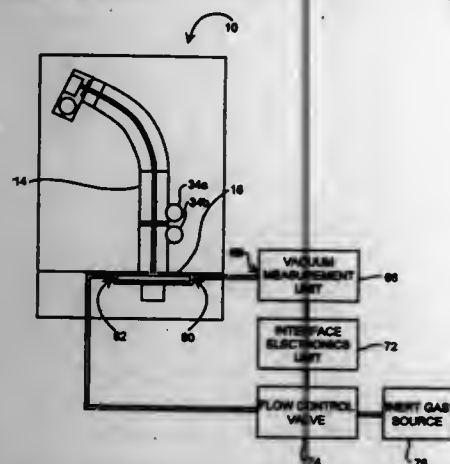


1. An apparatus for imaging of a biological sample comprising means for illuminating the sample to selectively excite molecules therein and cause fluorescence, a two-dimensional cooled or non-cooled charge-coupled device detector array positioned to detect fluorescent emissions from the sample, means for varying the signal acquisition time from said charge-coupled device detector array so that the integrated signal from each pixel of said charge-coupled device detector array is below its saturation level, means for acquiring a darkfield value for each pixel of said charge-coupled device detector array and subtracting said darkfield value from the illuminated signal from that pixel to yield a darkfield-corrected signal, means for reading out said darkfield-corrected signal to a visual display unit thereby producing a two-dimensional gray scale image of the sample, and means for operating said charge-coupled device detector array at, or below, ambient temperature in an on-chip integrating mode under the control of a computer programmed to have the capability of varying signal acquisition time from said charge-coupled device detector array, converting the signal from each pixel of the charge-coupled detector array to a digital value, and storing said digital values as an array of values in memory accessed by said computer, and wherein the computer is programmed to be able to acquire a brightfield correction value for each pixel in the absence of the sample, and to multiply the darkfield-corrected value of the illuminated signal from each pixel by its brightfield correction value prior to readout to the display unit.

5,672,882
ION IMPLANTATION DEVICE WITH A CLOSED-LOOP PROCESS CHAMBER PRESSURE CONTROL SYSTEM
 Dennis J. Day, Manchaca, and Donald L. Friede, Austin, both of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Dec. 29, 1995, Ser. No. 580,640
 Int. Cl.⁶ H01J 37/18
 U.S. Cl. 250—492.21

11 Claims



1. An ion implantation device which reduces pressure fluctuations within a process chamber, comprising:
 - a process chamber configured to receive a semiconductor wafer;
 - a pressure probe comprising a gas conduit;
 - a vacuum measurement unit having a receptor port in gaseous communication with said pressure probe, wherein said measurement unit is operated to produce an electrical pressure signal corresponding to the gas pressure at said receptor port;
 - an interface electronics unit coupled to receive said electrical pressure signal and configured to convert said electrical pressure signal into an electrical control signal which is proportional to a pressure level at which an addition of an inert gas into said chamber is necessary to maintain a substantially constant gas pressure at said receptor port, during ion implantation and
 - a flow control valve coupled between an inert gas source and a gas inlet port extending into said chamber, wherein the control valve receives said electrical control signal and during ion implantation, responsively introduces said inert gas into said chamber so as to maintain a substantially constant gas pressure at said receptor port at a predetermined pressure level.

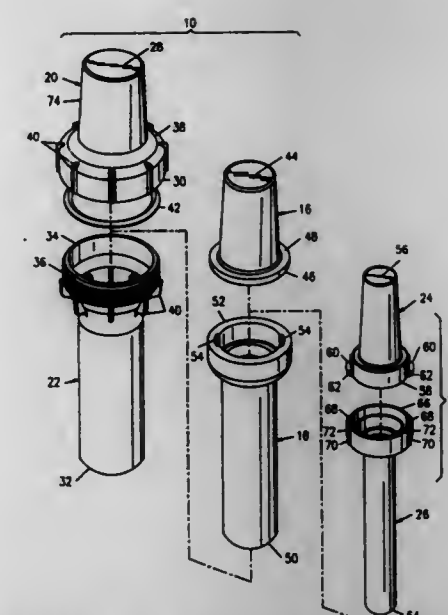
5,672,883
CONTAINER AND METHOD FOR TRANSPORTING A SYRINGE CONTAINING RADIOACTIVE MATERIAL
 Don E. Reich, Westlake Village, Calif., assignor to Sincor International Corporation, Woodland Hills, Calif.

Division of Ser. No. 214,681, Mar. 16, 1994, Pat. No. 5,519,931. This application Sep. 11, 1996, Ser. No. 614,795
 Int. Cl.⁶ G21F 5/00

U.S. Cl. 250—507.1

6 Claims

1. A transportation container for a syringe containing radioactive material comprising,
 - a radiopharmaceutical pig having an interior surface defining an internal chamber, the radiopharmaceutical pig including radiation-resistant material surrounding the chamber; and
 - a sharps container having a cap and a housing sized to fit within the chamber of the radiopharmaceutical pig,
 the cap and the housing each having a closed end and an open mating end, with one of the mating ends fitting inside the other to fixedly retain the cap to the housing in an



assembled state, the assembled cap and housing having an interior surface sized to hold the syringe therein.

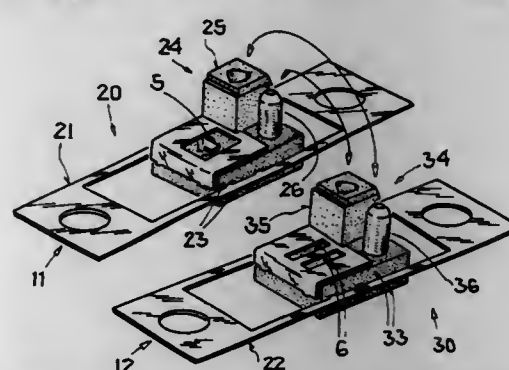
5,672,884
MODULAR PHOTO INTERRUPTERS MANUFACTURED ON MOUNTING STRIPS
 Peter Mühleck, Offenau, and Heinz Nather, Untergruppenbach, both of Germany, assignors to Temic Telefunken microelectronic GmbH, Heilbronn, Germany
 Filed Nov. 3, 1995, Ser. No. 553,094

Claims priority, application Germany, Nov. 8, 1994, 44 39 838.7

U.S. Cl. 250—551

Int. Cl.⁶ G02B 27/00

16 Claims



1. Photo interrupter comprised of at least one transmission element and at least one receiver element, which are separated from each other by an optical transmission path, and wherein:
 - the photo interrupter has a modular structure formed from two housing parts which are joined together,
 - each of the two housing parts has a respective carrier unit designed as a panel of a mounting strip, at least one semiconductor device located on the respective carrier unit, and a respective housing body forming one of the two sides surface of the photo interrupter, which housing body encapsulates the respective carrier unit in a first partial area of the carrier unit containing the at least one semiconductor device,
 - at least one semiconductor device of the one housing part is a transmission element, and at least one semiconductor device of the other housing part is a receiver element,
 - at least one of the two housing parts has at least one connecting part, fitted to the housing body and forming the base area of the photo interrupter, by means of which connecting part the two housing parts are joined together, and each of the respec-

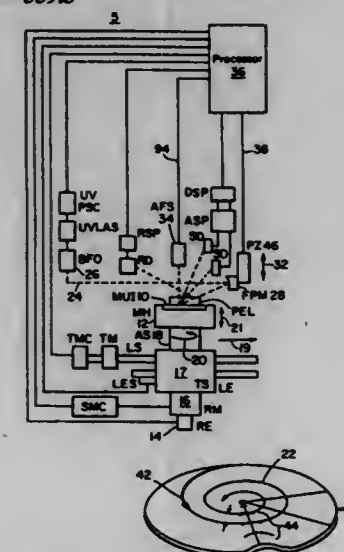
tive carrier units of the respective housing parts has a second partial area containing a number of recesses corresponding to the number of semiconductor elements located in the respective associated housing part, with the respective second partial area of each carrier unit being bent around a portion of the associated respective housing part so that the respective recesses are positioned in front of the associated respective at least one semiconductor element to form a respective optical screen in the optical transmission path for the respective associated at least one semiconductor element.

5,672,885
SURFACE DISPLACEMENT DETECTION AND ADJUSTMENT SYSTEM
 Nicholas Allen, Bedford; Abdu Broudour, West Newton; Sergey Broude, Newton Centre; Eric Chase, Carlisle; Carl Johnson, Tewksbury; Pascal Miller, North Chelmsford; Jay Ormsby, Salem, and Arkady Savikovsky, Brookline, all of Mass., assignors to QC Optics, Inc., Burlington, Mass.

Filed Jul. 10, 1995, Ser. No. 499,822
 Int. Cl.⁶ G01N 21/89

U.S. Cl. 250—559.3

25 Claims



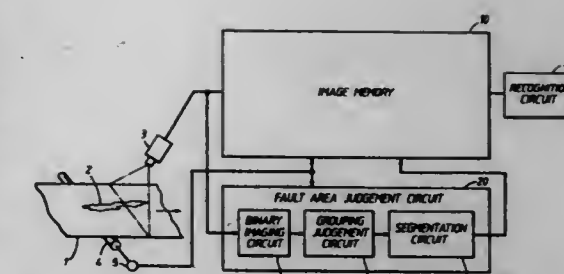
1. A surface displacement detection and adjustment system comprising:
 - means for inspecting a surface;
 - means for detecting displacement of the surface in a direction normal to the surface;
 - means for dividing the surface into N sectors;
 - means, responsive to said means for detecting, for calculating the amount of displacement of said surface in each sector of the surface;
 - a displacement value look-up table; and
 - means, responsive to said means for calculating, for writing a displacement value for a each sector to said table once per M cycles, and
 - means, responsive to said look-up table, for adjusting said means for inspecting in each cycle.

5,672,886
SURFACE INSPECTION SYSTEM FOR DETECTING VARIOUS SURFACE FAULTS
 Chiaki Fukazawa, Saitama-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
 Filed Aug. 2, 1995, Ser. No. 510,302
 Claims priority, application Japan, Aug. 12, 1994, 6-190360
 Int. Cl.⁶ G01N 21/86

U.S. Cl. 250—559.46

12 Claims

1. A surface inspection system, comprising:



- detection means for detecting an image of a surface fault in a running sheet material;
- fault area judgement means connected to said detection means for receiving said image and for determining a fault area including a cluster fault composed of the same type of fault parts; and
- recognition means connected to said detection means for receiving said image, connected to said fault area judgement means for receiving said fault area, and for recognizing a type and a grade of said cluster fault included in said fault area.

5,672,887
OPTICAL DETECTOR FOR AIR IN FLUID LINE THE SAME

Benjamin G. Shaw, #2, 98 Inverness Terr., London, W23LD, England, and Tony Joseph Lillios, P.O. Box 1078, Palo Alto, Calif. 94302

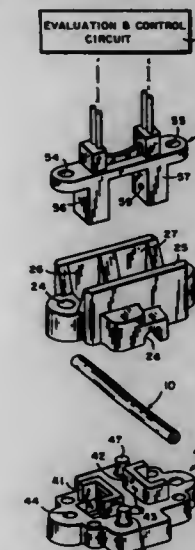
Continuation of Ser. No. 564,548, Nov. 29, 1995, abandoned.

This application Aug. 28, 1996, Ser. No. 704,103

Int. Cl.⁶ G01N 15/06

U.S. Cl. 250—573

5 Claims



1. An optical detector for air in a normally fluid-filled transparent flexible tubing line (10), comprising
 - a photoemitter (58) adapted to emit a light beam;
 - a photosensor (59) aligned to receive said light beam;
 - a support block (40) which positions said transparent tubing line to intersect said light beam; and
 - a shaping mold (20) which presses said tubing line (10) into a predetermined cross-sectional shape, in order to maximize a difference in exit angle of said light beam, from said tubing line, depending upon whether said beam passes through fluid, having a first index of refraction, or through air, having a second, differing, index of refraction.

5,672,888

THIN-FILM TRANSISTOR AND THIN-FILM TRANSISTOR ARRAY

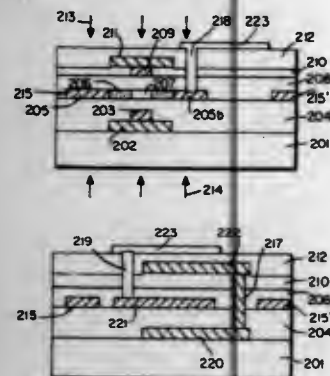
Kenichi Nakamura, Minato-ku, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 27, 1996, Ser. No. 758,083

Claims priority, application Japan, Dec. 8, 1995, 320506

Int. Cl.⁶ H01L 21/786

U.S. Cl. 257-72



1. A thin-film transistor comprising:

- a semiconductor layer having an active layer and source and drain regions;
- a first gate insulating film disposed under said semiconductor layer;
- a first gate electrode disposed under said first gate insulating film in underlying relation to said active layer;
- a second gate insulating film disposed over said semiconductor layer;
- a second gate electrode disposed over said second gate insulating film in overlying relation to said active layer;
- a first interlayer insulating film disposed over said second gate insulating film;
- an offset region disposed between said active layer and said source and drain regions and comprising a semiconductor layer having a low impurity concentration;
- a third gate electrode electrically connected to said first gate electrode in overlapping relation to at least said offset region, said third gate electrode being disposed out of overlapping relation to said source and drain regions; and
- a fourth gate electrode electrically connected to said second gate electrode in overlapping relation to at least said offset region, said fourth gate electrode being disposed out of overlapping relation to said source and drain regions;

wherein said first gate insulating film has a portion which is disposed between said semiconductor layer and said first gate electrode and has a film thickness d_1 , and said first gate insulating film has a portion which is disposed between said semiconductor layer and said third gate electrode and has a film thickness d_3 , said film thicknesses d_1 , d_3 satisfying the relationship: $d_3 > d_1$; and

said second gate insulating film has a portion which is disposed between said semiconductor layer and said second gate electrode and has a film thickness d_2 , and said second gate insulating film has a portion which is disposed between said semiconductor layer and said fourth gate electrode and has a film thickness d_4 , said film thicknesses d_2 , d_4 satisfying the relationship: $d_4 > d_2$.

5 Claims

5,672,889

VERTICAL CHANNEL SILICON CARBIDE METAL-OXIDE-SEMICONDUCTOR FIELD EFFECT TRANSISTOR WITH SELF-ALIGNED GATE FOR MICROWAVE AND POWER APPLICATIONS, AND METHOD OF MAKING

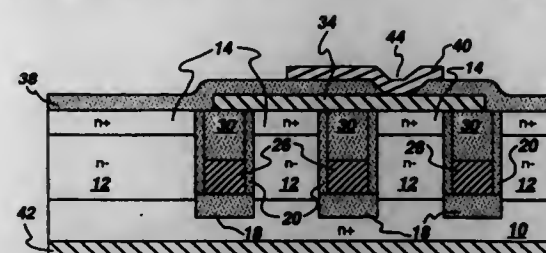
Dale Marius Brown, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 405,618, Mar. 15, 1995, Pat. No. 5,514,604. This application Jan. 22, 1996, Ser. No. 589,672

Int. Cl.⁶ H01L 31/0312

U.S. Cl. 257-77

4 Claims



1. A metal-oxide-semiconductor field effect transistor (MOSFET) comprising:

- a first SiC semiconductor contact layer;
- a SiC semiconductor channel layer supported by said first SiC semiconductor contact layer;
- a second SiC semiconductor contact layer supported by said SiC semiconductor channel layer, said SiC semiconductor channel and second SiC semiconductor contact layers having a plurality of gate region grooves extending completely therethrough and having a base surface and side surfaces;
- a plurality of metal gate layers, each one of said plurality of groove oxide layers covering the base surface and the side surfaces of a respective one of said plurality of gate region grooves;
- a plurality of metal gate layers, each one of said plurality of metal gate layers being supported by a respective one of said plurality of groove oxide layers and having first and second surfaces, the first surface being situated on a plane above said first SiC semiconductor contact layer and the second surface being situated on a plane below said second SiC semiconductor contact layer;
- a plurality of deposited oxide segments, each one of said plurality of deposited oxide segments being supported by a respective one of said plurality of metal gate layers and being substantially coplanar with said second SiC semiconductor contact layer;
- a first metal contact layer situated on the surface of said first SiC semiconductor contact layer; and
- a second metal contact layer situated on a portion of the surface of said second SiC semiconductor contact layer.

5,672,890

FIELD EFFECT TRANSISTOR WITH LIGHTLY DOPED DRAIN REGIONS

Shigeru Nakajima, Yokohama, Japan, assignor to Sumitomo Electric Industries, Osaka, Japan

Filed Sep. 12, 1995, Ser. No. 527,226

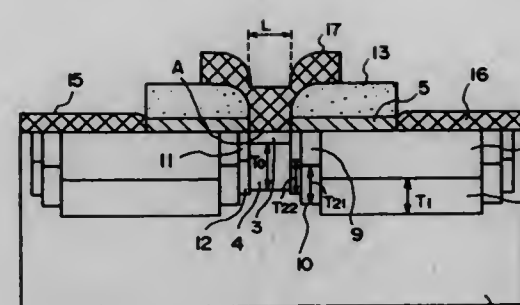
Claims priority, application Japan, Sep. 14, 1994, 6-220161

Int. Cl.⁶ H01L 31/0328; 31/0336; 31/072; 31/109

U.S. Cl. 257-192

6 Claims

- 1. A field effect transistor having a Lightly Doped Drain structure, comprising:
 - a semiconductor substrate;
 - a gate electrode formed on a top surface of said semiconductor substrate;
 - an active layer of a first conductivity type, which is formed in said substrate while being in Schottky contact with said gate electrode;



a buried layer of a second conductivity type, which is located under said active layer while being in direct contact with said active layer;

source and drain regions extending from said top surface of said substrate toward a rear surface of said substrate in an opposite side of said top surface and separated from each other by said active layer, said active layer forming a channel for current flow between said source region and said drain region; and ohmic electrodes respectively formed on said source and drain regions;

each of said source and drain regions having:

- a first region having a high impurity concentration and including a first upper region of the first conductivity type, said first upper region extending from said top surface of said substrate toward said rear surface of said substrate, and a first lower region of the second conductivity type, said first lower region being located under said first upper region while being in direct contact with and covering an entire bottom surface of said first upper region, and
- a second region having a portion between said active layer and said first region and having an impurity concentration lower than that of said first region, said portion including a second upper region of the first conductivity type, said second upper region extending from said top surface of said substrate toward said rear surface of said substrate, and a second lower region of the second conductivity type, said second lower region being located under said second upper region while being in direct contact with and covering an entire bottom surface of said second upper region.

5,672,891

SEMICONDUCTOR MEMORY APPARATUS FOR A DYNAMIC RAM AND METHOD FOR MANUFACTURING THE SAME

Takeshi Hamamoto, Kanagawa; Takashi Yamada, Ebina, and Yutaka Ishibashi, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 328,526, Oct. 25, 1994, Pat. No. 5,548,145. This application Apr. 26, 1996, Ser. No. 638,216

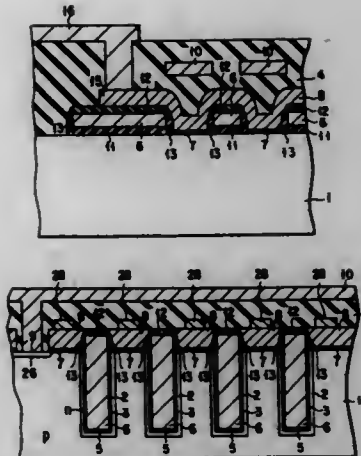
Claims priority, application Japan, Oct. 25, 1993, 5-266089; Jun. 28, 1994, 6-146650; Oct. 20, 1994, 6-255125

Int. Cl.⁶ H01L 27/108; 29/76; 29/94; 31/119

U.S. Cl. 257-301

10 Claims

- 1. A semiconductor memory device comprising:
 - a semiconductor substrate having a memory cell area;
 - a plurality of trenches selectively formed in the memory cell area aligning in certain intervals; and
 - a plurality of memory cells provided in the memory cell area, each of the memory cells comprising:
 - a plurality of MOS transistors, each of the transistors having a gate electrode above the substrate with a gate insulating film formed therebetween and source and drain regions formed in the substrate on both sides of the gate electrode and
 - a plurality of capacitors each formed in a corresponding one of the trenches, each of the capacitors including:
 - a charge storage layer formed on an inner wall of each of the trenches and connected to one of the source and drain regions of each of the transistors,



a capacitor insulating film formed on the charge storage layer, and

a capacitor electrode formed on the capacitor insulating film so as to bury each of the trenches and extending to the surface of the substrate to make a protruded portion having a top surface and a side surface, the capacitor electrode being formed on the surface of the substrate except for at least formation areas of the transistors;

wherein the gate electrode of each of the MOS transistors is elongated and terminated above the capacitor electrode except for an edge portion of the gate electrode which is arranged along an outer area of the memory cell area and is elongated in a transverse direction to the gate electrode on the semiconductor substrate, and contact to the gate electrode is formed on the gate electrode above the capacitor electrode arranged along the outer area of the memory cell area.

5,672,892

PROCESS FOR MAKING AND PROGRAMMING A FLASH MEMORY ARRAY

Selki Ogura, Hopewell Junction; Nlvo Rovedo, Lagrangeville, and Robert C. Wong, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

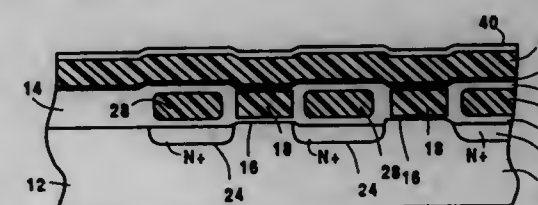
Division of Ser. No. 477,791, Jun. 7, 1995, Pat. No. 5,541,130.

This application May 14, 1996, Ser. No. 645,827

Int. Cl.⁶ H01L 21/8247

U.S. Cl. 257-314

2 Claims



- 1. An array of memory cells, comprising:
 - a substrate having a first conductivity type;
 - a plurality of elongated stacks extending in a first direction, each stack including:
 - a first thermal oxide layer disposed over an active region of said substrate, and
 - a first conductive layer disposed over said first thermal oxide to form floating gates, said stacks defining isolation regions;
 - a plurality of continuous, elongated diffusion rails implanted in said active array area of said substrate and between said stacks, said rails extending in said first direction and having a substantially flat contour, said rails comprising impurities having a second conductivity type opposite that of said substrate, each diffusion rail defining a bit-column line and a source region and a drain region of each pair of adjacent array cells associated with the bit-column line;

- a second thermal oxide layer disposed over said diffusion rails and the edges of said first conductive layer;
 a second conductive layer disposed over said second thermal oxide layer to form auxiliary gates, said second conductive layer having a top surface substantially flush with said first conductive layer;
 a third thermal oxide layer over said second conductive layer;
 a first dielectric layer disposed over said first conductive layer; and
 a plurality of word lines, comprising:
 a third conductive layer disposed over said first dielectric layer, said first conductive layer being substantially aligned with said third conductive layer, and
 a second dielectric layer disposed over said third conductive layer.

5,672,893

PROTECTIVE CONFIGURATION AGAINST ELECTROSTATIC DISCHARGES IN SEMICONDUCTOR COMPONENTS CONTROLLABLE BY FIELD EFFECT

Jenoe Tihanyi, Kirchheim, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

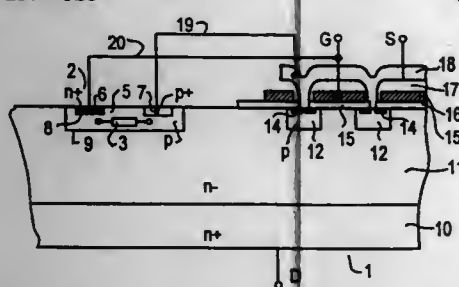
Filed Jan. 24, 1996, Ser. No. 590,931

Claims priority, application Germany, Jan. 24, 1995, 195 02 117.7

Int. Cl.⁶ H01L 29/78; 23/62; 27/07

U.S. Cl. 257—328

4 Claims



1. In a circuit including a first semiconductor component being controllable by field effect and having a gate terminal, a source terminal, and a drain terminal, a configuration for protecting the first semiconductor component against electrostatic discharges, comprising:

- a voltage-limiting, protective, second semiconductor component being connected to the gate terminal of the first semiconductor component, said second semiconductor component being an integrated bipolar transistor having a base terminal and a collector-to-emitter path connected between the drain terminal and the gate terminal of the first semiconductor component; and
 a resistor connected between said base terminal of said bipolar transistor and the source terminal of the first semiconductor component.

5,672,894

SEMICONDUCTOR DEVICE

Hiroshi Maeda, Reutlingen, Germany; Susumu Ueda, Nukata-gun, Japan; Hiroshi Fujimoto, Nagoya, Japan, and Yoshiaki Nakayama, Nukata-gun, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Oct. 19, 1995, Ser. No. 543,864

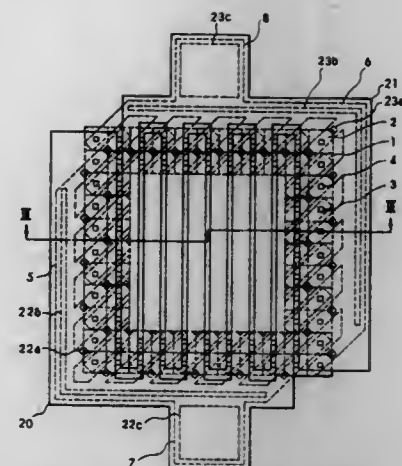
Claims priority, application Japan, Oct. 20, 1994, 6-255266

Int. Cl.⁶ H01L 29/76; 29/94; 31/062; 31/113

U.S. Cl. 257—343

16 Claims

1. A semiconductor device, comprising:
 a semiconductor substrate having a surface;
 an array of semiconductor elements arranged in a plurality of columns and rows, said semiconductor elements including a plurality of first regions and second regions which are alter-



nately disposed along each of said plurality of columns and rows to form current flow passages laterally with respect to said surface of said semiconductor substrate;

- a first insulating layer formed on said surface of said semiconductor substrate to cover said plurality of first regions and second regions;

- a first-group first-layer wiring located on said first insulating layer and formed into a first pectinate pattern having first tooth portions and a first connecting portion to connect said first tooth portions, said first-group first-layer wiring being electrically connected to said plurality of first regions;

- a second-group first-layer wiring located on said first insulating layer and formed into a second pectinate pattern having second tooth portions and a second connecting portion to connect said second tooth portions, said second-group first-layer wiring being electrically connected to said plurality of second regions, said first-group first-layer wiring and said second-group first-layer wiring making a first layer wiring pattern in which said first tooth portions of said first pectinate pattern and said second tooth portions of said second pectinate pattern are interleaved;

- a second insulating layer formed on said first layer wiring pattern to cover said first-group first-layer wiring and said second-group first-layer wiring, said second insulating layer having first-group holes, second-group holes, and first and second peripheral holes, said first and second peripheral holes being arranged outside an area where said array of semiconductor elements is formed;

- a first-group second-layer wiring located on said second insulating layer and formed into a third pectinate pattern having third tooth portions and a third connecting portion to connect said third tooth portions; and

- a second-group second-layer wiring located on said second insulating layer and formed into a fourth pectinate pattern having fourth tooth portions and a fourth connecting portion to connect said fourth tooth portions, said second-group first layer wiring and said second-group second-layer wiring making a second layer wiring pattern in which said third tooth portions of said third pectinate pattern and said fourth tooth portions of said fourth pectinate pattern are interleaved, said second layer wiring pattern being formed at a specified angle with respect to said first layer wiring pattern, wherein

said first-group second-layer wiring is electrically connected to said first-group first-layer wiring via said first group holes, which are formed in said second insulating layer where said first tooth portions of said first pectinate pattern intersect said third tooth portions of said third pectinate pattern, and said first peripheral hole formed in said second insulating layer so that said first connecting portion of said first pectinate pattern is electrically connected to said third connecting portion of said third pectinate pattern outside said area where said array of semiconductor elements is formed, and

said second-group second-layer wiring is electrically connected to said second-group first-layer wiring via said second group holes, which are formed in said second insulating layer where said second tooth portions of said second pectinate pattern

intersect said fourth tooth portions of said fourth pectinate pattern, and said second peripheral hole formed in said second insulating layer so that said second connecting portion of said second pectinate pattern is electrically connected to said fourth connecting portion of said fourth pectinate pattern outside said area where said array of semiconductor elements is formed.

5,672,895

SEMICONDUCTOR INTEGRATED CIRCUIT WITH PROTECTION CIRCUIT AGAINST ELECTROSTATIC BREAKDOWN AND LAYOUT DESIGN METHOD THEREFOR

Takashi Iida; Satoru Sumi; Hiroshi Shimizu; Akinori Tahara; Isao Amano, and Tetsuya Nakajima, all of Kawasaki, Japan, assignors to Fujitsu, Ltd., Kawasaki, Japan

Division of Ser. No. 194,988, Feb. 14, 1994, Pat. No.

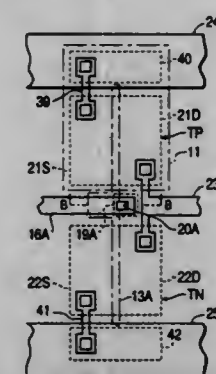
5,500,542. This application Dec. 19, 1995, Ser. No. 575,030

Claims priority, application Japan, Feb. 12, 1993, 5-023119; Mar. 18, 1993, 5-058469; Sep. 2, 1993, 5-218863

Int. Cl.⁶ H01L 27/01; 27/12; 23/62; 31/0392

U.S. Cl. 257—357

1 Claim



1. A semiconductor integrated circuit with protecting against electrostatic breakdown, wherein CMOS circuit having a pMIS transistor and an nMIS transistor provided adjacent to each other are arranged on a substrate and a gate line of the pMIS transistor and the nMIS transistor is common, comprising:

- a pn junction formed between a first conduction type region formed on the substrate and a second conduction type, which is opposite type to said first conduction type, formed around said first conduction type region in the substrate, said pn junction being arranged within a clearance region between the pMIS transistor and the nMIS transistor; and
 an input signal line a part of which is arranged within said clearance region in a metal wiring layer and connected to both said gate line and said first conduction type region through a contact hole formed from said metal wiring layer to the surface of said first conduction type region.

5,672,896

THREE STAGE ESD PROTECTION DEVICE

Jin-Yuan Lee, and Mong-Song Liang, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsinchu, Taiwan

Division of Ser. No. 507,143, Jul. 26, 1995, Pat. No. 5,593,911.

This application Oct. 4, 1996, Ser. No. 725,810

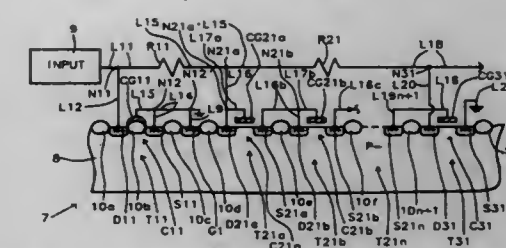
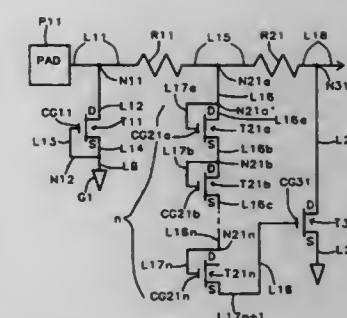
Int. Cl.⁶ H01L 23/60; 23/62

U.S. Cl. 257—360

12 Claims

1. An MOS electrostatic discharge, ESD, protection circuit for protecting a semiconductor device from ESD damage, said ESD protection circuit formed on a doped silicon semiconductor substrate comprising:

- an input line, an output line, a first node, a second node and a third node, and ground connections,



- first and second resistors each having a proximal end and a distal end,
 said first node connected to said input line, and said proximal end of said first resistor,
 said second node connected to said proximal end of said second resistor, and said distal end of said first resistor,
 said third node connected to said distal end of said second resistor, and said output line,
 said first stage including a first MOSFET transistor and a grounded region formed in said substrate,
 said first MOS transistor having a source/drain circuit connected between said first node and ground, said first MOS transistor having a control gate electrode connected to ground,
 said second stage including a string of MOSFET transistors connected in a series string with the last transistor in said string having a second stage output,
 said third stage including a third stage MOSFET device with a control gate connected to said second stage output and a source and drain circuit connected between said third node and a said ground connection,
 whereby said transistors dissipate power during an excess energy event.

5,672,897

BIMOS SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE INCLUDING HIGH SPEED VERTICAL BIPOLAR TRANSISTORS

Atsuo Watanabe, Hitachi, Ltd.; Takahide Ikeda, Tokorozawa; Kiyoshi Tsukuda, Hitachi; Mitsuru Hirao, Ibaraki-ken; Touji Mukai, Sanda, and Tatsuya Kamei, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 735,948, Jul. 25, 1991, Pat. No.

5,508,549, which is a continuation of Ser. No. 631,907, Dec.

21, 1990, Pat. No. 5,049,967, which is a continuation of Ser.

No. 159,956, Feb. 24, 1988, Pat. No. 4,980,744, which is a

continuation-in-part of Ser. No. 554,794, Nov. 23, 1983, abandoned. This application Jun. 5, 1995, Ser. No. 462,902

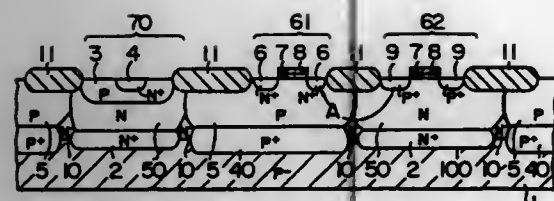
Claims priority, application Japan, Nov. 24, 1982, 57-204671

Int. Cl.⁶ H01L 29/76; 29/167

U.S. Cl. 257—370

11 Claims

1. A semiconductor integrated circuit device having a bipolar transistor and an MOS transistor of a first conductivity type, comprising:
 a plurality of first region of a second conductivity type;



a plurality of second regions of the second conductivity type each of said second regions formed on one of said first regions, an impurity concentration of each of said second regions being gradually decreased from the surface of the second region toward the corresponding first region;

a vertical bipolar transistor having a collector region formed by said first region and one of said plurality of second regions; and

a first conductivity type MOS transistor formed in another of said plurality of second regions,

wherein the impurity concentration of each of said second regions is lower than an impurity concentration of the adjacent first region and a boundary of the first and second regions defines a minimum point of impurity concentration of the combination of the first and second regions, whereby said vertical bipolar transistor can operate at high speed without degrading operating characteristics of said first conductivity type MOS transistor.

5,672,898

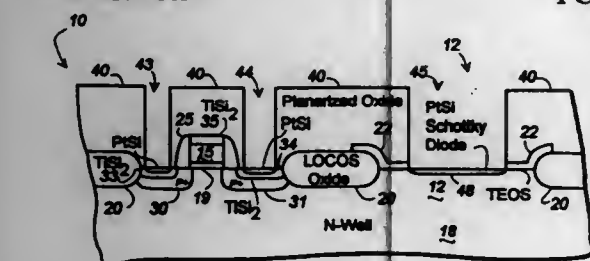
PLATINUM SILICIDE SCHOTTKY DIODES IN A TITANIUM-SILICIDED CMOS-BASED HIGH PERFORMANCE BICMOS PROCESS

Stephen A. Keller, Sugarland, and Rajiv R. Shah, Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 316,588, Sep. 29, 1994. This application Jul. 25, 1996, Ser. No. 684,869

Int. Cl.⁶ H01L 29/94; 29/43; 29/47; 29/872

U.S. Cl. 257—383



1. An integrated circuit, comprising:

a semiconductor substrate;

a FET device formed in said substrate, said FET device having source, drain, and gate elements;

a region of TiSi₂ in each of said source, drain, and gate elements; and

a Schottky diode comprising a layer comprising a metal in said substrate, wherein said TiSi₂ regions in said source and drain elements each contain a region of platinum silicide.

5,672,899

POWER SEMICONDUCTOR SWITCH WITH AN INTEGRATED CIRCUIT

Remigiusz Boguszewicz, Essen, Germany, assignor to Hanning Electronic GmbH & Co., Germany

PCT No. PCT/DE93/01178, § 371 Date Jun. 13, 1995, § 102(e) Date Jun. 13, 1995, PCT Pub. No. WO94/14195, PCT Pub. Date Jun. 23, 1994

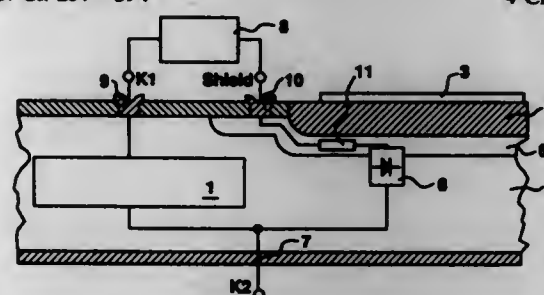
PCT Filed Dec. 8, 1993, Ser. No. 454,246

Claims priority, application Germany, Dec. 17, 1992, 42 42 669.3

Int. Cl.⁶ H01L 29/76; 29/94; 31/062; 31/113

U.S. Cl. 257—394

4 Claims



1. A semiconductor arrangement with a vertical power semiconductor switch and an integrated CMOS or bipolar circuit, wherein the integrated CMOS or bipolar circuit is arranged on a semiconductor islet insulated from a first semiconductor material region by a buried insulating layer, and the power semiconductor switch comprises the first semiconductor material region as part of its structure, wherein:

- a) the buried insulating layer is surrounded by a second semiconductor material region arranged between it and the first semiconductor material region, the doping of the second semiconductor region being opposite to that of the first semiconductor material region, and
- b) the second semiconductor material region is coupled to the first semiconductor material region via a circuit which prevents the second semiconductor material region from changing to a conductive state and allows the potential of the second semiconductor material region to float in a certain range, such that this potential is limited to values small enough to avoid interference with the integrated circuit.

5,672,900

INSULATED GATE FIELD EFFECT TRANSISTOR WITH AN ANODIC OXIDIZED GATE ELECTRODE

Toshimitsu Konuma, 796-7, Tomuro; Akira Sugawara, Flat SEL 101, 304-1, Hase, and Takahiro Tsuji, Flat SEL-B 203, 304-1, Hase, all of Atsugi-shi, Kanagawa-ken 243, Japan

Continuation of Ser. No. 219,378, Mar. 29, 1994, abandoned.

This application Jan. 19, 1996, Ser. No. 588,677

Claims priority, application Japan, Mar. 30, 1993, 5-096667

Int. Cl.⁶ H01L 29/76; 31/036; 27/01; 27/088

U.S. Cl. 257—410

10 Claims



1. A transistor comprising:

an active region comprising a semiconductor material;

a gate electrode provided over said active region, said gate electrode comprising an anodizable material; and

a first anodic oxide of the material of said gate electrode provided on a side surface and a top surface of said gate electrode; and

a second anodic oxide of the material of said gate electrode provided adjacent to the side surface of said gate electrode with said first anodic oxide interposed therebetween, wherein said second anodic oxide is more porous than said first anodic oxide.

5,672,901

STRUCTURE FOR INTERCONNECTING DIFFERENT POLYSILICON ZONES ON SEMICONDUCTOR SUBSTRATES FOR INTEGRATED CIRCUITS

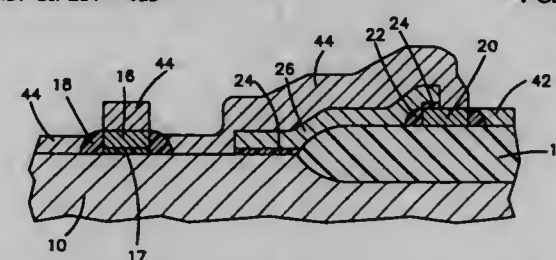
John Robert Abernathy, Underhill; Randy William Mann, Jericho; Paul Christian Parries, Essex Junction, and Julie Anne Springer, Burlington, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 439,394, May 11, 1995, abandoned, which is a division of Ser. No. 6,662, Jan. 19, 1993, Pat. No. 5,453,400, which is a continuation of Ser. No. 545,909, Jun. 28, 1990, abandoned. This application Aug. 26, 1996, Ser. No. 702,863

Int. Cl.⁶ H01L 23/532; 23/535

U.S. Cl. 257—413

4 Claims



1. An integrated circuit comprising, a silicon substrate having spaced doped regions of silicon;

a first insulator separating said spaced doped silicon regions, a second insulator distinct from said first insulator overlying a first portion of each doped region,

an interconnection conductor interconnecting said spaced doped silicon regions;

said interconnection conductor being comprised of a layer of intrinsic polysilicon overlying said first and second insulators and a layer of refractory metal silicide overlying said polysilicon layer and contacting a second portion of each of said doped silicon regions without extending into said doped silicon regions.

5,672,902

IMAGE SENSOR

Katsunori Hatanaka, Yokohama; Toshihiro Saika; Takayuki Ishii, both of Hiratsuka, and Katsuhiko Yamada, Atsugi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 31,018, Mar. 11, 1993, abandoned, which is a continuation of Ser. No. 642,162, Jan. 17, 1991, abandoned, which is a continuation of Ser. No. 207,200, Jun. 16, 1988, abandoned. This application Feb. 22, 1995, Ser. No. 393,884

Claims priority, application Japan, Jun. 26, 1987, 62-160506

Int. Cl.⁶ H01L 31/10; 27/02

U.S. Cl. 257—431

30 Claims

1. An image sensor comprising:

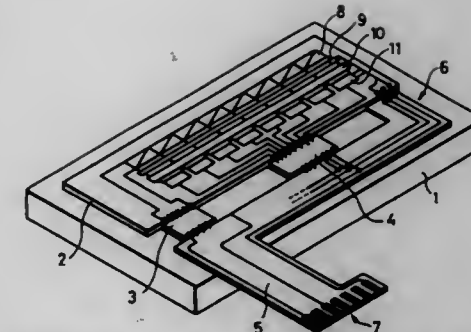
a carrier substrate comprising:

a sensor substrate;

a sensor section comprising a light-receiving element formed on said sensor substrate;

a thin-film transistor section, formed on said sensor substrate, for transferring an output signal from said light-receiving element; and

a sensor wiring section, comprising a terminal section, for electrically connecting said sensor section and said thin-



film transistor section to said terminal section, said terminal section for connection outside said image sensor;

a silicon integrated circuit chip, different from said sensor substrate, for controlling said thin-film transistor section, said silicon integrated circuit having a clamping circuit coupled to said thin-film transistor section; and

a wiring section comprising a plurality of input/output signal lines, coupled to said sensor substrate, for inputting/outputting signals between said sensor substrate and outside said image sensor, wherein all of said input/output signal lines are also electrically connected to said clamping circuit provided on said silicon integrated circuit chip for preventing electrostatic breakdown in said light-receiving element and/or said thin-film transistor section caused by an excessive voltage being supplied that is higher than a predetermined level.

5,672,903

UNCOOLED YBACUO THIN FILM INFRARED DETECTOR

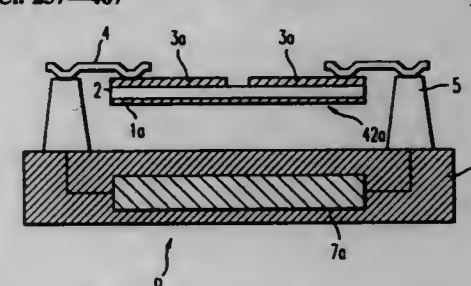
Donald P. Butler; Zeynep Celik-Butler, and Pao-Chuan Shan, all of Dallas, Tex., assignors to Southern Methodist University, Dallas, Tex.

Division of Ser. No. 382,200, Feb. 1, 1995, Pat. No. 5,572,060. This application Feb. 26, 1996, Ser. No. 607,356

Int. Cl.⁶ H01L 31/058

U.S. Cl. 257—467

11 Claims



1. A pyroelectric detector, comprising:

an integral transducer structure for absorbing infrared radiation, comprising

- (1) an electrically conducting supporting layer having a supporting layer lower surface and a supporting layer upper surface,
- (2) a semiconducting transducing layer of crystalline or polycrystalline oxide formed from (1) at least one member selected from the group consisting of barium, strontium, and calcium, (2) at least one member selected from the group consisting of yttrium, lanthanum, and rare earths, (3) copper, and (4) oxygen, having a transducing layer lower surface, a transducing layer upper surface, a resistance of greater than 0.1 Ω-cm at twenty degrees centigrade, a change in dielectric constant with change in temperature of at least 0.2 per degree centigrade at 20 degrees centigrade, and the transducing layer lower surface opposing said supporting layer upper surface, and
- (3) a first electrode layer having a first electrode layer lower surface, a first electrode layer upper surface, and the first

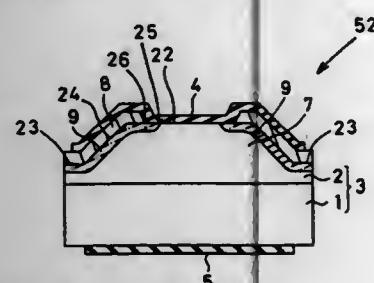
electrode layer lower surface opposing a first region of the supporting layer upper surface across the transducing layer; means, electrically coupled via said first electrode layer, for measuring pyroelectric current generated by changes in temperature of said transducing layer.

5,672,904
SCHOTTKY CARRIER DIODE WITH PLASMA TREATED LAYER
Tomoyasu Miyata, Shiga-ken, and Koichi Sakamoto, Ohtsu, both of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Aug. 23, 1996, Ser. No. 708,094
Claims priority, application Japan, Aug. 25, 1995, 7-240622
Int. Cl.⁶ H01L 23/58

U.S. Cl. 257—472

9 Claims



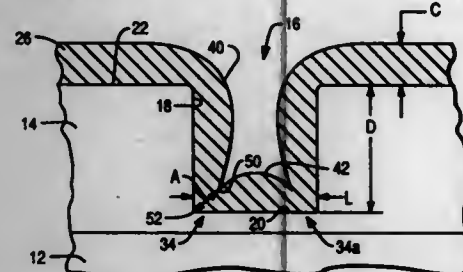
1. A Schottky barrier diode comprising: an n⁺ semiconductor layer; an n⁺ semiconductor layer provided on the n⁺ semiconductor layer, the n⁺ semiconductor layer having a mesa which projects upward from a lower surface of the mesa to an upper surface, and has a side surface between the upper surface and the lower surface; an anode electrode provided on a central portion of the upper surface within a periphery thereof, the anode electrode being in Schottky contact with the n⁺ layer; and a cathode electrode provided on the n⁺ semiconductor layer; the n⁺ semiconductor layer further comprising a plasma treated layer extending inwardly from at least a portion of the side surface of the mesa.

5,672,905
SEMICONDUCTOR FUSE AND METHOD
Steven S. Lee, and Gayle W. Miller, both of Colorado Springs, Colo., assignors to AT&T Global Information Solutions Company, Dayton, Ohio; Hyundai Electronics America, San Jose, Calif., and Symbios Logic Inc., Fort Collins, Colo.

Filed Aug. 26, 1992, Ser. No. 935,306
Int. Cl.⁶ H01L 29/00

U.S. Cl. 257—529

8 Claims



1. A method for fabricating a semiconductor fuse, comprising: providing an insulating layer; forming, in said insulating layer, a trench having a depth that is greater than its length, and having sidewalls and a bottom surface; and

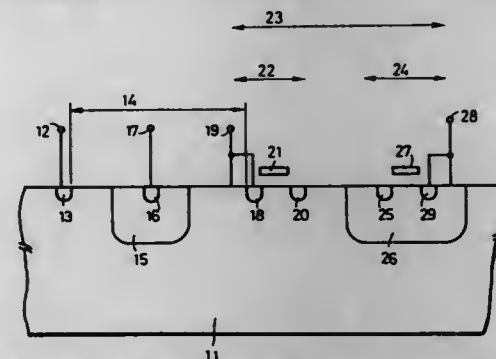
forming a fusible link across said layer and trench and conformal therewith, said link having a break region of minimum thickness and width at an intersection of said sidewall and said bottom surface.

5,672,906
SEMICONDUCTOR DEVICE HAVING DEFECTS OF DEEP LEVEL GENERATED BY ELECTRON BEAM IRRADIATION IN A SEMICONDUCTOR SUBSTRATE
Yutaka Saito, Takao Akiba, Koju Nonaka, Masaaki Kamiya, and Hitomi Watanabe, all of Tokyo, Japan, assignors to Seiko Instruments Inc., Japan

Division of Ser. No. 81,969, Jun. 24, 1993. This application Jan. 18, 1996, Ser. No. 588,395
Claims priority, application Japan, Jun. 25, 1992, 4-167076
Int. Cl.⁶ H01L 29/30

U.S. Cl. 257—617

5 Claims



1. A semiconductor device having crystal defects of which an activation energy is 0.28–0.32 eV at 150 K. in a monocrystal silicon semiconductor region at a concentration of 1.6×10^{13} – 2.0×10^{13} cm⁻³.

5,672,907
SEMICONDUCTOR DEVICE HAVING CHARACTER IN BPSG FILM
Yasuo Kasagi, Tokyo, Japan, assignor to Nippon Steel Corporation, Tokyo, Japan

Filed Mar. 19, 1996, Ser. No. 618,170
Claims priority, application Japan, Mar. 22, 1995, 7-088739
Int. Cl.⁶ H01L 23/58

U.S. Cl. 257—632

24 Claims



1. A semiconductor device comprising: a first BPSG film formed above a semiconductor substrate containing phosphorus and approximately 3.5 wt % to 4.5 wt % of boron; and a second BPSG film formed on said first BPSG film, said second BPSG film having a boron content lower than that of said first BPSG film and having a phosphorus content approximately equal to that of the first BPSG film.

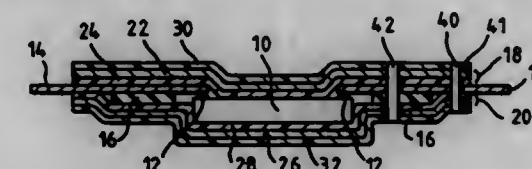
5,672,908
THIN SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE ASSEMBLY
Takao Fujitsu, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Division of Ser. No. 373,491, Jan. 17, 1995, Pat. No. 5,448,106, which is a continuation of Ser. No. 185,215, Jan. 24, 1994, abandoned, which is a continuation of Ser. No. 931,326, Aug. 18, 1992, abandoned. This application May 30, 1995, Ser. No. 453,507

Claims priority, application Japan, Aug. 20, 1991, 3-207087
Int. Cl.⁶ H01L 23/31; 23/48

U.S. Cl. 257—668

2 Claims



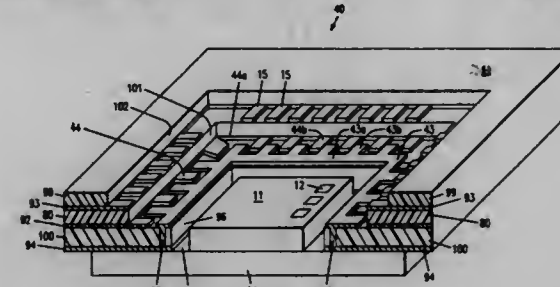
1. A semiconductor device assembly comprising: a semiconductor chip having first and second surfaces; a plurality of electrodes on the first surface; a plurality of leads arranged around the chip, each of the leads having an end portion which contacts one of the electrodes; first and second films, the first film directly contacting the first surface of the semiconductor chip and a first side of the plurality of leads and the second film having a first contact portion directly contacting the second surface of the semiconductor chip and a second contact portion directly contacting a second side of the plurality of leads, each of the first and second films having an electrically conductive layer and an adhesive layer adhered to each of the electrically conductive layers, the first and second films being on opposite sides of the semiconductor chip and the leads; and a conductive member through one of the adhesive layers contacting one of the electrically conductive layers and one of the leads.

5,672,909
INTERDIGITATED WIREBOND PROGRAMMABLE FIXED VOLTAGE PLANES
Thomas P. Glenn, Gilbert, Ronald J. Molnar, Phoenix, both of Ariz., and Roy Dale Hollaway, Paranaque, Philippines, assignors to Amkor Electronics, Inc., Chandler, Ariz.

Continuation of Ser. No. 385,024, Feb. 7, 1995, abandoned. This application Jul. 29, 1996, Ser. No. 688,083
Int. Cl.⁶ H01L 23/28

U.S. Cl. 257—668

6 Claims



1. An integrated circuit package comprising: a die attach area; a first bus including a first strip formed in a first conductor level and substantially encircling said die attach area, said first bus further including fingers formed in said first conductor level and integrally attached to said first strip and pointing from said first strip away from said die attach area, said first bus being for a first electrical potential; and a second bus including a second strip formed in said first conductor level and substantially encircling said first bus, said second bus further including fingers formed in said first

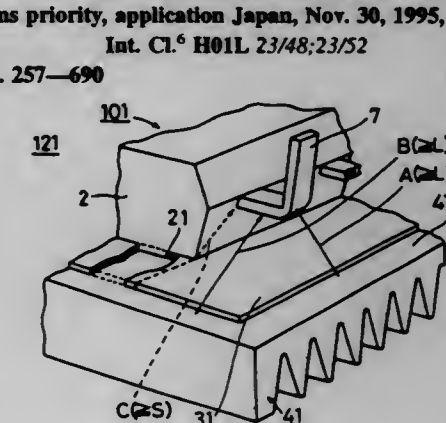
conductor level and integrally attached to said second strip and pointing from said second strip toward said first bus, said second bus being for a second electrical potential, said fingers of said first bus being located between and alternating with said fingers of said second bus, wherein said first electric potential is equal to said second electric potential.

5,672,910
SEMICONDUCTOR DEVICE AND SEMICONDUCTOR MODULE
Gourab Majumdar, Satoshi Mori, Sukehisa Noda, Tooru Iwagami, Yoshio Takagi, and Hisashi Kawafuji, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 13, 1996, Ser. No. 663,408
Claims priority, application Japan, Nov. 30, 1995, 7-312558
Int. Cl.⁶ H01L 23/48; 23/52

U.S. Cl. 257—690

18 Claims



1. A semiconductor device, comprising: a lead frame having a planar portion being electrically conductive and having first and second main surfaces and having therearound a plurality of external terminals outwardly projecting; a power semiconductor element fixed on said first main surface; a heat sink like a plate being thermally conductive and having third and fourth main surfaces and provided so that said third main surface faces said second main surface with a gap therebetween; and a sealing resin having electrically insulating properties and sealing said power semiconductor element, said lead frame, and said heat sink arranged so that said plurality of external terminals and said fourth main surface are exposed to an outside, said plurality of external terminals includes a high breakdown voltage terminal that sets a breakdown voltage for the device, where the breakdown voltage corresponds to a rated voltage for said device developed between said high voltage terminal and said heat sink; a portion interposed between said high breakdown voltage terminal and said fourth main surface in an outer surface of said sealing resin has a surface shape capable of pressing and holding a sheet having elasticity with an external flat surface in surface contact with said fourth main surface, and a height of said plurality of external terminals measured from said fourth main surface is smaller than a permissible shortest spatial distance, which is a reference value corresponding to said rated voltage for said device.

5,672,911

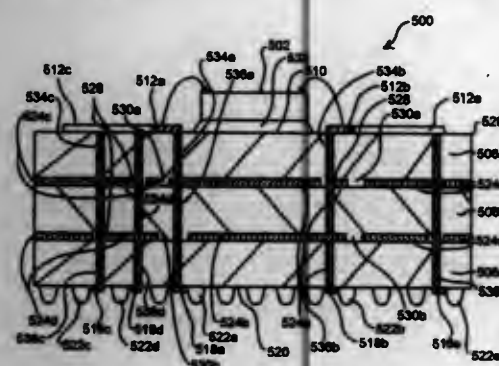
APPARATUS TO DECOUPLE CORE CIRCUITS POWER SUPPLY FROM INPUT-OUTPUT CIRCUITS POWER SUPPLY IN A SEMICONDUCTOR DEVICE PACKAGE
Sadanand R. Patil, San Jose; Tai-Yu Chou, Pleasanton, and Prabhansu Chakrabarti, Sunnyvale, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed May 30, 1996, Ser. No. 655,599

Int. Cl.⁶ H01L 23/52; 23/48

U.S. Cl. 257—691

21 Claims



1. A semiconductor device assembly, comprising:
 - a package substrate comprising a top surface, a bottom surface, first and second conductive patterns, and first, second and third dielectric layers,
 - the first dielectric layer disposed between the top surface and the first conductive pattern, the second dielectric layer disposed between the first and second conductive patterns, and the third dielectric layer disposed between the second conductive pattern and the bottom surface,
 - the bottom surface having a plurality of first external connectors, a plurality of second external connectors, a plurality of third external connectors, a plurality of fourth external connectors, and a plurality of signal external connectors,
 - the first conductive pattern having a first plane and a third plane, the first plane connected to the plurality of first external connectors, and the third plane connected to the plurality of third external connectors,
 - the second conductive pattern having a second plane and a fourth plane, the second plane connected to the plurality of second external connectors, and the fourth plane connected to the plurality of fourth external connectors, the first and second planes positioned in a biplanar relationship for forming an electrical capacitance, and the third and fourth planes positioned in a biplanar relationship for forming an electrical capacitance; and
 - a semiconductor die having core circuits and input-output circuits, said semiconductor die located on the top surface of said package substrate, said semiconductor die comprising:
 - a plurality of first power bond pads for the core circuits, the plurality of first power bond pads connected to the first plane,
 - a plurality of second power bond pads for the core circuits, the plurality of second power bond pads connected to the second plane,
 - a plurality of third power bond pads for the input-output circuits, the plurality of third power bond pads connected to the third plane,
 - a plurality of fourth power bond pads for the input-output circuits, the plurality of fourth power bond pads connected to the fourth plane, thereby decoupling the core circuits of said semiconductor die from the input-output circuits of said semiconductor die, and
 - a plurality of signal bond pads, the plurality of signal bond pads connected to the plurality of signal external connectors of said package substrate.

5,672,912

RESIN-SEALED TYPE SEMICONDUCTOR DEVICE AND METHOD FOR MANUFACTURING THE SAME
Kazumasa Aoki, Tsuyama, and Yoshiki Sota, Tenri, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

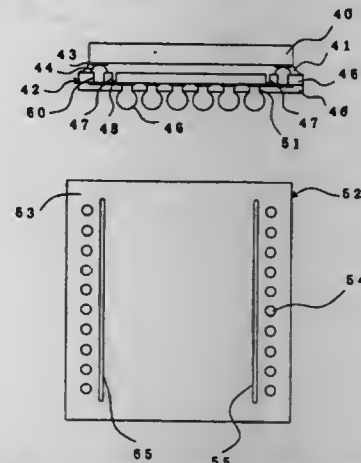
Filed Jul. 19, 1996, Ser. No. 684,186

Claims priority, application Japan, Nov. 21, 1995, 7-303004

Int. Cl.⁶ H01L 21/60; 23/48; 23/12

U.S. Cl. 257—693

11 Claims



1. A resin-sealed type semiconductor device comprising:
 - a semiconductor chip having an electrode pad;
 - a wiring component composed of a wiring layer formed on one side of an insulating board, a through-hole penetrating through the insulating board and a projecting electrode formed on the other side of the insulating board and at the position corresponding to the through-hole;
 - said semiconductor chip and said wiring component being disposed so that the electrode pad and the projecting electrode are welded together, and at least the gap between the semiconductor chip and the wiring component is sealed with a resin, the insulating board having a surface along one side thereof and a groove in said surface only partially penetrating between opposite sides of said insulating board.

5,672,913

SEMICONDUCTOR DEVICE HAVING A LAYER OF GALLIUM AMALGAM ON BUMP LEADS
Daniel Flanagan Baldwin, Monmouth Junction, and Rajan D. Deshmukh, Trenton, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

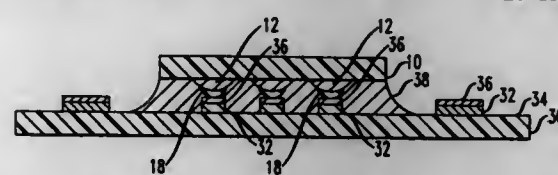
Continuation of Ser. No. 393,607, Feb. 23, 1995, abandoned.

This application Jun. 13, 1996, Ser. No. 663,336

Int. Cl.⁶ H01L 23/48; 23/52; 29/40

U.S. Cl. 257—737

20 Claims



1. An apparatus comprising, in combination, an electronic device comprised of a planar surface having a plurality of non-solder wettable metallized members arrayed on said surface, and a circuit board having a plurality of solder-coated metallized areas arrayed the same as the metallized members on said electronic device for bonding thereto, the improvement wherein said electronic device comprises at least one layer of gallium amalgam on said metallized members and having a pattern corresponding to the array of metallized members to render said members wettable by the solder of the metallized areas on the circuit board.

5,672,914

DIMPLE-FREE TUNGSTEN PLUG

Yuan-Chang Huang, and Huang-Hui Chang, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

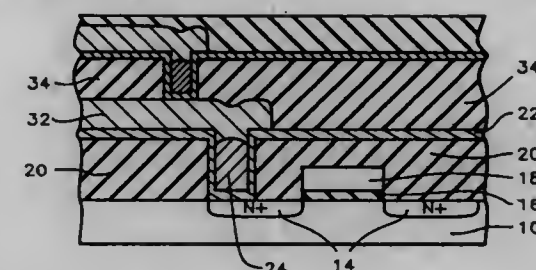
Division of Ser. No. 415,334, Apr. 3, 1995, Pat. No. 5,527,736.

This application Apr. 22, 1996, Ser. No. 635,802

Int. Cl.⁶ H01L 23/48; 29/40; 29/54; 29/62

U.S. Cl. 257—763

5 Claims



1. An integrated circuit device comprising:
 - semiconductor device structures in and on a semiconductor substrate;
 - an insulating layer overlying said semiconductor device structures;
 - a tungsten plug through said insulating layer contacting one of said semiconductor device structures wherein the profile of said tungsten plug is bump-like and wherein said tungsten plug is recessed below the surface of said insulating layer;
 - a glue layer overlying said insulating layer and lying between said tungsten plug and said insulating layer and between said tungsten plug and said one of said semiconductor device structures;
 - a first patterned metal layer overlying said glue layer and contacting said tungsten plug; and
 - a passivation layer overlying said first patterned metal layer.

5,672,915

CERAMIC COATED PLASTIC PACKAGE

Donald C. Abbott, Norton, Mass., and Raymond A. Frechette, N. Providence, R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 431,388, Apr. 28, 1995, abandoned,

which is a continuation of Ser. No. 198,073, Jan. 29, 1994,

abandoned, which is a division of Ser. No. 771,720, Oct. 4,

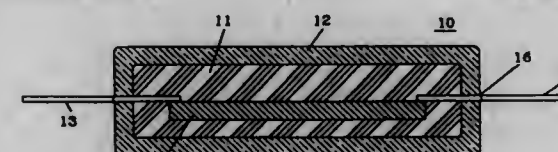
1991, Pat. No. 5,302,553. This application Jun. 5, 1996, Ser.

No. 658,292

Int. Cl.⁶ H01L 23/29

U.S. Cl. 257—790

6 Claims



1. A mixed composition package for a semiconductor device, comprising:
 - a semiconductor device comprising a body and at least one lead extending from said body;
 - a plastic layer surrounding the semiconductor body so as to fully encase said semiconductor body in a unitary, integrally formed seamless plastic package, said lead extending through said plastic package such that said plastic layer overlies a portion of said lead, whereas a remaining portion of said lead extends outside of said plastic package; and
 - a jacket comprising a layer of a ceramic material which overlies said plastic package so as to completely encase said plastic package and a segment of said remaining lead portion extending beyond said plastic package.

5,672,916

SEAT BELT LATCH SENSOR

Bernard Mattes, Sachsenheim; Hartmut Schumacher, Freiberg; Werner Nitschke, Ditzingen, and Ralf Henne, Sachsenheim, all of Germany, assignors to Morton International, Inc., Chicago, Ill., and Robert Bosch GmbH, Stuttgart, Germany

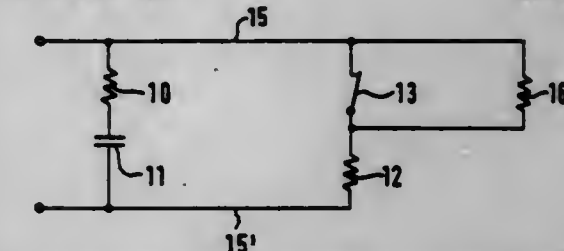
Filed Feb. 8, 1996, Ser. No. 598,361

Claims priority, application Germany, Feb. 17, 1995, 195 05 334.6

Int. Cl.⁶ B60R 21/00

U.S. Cl. 307—10.1

16 Claims



1. An electronic device comprising a piece of safety equipment for vehicular occupants, having an output stage (32a, 32b, 32c) which comprises a firing element (10, 11), having an insertable seat belt with a fastening device comprising a belt lock that is fastened by inserting a portion of said seat belt in said belt lock, said seat belt having an operational position which is indicative of whether or not said seat belt is correctly inserted into said belt lock, and having a switching element (13) which characterizes the operational position of said seat belt, wherein said switching element (13) is connected in parallel with said firing element (10, 11).

5,672,917

SEMICONDUCTOR POWER SWITCH SYSTEM

Toshiya Nakano, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

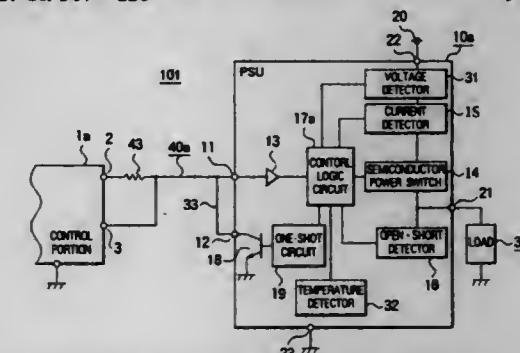
Filed Sep. 13, 1995, Ser. No. 526,270

Claims priority, application Japan, Sep. 27, 1994, 6-231705

Int. Cl.⁶ H01H 47/00

U.S. Cl. 307—116

9 Claims



1. A semiconductor power switch system comprising:
 - a control portion having an output port and an input port;
 - at least one semiconductor power switch unit connected to said control portion for controlling supply of electrical power from a power source to a load, in response to a control signal supplied from said output port of said control portion, said semiconductor power switch unit having a self-diagnosis function for detecting an abnormality and, in response, supplying an abnormality signal to the input port of said control portion, said semiconductor power switch unit including a semiconductor power switch for switching electrical power to said load,
 - an abnormality detection portion for detecting an abnormality in said semiconductor power switch unit,
 - a control logic portion connected to said semiconductor power switch and to said abnormality detection portion for controlling said semiconductor power switch in response to the

control signal supplied by said control portion and for turning off said semiconductor power switch and generating an internal abnormality detection signal upon detection of an abnormality by said abnormality detection portion, an abnormality signal generating portion connected to said control logic portion for generating an abnormality signal in response to the internal abnormality detection signal, and an input/output portion for receiving the control signal supplied by said control portion and for supplying the abnormality signal; and

a bidirectional signal transmission line connected to said output port and said input port of said control portion and to said input/output portion of said semiconductor power switch unit for communicating the control signal and the abnormality signal between said control portion and said semiconductor power switch unit, said input/output portion including an input terminal for receiving the control signal, a diagnosing terminal for supplying the abnormality signal, and a connection line connecting said diagnosing terminal to said input terminal and wherein said abnormality signal generating portion includes a circuit for fixing said bidirectional signal transmission line, through said diagnosing terminal, at a first level in response to generation of the internal abnormality detection signal for communicating the first level to said input port of said control portion.

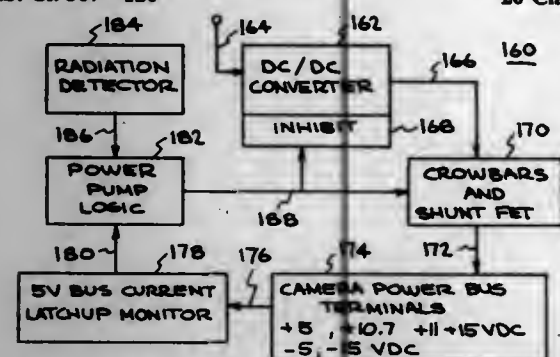
5,672,918 SYSTEM LEVEL LATCHUP MITIGATION FOR SINGLE EVENT AND TRANSIENT RADIATION EFFECTS ON ELECTRONICS

Joseph Robert Kimbrough, Pleasanton, and Nicholas John Colella, Livermore, both of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 18, 1994, Ser. No. 291,086
Int. Cl.⁶ H01H 35/00; B01D 59/44

U.S. Cl. 307-126

20 Claims



1. A system for mitigating the effects of destructive radiation on a micro-electronic circuit, comprising:

a power bus switchably connected to a micro-electronic circuit; power dump means, having an input terminal and an output terminal, for switchably disconnecting the power bus from the microelectronic circuit;

ionizing radiation pulse detection means for detecting a pulse of prompt ionizing radiation and for providing at an output terminal thereof a detection signal indicative of the detection of the pulse of prompt ionizing radiation;

current sensing means coupled to said power bus for determining an occurrence of excess current through said power bus resulting from destructive single-event-phenomena or from prompt ionizing radiation pulses, said current sensing means having an output terminal at which is provided a control signal indicative of the occurrence of excess current through the power bus; and

logic means having an input terminal connected to the output terminal of the ionizing radiation pulse detection means and also connected to the output terminal of the current sensing means, said logic means providing an output signal to the

input terminal of said power dump means, said power dump means switchably disconnecting the power bus from the micro-electronic circuit upon receipt of the output signal from said logic means upon detection of a pulse of prompt ionizing radiation or occurrence of excess current through the power bus.

5,672,919

LOW CURRENT BINARY INPUT SUBSYSTEM

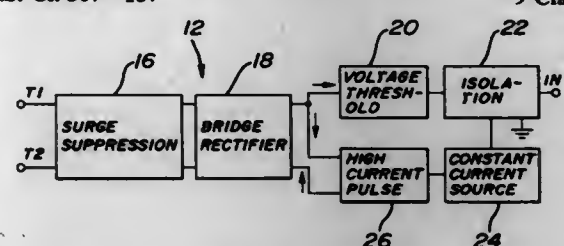
Raymond E. Johnson, deceased, late of Coral Springs, Fla.; B. S. Johns, administrator, Nahunta, Ga., and Janusz W. Dzedusko, Coral Springs, Fla., assignors to ABB Power T&D Company Inc., Raleigh, N.C.

Filed Mar. 24, 1995, Ser. No. 409,866

Int. Cl.⁶ H01H 1/58

U.S. Cl. 307-137

9 Claims



1. A binary input subsystem for providing a binary input signal to a data acquisition system, comprising

(a) a pair of terminals (T1, T2) for receiving an electrical signal indicative of the open/close state of contact (FC);

(b) threshold means (20) operatively coupled to said terminals for receiving an applied voltage and ensuring that the binary input will remain in an "off" state until said applied voltage exceeds a prescribed threshold, said "off" state indicating that said contact is open;

(c) isolation means (22) operatively coupled to said threshold means for providing a galvanically isolated binary input signal ("IN") to the data acquisition system;

(d) constant current means (24) operatively coupled to said isolation means for ensuring that a prescribed operating current is applied to said isolation means; and

(e) current pulse means (26) operatively coupled to said isolation means for providing a current pulse through said contact when said contact closes, said current pulse being of a designed duration and amplitude sufficient to clean a dielectric film from said contact.

5,672,920

CURRENT SHARING AC BUS BAR

Kevin J. Donegan, Merrimack, N.H.; Dennis E. Hartzell, Wertzog; Gary P. Millas, Avon, both of Conn., and William R. Snow, Framingham, Mass., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed May 2, 1996, Ser. No. 641,927

Int. Cl.⁶ H01B 9/00

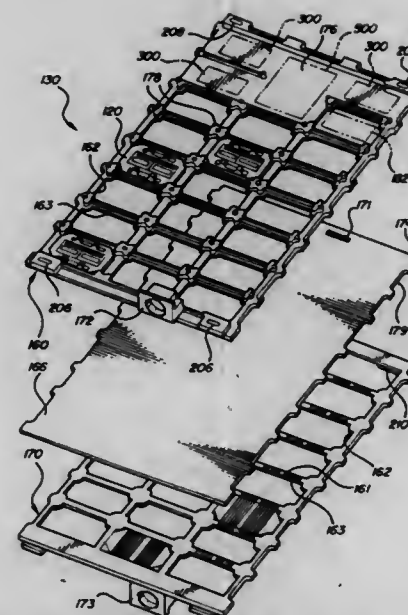
U.S. Cl. 307-147

8 Claims

1. An AC bus assembly comprising:

a plurality of substantially similar AC current sources connected in a plane and each having contact pads formed thereon;

a bus bar interconnecting at least one of said current sources to a peripheral device;



said bus bar comprising a plurality of elongated flat plates having a width substantially greater than its thickness and laminated to one another.

5,672,921

SUPERCONDUCTING FIELD WINDING ASSEMBLAGE FOR AN ELECTRICAL MACHINE

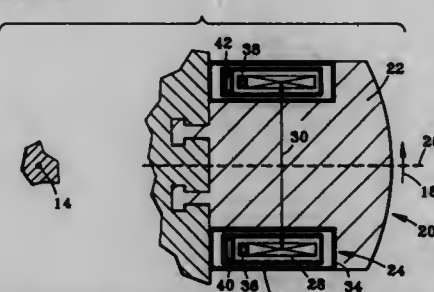
Kenneth Gordon Herd, Niskayuna, and Evangelos Trifon Laskaris, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 13, 1995, Ser. No. 402,438

Int. Cl.⁶ H02K 3/18; I32/55/04

U.S. Cl. 310-52

7 Claims



1. A field winding assembly for an electrical machine, said field winding assembly comprising a plurality of pole assemblies each including:

a) a direction of motion;

b) a solid core;

c) a superconductive coil assembly generally surrounding said solid core and having a generally longitudinally extending axis disposed generally perpendicular to said direction of motion, an epoxy-impregnated, generally racetrack-shaped superconductive coil having a minor axis disposed generally parallel to said direction of motion, a thermal shield generally surrounding and spaced apart from said superconductive coil, and a vacuum enclosure surrounding and spaced apart from said thermal shield;

d) a single-loop, generally racetrack-shaped, first cooling conduit generally coaxially aligned with said longitudinally extending axis, generally concentric with said superconductive coil, containing a gaseous cryogen, and disposed in thermal contact with said superconductive coil; and

e) a single-loop, generally racetrack-shaped, second cooling conduit generally coaxially aligned with said longitudinally extending axis, generally concentric with said superconduc-

tive coil, containing a gaseous cryogen, and disposed in thermal contact with said thermal shield.

5,672,922

COMMUTATOR MOTOR

Dieter Raichle, and Günter Haas, both of Nürtingen, Germany, assignors to Karl M. Reich Maschinenfabrik GmbH, Nürtingen, Germany

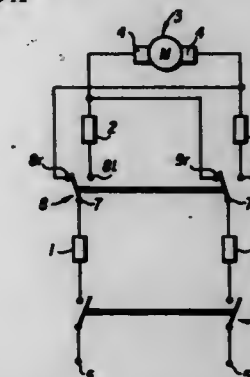
Filed Jan. 19, 1995, Ser. No. 374,875

Claims priority, application Germany, Jan. 21, 1994, 44 01 686.7

Int. Cl.⁶ H02K 11/00

U.S. Cl. 310-68 A

7 Claims



1. A non-commutating-pole commutator motor for driving a hand tool comprising:

a) a field winding carried by poles of a laminated core stator which is mounted in a motor casing;

b) a rotor winding attached to a commutator and having commutating coils, wherein the commutating coils of said rotor winding define a plane advanced around a longitudinal axis of said motor relative to a central plane lying in a center between opposite poles of said laminated core stator, and wherein the advanced plane is defined by the commutating coils and chosen such that, in one of two directions of rotation, good commutation is assured at full motor output;

c) a brush apparatus non-rotatably secured in said motor casing and comprising brushes contacting diametrical points on said commutator; and

d) switch means for reversing the direction of rotation, said switch means yielding a preferred direction of rotation in a first switch position and an opposite direction of rotation in a second switch position, and wherein said switch means applies a first number of turns of the field winding to said motor in the first switch position and a second number of turns of the field winding to an electric circuit of the motor in the second switch position, said first number of turns being less than said second number of turns;

wherein said switch means comprises a double pole reversing switch, and said field winding comprises a first pair of coils and a second pair of coils;

wherein said first pair of coils is connected to a main voltage and to an input side of said switch means, respectively;

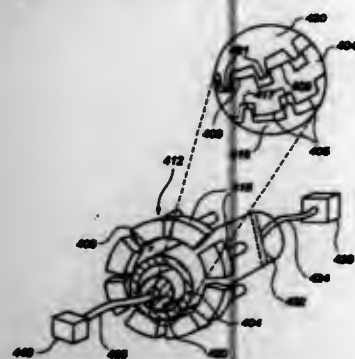
wherein said second pair of coils has one end connected to one of said brushes, and another end connected to an output of said switch means at a connection that lies in the electrical circuit of the motor when said opposite direction of rotation is chosen; and

wherein two connections on an output side of said switch means, which lie in the electrical circuit of the motor when said preferred direction of rotation is chosen, are connected directly to the brushes, whereby there is an interchanged assignment of the brushes to the first pair of coils as compared to the assignment of the brushes for said opposite direction of rotation.

5,672,923
MAGNETIC ECCENTRIC MOTION MOTOR
 Stephen C. Jacobsen, and Clark C. Davis, both of Salt Lake City, Utah, assignors to Sarcos, Inc., Salt Lake City, Utah
 Division of Ser. No. 88,178, Jul. 7, 1993, Pat. No. 5,426,336, which is a division of Ser. No. 663,444, Mar. 1, 1991, Pat. No. 5,252,870. This application Jun. 6, 1995, Ser. No. 470,233
 Int. Cl.⁶ H02K 7/10

U.S. Cl. 310—82

2 Claims



1. An eccentric-motion motor comprising
 - a stator defining a continuous closed surface pathway about a central axis,
 - a plurality of electromagnetic elements disposed in the stator, with at least one of the poles of each electromagnetic element disposed in series along the pathway with said at least one poles of the other electromagnetic elements,
 - a first hollow generally cylindrical armature disposed to roll along the pathway in the stator around a first axis which is parallel to but not concentric with the central axis, said first armature being made of a ferromagnetic material,
 - a second generally cylindrical armature whose outside diameter is less than the inside diameter of the first hollow cylindrical armature, said second armature being disposed to roll in the hollow of said first armature, being disposed so as to roll around a second axis which is parallel to but non-coaxial with the first or the central axis, and being made of ferromagnetic material, and wherein the pathway and the exterior surface of the first armature are formed with mutually intermeshing gears, and wherein the interior surface of the first armature and the exterior of the second armature are formed with mutually intermeshing gears, as the two armatures roll, and means for successively energizing said electromagnetic elements to attract the first and second armatures and cause the armatures to roll, the first armature along the pathway and the second armature inside the hollow of the first armature, with the first armature rolling at a lower angular velocity than the second armature.

5,672,924
ROBOTS USING MODULAR DIRECT DRIVE MOTORS
 Richard S. Wallace, Easton, Pa., and Frederick B. Hansen, New York, N.Y., assignors to New York University, New York, N.Y.

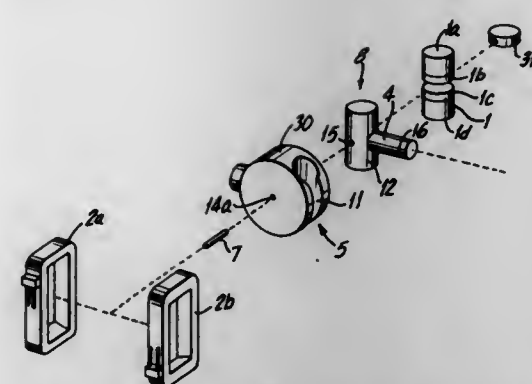
Filed Oct. 15, 1996, Ser. No. 704,300

Int. Cl.⁶ H02K 1/27; 3/46; 33/12

U.S. Cl. 310—152

28 Claims

1. A modular direct drive motor comprising
 - a rotor having
 - i. at least one permanent magnet;
 - ii. a tubular portion which holds the permanent magnet;
 - iii. an arm which extends perpendicularly outwardly from the tubular portion; and
 - a stator having
 - i. a body member with a casing wall;
 - ii. at least one electromagnetic coil wound around the body member;
 - iii. an opening in the casing wall;



- iv. a shaft means for rotatably connecting the stator to the rotor; and
- c. a first linkage means on the body member and a second linkage means on the arm for attaching the motor between two other motors with an arbitrary twist angle.

5,672,925
DOUBLY SALIENT VARIABLE RELUCTANCE MACHINE WITH STATIONARY PERMANENT MAGNETS OR AUXILIARY FIELD WINDINGS

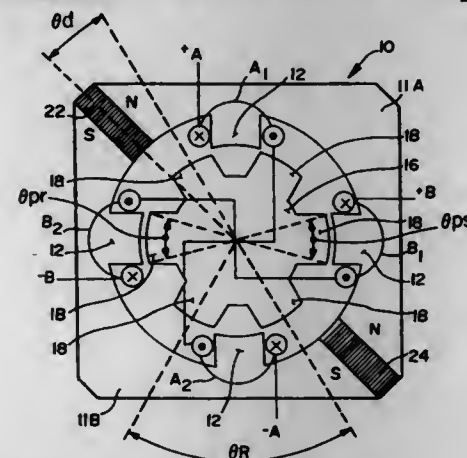
Thomas A. Lipo, Middleton, Wis.; Yuefeng Liao, Schenectady, N.Y., and Feng Liang, Canton, Mich., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Continuation-in-part of Ser. No. 926,765, Aug. 6, 1992, abandoned. This application Aug. 11, 1995, Ser. No. 514,495

Int. Cl.⁶ H02K 21/26; 1/00; 17/42; 1/12

U.S. Cl. 310—154

19 Claims



1. A permanent magnet machine comprising:
 - a rotor mounted for rotation about a central axis, said rotor further comprising,
 - a multiple of six salient rotor poles evenly spaced around said central axis and extending outward therefrom; and
 - a stator, said stator further comprising,
 - a yoke surrounding said rotor;
 - a multiple of four salient stator poles extending from said yoke toward said rotor, said stator poles being spaced at equal angular intervals around said yoke and being arranged with respect to said rotor poles to provide a constant air-gap reluctance during rotation of said rotor within said stator,
 - a plurality of stator windings each being individually coiled about two diametrically opposite stator poles; and
 - a plurality of permanent magnets embedded in said yoke, said magnets being spaced at equal angular intervals around said yoke and being polarized transversely to said central axis to serve as a source of primary flux for magnetizing the machine, said magnets also serving to create a reluctance for blocking the circulation of flux through said yoke.

5,672,926
HYBRID-ENERGIZED ELECTRIC MACHINE
 Jürgen Brandes, Bad Neustadt, and Uwe Schüller, Ilmenau, both of Germany, assignors to Siemens Aktiengesellschaft, München, Germany

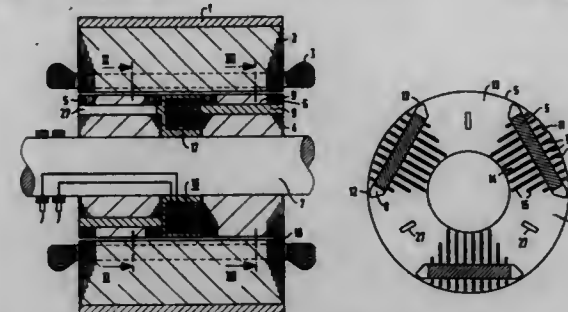
Filed Feb. 20, 1996, Ser. No. 602,484

Claims priority, application Germany, Feb. 21, 1995, 195 05 966.2

Int. Cl.⁶ H02K 21/04; 21/12

U.S. Cl. 310—181

15 Claims



1. A hybrid-energized electric machine comprising:
 - a) a magnetic yoke;
 - b) a stator winding;
 - c) a laminated stator core being disposed in the magnetic yoke and supporting the stator winding;
 - d) a rotor shaft;
 - e) a rotor being divided axially into a first rotor half and a second rotor half, forming a space therebetween, said first rotor half including:
 - (i) a first permanent magnet having a first polarity (N);
 - (ii) a first plurality of permanent field poles that are energized by the first permanent magnet; and
 - (iii) a first plurality of non-energized poles that are not energized by the first permanent magnet, wherein the first plurality of permanent field poles and the first plurality of non-energized poles are interspersed according to pole pitch; and
 - said second rotor half including:
 - (i) a second permanent magnet having a second polarity (S);
 - (ii) a second plurality of permanent field poles that are energized by the second permanent magnet; and
 - (iii) a second plurality of non-energized poles that are not energized by the second permanent magnet, wherein the second plurality of permanent field poles and the second plurality of non-energized poles are interspersed according to pole pitch, and the first and second plurality of permanent field poles are offset with respect to each other by one pole pitch;
 - f) an electric field ring coil, wherein said first and second rotor halves are arranged on said rotor shaft with an axial distance between them; and
 - g) a field coil being disposed into said space formed between said first and second rotor halves.

5,672,927
MOTOR WITH OVERMOLD COIL SUPPORT
 Stephen Viskochil, Los Gatos, Calif., assignor to Quantum Corporation, Milpitas, Calif.

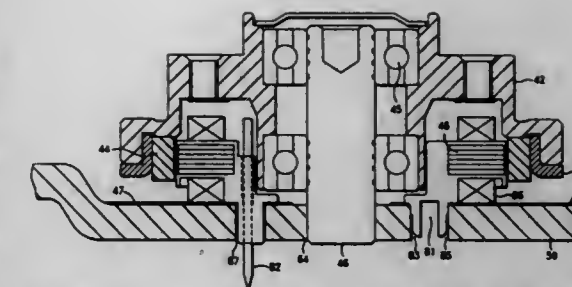
Filed Jun. 15, 1995, Ser. No. 490,962

Int. Cl.⁶ H02K 1/00; 11/00; 1/12

U.S. Cl. 310—194

10 Claims

1. A motor, comprising:
 - a hub having a rotor axis and a flux return ring coaxially attached within the hub;
 - a rotor comprising a permanent magnet ring concentrically attached to the flux return ring;
 - a bearing assembly formed integrally within the hub, supporting the hub for rotation about a stationary shaft;



- a stator comprising a plastic motor coil support and plural spaced apart electrical coils wound about a series of stator laminations encapsulated by the coil support, the coils being arranged in a circular pattern around the rotor axis and each coil being spaced separated from an adjacent other coil by a slot in the series of stator laminations;
- at least one connector pin secured to the motor coil support and electrically connected to selected ones of the coils, the at least one connector pin being insertable through an aligned opening defined in a motor supporting substrate and for electrically coupling the motor to a printed circuit board mounted beneath the motor supporting substrate; and
- a plurality of spaced apart mounting legs formed integrally with the motor coil support, for supporting the stator in a spaced apart position relative to the motor support substrate, the legs being insertable through aligned holes defined in the supporting substrate.

5,672,928
STABILIZED IN-VESSEL DIRECT CURRENT SOURCE
 James Howard Terhune, San Jose, Calif., assignor to General Electric Company, San Jose, Calif.

Continuation-in-part of Ser. No. 384,997, Feb. 7, 1995, Pat. No. 5,577,083, which is a continuation-in-part of Ser. No. 239,773, May 9, 1994, Pat. No. 5,444,747. This application Jul. 21, 1995, Ser. No. 505,411

Int. Cl.⁶ G21H 1/00

U.S. Cl. 310—305

14 Claims



1. A neutron-activatable current source comprising:
 - a first mass of a first stable isotope material, a first metallic collector electrically insulated from said first stable isotope material by electrically insulating material, and a first electrical lead connected to said first metallic collector, wherein said first stable isotope material has a first property of capturing neutrons from a neutron flux and being activated by neutron capture to a radioactive state having a subsequent decay chain during which at least a first β -particle is emitted to produce a current having a first current-time characteristic; and
 - a second mass of a second stable isotope material different than said first stable isotope material, a second metallic collector electrically insulated from said second stable isotope material by electrically insulating material, and a second electrical lead connected to said second metallic collector, wherein said second stable isotope material has a second property of capturing neutrons from a neutron flux and being activated by neutron capture to a radioactive state having a subsequent decay chain during which at least a second β -particle is emitted to produce a current having a second current-time characteristic.

wherein said first and second current-time characteristics are such that the sum of said first and second currents over time has greater stability than either of said first and second currents alone.

5,672,929

MOVING SENSOR USING MECHANICAL VIBRATIONS
Graham Scott Gutsell, and Peter John Taylor, both of Cambridge, United Kingdom, assignors to The Technology Partnership Public Limited Company, Hertfordshire, United Kingdom

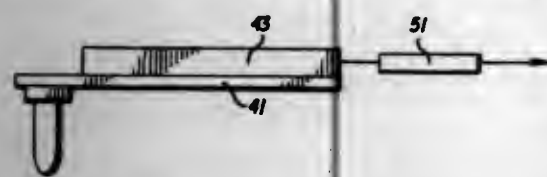
Continuation of Ser. No. 295,844, Aug. 30, 1994, abandoned. This application Jul. 8, 1996, Ser. No. 676,406

Claims priority, application United Kingdom, Mar. 3, 1992, 9204592

Int. Cl.⁶ H01L 1/08

U.S. Cl. 310—319

14 Claims



1. A hand-held device comprising: a movement sensor for sensing movement of the device across a surface, the sensor including a sensor tip for application to the surface and adapted to vibrate in response to movement of the tip across said surface in any direction; transducer means; means for transmitting the vibrations from the sensor tip to the transducer means, transducer means electrically detecting the resulting vibrations as movement occurs and producing an output signal; and means for filtering the output signal below about 1000 Hz and producing a movement signal indicative of movement of the tip across said surface when the output signal lies above about 1000 Hz, said movement signal controlling the hand-held device when the sensor tip is in moving contact with respect to the surface.

5,672,930

VIBRATION MOTOR

Tsutomu Narisawa, Saltama-ken; Michihiro Tobe, and Takatoshi Ashizawa, both of Kawasaki, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 360,898, Dec. 21, 1994, abandoned.

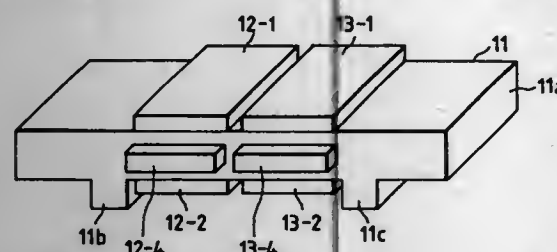
This application Sep. 16, 1996, Ser. No. 714,526

Claims priority, application Japan, Dec. 21, 1993, 5-321567; Jan. 21, 1994, 6-005359; Apr. 1, 1994, 6-65326

Int. Cl.⁶ H02N 2/00

U.S. Cl. 310—323

14 Claims



1. A vibration motor comprising: an elastic member having a pair of driving output portions extending perpendicularly from a first face thereof; a first electromechanical converting element adhered on the first face of said elastic member and between said pair of driving

output portions, to harmonically generate a longitudinal vibration mode and a bending vibration mode in said elastic member; and

a second electromechanical converting element adhered on a second face of said elastic member, other than the first face on which said first electromechanical converting element is adhered to said elastic member;

wherein the directions of polarization of said first and second electromechanical converting elements are substantially orthogonal to the direction of driving of said vibration motor; and

said first and second electromechanical converting elements are substantially equidistant from a plane perpendicular to the direction of driving of said vibration motor.

5,672,931

ARC LAMP FILTER WITH HEAT TRANSFER ATTACHMENT TO A RADIAL ARC LAMP CATHODE HEAT SINK

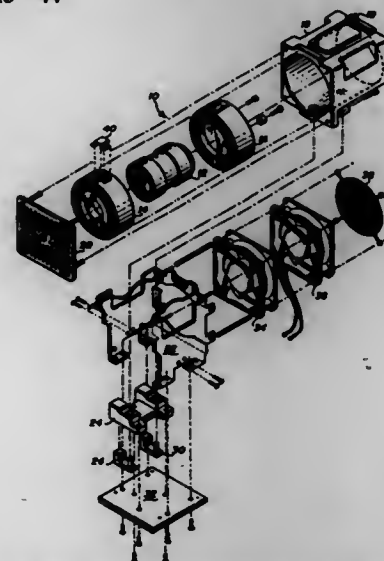
John Kiss, San Jose, and Roy D. Roberts, Newark, both of Calif., assignors to ILC Technology, Inc., Sunnyvale, Calif.

Filed Oct. 2, 1995, Ser. No. 537,009

Int. Cl.⁶ H01J 1/02

U.S. Cl. 313—44

12 Claims



1. A drop-in lamp assembly for docking in a holder, comprising: a heat transfer ring with an outside diameter and an inside diameter; a filter window fitted within said inside diameter of the heat transfer ring providing for any heat in the window to be conducted out through the heat transfer ring; a retainer ring snapped in place in front of the window and inside said inside diameter of the heat transfer ring, wherein the filter window is held in place in the heat transfer ring; a cylindrical arc lamp with a cathode ring and an anode ring for electrical connection and heat conduction for cooling; a cathode heat sink attached to said cathode ring for cooling the arc lamp and filter window during operation; an anode heat sink attached to said anode ring for cooling the arc lamp during operation; and an insulative sleeve including a cylindrical through-hole within which are disposed the arc lamp, the cathode heat sink and the anode heat sink, and further including a pair of bushings which pierce a wall of the sleeve and provide for electrical connection to and mechanical retention of the arc lamp, the cathode heat sink and the anode heat sink and further provide for connection to a pair of terminals in which said insulative sleeve docks.

5,672,932

COMPACT LAMP ASSEMBLY WITH TUBULAR PORTIONS ARRANGED IN V-SHAPED CONFIGURATION

Dennis Goldman, 3 Wells Avenue, Parkwood, Johannesburg, South Africa

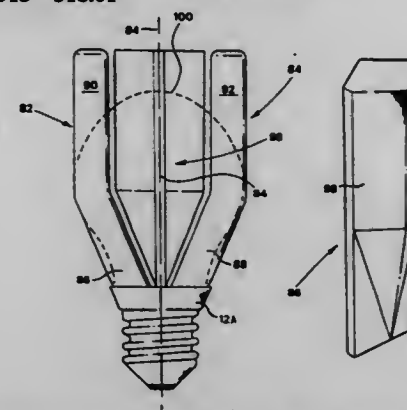
Continuation-in-part of Ser. No. 56,201, May 4, 1993, abandoned. This application Aug. 8, 1995, Ser. No. 512,746

Claims priority, application South Africa, May 4, 1992, 92/3212

Int. Cl.⁶ H01J 7/44

U.S. Cl. 313—318.01

7 Claims



1. A compact low pressure discharge lamp assembly for use in a lighting fixture comprising: a base terminating in a fitting defining a central axis of symmetry normal to the base; a discharge tube including six elongated tubular portions, said six elongated tubular portions having proximal ends terminating towards the base and opposed distal ends, said six elongated tubular portions being arranged such that: the first of said tubular portions has a cathode end joined to the base and is disposed adjacent and substantially parallel to a second of said tubular portions so as to define a first pair of tubular portions joined towards their distal ends and being angled outwardly relative to the central axis; a third of said tubular portions is disposed adjacent and substantially parallel to a fourth of said tubular portions to define a second pair of tubular portions joined towards their distal ends and being angled outwardly relative to the central axis; a fifth of said tubular portions is disposed adjacent and substantially parallel to a sixth of said tubular portions to define a third pair of tubular portions joined towards their distal ends and being angled outwardly relative to the central axis, with the sixth of said tubular portions having an anode end joined to the base adjacent the cathode end of the first of said tubular portions; said first, second and third pairs of tubular portions being mutually splayed away from one another such that a V-shaped configuration exists; between said first pair of tubular portions and said second pair of tubular portions, with the second of said tubular portions being joined to the third of said tubular portions towards the proximal ends thereof; between said second pair of tubular portions and said third pair of tubular portions, with the fourth of said tubular portions being joined to the fifth of said tubular portions towards the proximal ends thereof; and between said third pair of tubular portions and said first pair of tubular portions, with the sixth of said tubular portions being joined to the first of said tubular portions towards the proximal ends thereof; and a control circuit housing mountable to the base opposite the fitting, the control circuit housing having a wedge-shaped profile for allowing it to nest symmetrically between the first, second and third pairs of tubular portions, said discharge lamp assembly having a maximum width dimension determined by the distance between outermost surfaces of the distal ends of the discharge tubes.

5,672,933

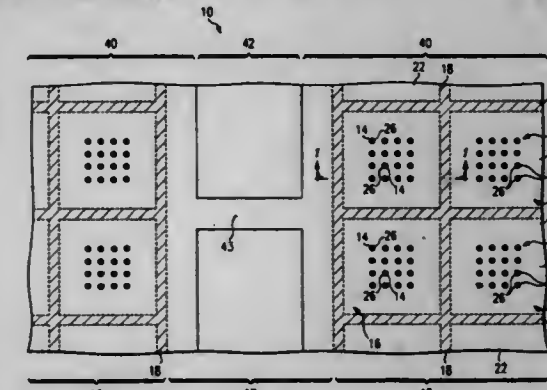
COLUMN-TO-COLUMN ISOLATION IN FED DISPLAY
Arthur M. Wilson; Robert H. Taylor, and Chi-Cheong Shen, all of Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 30, 1995, Ser. No. 550,050

Int. Cl.⁶ H01J 1/30

U.S. Cl. 313—336

23 Claims



1. An electron emitter comprising: a substrate; a first layer of conductive material deposited on said substrate; said first layer of conductive material being patterned in first stripes spaced by first gaps; a layer of insulating material deposited on said substrate over said first layer of conductive material; a second layer of conductive material deposited on said substrate over said layer of insulating material; said second layer of conductive material having a plurality of apertures located over each first stripe; a layer of resistive material deposited on said substrate in electrical communication with said first layer of conductive material and insulated by said layer of insulating material from said second layer of conductive material; said layer of resistive material being patterned in second stripes generally aligned with said first stripes, said second stripes being spaced by second gaps leaving portions of said layer of resistive material bridging said second gaps; and a conductive microtip formed in each aperture in electrical communication with said layer of resistive material.

5,672,934

COLOR CATHODE-RAY TUBE HAVING A SHADOW MASK WITH IMPROVED ARRAYS OF APERTURES
Shinji Ohama, Kitamoto; Norio Shimizu; Takashi Mural, both of Fukaya; Ichiro Saotome, Urawa; Masatsugu Inoue, Kumagaya, and Kumio Fukuda, Fukaya, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 13, 1995, Ser. No. 502,174

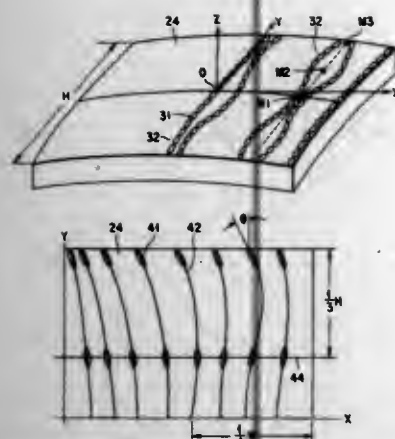
Claims priority, application Japan, Jul. 14, 1994, 6-161942; Oct. 6, 1994, 6-242560

Int. Cl.⁶ H01J 29/80

U.S. Cl. 313—402

8 Claims

1. A color cathode-ray tube comprising: electron-beam generating means for generating electron beams in in-line fashion; a panel having a substantially rectangular effective part which has a curved inner surface; a phosphor screen provided on the inner surface of the effective part of said panel, for emitting red, green and blue light rays when excited by the electron beams generated by said electron-beam generating means; and a shadow mask having a curved, substantially rectangular effective part facing the phosphor screen and having a number of apertures for guiding the electron beams to said phosphor screen, wherein said apertures are arranged, forming a plurality of arrays which extend along a short axis of the effective part of



the shadow mask and are juxtaposed along a long axis of the effective part of the shadow mask, and a distance PH(N) between an (N-1)th array and an Nth array, counted from an array passing a center O of the effective part of the shadow mask, is given as:

$$PH(N) = A + BN^2 + CN^4$$

where A, B and C are fourth-degree functions of a Y-coordinate in a coordinate system having an origin O being a center of the effective part of the shadow mask and having axes being a horizontal axis and a vertical axis of the effective part of the shadow mask, and C is a function first decreasing and then increasing as the absolute value of the Y-coordinate.

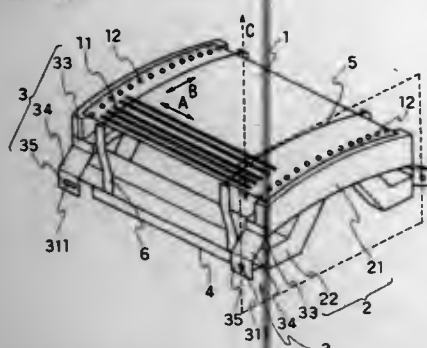
5,672,935 SUPPORTING MEMBERS FOR A COLOR SELECTING ELECTRODE ASSEMBLY

Hideya Ito; Shoji Morimoto; Junko Itoh, all of Amagasaki; Akira Yamada, Nagasaki; Atsushi Hattori, and Hiroyuki Sakaiya, both of Nagaokakyo, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 1, 1995, Ser. No. 551,668

Claims priority, application Japan, Dec. 12, 1994, 6-307932
Int. Cl.⁶ H01J 29/07

U.S. Cl. 313—406

6 Claims



1. A color selecting electrode assembly for color cathode ray tubes comprising: an aperture grill having thin slits; a frame over which the aperture grill is stretched; and supporting members in which a fixing portion at one end is attached to the frame and an engaging portion at the other end is engaged with a panel pin provided on a panel side wall so as to support the frame, wherein an elastic portion of the supporting members is arranged in such a manner that boundary portions of the elastic portion with the fixing portion and the engaging portion, which are at both ends of the elastic portion, become parallel to a longitudinal direction of the slits, and an engaging hole bored in the engaging portion for engaging with the panel pin is provided at such a position that the engaging hole intersects with an imaginary extension plane con-

taining a line of a joining portion of the frame and the aperture grill and extended in a direction parallel to a tube axis of a color cathode ray tube.

5,672,936
COLD CATHODE FLUORESCENT DISCHARGE TUBE
Masao Hatsutori, Dalto, and Masaharu Nishida, Kadoma, both of Japan, assignors to West Electric Co., Ltd., Osaka, Japan
Continuation of Ser. No. 881,794, May 12, 1992, abandoned.
This application Jun. 27, 1994, Ser. No. 266,113
Claims priority, application Japan, May 16, 1991, 3-111615
Int. Cl.⁶ K01J 01/38

U.S. Cl. 313—491

31 Claims



1. A cold cathode fluorescent discharge tube having a cathode and an anode, said anode comprising a mercury discharge structure for discharging mercury within said discharge tube, said mercury discharge structure comprising a mercury alloy obtained by combining a metal sintered body with mercury;

said metal sintered body being formed by sintering powder consisting essentially of one kind or a plurality of kinds of metals combinable with said mercury into a desired shape which is predetermined according to a state of use of said anode, which results in a determination of a shape of said anode, said one kind or plurality of kinds of metals being selected from the group consisting of titanium and zirconium; and

said mercury being combined with said metal sintered body which is sintered into said desired shape so as to provide said mercury alloy;

said mercury alloy being formed to have said desired shape of said metal sintered body when said metal sintered body and said mercury are combined with each other, and said mercury alloy thus formed being sealed within said discharge tube and used as said mercury discharge structure.

5,672,937
LIGHT-TRANSMITTING ELECTROCONDUCTIVE PLASTIC FILM ELECTRODES AND METHOD OF MANUFACTURE

Kue Byung Chol, 51 Park La.; Kue Dong Chol, 10 Floral La.; Kueun Choi, 5 Camelot Dr., all of Trumbull, Conn. 06611, and Kyu Taik Chol, Sekyong Apt. 1-205, Kaewoon Dong, Wonju, Rep. of Korea

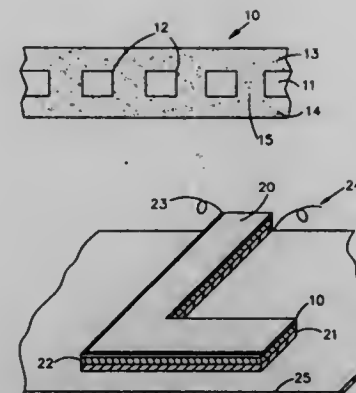
Filed Jun. 12, 1996, Ser. No. 662,866

Int. Cl.⁶ H05B 35/10; 35/06

U.S. Cl. 313—503

20 Claims

1. A strong, flexible, translucent electroconductive plastic film electrode comprising a thin, normally non-electroconductive sheet of strong, flexible, translucent plastic film which is provided with a plurality of closely-spaced narrow openings through the thickness thereof and over the entire surface area thereof, said sheet being coated over the front and rear surfaces thereof with a continuous translucent layer of an electroconductive composition which



extends through said openings to produce electroconductive continuity between said front and rear surfaces and form said plastic film electrode.

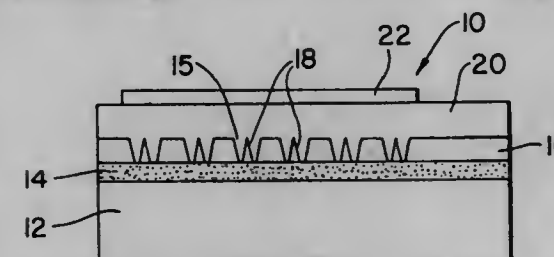
5,672,938
LIGHT EMISSION DEVICE COMPRISING LIGHT EMITTING ORGANIC MATERIAL AND ELECTRON INJECTION ENHANCEMENT STRUCTURE
Gary W. Jones, Lagrangville, N.Y., assignor to Fed Corporation, Hopewell Junction, N.Y.

Filed Sep. 27, 1996, Ser. No. 723,222

Int. Cl.⁶ H01J 33/14; B32B 9/00

U.S. Cl. 313—504

12 Claims



1. A light emission device, comprising:

- (i) a light emitting organic material;
- (ii) an array of emitter tip elements in contact with the light emitting organic material;
- (iii) a first conductor coupled to the emitter tip elements in the array to stimulate emission of electrons from the emitter tip elements when the first conductor is connected to a power supply; and
- (iv) a second conductor contacting the organic material and in spaced apart relationship to the array of emitter tip elements, the second conductor being arranged in relation to the first conductor, to impose and apply voltage on the organic material when the first conductor is connected to the power supply, and electrons are emitted from the emitter tip elements into the light emitting organic material.

5,672,939
MOIRE CONTROL OF A COLOR DISPLAY DEVICE
Chang Fa Hsiesh, No. 6, Feng Shu Tsuen, Kweishan, Taoyuan, Taiwan

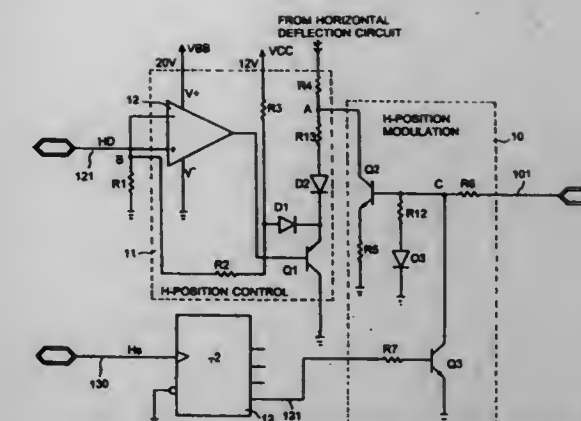
Filed Nov. 2, 1995, Ser. No. 552,134

Int. Cl.⁶ H04N 5/21

U.S. Cl. 315—1

3 Claims

1. A video circuit for a color cathode ray tube which has an inner surface and a plurality of phosphors dots thereon and on which an electric beam is selectively impinged for generating image, responsive to a video signal, against a raster, the video circuit being coupled to a horizontal deflection circuit, comprising:



a divide-by-2N circuit for generating an activation signal, responsive to a horizontal synchronization signal, N being an integer;

a horizontal position control circuit having an input terminal adapted to receive a horizontal position control signal for controlling horizontal position of said image relative to the raster, said horizontal position control circuit having a terminal coupled to the horizontal deflection circuit for sinking current therefrom and for changing timing of the horizontal synchronization signal relative to the video signal;

a horizontal position modulation circuit coupled to said horizontal position control circuit at said current-sinking terminal for micro-adjusting horizontal impingement position of electric beam of a predetermined horizontal scan lines relative to the phosphors dots, responsive to an H-MOIRE control signal and the activation signal, wherein the horizontal position modulation circuit comprises a transistor having an emitter connected in a DC path to ground via a resistor, a base of said transistor is adapted to receive the H-MOIRE control signal, a collector of said transistor is connected to said current-sinking terminal, the horizontal position modulation circuit further includes a switch transistor having a collector connected to the base of said transistor, an emitter connected to ground, and a base, the base of the switch transistor is adapted to receive the activation signal.

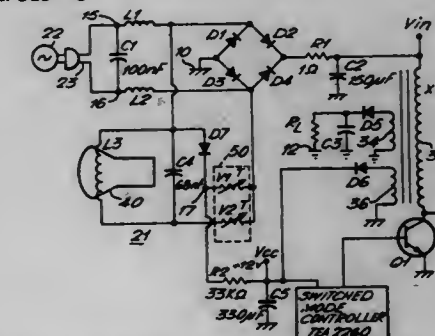
5,672,940
TELEVISION POWER SUPPLY WITH POLARITY-INDEPENDENT CHARGING PATHS

Chun Hsing Wu, Singapore, Singapore, assignor to Thomson Consumer Electronics S.A., Boulogne, France
Division of Ser. No. 904,303, Jun. 25, 1992, Pat. No. 5,508,588. This application Apr. 16, 1996, Ser. No. 632,987
Claims priority, application United Kingdom, Jun. 27, 1991, 9113942

Int. Cl.⁶ H04N 9/29

U.S. Cl. 315—8

10 Claims

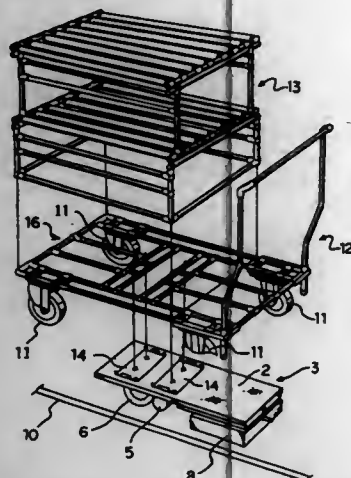


1. In a television apparatus having a power supply including a capacitance for energizing a load circuit and a source for charging said capacitance, a start-up circuit comprising:

- a) a source of AC current;

wiper drive means for driving said wiper for wiping a window of a vehicle;
 vehicle speed detection means for detecting a vehicle speed;
 intermittent wiper operation time setting means for setting an intermittent time interval of operation of said wiper in accordance with the vehicle speed detected by said vehicle speed detection means;
 first control means for outputting a control signal to said wiper drive means, said first control means controlling said wiper drive means to drive said wiper at the wiper operation time interval set by said intermittent wiper operation time setting means;
 vehicle start detection means for detecting that said vehicle has started running from a stopped state; and
 second control means for outputting a control signal to said wiper drive means, said second control means controlling said wiper drive means to drive said wiper in temporary precedence of the control of said wiper drive means by said first control means upon detection of a start of said vehicle by said vehicle start detection means under the control by said first control means.

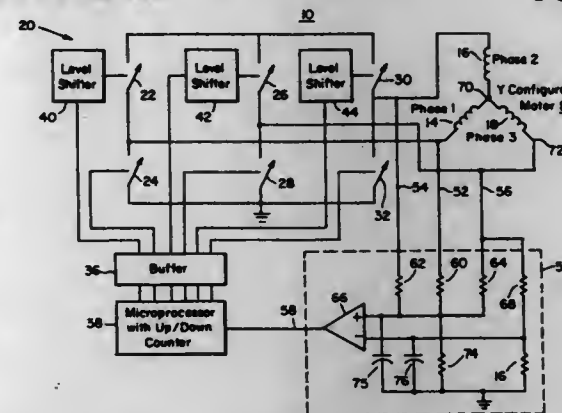
5,672,947
AUTOMATIC GUIDE METHOD FOR VEHICLES
 Yukio Hisada; Hiromi Otake; Tadashi Ike, and Motohiro Sugiyama, all of Shizuoka, Japan, assignors to Yazaki Industrial Chemical Co., Ltd., Japan
 Filed Sep. 15, 1995, Ser. No. 529,094
 Int. Cl.⁶ B64C 13/18
 U.S. Cl. 318—587 9 Claims



1. An automatic guide method for a vehicle having:
 a driving wheel,
 a magnetic sensor that detects a magnetic field generated by a guide path which is made of magnetic tape and which is placed on a floor along a running course of said vehicle,
 driving means, operatively connected with said driving wheel, for moving said vehicle, and
 a steering means controlled by a control device that processes signals detected by said sensor, for steering said vehicle, comprising the steps of:
 turning said sensor, on commencement of vehicle operation, right and left and searching for the guide path with said vehicle at a standstill;
 turning said vehicle, if the guide path cannot be found, constantly in a first direction while moving said vehicle at a predetermined low speed to search for the guide path for a first predetermined time, and, if the guide path is still not found,
 turning said vehicle while moving at the predetermined low speed, constantly in a second direction opposite to the first direction for a second predetermined time which is essentially twice as long as the first predetermined time;

accelerating said vehicle, if the guide path is found, along the guide path to a predetermined normal speed in order to resume a normal operation; and
 halting said vehicle if the guide path is not found during the first and second preset times.

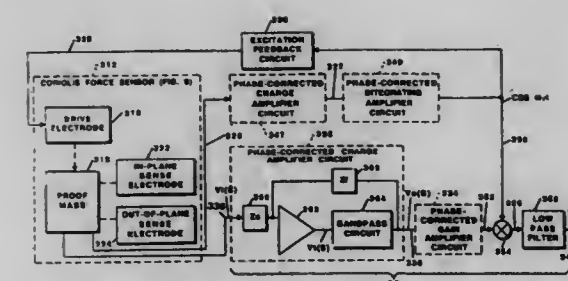
5,672,948
DIGITAL, BACK EMF, SINGLE COIL SAMPLING, SENSORLESS COMMUTATOR SYSTEM FOR A D.C. MOTOR
 Adam J. Cohen, Worcester; Roger L. Holman, Acton, both of Mass., and Rajesh M. Nair, Nashua, N.H., assignors to Cambridge AeroBo, Inc., Shirley, Mass.
 Continuation-in-part of Ser. No. 76,383, Jun. 14, 1993, abandoned. This application Nov. 15, 1994, Ser. No. 339,827
 Int. Cl.⁶ H02P 1/18
 U.S. Cl. 318—603 1 Claim



1. A digital, back EMF, sensorless commutation system for a d.c. motor comprising:
 means for detecting the occurrence of a null voltage during high impedance states of a field coil of the d.c. motor;
 counter means for counting in a first direction in a first high impedance state during voltages below the null voltage and for counting in a second direction during voltages above the null voltage;
 means for counting in the second direction at a beginning of a second high impedance state until the first occurrence of a null voltage and for thereafter counting in said second direction during voltages below the null voltage and for counting in said first direction during voltages above the null voltage;
 means, responsive to said counter means for ascertaining the final count of said counter means; and
 means, responsive to said means for ascertaining, for adjusting the frequency of initiating of the commutation states for synchronizing said d.c. motor.

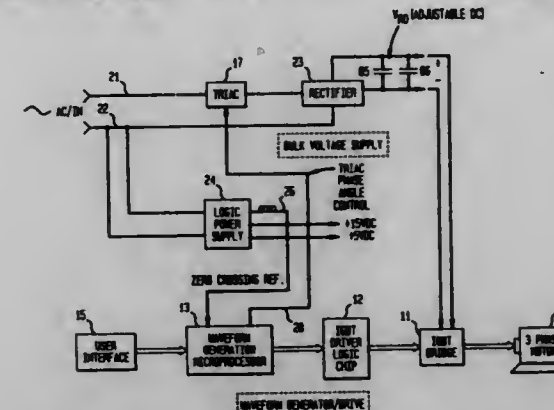
5,672,949
ELECTRONICS FOR CORIOLIS FORCE AND OTHER SENSORS
 Paul Ward, Waltham, Mass., assignor to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.
 Division of Ser. No. 219,023, Mar. 28, 1994, Pat. No. 5,481,914. This application May 24, 1995, Ser. No. 449,020
 Int. Cl.⁶ G11B 33/00; G01P 9/04
 U.S. Cl. 318—609 6 Claims

1. A negative feedback servo system having an input and an output and being responsive to information at an information frequency, said servo system comprising:
 a forward gain stage coupled between said input and said output of said servo system and having an open-loop gain; and
 a bandpass circuit having an input and an output and a transfer function relating said output to said input, said transfer function comprising a bandpass characteristic substantially cen-



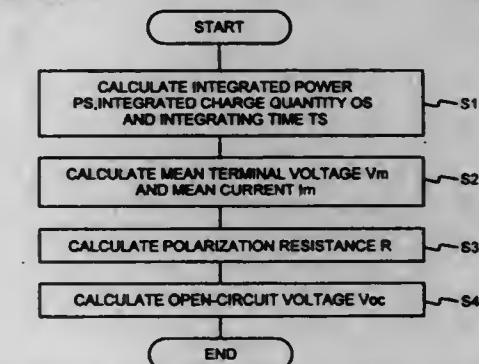
tered at said information frequency, wherein said bandpass circuit is disposed in cascade with said forward gain stage, between said input and said output of said servo system.

5,672,950
VOLTAGE, PHASE AND FREQUENCY CONTROL BY MINIATURE INVERTER SYSTEM
 William Harry Kemp, Fallbrook, and Victor Joseph Shideier, Carleton, both of Canada, assignors to ITT Corporation, New York, N.Y.
 Filed Aug. 16, 1994, Ser. No. 291,239
 Int. Cl.⁶ H02P 5/34
 U.S. Cl. 318—801 10 Claims



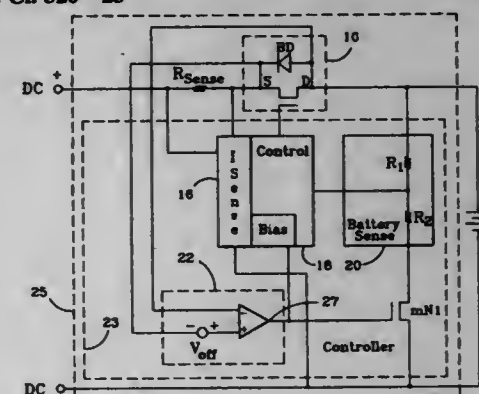
1. A method of controlling a variable speed AC motor, comprising the steps of:
 selecting a predetermined operational speed for said variable speed AC motor;
 determining an optimal pulsewidth and pulse repetition frequency for an AC pulsed voltage used to drive said AC motor at said predetermined operational speed;
 generating a first low voltage AC pulse train having pulses occurring at said pulse repetition frequency and said pulsewidth;
 converting an AC line signal into an altered AC signal by passing said AC line signal through a switch controlled by said first low voltage AC pulse train;
 producing a DC voltage by combining and rectifying said AC line signal with said altered AC signal;
 amplifying said first AC pulse train to provide a AC pulsed voltage having said pulse repetition frequency and said pulsewidth;
 modifying said AC pulse voltage to have an amplitude magnitude proportional to said DC voltage; and
 providing said AC pulsed voltage to said AC motor to drive said AC motor at said operational speed.

5,672,951
DETERMINATION AND CONTROL OF BATTERY STATE
 Hisashi Shiota, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed Sep. 18, 1995, Ser. No. 529,396
 Claims priority, application Japan, Nov. 4, 1994, 6-271376
 Int. Cl.⁶ H01M 10/46
 U.S. Cl. 320—5 11 Claims



1. A parameter measuring method for measuring parameters of a secondary battery, comprising the steps of:
 measuring and storing a terminal voltage, a charge/discharge current and a charge/discharge time of said secondary battery in charge/discharge cycles of said battery;
 arithmetically determining an integrated power, an integrated charge quantity and an integrating time interval over a period extending from a start of a charge/discharge process to an end thereof in an immediately preceding cycle;
 determining a mean terminal voltage including a mean terminal voltage in a charging process and a mean terminal voltage in a discharging process by dividing said integrated power by said integrated charge quantity;
 determining a mean current including a mean charge current and a mean discharge current by dividing said integrated charge quantity by said integrating time interval;
 determining a polarization resistance of said secondary battery on the basis of said mean terminal voltage and said mean current by using a battery polarization resistance model; and
 determining an open-circuit voltage of said secondary battery on the basis of said polarization resistance.

5,672,952
CONTROLLER FOR BATTERY CHARGER WITH REDUCED REVERSE LEAKAGE CURRENT
 Thomas S. Szepesi, Saratoga, Calif., assignor to Analog Devices, Inc., Norwood, Mass.
 Filed Jul. 1, 1996, Ser. No. 674,208
 Int. Cl.⁶ H02J 7/10; H01M 10/46
 U.S. Cl. 320—25 18 Claims



14. A battery charger which limits reverse leakage current, comprising:
 a power input,

a power switch connected to control the flow of charging current from the power input to a battery being charged, said battery being charged having a respective voltage, said power switch being subject to a reverse bias leakage current,

a controller arranged to determine a charge state for the battery being charged and which operates the power switch in response to the charge state, said controller being subject to a reverse bias leakage current through the power switch,

a current control switch connected to inhibit the flow of reverse bias leakage current through the controller,

circuitry connected to sense the voltage of the battery being charged,

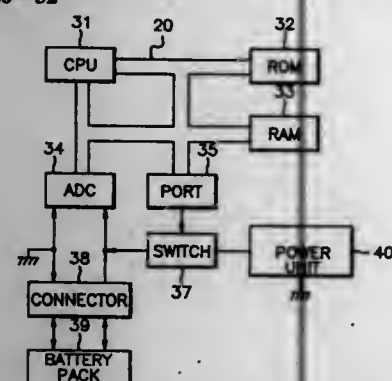
a second current control switch connected to inhibit the flow of current through said battery voltage sensing circuitry, and

a sensor connected to sense the proximity of a reverse bias leakage condition for said power switch, and in response to open said current control switch.

5,672,953
CHARGING DEVICE AND CONTROL METHOD FOR PREVENTING RECHARGING OF A FULLY CHARGED BATTERY

Hee-Deog Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
 Filed Dec. 22, 1995, Ser. No. 577,093
 Claims priority, application Rep. of Korea, Dec. 22, 1994, 35964/1994

Int. Cl.⁶ H01M 10/44; 10/46
 U.S. Cl. 320—32



1. A charging device of a rechargeable battery, comprising: constant a power source for outputting a constant voltage of a given level irrespective of a current output therefrom;
- a battery pack accommodating insertion of said battery;
- a switch for turning on and turning off charging of said battery by selectively supplying said battery with said constant voltage output from said power source through said battery pack in response to a switch control signal;
- a battery voltage sensing means connected to said battery pack for sensing a battery output voltage across the battery for each given period of time during said insertion of said battery into said battery pack;
- a comparing means for making a comparison of a preset full charge threshold voltage with said battery output voltage sensed by said battery voltage sensing means, and for outputting a signal in accordance with said comparison; and
- a control means for generating said switch control signal in accordance with said signal output by said comparing means, said switch control signal driving said switch and turning on said charging of said battery in the event that said sensed battery output voltage is less than said full charge threshold voltage, and driving said switch and turning off said charging of said battery in the event that said sensed battery output voltage is more than said full charge threshold voltage.
8. A method for controlling a battery charging unit, said method comprising the steps of: determining whether a battery has been inserted into the charging unit according to a voltage sensed by the charging unit;

after determining that a battery has been inserted into the charging unit, sensing an initial output voltage across the battery;

setting a temporary full charge battery recognition flag in the event that said initial sensed battery output voltage is more than a preset full charge threshold voltage, and clearing said temporary full charge battery recognition flag in the event that said initial sensed battery output voltage is not more than said preset full charge threshold voltage;

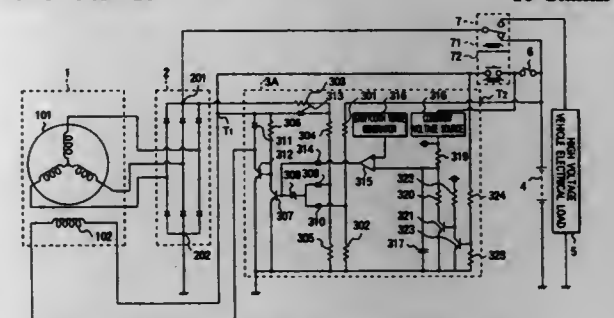
in response to the setting of said temporary full charge battery recognition flag, waiting until expiration of a predetermined time period and comparing a current output voltage across the battery with said preset full charge threshold voltage;

setting a completely full charge battery recognition flag in accordance with whether said current battery output voltage is more than said preset full charge threshold voltage; and

supplying the battery with a charging voltage when said completely full charge battery recognition flag and said temporary full charge battery recognition flag are not set and interrupting application of said charging voltage supplied to said battery when at least one of said completely full charge battery recognition and said temporary full charge battery recognition flags are set.

5,672,954
CONTROL SYSTEM FOR AC GENERATOR
 Hirofumi Watanabe, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed Oct. 18, 1995, Ser. No. 544,673
 Claims priority, application Japan, Oct. 26, 1994, 6-262592
 Int. Cl.⁶ H02J 7/14

U.S. Cl. 322—28



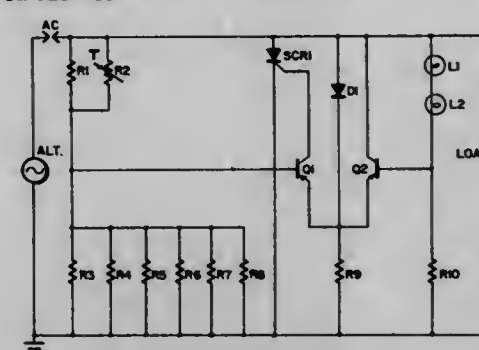
1. A control system for an AC generator comprising: a rectifier connected to said AC generator for rectifying an AC output from said generator, wherein said AC generator includes a field coil;
- a storage battery connected to the rectifier and charged by a rectified output thereof;
- a changeover switching means provided between the storage battery and a high voltage electric load, said changeover switching means switching between said storage battery and said load; and
- a voltage regulator connected to said storage battery through said changeover switching means and connected to said AC generator, said voltage regulator providing intermittent control of said generator output to a first predetermined value in a first operation mode when said generator output is connected to said battery and to adjust said AC generator output to a second predetermined value in a second operation mode when said generator output is connected to said electric load, an ON period in said intermittent control of said generator output being gradually adjusted when switching from said first operation mode to said second operation mode and when switching from said second operation mode to said first operation mode.

5,672,955
ALTERNATOR REGULATION OF UNBALANCED CURRENTS WITH TEMPERATURE COMPENSATION
 Floyd M. Minks, 2700 Partin Settlement Rd., Kissimmee, Fla. 32743

Filed Jul. 7, 1995, Ser. No. 499,365
 Int. Cl.⁶ H02P 9/30

U.S. Cl. 322—33

4 Claims

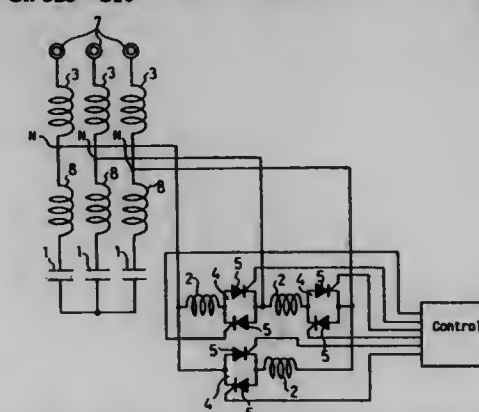


1. A voltage regulation system comprising: an engine driven alternator and a load connected thereto, the alternator having an alternator winding;
- a first solid state switch for controlling transfer of electrical power from said alternator to said load;
- a voltage sensitive network operatively connected to said first solid state switch for controlling a voltage across said load;
- a second solid state switch for controlling current flow from said alternator to said load in an opposite direction relative to current flow controlled by said first solid state switch; and
- a second network sensitive to average voltage across an alternator winding and having an output connected to said second solid state switch for controlling current flow from said alternator to said load in the opposite direction of the current controlled by said first solid state switch so that said second solid state switch conducts to minimize a direct current voltage across said alternator winding that would otherwise exist as a result of the conduction of said first solid state switch.

5,672,956
STATIC REACTIVE POWER COMPENSATING EQUIPMENT
 Tsutomu Fukui, Yamatokouriyama, and Tokihide Niu, Toyonogun, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan
 Filed Aug. 3, 1995, Ser. No. 507,901
 Claims priority, application Japan, Aug. 8, 1994, 6-185557
 Int. Cl.⁶ G05F 1/70

U.S. Cl. 323—210

10 Claims

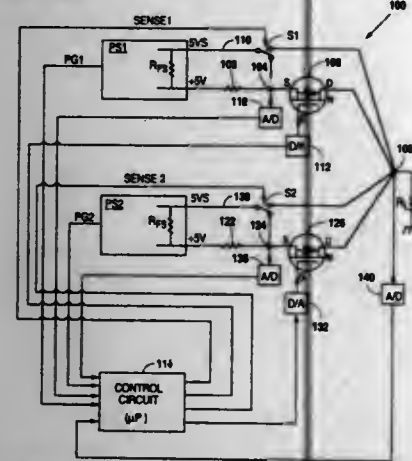


5,672,958
METHOD AND APPARATUS FOR MODIFYING
FEEDBACK SENSING FOR A REDUNDANT POWER
SUPPLY SYSTEM

Alan E. Brown, Georgetown, and Nathan Wiscombe, Cedar Park, both of Tex., assignors to Dell USA L.P., Austin, Tex.
 Filed Nov. 14, 1995, Ser. No. 555,689
 Int. Cl.⁶ G05F 1/40

U.S. Cl. 323—269

20 Claims



1. A feedback sensing system for controlling power provided to a load of a power supply system, the power supply system including first and second power supplies, each having at least one power output and an output sense input for sensing a node for feedback control, the power supply system further including first and second current control devices coupled in series along first and second output paths, respectively, between the respective outputs of the first and second power supplies and the load, the feedback sensing system comprising:

- a first switch circuit for coupling to the output sense input of the first power supply for selecting between first and second nodes along the first output path, wherein said first node is located between the output of the first power supply and the first current control device, and the second node is located between the first current control device and the load;
- a second switch circuit for coupling to the output sense input of the second power supply for selecting between first and second nodes along the second output path, wherein said first node is located between the output of the second power supply and the second current control device, and said second node is located between the second current control device and the load; and
- a control circuit coupled to control said first and second switch circuits to select said first nodes of the first and second output paths during normal operation, said control circuit for detecting failure of the first and second power supplies, wherein if the first power supply fails, said control circuit switches said second switch circuit to select said second node of the second output path, and if said second power supply fails, said control circuit switches said first switch circuit to select said second node of the first output path.

5,672,959
LOW DROP-OUT VOLTAGE REGULATOR HAVING
HIGH RIPPLE REJECTION AND LOW POWER
CONSUMPTION

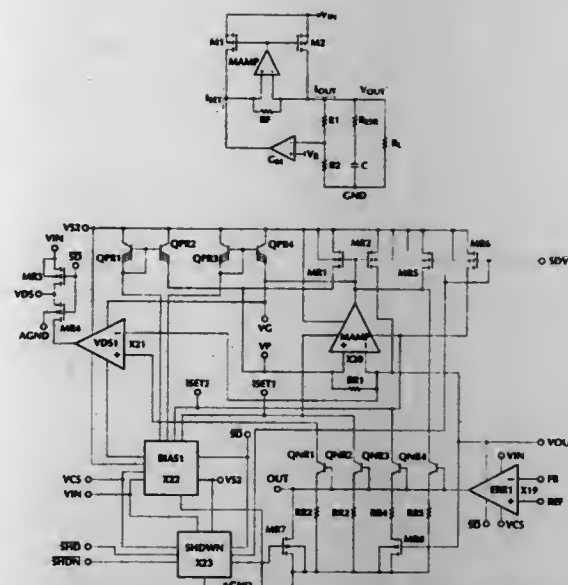
Lawrence Der, Milpitas, Calif., assignor to Micro Linear Corporation, San Jose, Calif.

Filed Apr. 12, 1996, Ser. No. 631,403
 Int. Cl.⁶ H02M 3/337

U.S. Cl. 323—273

24 Claims

1. A voltage regulator comprising:
- a. a first feedback loop for attenuating noise from a power source having a first bandwidth; and



- b. a second feedback loop including a capacitor and having a second bandwidth is coupled to the first feedback loop for generating an output voltage across the capacitor wherein the second bandwidth is limited by a capacitance of the capacitor and the first bandwidth is independent of the capacitance.

5,672,960
THRESHOLD EXTRACTING METHOD AND CIRCUIT
USING THE SAME

Nicòlò Manaresi; Antonio Gaudi, both of Bologna; Dario Bruno, Palermo, and Biagio Giacalone, Trapani, all of Italy, assignors to Consorzio per la Ricerca sulla Microelettronica nel Mezzogiorno, Catania, Italy

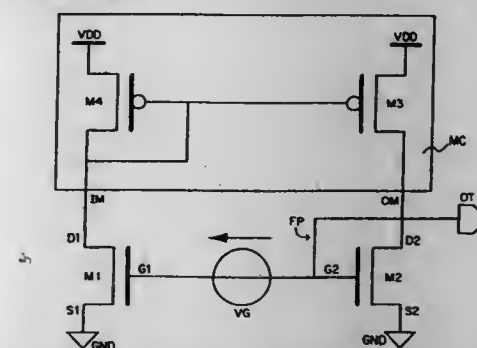
Filed Dec. 19, 1995, Ser. No. 575,690

Claims priority, application European Pat. Off., Dec. 30, 1994, 94830595

Int. Cl.⁶ G05F 3/16

U.S. Cl. 323—313

21 Claims



1. A method of determining a threshold voltage of a transistor using a current mirror circuit having at least two input-output terminals, and using at least two transistors of the same type each having a control terminal and each having substantially a same threshold voltage to be determined by the method, said current mirror circuit supplying bias currents to the two transistors through said two input-output terminals, the method comprising steps of:
- providing a potential difference between said two control terminals of the at least two transistors;
 - establishing a feedback path between said control terminals and one of said input-output terminals of the current mirror circuit so that the same threshold voltage of the at least two transistors is related to the potential of one of said control terminals;
 - detecting a value of the potential of the one of said control terminals; and

determining the threshold voltage using the potential of the one of said control terminals.

5,672,961
TEMPERATURE STABILIZED CONSTANT FRACTION
VOLTAGE CONTROLLED CURRENT SOURCE

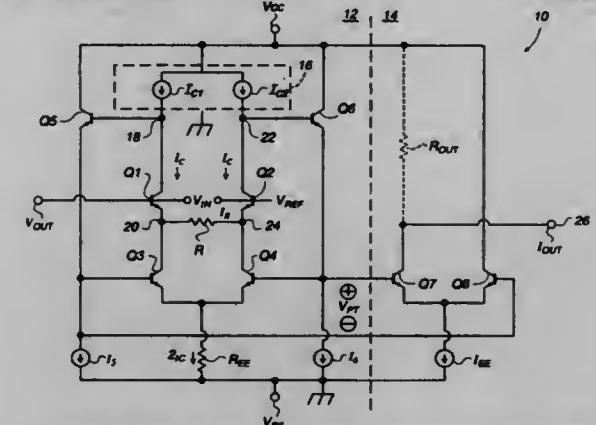
David W. Entrikin; Brent R. Jensen, and Benjamin J. McCarroll, all of Portland, Oreg., assignors to Maxim Integrated Products, Inc., Sunnyvale, Calif.

Filed Dec. 29, 1995, Ser. No. 581,131

Int. Cl.⁶ G05F 3/26

U.S. Cl. 323—315

19 Claims



1. A temperature stabilized, constant fraction, voltage controlled current source comprising:

- a control stage responsive to a stable, d.c. input voltage, said control stage including a temperature dependent control resistor of a given resistor technology, and at least one control constant current source providing said control resistor with a control current, wherein said control constant current source includes a temperature dependent current source resistor based upon said given resistor technology such that said control current is similarly temperature dependent, and such that the temperature dependencies of said control current and said control resistor tend to cancel to provide a PTAT control voltage that is proportional to absolute temperature; and
- an output stage responsive to said PTAT control voltage, said output stage including an output transistor coupled to an output constant current source, wherein an output current of said transistor stage taken from said output transistor has no current contribution other than from said output constant current source, such that said control voltage causes said output transistor to output an essentially constant fraction of said output constant current source as said output current.

5,672,962
FREQUENCY COMPENSATED CURRENT OUTPUT
CIRCUIT WITH INCREASED GAIN

Frank J. Sweeney, Rowlett, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 349,234, Dec. 5, 1994, abandoned.

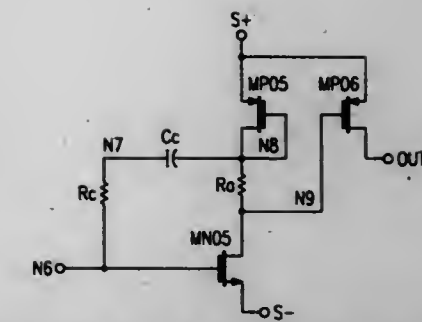
This application Nov. 25, 1996, Ser. No. 755,724

Int. Cl.⁶ G05F 3/08; 3/20

U.S. Cl. 323—315

8 Claims

1. A current mirror circuit, comprising:
- a circuit output terminal for outputting a current;
 - a circuit input terminal for receiving an input voltage;
 - a first transistor having first and second electrodes and a current path between said first and second electrodes, said current path of said first transistor coupled between said circuit output terminal and a first voltage source, and said first transistor having a control electrode;
 - a second transistor having first and second electrodes and a current path between first and second electrodes, said current



- path of said second transistor coupled between said first voltage source and a reference node, and said second transistor having a control electrode coupled to said reference node; an impedance having a first terminal coupled to said reference node and having a second terminal coupled to the control electrode of said first transistor; a third transistor having first and second electrodes and a current path between first and second electrodes, said current path of said third transistor coupled between said second terminal of said impedance and a second voltage source, said third transistor having a control electrode coupled to said circuit input terminal, and said third transistor controlling the current flowing in said impedance responsive to a voltage input at said circuit input terminal; and frequency compensation circuitry coupled having a first terminal coupled to said reference node and a second terminal coupled to the control electrode of said third transistor.

5,672,963
VARIABLE INDUCTION CONTROL LED
TRANSFORMER

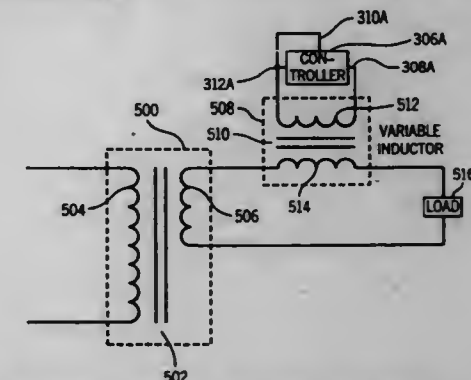
Don J. Corrigan; Jon O. Reynolds, both of Appleton, and Richard M. Hutchison, New London, all of Wis., assignors to Illinois Tool Works Inc., Glenview, Ill.

Continuation-in-part of Ser. No. 313,860, Sep. 28, 1994, abandoned, which is a continuation of Ser. No. 954,300, Sep. 30, 1992, Pat. No. 5,363,035, which is a continuation-in-part of Ser. No. 661,471, Feb. 26, 1991, Pat. No. 5,187,428. This application Nov. 7, 1994, Ser. No. 335,441

Int. Cl.⁶ G05B 24/02

U.S. Cl. 323—339

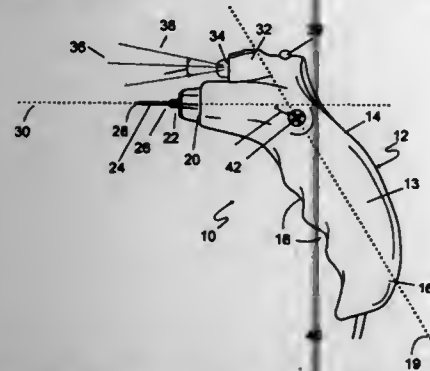
11 Claims



1. An operator controllable transformer comprising:
- a transformer having at least one secondary winding;
 - a variable inductor in series with the at least one secondary winding, the variable inductor having an inductor control winding;
 - a first load terminal in series with the variable inductor; and
 - a second load terminal in series with the at least one secondary winding.
- a control coil circuit in series with the inductor control winding, wherein the control circuit includes a switch configured to open and close circuit the inductor control winding wherein the switch is a phase controlled switch.

5,672,964
VOLTAGE PROBE TESTING DEVICE
 Peter Vlaci, 1695 Kirkwood Pike, Kirkwood, Pa. 17603
 Continuation of Ser. No. 42,286, Apr. 2, 1993, abandoned.
 This application Nov. 13, 1995, Ser. No. 608,997
 Int. Cl.⁶ G01R 31/02; 19/145
 U.S. Cl. 324—72.5

15 Claims



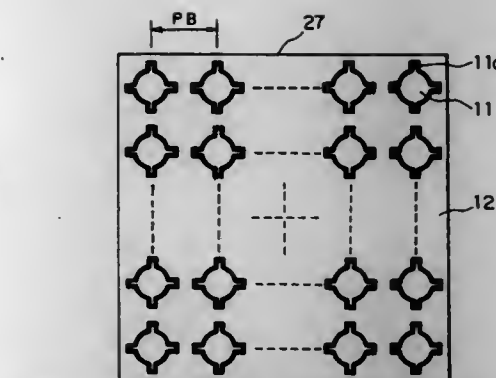
1. Voltage probe testing device comprising a portable housing having an elongate gripping portion and an operative portion at one end of said gripping portion; an elongate test probe generally defining a probe axis and having an insulation penetrating test point at one end of said operative portion and having another end thereof mounted on said operative portion; circuit means in said housing connected to said test probe for sensing voltages applied to said test probe and for providing at least one output signal upon sensing of at least one predetermined voltage level on said test probe; indicator means oriented on said operative portion to provide a user of said device at least one visually perceptible indication in response to generation of said at least one output signal during gasping of said gripping portion by said user and indication of said at least one output signal; light generating means on said operative portion for illuminating the region of said test point of said test probe when the device is in use; said gripping portion generally being in the shape of a pistol grip that can be held in the palm of said user said gripping portion having a plurality of indentations thereon, each said indentation individually sized and dimensioned for a finger of said user's hand providing said user a secure grasp of said gripping portion and generally defining a grip axis offset from said probe axis, said test probe being mounted and oriented on said operative portion to point in a direction generally away from the user when normally gripped; whereby said gripping portion of the device is gripped and held within the palm of said user without interfering with the access and visibility of said test point, indicator means and light generating means.

5,672,965
EVALUATION BOARD FOR EVALUATING ELECTRICAL CHARACTERISTICS OF AN IC PACKAGE
 Kazuhiko Kurafuchi; Hiroshi Seki, both of Kikuchi-gun, and Mitsuyuki Takada, Amagasaki, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed Jun. 7, 1995, Ser. No. 476,248
 Claims priority, application Japan, Jun. 14, 1994, 6-131776
 Int. Cl.⁶ G01R 1/06; 1/07

U.S. Cl. 324—158.1

12 Claims

1. An evaluation board for measuring electrical characteristics of an IC package comprising:
 a support board having first and second principal surfaces;
 a plurality of electrically conducting signal wire patterns for contact by a measurement probe formed on the first principal surface;
 a plurality of mounting portions for contact with an IC package formed on the second principal surface, each mounting portion being electrically connected through the support board to one of the signal wire patterns; and



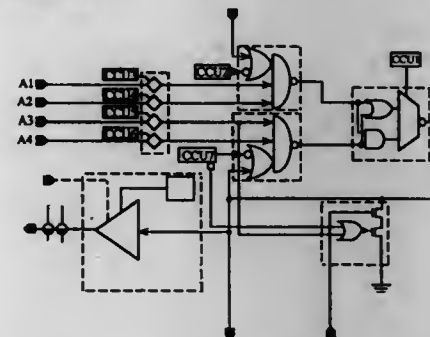
an electrically conducting ground pattern formed on the first principal surface and spaced from and completely surrounding a periphery of each signal wire pattern.

5,672,966
HIGH SPEED POST-PROGRAMMING NET PACKING METHOD
 Mikael Palczewski; David P. Schultz, both of San Jose, and F. Erich Goetting, Cupertino, all of Calif., assignors to Xilinx, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 234,764, Apr. 28, 1994, abandoned, which is a division of Ser. No. 919,491, Jul. 23, 1992, Pat. No. 5,319,254. This application Aug. 4, 1995, Ser. No. 511,581
 Int. Cl.⁶ G01R 31/28

U.S. Cl. 324—158.1

10 Claims



1. A method of verifying the connection layout of an array of conducting segments and programmable interconnects on an integrated circuit, said method comprising the steps of:
 programming a selected set of said programmable interconnects to connect selected ones of said segments;
 altering the voltage level at a first of said segments to a selected level;
 measuring the voltage levels at a selected plurality of said segments;
 verifying the accuracy of the connection layout by comparing the voltage levels at said plurality of segments to a set of voltage levels representing a desired connection layout for said selected plurality of segments,
 wherein said altering step is performed simultaneously on a second plurality of segments, and wherein each of said second plurality of segments is separated by at least two programmable interconnects from said first segment and from any other one of said second plurality of segments.

5,672,967
COMPACT TRI-AXIAL FLUXGATE MAGNETOMETER AND HOUSING WITH UNITARY ORTHOGONAL SENSOR SUBSTRATE

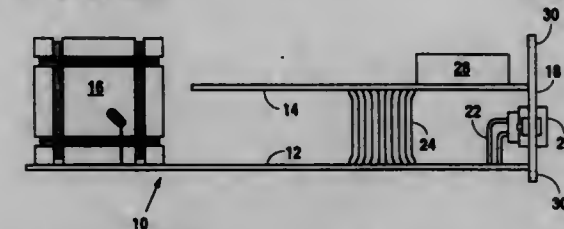
Poul A. Jensen, and John R. Scherrer, both of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed Sep. 19, 1995, Ser. No. 531,234

Int. Cl.⁶ G01R 33/02; 33/04

U.S. Cl. 324—253

4 Claims



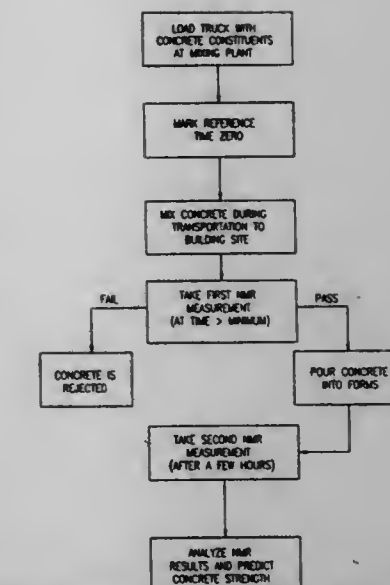
1. A tri-axial fluxgate magnetometer assembly comprising:
 a unitary sensor substrate defining three orthogonally oriented axes;
 a plurality of fluxgate coils positioned on said three orthogonally oriented axes of said unitary sensor substrate, said fluxgate coils including:
 a plurality of excitation coils, each of said excitation coils wound about a core of magnetic material;
 a plurality of sensor coils, each of said sensor coils wound about one of said excitation coils; and
 a plurality of feedback coils;
 said plurality of fluxgate coils serving as a Helmholtz coil feedback/sensor configuration for measuring magnetic flux along each of said axes;
 a first and a second circuit board, said circuit boards positioned in a fixed, parallel, overlapping, and spaced orientation with respect to each other;
 electronic coil sensing and driving circuitry connected with said plurality of fluxgate coils for detecting said magnetic flux and outputting a voltage signal indicative of said magnetic flux in each of said plurality of axes, said electronic circuitry positioned on said second circuit board and at a first end of said first circuit board and said plurality of fluxgate coils on said unitary sensor substrate positioned at a distal second end of said first circuit board; and
 an enclosure of non-magnetic material for surrounding said plurality of fluxgate coils on said unitary sensor substrate and said electronic circuitry on said first and said second circuit boards, said enclosure serving to stabilize and position said substrate, said coils, and said circuit boards in a fixed orientation.

5,672,968
NMR CONCRETE ANALYSIS
 Melvin N. Miller, Wynnewood; Manfred G. Prammer, West Chester, both of Pa., and Moti Huber, Rehovot, Israel, assignors to Numalog, Nes Ziona, Israel
 Filed May 17, 1996, Ser. No. 650,044
 Claims priority, application Israel, Mar. 11, 1996, 117443
 Int. Cl.⁶ G01V 3/00

U.S. Cl. 324—300

17 Claims

1. A method for measuring a property of a porous material while curing, said porous material including therein a liquid which undergoes metamorphosis and which is present in said porous material in different phases during curing, said method comprising the steps of:
 performing a low frequency, spin-echo nuclear magnetic resonance (NMR) measurement of each phase of said liquid; and

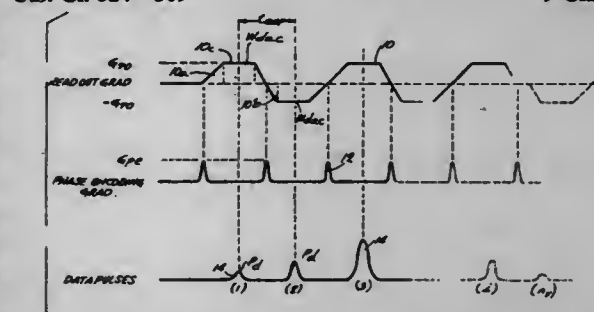


correlating said NMR measurement with a predetermined relationship between said property and said NMR measurement.

5,672,969
REDUCTION OF NYQUIST GHOST ARTIFACTS IN OBLIQUE ECHO PLANAR IMAGING
 Xiaohong Zhou, Franklin; Joseph K. Maier, Milwaukee, both of Wis., and Frederick H. Epstein, Gaithersburg, Md., assignors to General Electric Company, Milwaukee, Wis.
 Filed Apr. 25, 1996, Ser. No. 637,879
 Int. Cl.⁶ G01R 33/20

U.S. Cl. 324—309

9 Claims



1. In an MR system having a plurality of gradient coils and operated in accordance with an EPI scan technique to provide an oblique image of a subject, wherein said scan technique includes the steps of acquiring a series of EPI echoes, and then processing said acquired echoes to provide said oblique image, and wherein gradient waveforms respectively produced by said gradient coils can be distorted differently from one another, an artifact correction method comprising:

executing gradient referencing pre-scans to generate trains of reference echoes, each of said trains of reference echoes generated in accordance with an EPI sequence while a corresponding one of said gradient coils is activated for readout only and the remaining coils are inactivated;
 selectively processing said reference echoes to derive a set of distortion compensating parameters associated with a selected one of said steps of said EPI scan technique; and
 modifying said selected step of said EPI scan technique in accordance with said compensating parameters to significantly reduce oblique Nyquist ghost artifacts in said oblique image.

source of power for the low power microwave source, the low power microwave receiver, measurement circuitry, and output circuitry in the level transmitter.

5,672,976 WETNESS SENSOR FOR A WINDOW OF A MOTOR VEHICLE

Armin Egger, Bad Homburg; Reinhold Berberich, Frankfurt, and Dieter Busch, Rosbach, all of Germany, assignors to VDO Adolf Schindling AG, Frankfurt, Germany

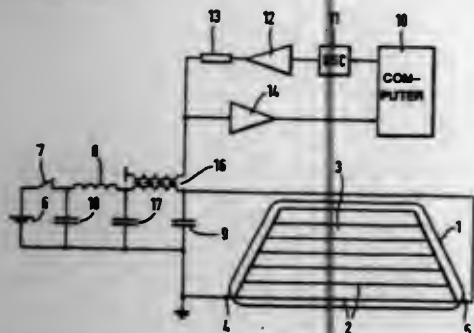
Filed Jul. 27, 1995, Ser. No. 508,214

Claims priority, application Germany, Jul. 28, 1994, 44 26 736.3

Int. Cl.⁶ G01R 27/26

U.S. Cl. 324—668

7 Claims



1. A wetness sensor for a window of a motor vehicle, comprising:

- a heating resistor disposed in the window for removal of frost, said resistor comprising a grid of a plurality of wires extending across the window from a first terminal connected to a first end of each wire to a second terminal connected to a second end of each wire;
- a measuring device connected to the heating resistor via said first terminal and said second terminal for measuring a capacitive portion of an impedance of the heating resistor; and wherein the capacitor portion of the impedance varies in accordance with an amount of wetness of the window, thereby enabling the measuring device to sense the wetness.

5,672,977 PROBE APPARATUS

Masayuki Yamada, Nirasaki, Japan, assignor to Tokyo Electron Limited, Tokyo, and Tokyo Electron Yamanashi Limited, Nirasaki, both of Japan

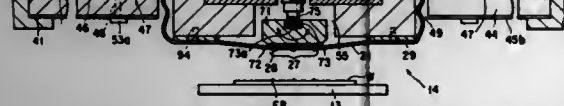
Filed Aug. 11, 1995, Ser. No. 514,384

Claims priority, application Japan, Sep. 9, 1994, 6-215869

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324—754

17 Claims



1. A probe apparatus for examining an electrical characteristic of an object having a number of electrode pads, comprising:

- a work table having a table surface on which said object is placed;
- a wiring board provided above said work table, said wiring board comprising a substrate supported by a framework of said probe apparatus and having a high rigidity, and board wiring provided on said substrate and electrically connected to a tester;

a probe card supported by said wiring board, said probe card comprising a flexible and insulating membrane, and flexible card wiring formed on said membrane and electrically connected to said board wiring of said wiring board, said probe card having a main region, in which a plurality of contact elements to be respectively brought into contact with said electrode pads of said object are arranged on a front side opposing to said table surface, and said contact elements being electrically connected to said card wiring;

mounting means for mounting said probe card on said wiring board;

a pusher brought into contact with a rear side of said main region of said probe card, said pusher having a contact surface set such that all of said contact elements are located within a contour thereof;

a shaft engaging with said pusher so as to arrange said pusher swingably on a rear side of said main region of said probe card, said shaft having a center axis which is substantially normal to said table surface;

first and second bellville springs connected to said shaft so as to apply an urging force to the main region of said probe card, and to said contact surface of said pusher, said first and second bellville springs being arranged substantially in parallel with said table surface and separated from each other along the center axis of said shaft; and securing means, mounted on said wiring board, for securing said first and second bellville springs.

5,672,978 INSPECTION APPARATUS FOR PRINTED WIRING BOARD

Kiyoshi Kimura, Chiba, Japan, assignor to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Division of Ser. No. 942,448, Sep. 9, 1992, Pat. No. 5,574,382.

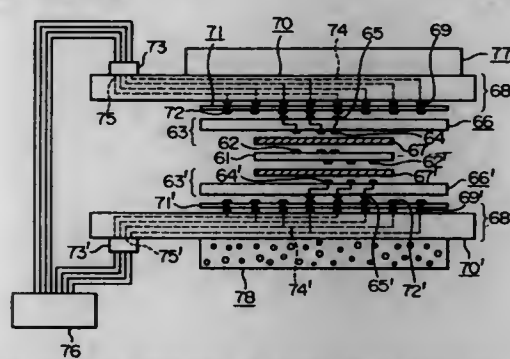
This application Jun. 3, 1996, Ser. No. 657,330

Claims priority, application Japan, Sep. 17, 1991, 3-262631; Jun. 8, 1992, 4-171484

Int. Cl.⁶ G01R 1/04

U.S. Cl. 324—754

6 Claims



1. An inspection apparatus for printed wiring board which comprises an off-grid adaptor to be placed on a printed wiring board to be inspected and an inspection head arranged above the off-grid adaptor, characterized in that the off-grid adaptor consists of a pitch-converting board having, on a first side, surface electrodes corresponding to the electrodes to be inspected of the printed wiring board and, on a second side, back electrodes arranged at grids and electrically connected to the surface electrodes, and a first anisotropically electroconductive sheet positioned between said printed board and said pitch-converting board; and said inspection head comprises an inspection electrode unit for said printed wiring board, said inspection electrode including an insulating substrate, an inspection electrode element set up on one side of the substrate in which inspection electrodes are formed at

standard grids cross-wise arranged which element has a plurality of functional regions each having a plurality of electrodes identically positioned in each of said plurality of functional regions and a connecting material through which correspondingly positioned ones of said inspection electrodes of said plural functional regions are connected together, to form commonized electrodes, wherein the identical positioning of said plurality of inspection electrodes in said plurality of functional regions allows for inspection of said printed wiring board so that individual printed wiring board electrodes to be inspected are individually connected to said commonized electrodes; and said apparatus further including a second anisotropically electroconductive sheet, the inspection electrodes of the unit being connected to the back electrodes of the pitch-converting board through the second anisotropically electroconductive sheet and arranged in the grid form.

5,672,979 METHOD OF USING AN ANISOTROPICALLY CONDUCTIVE MATERIAL TO LOCATE ALIGNMENT OF A SEMICONDUCTOR SUBSTRATE

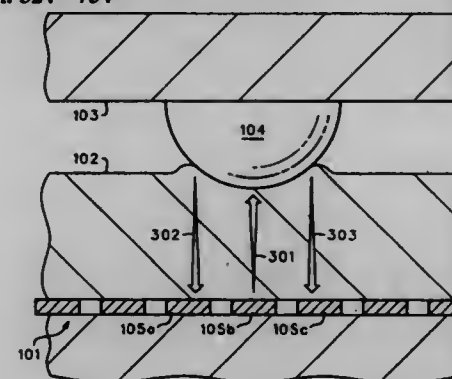
Gary Lee Christopher, Fox River Grove, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 506,053, Jul. 24, 1995, abandoned, which is a division of Ser. No. 317,094, Oct. 3, 1994, Pat. No. 5,543,724. This application Jan. 10, 1997, Ser. No. 782,549

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324—754

19 Claims



1. A method for locating alignment of a semiconductor substrate comprising:

- providing the semiconductor substrate comprising an electrically conductive fiducial feature;
- providing a test terminal array comprising a plurality of test terminals;
- providing an anisotropically conductive material over said test terminal array;
- contacting the anisotropically conductive material with the electrically conductive fiducial feature;
- keeping the plurality of test terminals stationary relative to each other;
- switching a test signal from a first one of the plurality of test terminals to a second one of the plurality of test terminals; and
- locating the semiconductor substrate when the test signal is channeled to the electrically conductive fiducial feature.

5,672,980 METHOD AND APPARATUS FOR TESTING INTEGRATED CIRCUIT CHIPS

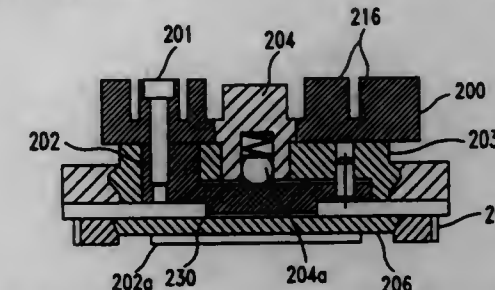
Richard Gordon Charlton; George Charles Correia, both of Essex Junction; Mark Andrew Couture, Milton; Gary Ray Hill, Jericho; Kibby Barth Horsford, Charlotte, all of Vt.; Anthony Paul Ingraham; Michael David Lowell, both of Endicott, N.Y.; Vova Rista Markovich, Endwell, N.Y.; Gordon Charles Osborne, Jr., Essex Junction, Vt., and Mark Vincent Pierson, Binghamton, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 163,452, Dec. 7, 1993, Pat. No. 5,523,696, which is a continuation-in-part of Ser. No. 76,069, Jun. 11, 1993, Pat. No. 5,420,520. This application Feb. 15, 1996, Ser. No. 602,167

Int. Cl.⁶ G01R 1/073; 31/28

U.S. Cl. 324—755

2 Claims



1. A chip to interposer aligning and clamping tool comprising: an interposer having a plurality of contacts thereon; a body fixture for holding said interposer in a fixed position; means for temporarily holding a chip having a plurality of contacts in a specified chip position on the surface of said interposer, said plurality of interposer contacts corresponding in number and position to said plurality of chip contacts; means for selectively clamping said chip on said interposer in said position with a compressive force selected from the range of between 5 and 50 grams for each contact on said chip to electrically bond each of said chip contacts to a corresponding one of said contacts on said interposer.

5,672,981 UNIVERSAL POWER INTERFACE ADAPTER FOR BURN-IN BOARD

Edmund P. Fehrman, Colorado Springs, Colo., assignor to AT&T Global Information Solutions Company, Dayton, Ohio; Hyundai Electronics America, San Jose, Calif., and Symbios Logic Inc., Fort Collins, Colo.

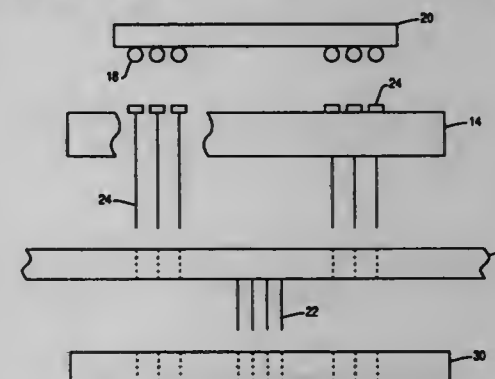
Continuation of Ser. No. 308,063, Sep. 16, 1994, abandoned.

This application Mar. 11, 1996, Ser. No. 614,925

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324—760

4 Claims



1. An electrical distribution system, comprising: a burn-in board having first local conductors, first protruding conductors and first vias;

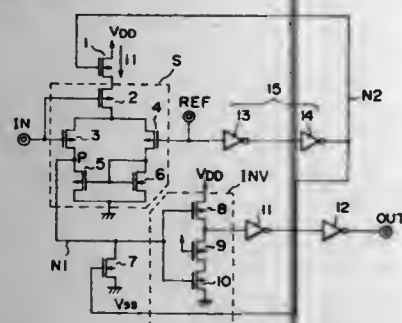
a printed circuit board, connected to at least one of the first protruding conductors, having second local conductors and second vias; and
at least one device having second protruding conductors which pass through at least some of the first vias and second vias, wherein the first local conductors couple at least one stimulus signal to the at least one device and the second local conductors couple at least one supply voltage to the at least one device.

5,672,982

SEMICONDUCTOR INTEGRATED CIRCUIT
Harumi Kawano, Miyazaki, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed Aug. 16, 1995, Ser. No. 515,581
Claims priority, application Japan, Aug. 30, 1994, 6-204728
Int. Cl. G01R 31/26

U.S. Cl. 324-765

6 Claims



1. A semiconductor integrated circuit comprising:
an input node supplied with an input voltage;
a reference node supplied with a reference voltage;
a first source potential node supplied with a first source potential level;
a second source potential node supplied with a second source potential level;
a sense circuit connected between said first source potential node and said second source potential node and brought into an operating state during a period in which the first source potential level is supplied, said sense circuit comparing the input voltage and the reference voltage and outputting the result of comparison to a first node;
a buffer circuit connected between the first node and an output node and adapted to output a voltage corresponding to the voltage developed at the first node to the output node; and
a first switching circuit connected between said first source potential node and said sense circuit and adapted to selectively connect between said sense circuit and said first source potential node in response to the voltage supplied to said reference node.

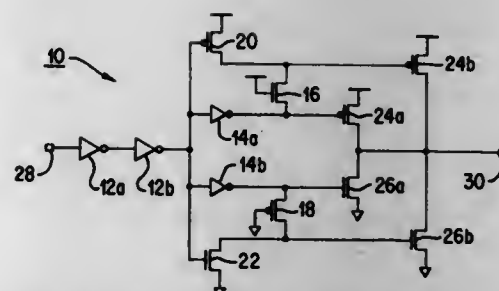
5,672,983

LOW NOISE OUTPUT BUFFER CIRCUIT
Yoshinori Yamamoto, Chiba, and Yukinori Tanaka, Tokyo, both of Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan
Filed Feb. 21, 1996, Ser. No. 604,703
Claims priority, application Japan, Feb. 21, 1995, 7-032105
Int. Cl. H03K 17/16

U.S. Cl. 326-27

15 Claims

1. An output buffer circuit, comprising:
at least two output P-type MOS transistors, a source terminal of a first P-type MOS transistor of the at least two P-type output MOS transistors and a source terminal of a second P-type MOS transistor of the at least two output P-type MOS transistors being connected to a power supply and drain terminals



- of the first and second P-type MOS transistors being connected to an output pad;
at least one resistive element, a first terminal of one of the at least one resistive element being connected to a first gate terminal of the first P-type MOS transistor and a second terminal of the one of the at least one resistive element being connected to a second gate terminal of the second P-type MOS transistor;
an inverter having an input terminal and an output terminal, the input terminal being connected to an input signal line and the output terminal being connected to the first gate terminal of the first P-type MOS transistor; and
at least one charging P-type MOS transistor, the at least one charging transistor being a third P-type MOS transistor having a drain terminal connected to the second gate terminal of the second P-type MOS transistor, a source terminal of the third P-type MOS transistor being connected to the power supply, a gate terminal of the third P-type MOS transistor being connected to the input signal line.

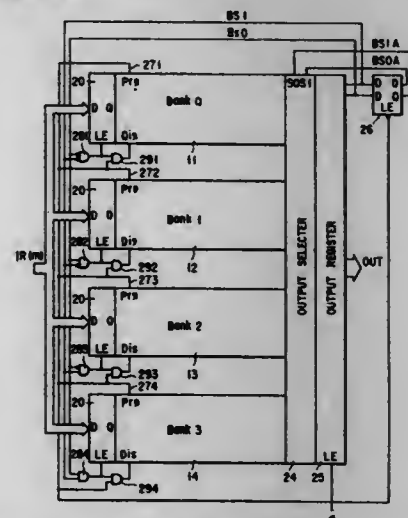
5,672,984

PROGRAMMABLE LOGIC ARRAY HAVING POWER-SAVING BANKS

Kazumasa Ando, Kawasaki, and Syoji Horie, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 312,799, Sep. 27, 1994, abandoned.
This application May 29, 1996, Ser. No. 654,938
Claims priority, application Japan, Sep. 29, 1993, 5-242888
Int. Cl. H03K 19/177

U.S. Cl. 326-39

3 Claims



1. A programmable logic array comprising:
a programmable logic array area having a plurality of banks wherein each of said banks has an array of discharge-type logic circuits for decoding a micro-code, executing a predetermined command, and outputting bank selection signals every clock cycle for selecting one of the plurality of banks for executing a predetermined command in a next clock cycle; and

a control circuit for selecting, based on said bank selection signals outputted from said plurality of banks, one of the plurality of banks for executing the predetermined command in a next clock cycle, wherein said control circuit decodes the bank selection signals output from said plurality of banks, latches the decoded selection signals into only one selected bank, and sends a discharge signal to the one selected bank to discharge the logic circuit thereof, thereby stopping operations of other banks.

5,672,985

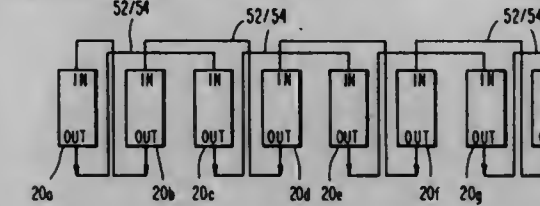
PROGRAMMABLE LOGIC ARRAY INTEGRATED CIRCUITS WITH CARRY AND/OR CASCADE RINGS
Fung Fung Lee, Milpitas, Calif., assignor to Altera Corporation, San Jose, Calif.

Filed Dec. 18, 1995, Ser. No. 574,351

Int. Cl. H03K 19/177

U.S. Cl. 326-41

3 Claims



1. A programmable logic array integrated circuit comprising:
a plurality of regions of programmable logic, each of which has an input for a carry/cascade signal and an output for a carry/cascade signal, said logic regions being disposed on said integrated circuit in an ordered series in which successive logic regions in said series are physically adjacent to one another; and
a plurality of carry/cascade signal paths, each of which is usable substantially only for conveying a carry/cascade signal, each of said carry/cascade signal paths extending from a respective one of said outputs to a respective one of said inputs, the input and output associated with each of said carry/cascade signal paths being the input and output of different ones of said logic regions so that said carry/cascade signal paths collectively interconnect said logic regions in a closed loop, said series being further divided into two interdigitated subseries which are mutually exclusive and collectively exhaustive, wherein carry/cascade signal paths interconnect successive logic regions in a first of said subseries in series order, wherein carry/cascade signal paths interconnect successive logic regions in a second of said subseries in reverse series order, and wherein at each end of said subseries a carry/cascade signal path interconnects said subseries by interconnecting adjacent logic regions at said end of said subseries.

5,672,986

HIGH SPEED DATA SAMPLING SYSTEM
David A. Zimlich, Boise, Id., assignor to Micron Display Technology, Inc., Boise, Id.

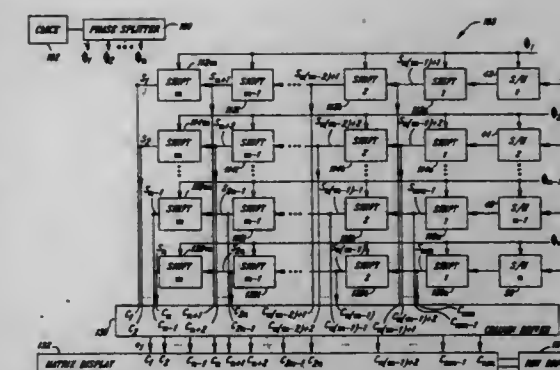
Filed Nov. 30, 1995, Ser. No. 565,382

Int. Cl. G11C 27/02

U.S. Cl. 327-91

20 Claims

6. A system for displaying on a screen an image corresponding to a data signal, said system comprising:
a matrix display having a plurality of row inputs and a plurality of column inputs;
a row processing and driving circuit connected to the row inputs of said matrix display;
a clock circuit generating a plurality of clock signals at respective outputs having phases that differ from each other;
a plurality of sample circuits each of which has a data input receiving said data signal and a clock input receiving a respective one of said clock signals, each of said sample



circuits sampling said data signal responsive to its respective clock signal and applying said sample to an output;
a plurality of sets of M shift registers each of which has a data input, a data output, and a clock input, the shift registers in each set being connected in series with first shift register in each set having its input connected to the output of a respective sample circuit to obtain data signal samples therefrom, the clock inputs of all of the shift registers in each set being coupled to each other and to one of said clock signals; and
a column processing and driving circuit having a plurality of column inputs receiving respective column signals corresponding to the intensity at which a pixel in said column is to be displayed, said column processing and driving circuit having said inputs connected to the outputs of respective shift registers and corresponding outputs connected to the column inputs of said display, the inputs to said column processing and driving circuit being connected to the outputs of said shift registers in the same order as the samples stored in said shift registers were obtained.

5,672,987

POTENTIAL DIFFERENCE TRANSMISSION DEVICE AND SEMICONDUCTOR MEMORY DEVICE USING THE SAME

Isao Tanaka, Katano, and Tsuguyasu Hattada, Neyagawa, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

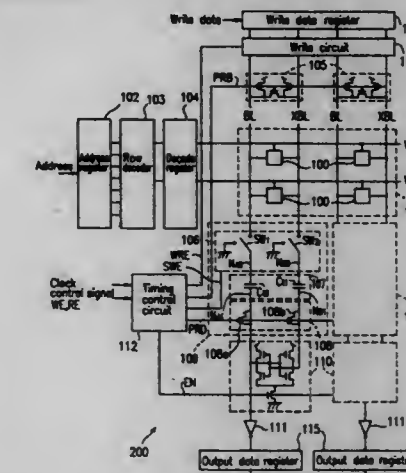
Filed Jun. 3, 1996, Ser. No. 656,721

Claims priority, application Japan, Jun. 8, 1995, 7-141535

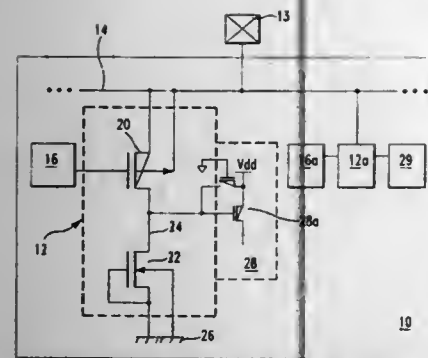
Int. Cl. G11C 27/02

U.S. Cl. 327-91

1 Claim



1. A potential difference transmission device comprising:
a capacitor element for storing a charge;
a switching element connected to one end of the capacitor element, which is turned so as to electrically connect one of a data input terminal and a ground line to the end of the capacitor element; and



source-drain breakdown voltage of the transistor and the resistivity of the transistor is reduced to about ten kilo-ohms.

5,672,995

HIGH SPEED MIS-TYPE INTEGRATED CIRCUIT WITH SELF-REGULATED BACK BIAS

Junji Hirase; Hiromori Akamatsu; Susumu Akamatsu, and Takashi Hori, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

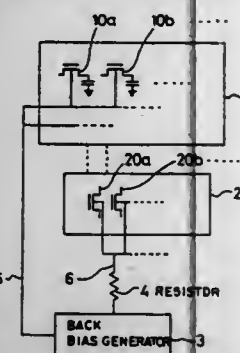
Filed Nov. 14, 1994, Ser. No. 340,343

Claims priority, application Japan, Nov. 15, 1993, 5-284910

Int. Cl.⁶ H01J 19/82; G05F 1/10

U.S. Cl. 327—534

25 Claims



1. A semiconductor apparatus comprising:
 - a first-type MIS transistor having a substrate portion, a gate, a source, and a drain;
 - a back-bias terminal for receiving a constant back bias to be applied to the substrate portion of said first-type MIS transistor; and
 - a resistor having a high electrical resistance interposed between the substrate portion of said first-type MIS transistor and the back-bias terminal,
- said first-type MIS transistor being constituted so that a potential of the substrate portion is self-regulated between one value in an active mode and the other value in standby mode.

5,672,996

SUBSTRATE VOLTAGE SUPPLY CONTROL CIRCUIT FOR MEMORY

Hong Beom Pyeon, Choongchungbuk-Do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Cheongju, Rep. of Korea

Filed Dec. 21, 1995, Ser. No. 576,381

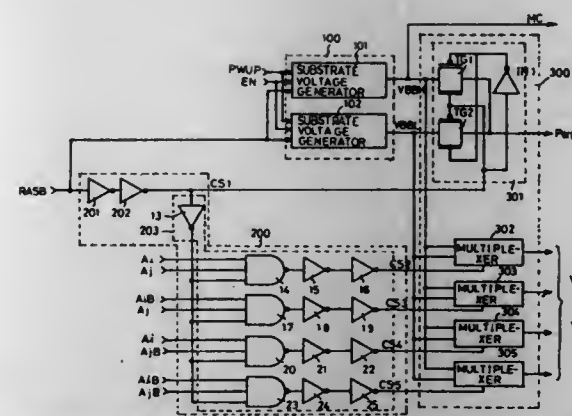
Claims priority, application Rep. of Korea, Oct. 12, 1995, 35145

Int. Cl.⁶ G11C 5/14

U.S. Cl. 327—534

17 Claims

1. A substrate voltage supply control circuit for a memory comprising:
 - first and second substrate voltage generating means for generating substrate voltages of high level and low level, respectively, according to a row address strobe signal, a power



supply signal and an enable signal applied externally, and supplying the generated substrate voltage of high level to memory cells;

- a substrate voltage supply control means for outputting first to fifth control signals and supplying the substrate voltages of high and low levels generated respectively by said first and second substrate voltage generating means to each circuit inside of the memory according to said row address strobe signal and first to fourth address signals applied from the outside; and

- a substrate voltage selection means for selecting corresponding ones of the substrate voltages of high and low levels generated respectively by said first and second substrate voltage generating means according to said first to fifth control signals outputted from said substrate voltage supply control means, and respectively supplying the selected voltages to a word line driver, an x-decoder, a y-decoder and memory peripheral circuits.

5,672,997

METHOD AND APPARATUS FOR REDUCING THE NOMINAL OPERATING VOLTAGE SUPPLIED TO AN INTEGRATED CIRCUIT

David J. Shield, El Dorado Hills, Calif., assignor to Intel Corporation, Santa Clara, Calif.

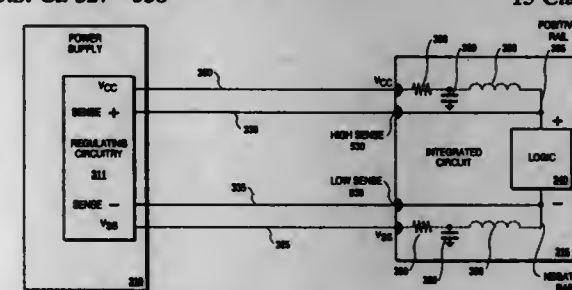
Continuation of Ser. No. 309,751, Sep. 21, 1994, abandoned.

This application Jan. 5, 1996, Ser. No. 583,536

Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—538

15 Claims



3. An integrated circuit comprising:
 - a positive rail having a first position and a second position, wherein the first and second positions are separated by at least one parasitic element;
 - a negative rail having a first position and a second position, wherein the first and second positions are separated by at least one parasitic element;
 - a first input conductor connected at the first position of the positive rail for receiving a first voltage from an external source;
 - a second input conductor connected at the first position of the negative rail for receiving a second voltage from another external source, wherein the first voltage is greater than the second voltage;

- a circuit powered by the first and second voltages and connected at the second position of the positive rail and at the second position of the negative rail;
- a differential amplifier having a first input coupled to the second position of the positive rail, a second input coupled to the second position of the negative rail, and an output that outputs a voltage that is equal to a difference between the first and second voltages as measured at the second positions of the positive and negative rails; and
- a first sense conductor connected to the output of the differential amplifier, the first sense conductor for coupling to an external circuit that senses a voltage drop across the logic circuit.

5,672,998

CLASS D AMPLIFIER AND METHOD

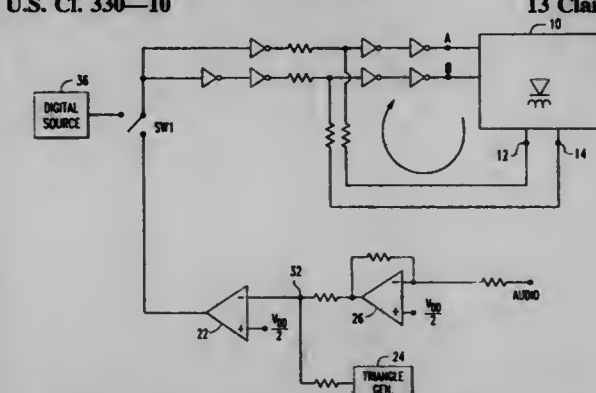
Harold Allen Wittinger, Pennington, N.J., assignor to Harris Corporation, Melbourne, Fla.

Filed Aug. 9, 1995, Ser. No. 512,763

Int. Cl.⁶ H03F 3/38

U.S. Cl. 330—10

13 Claims



5. A pulse width modulated digital audio amplifier having an output terminal;
 - a source of a pulse width modulated digital audio input signal;
 - a resistive summing junction operatively connected to receive the signal from said source; and
 - amplifying means including at least one inverter for connecting said summing junction to said output terminal.

5,672,999

AUDIO AMPLIFIER CLIPPING AVOIDANCE METHOD AND APPARATUS

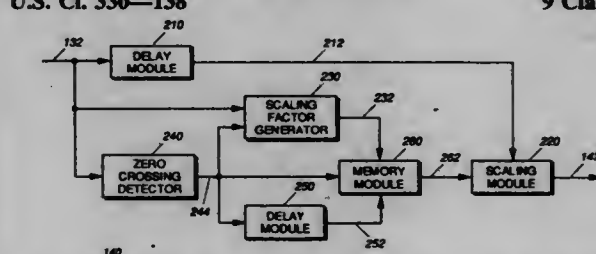
Enrique Ferrer, Miami, Fla., and Kenneth A. Hansen, Round Rock, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 16, 1996, Ser. No. 586,536

Int. Cl.⁶ H03G 3/20

U.S. Cl. 330—138

9 Claims



4. A method of processing an audio signal to avoid amplifier clipping, comprising the steps of:
 - generating a zero crossing signal identifying half cycles for the audio signal;
 - delaying the zero crossing signal for a particular time period;

174-444 O.G.—97-17: QL3

- determining a scaling factor for a particular half cycle of the audio signal based on an amplifier clip avoidance threshold, and peak amplitude of the audio signal within the particular half cycle; and
- modifying the particular half cycle of the audio signal with the scaling factor using the delayed zero crossing signal when the audio signal has an amplitude peak greater than the amplifier clip avoidance threshold during the particular half cycle.

5,673,000

DYNAMICALLY INVARIANT AB LINEAR OPERATION AMPLIFIER

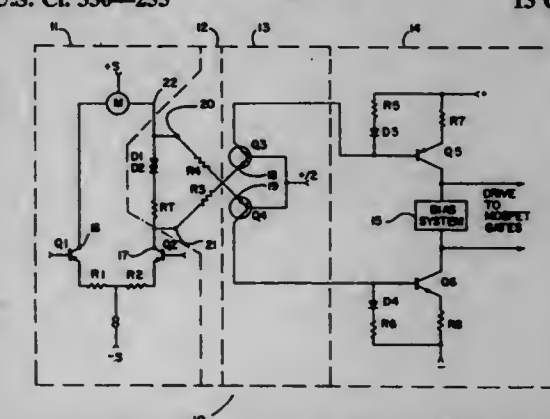
James C. Strickland, Mesa, Ariz., assignor to Rockford Corporation, Tempe, Ariz.

Filed Jan. 5, 1996, Ser. No. 583,443

Int. Cl.⁶ H03F 3/45; 3/26

U.S. Cl. 330—255

13 Claims



1. An amplifier for amplifying an electrical signal comprising:
 - input amplifier means for amplifying an input signal to produce a first amplified signal;
 - cascode means for converting the first amplified signal into a second bipolar amplified signal, said cascode means including a pair of transistors;
 - bipolar output amplifier means for amplifying the second bipolar amplified signal, said output amplifier means including two power transistors each driven by one of said cascode transistors; and
 - current steering means between said input amplifier means and said cascode means for steering two equal complimentary portions of the current produced by said input amplifier means to said cascode means, each of the complimentary portions going to one of said cascode transistors.

5,673,001

METHOD AND APPARATUS FOR AMPLIFYING A SIGNAL

Jin Dong Kim, Mundelein; James John Crnkovic, Lake Zurich; Armin Werner Klomdorf, Spring Grove, and David Sutherland Peckham, Barrington Hills, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

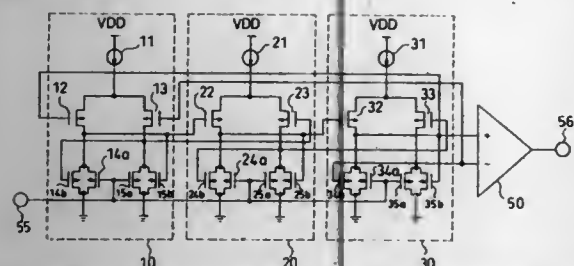
Filed Jun. 7, 1995, Ser. No. 482,158

Int. Cl.⁶ H03G 3/30

U.S. Cl. 330—284

28 Claims

18. A method of amplifying a signal comprising:
 - coupling a first voltage variable capacitor to an output of a power amplifier;
 - generating an output signal at said output which is an amplified version of an input signal received at an input of said power amplifier;
 - detecting the output power of said output signal and coupling a detected power output signal to a control circuit; and



a first FET supplied with the current from said current source to a source thereof;

a first control element connected to a drain of said first FET to receive said control voltage applied thereto, said first control element having a linear current characteristic to the applied control voltage; and

a first latch element connected in parallel to said first control element, said first latch element having a small resistance value when source-to-drain current flowing in said second FET is large and having a large resistance value when the source-to-drain current flowing in said second FET is small, and

said second inverting circuit comprises:

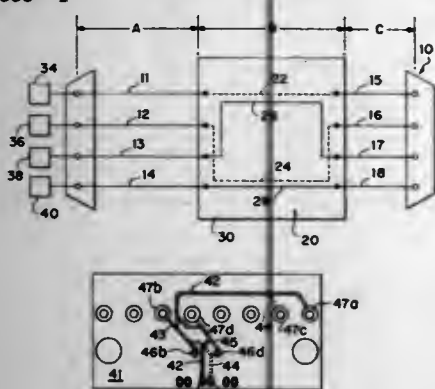
a second FET supplied with the current from said current source to a source thereof;

a second control element connected to a drain of said second FET to receive said control voltage applied thereto, said second control element having a linear current characteristic to the applied control voltage, wherein

an input signal to each of the delay circuits is inputted to respective gates of said first and second FETs and an output signal from each of the delay circuits is outputted from the respective drains of said first and second FETs; and

a second latch element connected in parallel to said second control element, said second latch element having a small resistance value when source-to-drain current flowing in said first FET is large and having a large resistance value when the source-to-drain current flowing in said first FET is small, said first and second FETs are P-type or N-type FETs, and said first and second control elements are N-type or P-type FETs receiving said control voltage applied to respective gates thereof.

5,673,009
CONNECTOR FOR COMMUNICATION SYSTEMS WITH CANCELED CROSSTALK
 Daniel E. Klas, Black Mtn., N.C., and William J. Rose, West Hartford, Conn., assignors to Hubbell Incorporated, Orange, Conn.
 Continuation of Ser. No. 388,421, Feb. 14, 1995, abandoned, which is a division of Ser. No. 931,194, Aug. 20, 1992, Pat. No. 5,432,484. This application Jul. 31, 1995, Ser. No. 509,419
 Int. Cl.⁶ H03H 7/00; H04M 1/74
 U.S. Cl. 333—1

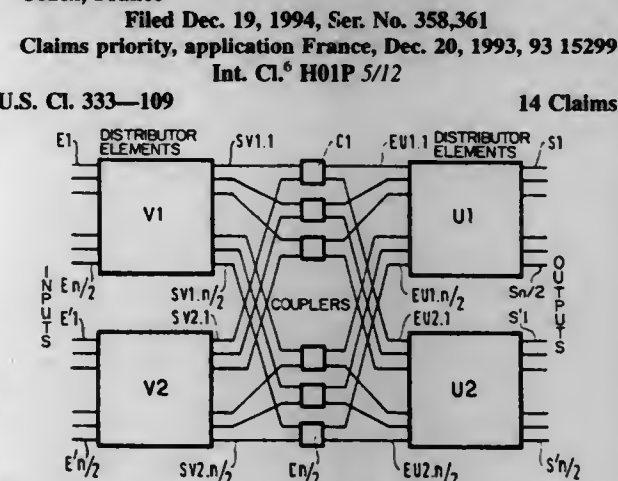


1. A connector for communication systems, comprising:

first, second, third and fourth primary terminals arranged in a first ordered array with said second and third primary terminals being between said first and fourth primary terminals; first, second, third and fourth secondary terminals arranged in a second ordered array; and

circuit means for electrically coupling said first, second, third and fourth primary terminals to said first, second, third and fourth secondary terminals, respectively, and for canceling crosstalk induced across adjacent ones of said primary terminals, said circuit means including first, second, third and fourth conductive paths connecting and connected to said first, second, third and fourth terminals, respectively, sections of said first and third paths being in relatively close proximity and being spaced by solid dielectric material to provide a first reactive coupling therebetween, sections of said second and fourth paths being in relatively close proximity and being spaced by solid dielectric material to provide a second reactive coupling therebetween, said first and second reactive couplings being relatively spaced, portions of said second and third paths between the respective terminals and said reactive couplings reversing positions relative to and between portions of said first and fourth paths between the respective terminals and said first and second reactive couplings.

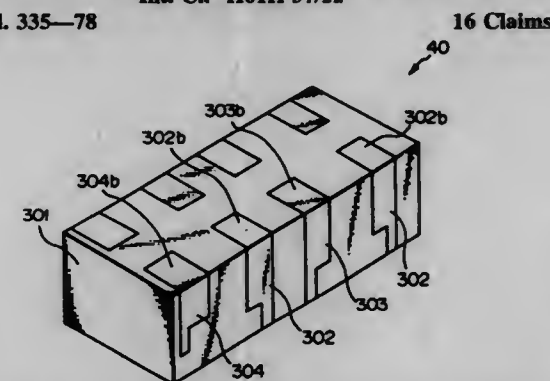
5,673,010
POWER DISTRIBUTOR SYSTEM AND POWER DISTRIBUTOR FOR MICROWAVE SIGNALS HAVING RECURRING HIERARCHICAL STRUCTURE OF DISTRIBUTOR ELEMENTS AND COUPLER ELEMENTS
 Thierry Dusseux, Tournefeuille; Jean-Marie Saury, Toulouse; Philippe Brunet, Muret, and Mohamed Masmoudi, Toulouse, all of France, assignors to Alcatel Espace, Nanterre Cedex, France
 Filed Dec. 19, 1994, Ser. No. 358,361
 Claims priority, application France, Dec. 20, 1993, 93 15299
 Int. Cl.⁶ H01P 5/12
 U.S. Cl. 333—109



1. Power distributor for microwave signals comprising n signal inputs and n signal outputs where n is even and greater than or equal to 4 and a set of coupler elements connecting said n inputs to said n outputs in order to distribute the power of the input signals to said n outputs according to any amplitude law which is not an equi-amplitude law, said set of coupler elements comprising $n/2$ coupler elements each having two inputs and two outputs, first, second, third and fourth orthogonal power distributor elements each having $n/2$ inputs and $n/2$ outputs, the inputs of said first and third orthogonal power distributor elements corresponding to respective inputs of said power distributor for microwave signals and the outputs of said second and fourth orthogonal power distributor elements corresponding to respective outputs of said power distributor for microwave signals, the outputs of said first orthogonal power distributor element being connected to respective first inputs of said coupler elements and the outputs of said third orthogonal power distributor element being connected to respective second inputs of said coupler elements, inputs of said second orthogonal power distributor element being connected to respective first outputs of said coupler elements and the inputs of said

fourth orthogonal power distributor element being connected to second outputs of said coupler elements.

5,673,011
SURFACE MOUNT TYPE LEADLESS ELECTROMAGNETIC RELAY
 Naoto Okihara; Katsuto Kojima; Masayuki Morimoto; Matsujiro Ikeda, and Naohiro Tanioka, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
 Filed Mar. 18, 1996, Ser. No. 617,425
 Claims priority, application Japan, Mar. 20, 1995, 7-060890
 Int. Cl.⁶ H01H 51/22
 U.S. Cl. 335—78



1. A surface mount type leadless electromagnetic relay comprising:

a coil assembly comprising an iron core, a coil spool containing said iron core such that said iron core is partly exposed to an outside, and coils wound round said coil spool;

an armature assembly comprising an armature contacting at least one end portion of said iron core at one end portion thereof, movable contact springs each having at least one movable contact at an end thereof, and a support formed of an insulating material and supporting said armature and said movable contact springs;

a terminal assembly comprising terminals including stationary contact terminals each holding at least one stationary contact facing said at least one movable contact; and

a base formed of an insulating material and accommodating said coil assembly therein;

wherein said at least one movable contact, said movable contact springs, said at least one stationary contact and said terminals of said terminal assembly, which are electrically connected to external circuit from said coils are formed integrally with said base and held in close contact with a bottom of a body of said relay.

5,673,012
POLARIZED ELECTROMAGNETIC RELAY
 Heinz Stadler, Munich, and Michael Dittmann, Berlin, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
 Filed Jun. 3, 1996, Ser. No. 659,048
 Claims priority, application Germany, Jun. 1, 1995, 195 20 220.1
 Int. Cl.⁶ H01H 51/22
 U.S. Cl. 335—78

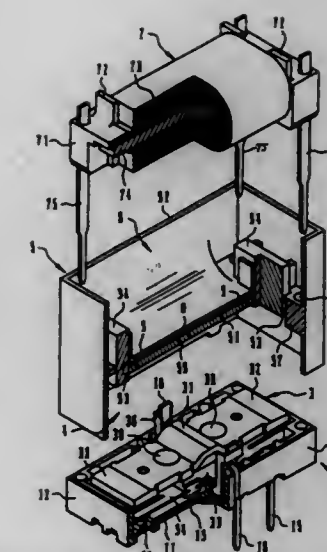
1. A polarized electromagnetic relay, comprising:

a base of an insulating material, said base having a floor side which defines a main plane;

fixed contacts and contact terminal pins;

bearers in which are mounted said fixed contacts as well as said contact terminal pins anchored in said base;

a rocker armature arranged above said base and centrally seated on both sides with an axis of rotation parallel to said main plane;



a coil arranged above said armature, said coil having an axis parallel to said main plane and perpendicular to said axis of rotation of said rocker armature;

a core arranged axially in said coil,

yokes at both ends of said core directed downwards perpendicular to said main plane, said yokes respectively form working air gaps with ends of said rocker armature;

a permanent magnet arrangement having similar magnetic poles at said yokes and a magnetic pole that is dissimilar thereto above said axis of rotation of said rocker armature;

a sheath of insulating material;

a contact spring arrangement fixedly connected with said rocker armature via said sheath of insulating material so that said contact spring arrangement works together with said fixed contacts of said base corresponding to motion of said rocker armature;

a main body made of insulating material that forms a dividing wall parallel to the main plane between said rocker armature and the coil, said main body having recesses for said yokes, said main body having side walls affixed to said base so that together said side walls and said base forms an at least partially closed switching chamber; and

projections in said main body on both sides of said rocker armature under which said contact terminal pins are located arranged in rows, and which is a support area for said terminal pins as needed.

5,673,013
BOBBIN CONCENTRICALLY SUPPORTING MULTIPLE ELECTRICAL COILS
 John W. Moody, Clarkston, and Charles Withey, Waterford, both of Mich., assignors to Pontiac Coll. Inc., Waterford, Mich.
 Filed Oct. 6, 1995, Ser. No. 539,967
 Int. Cl.⁶ H01F 15/10; 27/30
 U.S. Cl. 336—192

1. A bobbin assembly comprising:

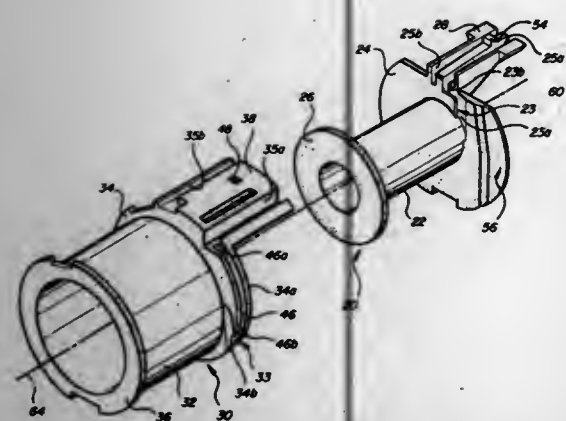
a hollow, cylindrical first spool having a uniform cylindrical exterior surface formed about a first winding axis for receiving thereon a first coil of electrically conductive wire;

a first flange extending radially from an end of the first spool;

a first alignment member disposed on the first flange in radially spaced relation to the first winding axis and extending parallel to the first winding axis;

a hollow, cylindrical second spool having a uniform cylindrical exterior surface formed about a second winding axis for receiving a second coil of electrically conductive wire;

a second flange extending radially from an end of the second spool;



- a second alignment member disposed on the second flange in radially spaced relation to the second winding axis and extending parallel to the second winding axis and adapted for engagement with the first alignment member when the second spool is disposed in the hollow interior of the first spool;
- means associated with the first and second spools for maintaining the spools in fixed, coaxial relationship with the second spool substantially wholly within the hollow interior of the first spool;
- the first and second spools being formed of non-magnetic, non-conductive material; and
- at least one of the alignment members including wire guide means for maintaining opposite ends of the wire of at least one of the coils in fixed positions with respect to the bobbin assembly.

5,673,014

GENERAL-PURPOSE CONVERTER FUSE

Peter Domanits, Amberg, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

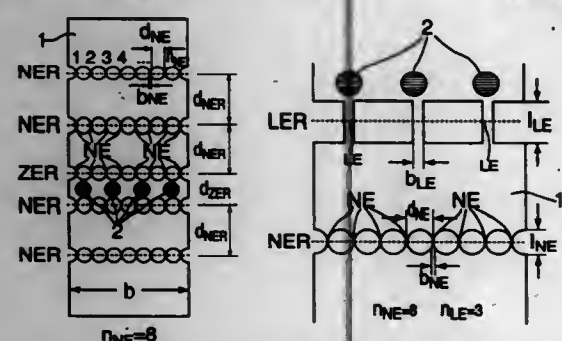
Filed Jun. 2, 1995, Ser. No. 460,580

Claims priority, application European Pat. Off., Aug. 1, 1994, 94111993

Int. Cl.⁶ H01H 85/04

U.S. Cl. 337—160

20 Claims



1. A fuse comprising at least one fusible element with a thickness (d), said fusible element including:
- a) a first row of narrow sites, said first row having a plurality (n_{NE}) of first narrow sites, each first narrow site having a continually changing cross-section in length (l_{NE}) and width (b_{NE});
- b) a second row of narrow sites, said second row having a plurality (n_{LE}) of second narrow sites, each second narrow site having a length (l_{LE}) greater than said length of the first narrow site (l_{NE}) and having a width (b_{LE}), wherein a cross-sectional area ($n_{LE} \times b_{LE} \times d$) of the second row of narrow sites is larger than a cross-sectional area ($n_{NE} \times b_{NE} \times d$) of the first row of narrow sites; and
- c) a solder deposit being disposed adjacent to the second row of narrow sites.

5,673,015

SLIDING TYPE VARIABLE RESISTOR

Masao Imamura, and Satoshi Hayashi, both of Maebashi, Japan, assignors to Tubame Musen Inc., Gunma, Japan

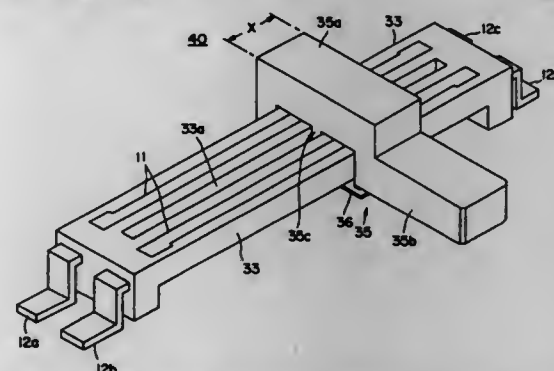
Filed Feb. 7, 1995, Ser. No. 385,172

Claims priority, application Japan, May 19, 1994, 6-105714; Nov. 14, 1994, 6-278920

Int. Cl.⁶ H01L 10/38

U.S. Cl. 338—176

3 Claims



1. A sliding type variable resistor comprising a resin substrate having side walls and a carbon film resistor printed on a one wall between said side walls, said film resistor being printed in a straight line on said one wall and lead terminals for external lines, and a slider having a knob portion and a main body portion provided with a sliding shoe which is freely slidable on said resin substrate and which slides in abutment against said carbon film resistor, said resin substrate having a slit in a parallel sliding direction to said slider and approximately central to said resin substrate, and said slider main body portion having a protruding part which operates in sliding engagement with said slit formed in said resin substrate, said protruding part on said main body portion protruding from a wall of the slider which is adjacent said film resistor printed on said one wall of said resin substrate, said main body portion of the slider abutting against and in sliding engagement with said side walls of the resin substrate.

5,673,016

MULTIFUNCTION VISITOR INFORMATION SYSTEM

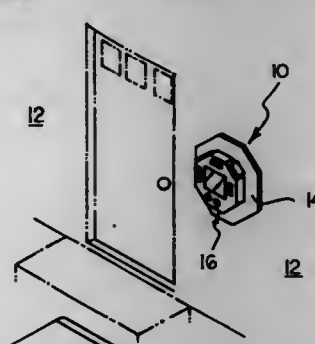
Daniel M. Lutes, 446 McCombs Rd., Venetia, Pa. 15367

Filed Jul. 14, 1995, Ser. No. 502,475

Int. Cl.⁶ G08B 27/00

U.S. Cl. 340—326

1 Claim



1. A new and improved multifunction visitor information system comprising, in combination:
- a building structure including an electrical system, intercom system, door bell system, security system and telephone system;
- a base plate formed in a planar generally octagonal configuration, the plate having a front face including a scenic design around its periphery and a rear face including coupling means to permit affixation to a desired mounting surface;
- a central control unit formed in a planar generally octagonal configuration, the control unit having a smaller length and

width than the base plate, the control unit having a greater thickness than the base plate and including an essentially hollow interior, the control unit being coupled to the approximate centerpoint of the front surface of the base plate, the control unit including a light positioned at opposite sides thereof, the lights being electrically coupled to the electrical system of a building structure;

- a liquid crystal display panel including means for displaying a plurality of different messages for viewing by visitors to a building structure, the panel being positioned at the approximate centerpoint of the central control unit, the panel being electrically coupled to the electrical system of the building structure;
- a plurality of function buttons being positioned within the display unit and operatively coupled to the liquid crystal display panel, the function buttons permitting users to send a plurality of different coded sequences to the panel thereby causing different messages to be displayed on the panel;
- a door bell being positioned within the central control unit, the door bell being operatively coupled to the door bell system of the building structure, the door bell being depressed by a user to activate the door bell system;
- a speaker and microphone assembly being positioned within the central display unit, the speaker and microphone assembly being electrically coupled to the intercom system and telephone system of a building structure, the speaker and microphone assembly permitting two-way communication between a visitor and occupant of the building structure;
- a motion detector being positioned within the central display unit, the motion detector being operatively coupled to the liquid crystal display, speaker and microphone assembly and security system, the motion detector activating the liquid crystal display, speaker and microphone assembly and security system when visitors or intruders approach the central display unit, wherein the liquid crystal display depicts a greeting upon the detection of a visitor; and
- electronic signal transmission means being included in the liquid crystal display panel and operatively coupled to the speaker and microphone assembly and motion detector, a beeper device having a sound emitting component and including means to receive an electronic signal from the electronic transmission means thereby activating the sound emitting component.

5,673,017

REMOTE VEHICLE STARTING SYSTEM

Normand Dery, Sherbrooke; Guy Mailhot, St-Ellie d'Orford, and Alain Jean, Sherbrooke, all of Canada, assignors to Astroflex Inc., St-Ellie d'Orford

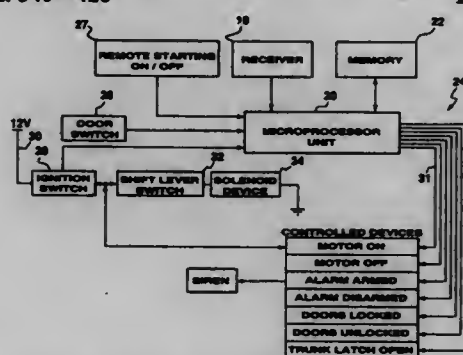
Continuation of Ser. No. 116,460, Sep. 3, 1993, abandoned.

This application Mar. 27, 1995, Ser. No. 410,408

Int. Cl.⁶ B60R 25/10; G08C 19/12

U.S. Cl. 340—426

17 Claims



1. A system for remotely operating one or more selected components of a vehicle, said one or more components including at least the vehicle's engine, said system comprising:
- a portable transmitter, including:

- a) means for generating a binary sequence including an address component uniquely identifying a vehicle to which said binary sequence is directed, a function component indicative of a desired operational state of each said selected component of the vehicle and a validation function component, said validation function component being constituted by said function component in a coded state;
- b) means for transmitting said binary sequence as a radio frequency signal;
- a controller for mounting in the vehicle, said controller including:
- c) means for receiving said radio frequency signal and for deriving from said radio frequency signal said address component, said function component and said validation function component;
- d) means for storing a vehicle identification code uniquely identifying the vehicle in which said controller is to be mounted;
- e) means for comparing said vehicle identification code with said address component;
- f) means for decoding said validation function component for generating a decoded validation function component;
- g) means for comparing said function component and said decoded validation function component; and
- h) means for generating a signal for interfacing with the vehicle to bring said one or more selected components of the vehicle into the desired operational state when at least the following conditions are met:
- i) said address component matches said vehicle identification code; and
- ii) said decoded validation function component matches said function component.

5,673,018

TRANSPONDER SYSTEM FOR REPORTING THE DISTANCE TRAVELED BY A WHEELED VEHICLE

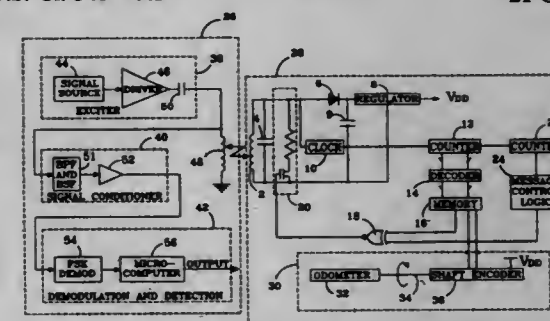
Peter R. Lowe, Colorado Springs, Colo., and Donald G. Small, San Juan Capistrano, Calif., assignors to Palomar Technologies Corporation, Carlsbad, Calif.

Filed Jun. 7, 1995, Ser. No. 482,333

Int. Cl.⁶ G08B 21/00

U.S. Cl. 340—445

21 Claims



1. A system for communicating information on the distance traveled by a wheeled vehicle, comprising:
- a wheel having a mounting structure for mounting the wheel on the wheeled vehicle,
- a sensor for sensing rotations of said wheel to provide a sensor signal that is indicative of the distance traveled by the wheeled vehicle to which the wheel is mounted, and
- a radio frequency (RF) transponder energized by an RF interrogation signal, wherein said transponder is connected to receive said sensor signal and to transmit a transponder signal to a remote location away from said wheeled vehicle, wherein said transponder signal corresponds to said sensor signal, and further wherein said sensor and said transponder are mounted to said wheel to rotate with said wheel while remaining substantially stationary relative to each other and to said wheel.

5,673,019

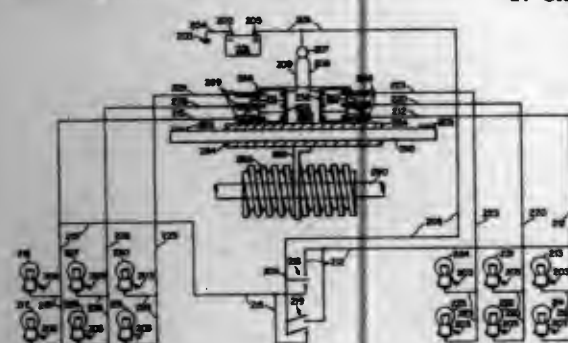
AUTOMATIC TURN SIGNAL AND SAFETY DEVICE Joseph L. Dantoni, 3939 Roland Ave., Apt. 215, Baltimore, Md. 21211

Filed May 14, 1996, Ser. No. 645,879

Int. Cl.⁶ B60Q 1/34

U.S. Cl. 340—475

17 Claims



1. An automatic vehicle turn signal and safety device for a vehicle having a rotatable steering mechanism, comprising:

- sensors for automatically detecting the degree of turn of said steering mechanism, wherein said sensors detect the degree of rotation of the initial revolution in either direction from a neutral position and permit additional revolutions while maintaining said initial revolution detection;
- a plurality of safety indication light components, including a first set of lights for indication of shallow turns and a second set of lights for indication of sharp turns; and
- a control operatively connected to said sensors and said safety indication components for actuating said plurality of safety indication components in proportion to the degree of turn by actuation of said first set of lights upon detection of a shallow turn and said second set of lights upon detection of a sharp turn.

5,673,020

EARLY STAGE FIRE DETECTING APPARATUS Yoshiaki Okayama, Tokyo, Japan, assignor to Nohmi Bosai Ltd., Tokyo, Japan

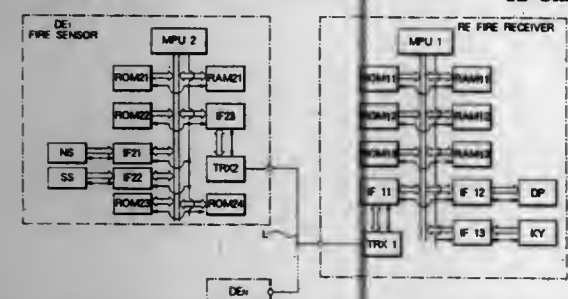
Filed Mar. 28, 1995, Ser. No. 412,272

Claims priority, application Japan, Mar. 30, 1994, 6-061652

Int. Cl.⁶ G08B 29/00

U.S. Cl. 340—511

12 Claims



1. An early stage fire detecting apparatus, comprising:
- a high sensitivity smoke sensor for detecting a concentration of smoke;
 - a smell sensor for detecting smell;
 - input means for subjecting output values from said high sensitivity smoke sensor and said smell sensor to signal processing and obtaining four types of input data composed of a value representing the concentration of smoke at a given moment, a value representing an amount of change in the concentration

of smoke over time, a value representing the level of smell at a given moment, and a value representing an amount of change in the level of smell over time;

- a signal processing network for calculating a fire probability based on the values of the four types of input data obtained from said input means; and
- fire discriminating means for discriminating a fire state based on the fire probability calculated by said signal processing network.

5,673,021

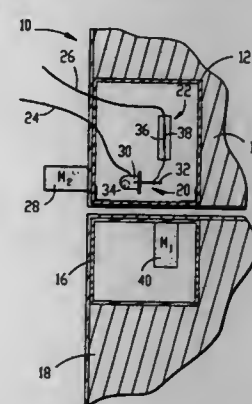
MAGNETIC SWITCH ASSEMBLY FOR DETECTING UNAUTHORIZED OPENING OF DOORS OR WINDOWS Randall Woods, 230 Longbranch East, Prescott, Ariz. 86303

Filed May 22, 1996, Ser. No. 651,752

Int. Cl.⁶ G08B 13/08

U.S. Cl. 340—547

13 Claims



1. A switch assembly for electrically coupling with an electrical circuit of an alarm system for detecting relative movement between first and second adjacent members and for defeating attempted magnetic manipulation of the switch assembly by an intruder's magnet, the switch assembly comprising:

first switch means for sensing the presence of the intruder's magnet in the vicinity of the switch assembly and for changing the state of the electrical circuit to an alarm state in response thereto; and

second switch means electrically coupled with said first switch means for detecting relative movement between the first and second adjacent members and for changing the state of the electrical circuit to the alarm state in response thereto independently of the first switch means;

wherein the first switch means including:

- a ball switch for mounting on the first member, the ball switch including a pair of spaced-apart switch elements and a shiftable, ferromagnetic body disposed between said switch elements and movable between a switch closed position wherein the ferromagnetic body contacts both of the switch elements and a switch open position wherein the ferromagnetic body is moved from one of the switch elements; and
- a magnet for mounting on the second member and oriented for retaining the ferromagnetic body in one of the switch closed and switch open positions when the members are in one relative position and for permitting shifting of the ferromagnetic body to the other of the switch closed and open positions when the intruder's magnet is placed in the vicinity, of the switch assembly.

5,673,022

MOTION SENSOR/PHOTOELECTRIC LIGHT SENSOR PLUG-IN RECEPTACLE

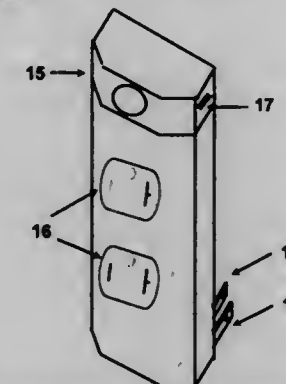
Jitendra Ambalal Patel, 8 Sherrywood Rd., Wappingers Falls, N.Y. 12590, assignor to Jitendra Ambalal Patel, Wappingers Falls, N.Y.

Filed Mar. 27, 1996, Ser. No. 622,264

Int. Cl.⁶ G08B 13/00

U.S. Cl. 340—565

11 Claims



1. A motion sensor/photoelectric light sensor device for electrically energizing non-motion sensor equipped electrical devices, said sensor device having: input means for connection to a source of electrical energy, output means for connecting electrical energy from said source through a control to said electrical devices, a first means to detect the presence of moving infrared radiation sources, a means to detect ambient light, a second means to compare the level of ambient light with a preset threshold, and a third means to electronically override the said first means and said second means; said control having modes of operation which comprise:

a first operation mode wherein said output means is energized upon the detection of a moving infrared radiation source and remains energized for a predetermined period of time after cessation of said moving infrared radiation detection, provided the ambient light intensity is below a predetermined level; a second operation mode wherein said output means is energized when the ambient light intensity is below a predetermined level regardless of detection of a moving infrared radiation source; and a third operation mode wherein said output means is energized by moving infrared radiation detection regardless of ambient light level, wherein each of said operation modes is controlled by at least one signal generated by at least one sensor selected from said first means and the ambient light detecting means.

5,673,023

LOCATING SYSTEM WITH BOTH VISUAL AND VOICE SIMULATED INDICATION CAPABILITIES

Bradley K. Smith, R.R.1, Site 4, Comp 7, Peachland, Canada, VOH IXO

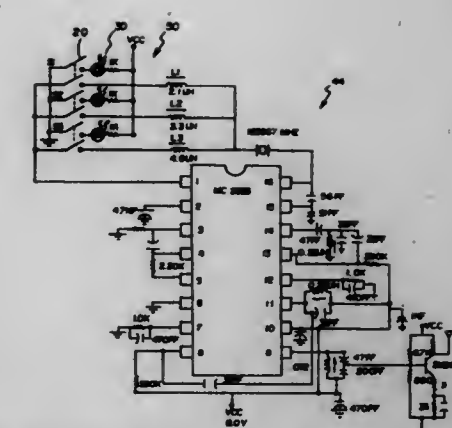
Filed Jun. 3, 1996, Ser. No. 656,829

Int. Cl.⁶ G08B 1/08

U.S. Cl. 340—571

6 Claims

1. A new and improved locating system with both visual and voice simulated indication capabilities comprising, in combination:
- a transmitter housing with a top face, a bottom face, and a periphery formed therebetween defining an interior space, the top face having a first portion, a second portion, and a bevelled intermediate portion formed therebetween with the second portion situated in a plane which resides above a plane in which the first portion resides, the transmitter housing further having a plurality of button switches situated on the first portion of the housing in linear alignment, a plurality of indicators situated on the intermediate portion with each indicator comprising a transparent window capable of releasably receiving a strip of translucent material with opaque indicia printed thereon, and a plurality of light emitting diodes each



situated within the interior space adjacent an associated transparent window and adapted to emit light upon the actuation thereof;

at least one receiver housing with a top face, a bottom face, and a periphery formed therebetween defining an interior space, the receiver housing comprising a speaker situated within the interior space of the receiver housing adjacent a grill formed therein, a high intensity strobe light situated on the periphery of the receiver housing for emitting high intensity light upon the actuation thereof, a key also situated on the periphery of the receiver housing, and an adhesive lining situated on the bottom face of the receiver housing for being adhered to an object;

transmitter means situated within the transmitter housing and connected to the buttons for emitting a plurality of unique signals each at a predetermined frequency and with each signal being transmitted upon the instantaneous depression of an associated button on the transmitter housing;

transmitting indication means positioned within the transmitter housing and connected to the light emitting diodes for allowing the actuation of a diode upon the depression of an associated button;

receiver means situated within the receiver housing and adapted to activate upon the receipt of an associated signal transmitted via the transmitter means, the receiver means adapted to deactivate only upon the depression of the key on the receiver housing;

audible receiving indication means connected to the receiver means and speaker of the receiver housing for emitting an audible signal comprising a short descriptive phrase representative of the object to which the receiver housing is connected, wherein the audible receiving indication means only emits an audible signal upon the activation of the receiver means; and

visual receiving indication means connected to the receiver means and strobe light of the receiver housing for allowing the intermittent actuation of the strobe light only upon the activation of the receiver means.

5,673,024

ELECTRONIC ARTICLE SURVEILLANCE SYSTEM WITH COMB FILTERING BY POLYPHASE DECOMPOSITION AND NONLINEAR FILTERING OF SUBSEQUENCES

Thomas J. Frederick, Coconut Creek, and Dale R. Bettine, Coral Springs, both of Fla., assignors to Sensormatic Electronics Corporation, Deerfield Beach, Fla.

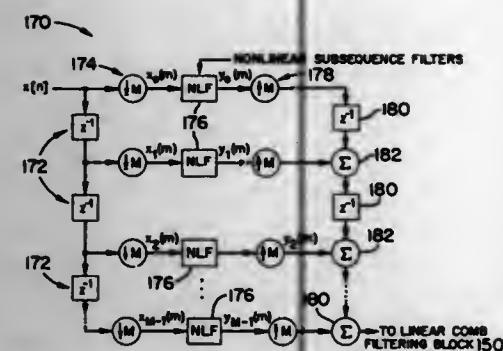
Filed Apr. 22, 1996, Ser. No. 635,697

Int. Cl.⁶ G08B 13/24

U.S. Cl. 340—572

31 Claims

1. An electronic article surveillance system, comprising: means for generating and radiating an interrogation signal which alternates at a predetermined frequency F_0 in an interrogation zone;



antenna means for receiving a signal present in the interrogation zone;

A/D conversion means for receiving an analog signal representative of said signal received by said antenna means and converting said analog signal into a sequence of digital samples; and

digital signal processing means for processing said sequence of digital samples to remove interference therefrom, said digital signal processing means processing said sequence of digital samples by:

forming M subsequences from said sequence of digital samples, M being a positive integer greater than 1;

applying a respective nonlinear digital filtering function to each of said M subsequences; and

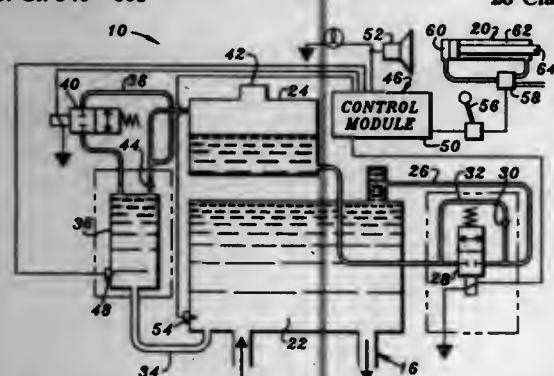
combining the M filtered subsequences to form a processed sequence of digital samples.

5,673,025
FLUID LEAK DETECTOR MECHANISM
Maria Rosalyn Bengua Refugio, Milwaukee; Mark Edward Lamb, Mayville, both of Wis., and Gordon Le Roy Marquart, Jesup, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Nov. 21, 1996, Ser. No. 753,200
Int. Cl. G08B 21/00

U.S. Cl. 340—605

28 Claims



20. A hydraulic fluid leak detector mechanism adapted for detecting leaks in a hydraulic system of a vehicle having at least one reel mower cutting unit usable for mowing golf courses, comprising:

- a main fluid tank operatively coupled with the hydraulic system for serving as a reservoir,
- an expansion tank operatively coupled with the main tank for receiving fluid therefrom as the fluid becomes heated and expands,
- a sensing chamber operatively coupled with the main tank,
- a signalling mechanism which signals to an operator when the level of fluid in the sensing chamber has dropped significantly and that a fluid leak may be occurring,
- an oil return valve operatively coupled between the main tank and the expansion tank, said oil return valve having an open position that allows fluid to flow back to the main tank from

the expansion tank and a closed position that blocks oil from flowing from the expansion tank to the main tank,

an expansion check valve operatively positioned between the main tank and the expansion tank for allowing fluid to flow from the main tank to the expansion tank as fluid in the main tank becomes heated and expands, and said expansion check valve blocks fluid from flowing from the expansion tank to the main tank,

an air vent check valve operatively coupled with the top portion of the sensing chamber for allowing air to enter the sensing chamber to replace oil that has exited the sensing chamber during normal operation of the hydraulic system,

an air vent valve operatively coupled with the top portion of the sensing chamber, said air vent valve having a closed position for blocking fluid from entering or exiting the sensing chamber via the air vent valve, said air vent valve being automatically shifted to an open position as fluid enters the sensing chamber to thereby allow air to be displaced from the sensing chamber as fluid enters the sensing chamber during normal operation of the hydraulic system,

a temperature sensor for sensing the temperature of the fluid, and

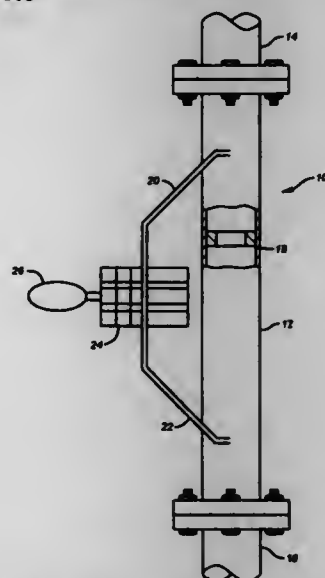
a control mechanism operatively coupled with the temperature sensor and the oil return valve for shifting the oil return valve to its open position when the temperature sensor detects a significant drop in fluid temperature, said opening of the oil return valve generally allows the fluid levels in the main tank, expansion tank and sensing chamber to reset themselves in response to the change in fluid temperature.

5,673,026
STOPPED FLOW DETECTION USING STATISTICAL METHODS
John David Marrelli, Houston, and Farhan Siddiqui, Katy, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Jun. 14, 1994, Ser. No. 260,288
Int. Cl. G08B 21/00

U.S. Cl. 340—608

6 Claims



1. In conjunction with a fluid fraction measuring means capable of measuring a physical flow characteristic, a method to determine stopped flow conditions comprising the steps of:
 - establishing a minimum threshold level reading of the statistical variation of a physical flow characteristic measured by said measuring means;
 - continuously monitoring readings of the statistical variation of said physical flow characteristic measured by said measuring means;

giving an indication of stopped flow when the reading of the statistical variation of said physical flow characteristic measured by said measuring means drops to said threshold level.

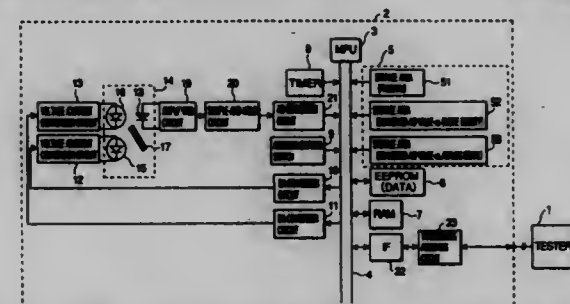
5,673,027
SMOKE DETECTOR, ADJUSTMENT APPARATUS AND TEST APPARATUS FOR SUCH A SMOKE DETECTOR
Toshikazu Morita, Tokyo, Japan, assignor to Nohmi Bosai Ltd., Tokyo, Japan

Filed Dec. 13, 1994, Ser. No. 357,181

Claims priority, application Japan, Dec. 16, 1993, 5-316596
Int. Cl. G08B 17/10

U.S. Cl. 340—630

28 Claims



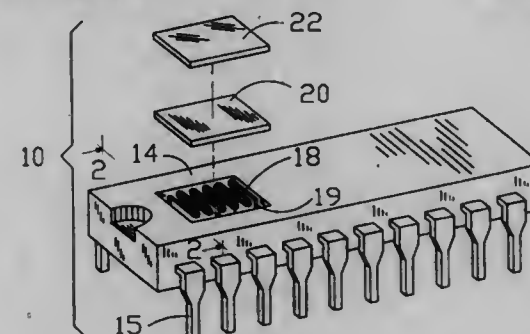
1. A smoke detector comprising light emitting means having at least a light emitting device used for a smoke detection and light receiving means for receiving a light output from said light emitting device, said smoke detector further comprising:
 - measurement means for measuring an output from said light receiving means;
 - signal generating means for generating a light emitting device drive signal for driving said light emitting device based on a value measured by said measurement means, said signal generating means including storage means for storing a value of the light emitting device drive signal;
 - adjustment means for adjusting a light emission quantity of said light emitting device based on an output from said signal generating means; and
 - standard light emission value setting means for determining at an initializing stage whether a value for the light emitting device drive signal has been stored in said storage means and setting a standard light emission value in said storage means for said light emitting device drive signal when a value has not been stored in said storage means.

5,673,028
ELECTRONIC COMPONENT FAILURE INDICATOR
Henry A. Levy, 402 Foster Ave., Brooklyn, N.Y. 11230

Filed Jan. 7, 1993, Ser. No. 1,321
Int. Cl. G08B 21/00

U.S. Cl. 340—635

47 Claims



1. An electronic component failure indicator for clearly visibly indicating on the surface of an electronic component to be tested a self sustaining indication of the functional operational status of the

component, and means for easily locating and identifying the exact used electronic component that has permanently failed, has become permanently damaged, and has become permanently defective while it is still in a circuit and also later after it is removed from a circuit without the need of test equipment, electrical power, and a trained technician, the invention comprised of: an electronic component to be tested selected from one of the following group consisting of: microprocessors, micro-controller ICs, operational amplifiers, RAMs, DRAMS, SDRAMs, PROMs, EEPROMs, timers, clocks, analog to digital converters, digital to analog converters, diodes, rectifiers, transistors, oscillators, SCRs, triacs, thyristors, FETs, MOSFETs, triggers, capacitors, transformers, display drivers, displays, photocouplers, LEDs, laser diodes, opto-isolators, optical integrated circuits, lasers, fluorescent lamps, incandescent light bulbs, other components containing light emitters which are used repeatedly, electron tubes, those components comprised of at least one semiconductor device, and those components comprised of at least one integrated circuit;

- a failure indicating means;
- a testing circuit means;
- a power means;
- said failure indicating means built into and embedded within said electronic component to be tested;
- said failure indicating means is embedded within material which comprises the structural body of the electronic component to be tested so as to be visible on a surface of the electronic component;
- said power means supplying electrical power to said testing means;
- said testing circuit means monitoring at least one functional operational parameter selected, not necessarily from each, of the input functions, processing functions, and output functions of the electronic component under test, other than temperature and other than the monitoring and detection of electrostatic discharge events, to detect at least one operational parameter of the component which has deviated from a normal stated condition, such a deviation which is indicative that electronic component has permanently failed in some way, has become permanently damaged in some way, has become permanently defective in some way, and that at least one functional operational parameter of the electronic component will not be normal again as a result of such failure;
- said failure indicating means electrically connected to said testing circuit means and to said power means;
- said testing circuit means activating said failure indicating means by switching on power to it when at least one functional operational parameter of the electronic component under test deviates from a normal stated condition that is indicative of a permanent failure, defect, and damage of the component;
- said builtin failure indicating means undergoing a permanent and irreversible visible change of appearance upon being activated by said power means;
- said builtin failure indicating means indicating permanent failure upon receiving power from the said power means which causes the visual appearance of the builtin failure indicating means to permanently and irreversibly change from a first state of visual appearance indicating that the electronic component is still good and functionally operational to a second permanent state of appearance indicating that the electronic component has permanently failed, is damaged, and is defective;
- said builtin failure indicating means being able to sustain its first state of visual appearance and permanently sustain its second state of visual appearance without requiring a source of power for such sustenance.

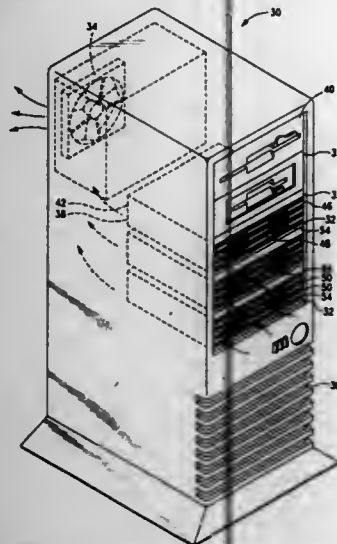
5,673,029 APPARATUS FOR COOLING A MEMORY STORAGE DEVICE

Sunny Behl, and Jack Friedman, both of San Jose, Calif., assignors to Orbtron Computer System, Inc., Campbell, Calif.

Filed Feb. 15, 1996, Ser. No. 602,011
Int. Cl.⁶ G08B 21/00

U.S. Cl. 340—635

20 Claims



1. A bezel connectable with the bay of a memory storage device housing, comprising:
a face having an area within the range of 2-10in² for covering the memory storage device bay;
a fan;
a means for attaching a fan to the face;
whereby, when a fan mounts on the face and the bezel mounts on the housing, the fan circulates air through the housing to cool the housing.

5,673,030 ZERO INRUSH ALARM CIRCUIT

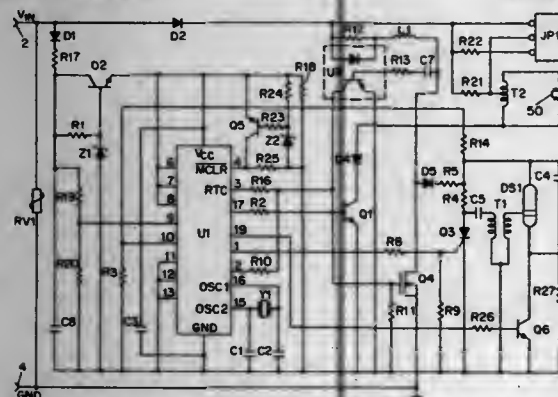
Joseph Kosich, South Toms River, N.J., assignor to Wheelock, Inc., Long Branch, N.J.

Filed Sep. 5, 1996, Ser. No. 708,687

U.S. Cl. 340—635

Int. Cl.⁶ G08B 21/00

15 Claims



1. An alarm unit comprising:
means for producing a visual alarm signal comprising a flashtube, first means for storing energy supplied from a power source and second means for storing energy to be supplied to said flashtube, the first and second energy-storing means being electrically connected in series;
first switch means connected in series to the first energy-storing means and having a first state in which energy is stored in the

first energy-storing means and a second state in which energy is transferred from the first energy-storing means to the second energy-storing means;
inrush-limiting resistance means connected in series with the second energy-storing means;
second switch means having a first state and a second state, the second switch means being operatively coupled to the inrush-limiting resistance means such that, in the first state thereof, current flows through the inrush-limiting resistance means and, in the second state thereof, current does not flow through the inrush-limiting resistance means;
first means for controlling the operation of the visual alarm signal producing means; and
second means for controlling the operation of the second switch means so that the second switch means is in the first state for a time period sufficient to minimize inrush to the second energy-storing means.

5,673,031 REDUNDANT RADIO FREQUENCY NETWORK HAVING A ROAMING TERMINAL COMMUNICATION PROTOCOL

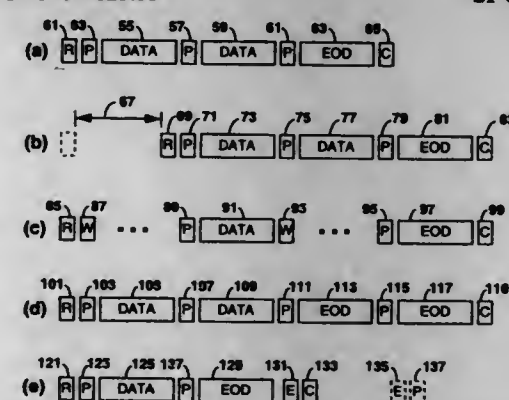
Robert C. Meier, Cedar Rapids, Iowa, assignor to Norand Corporation, Cedar Rapids, Iowa

Continuation-in-part of Ser. No. 910,865, Jul. 6, 1992, abandoned, and Ser. No. 802,348, Dec. 4, 1991, abandoned, which is a continuation-in-part of Ser. No. 790,946, Nov. 12, 1991, abandoned, said Ser. No. 910,865 is a continuation-in-part of Ser. No. 980,947, May 26, 1992, abandoned, Ser. No. 864,300, Apr. 6, 1992, abandoned, and Ser. No. 883,854, May 13, 1992, abandoned, which is a continuation-in-part of Ser. No. 857,603, Mar. 30, 1992, abandoned, which is a continuation-in-part of Ser. No. 700,704, May 14, 1991, abandoned, which is a continuation-in-part of Ser. No. 699,818, May 13, 1991, abandoned, said Ser. No. 980,947 is a continuation-in-part of Ser. No. 826,960, Jan. 24, 1992, abandoned, which is a continuation-in-part of Ser. No. 707,954, May 22, 1991, abandoned, Ser. No. 800,977, Dec. 2, 1991, abandoned, and Ser. No. 765,013, Sep. 24, 1991, which is a continuation-in-part of Ser. No. 727,256, Jul. 9, 1991, abandoned, which is a continuation-in-part of Ser. No. 485,313, Feb. 26, 1990, abandoned, which is a continuation-in-part of Ser. No. 228,355, Aug. 4, 1988, Pat. No. 4,910,794, Ser. No. 364,594, Jun. 7, 1989, abandoned, and Ser. No. 389,727, Aug. 4, 1989, Pat. No. 5,070,536. This application Jul. 5, 1994, Ser. No. 270,533

Int. Cl.⁶ G05B 23/02

U.S. Cl. 340—825.08

21 Claims



6. A method utilized by a sending device for beginning a data exchange over an RF communication channel with a polling device wherein the polling device maintains a predetermined time period of fixed duration between consecutive poll frames, comprising the steps of:
(a) converting data to be exchanged into a series of data segments;
(b) determining whether traffic on the RF communication channel is below a predetermined level;

(c) if the traffic is below the predetermined level, branching to step (e);
(d) identifying a period of time which is at least as long as the predetermined time period during which no communication can be detected on the RF communication channel; and
(e) transmitting a request for poll frame.

9. A method of conducting a data exchange from each of a plurality of sending devices to a destination device over a wireless communication channel, wherein each of the plurality of sending devices occasionally collect data to be exchanged with the destination device, and at least one of the plurality of sending devices cannot always detect data transmissions originated by the other of the plurality of sending devices, said method comprising the steps of:

(a) identifying, by one of the plurality of sending devices having data to be exchanged, a period of time that is at least as long as a predetermined time period during which no communication can be detected on the wireless communication channel;
(b) attempting, by the one of the plurality of sending devices, to initiate communication to a destination terminal; and
(c) if the attempt in step (b) proves successful, transmitting, by the destination device, a series of packets wherein each two consecutive packet transmissions are separated by no more than the predetermined time period; and
(d) transmitting, by the one of the plurality of sending devices, between each two consecutive packet transmissions the data to be exchanged in segments.

21. A method of managing data transmissions originating from a plurality of sending devices over a wireless communication channel, wherein each of the plurality of sending devices can detect transmissions from a control device, but at least one of the plurality of sending devices cannot always detect transmissions from the other of the plurality of sending devices, said method comprising the steps of:

(a) attempting, by one of the plurality of sending devices having data to be exchanged, to identify a period of time that is at least as long as a predetermined time period during which no communication can be detected on a wireless communication channel;
(b) requesting, by the one of the plurality of sending devices, assistance from a control device; and
(c) transmitting, by the control device, a bracket of frames which can be detected by each of the plurality of sending devices, and the bracket of frames providing the one of the plurality of sending devices an opportunity to transmit the data to be exchanged in a corresponding series of segments within the bracket of frames, wherein each of the transmission of one of the segments has a duration no longer than the predetermined time period.

5,673,032 SELECTIVE CALLING RECEIVER FOR COMPUTING DEVICES

Hiroshi Ono, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

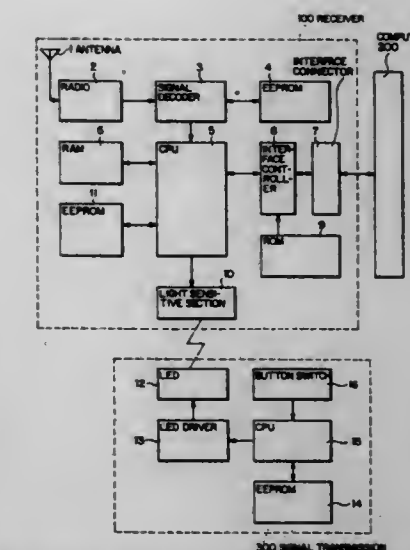
Filed Jan. 31, 1995, Ser. No. 381,237

Claims priority, application Japan, Jan. 31, 1994, 6-027484
Int. Cl.⁶ H04Q 7/18

U.S. Cl. 340—825.44

1 Claim

1. A selective calling receiver connectable to a computing device, comprising:
a first memory which stores received data when a call meant for said receiver is received;
a device which transfers, when said receiver is connected to the computing device, the received data to said computing device;
a controller which controls said transferring device to transfer the received data to the computing device when a particular code is input;
a receiving device which receives a code sent from an external signal transmitter independent of the computing device, said code being input to said controller;



a second memory which stores a specific access permission code particular to said receiver beforehand; and
a requesting device which requests, when the computing device connected to said receiver requests said receiver to read or write information, said external signal transmitter to send an access permission code to said receiver;
said receiving device receiving said specific access permission code from said external signal transmitter;
said controller comparing said access permission code received from said external signal transmitter with said specific access permission code and allowing, if said access permission code and said specific access permission codes are identical, said computing device to access said receiver.

5,673,033 IMAGE COMMUNICATION APPARATUS

Motoaki Yoshino, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 862,439, Apr. 2, 1992, abandoned.

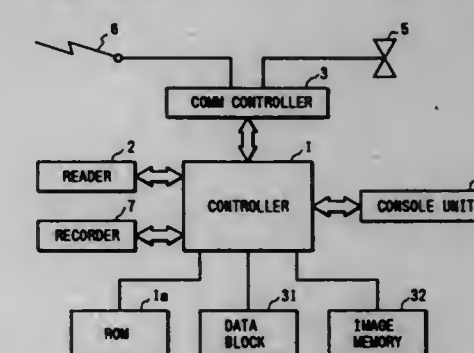
This application Dec. 23, 1994, Ser. No. 363,581

Claims priority, application Japan, Apr. 4, 1991, 3-71318

Int. Cl.⁶ H04Q 1/00

U.S. Cl. 340—825.52

24 Claims



1. An image communication apparatus for storing a plurality of transmission blocks of image data in advance, each transmission block having a respective destination station identified by identification data respectively stored in said apparatus for each transmission block, said apparatus sequentially transmitting the stored transmission blocks to the respective destination stations, said apparatus comprising:
discrimination means for discriminating whether or not a communication speed used at an end of transmission of a first transmission block over a line connected to the respective destination station is less than a set speed, and

control means for selectively performing disconnection of the line when the communication speed is less than the set speed or transmission of a second transmission block successively to the same destination station after the first transmission block without disconnecting the line when the communication speed is not less than the set speed, in accordance with a discrimination result of said discrimination means, the second transmission block being different from the first transmission block and having the same respective destination station.

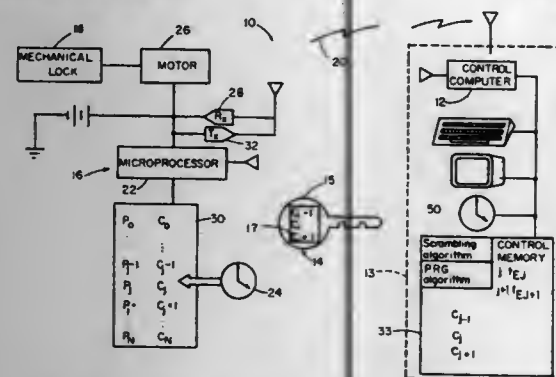
5,673,034

SECURITY SYSTEM COMPRISING THREE APPARUSES SHARING A TIME-VARYING CODE

Thomas V. Saliga, 4702 Baycrest Dr., Tampa, Fla. 36615
Continuation-in-part of Ser. No. 133,904, Oct. 12, 1993, Pat. No. 5,397,884. This application Mar. 7, 1995, Ser. No. 399,607
Int. Cl.⁶ H04L 7/14

U.S. Cl. 340—825.31

5 Claims



1. In an electronic security system comprising an access-granting apparatus, a linking apparatus and a central computer issuing a link code segment, the access-granting apparatus comprising an access clock having an output, and an access computer having an access memory, the linking apparatus comprising a link memory, the linking apparatus receiving the link code segment from the central computer and communicating the link code segment to the access-granting apparatus which thereupon grants access to a protected apparatus if the link code segment matches an access code segment stored in the access memory, the access-granting apparatus otherwise thereupon denying access thereto, an improvement wherein

the central computer comprises a master clock having an output communicated by a first synchronization means to the access clock whereby the access clock is synchronized to the master clock, and

the linking apparatus comprises a linking clock and a linking computer operatively associated with the linking memory, the output of the master clock communicated by a second synchronization means to the linking apparatus whereby the linking clock is synchronized to the master clock.

5,673,035

LOCATOR PAGING SYSTEM WITH SUB KITS

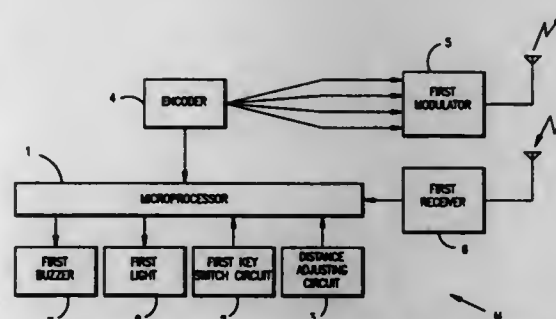
Dennis Huang, 5F, No. 10, Lane 9, Ningpo E. Street, Taipei, Taiwan

Filed Dec. 20, 1994, Ser. No. 359,896
Int. Cl.⁶ H04Q 7/18

U.S. Cl. 340—825.44

5 Claims

1. A locator-paging system comprising:
(A) a master kit, said master kit comprising:
a microprocessor for signal control and processing;
a first key switch circuit having a plurality of key switches respectively connected to said microprocessor, said first



key switch circuit forming a means for controlling a first paging signal output by said microprocessor;

a distance adjustment circuit connected to said microprocessor, said distance adjustment circuit forming a means for controlling a transmitting distance of a searching signal output by said microprocessor;

an encoder to encode said paging and searching signals from said microprocessor;

a first modulator to modulate encoded paging and searching signals into radio frequency signals and then to transmit the modulated radio frequency signals;

a first receiver for receiving second paging signals and answer signals and supplying the received second paging and answer signals to said microprocessor;

means in the form of a first buzzer controlled by said microprocessor to generate a sound signal when either of the following two events occurs: 1.) reception of a second paging signal and 2.) failure to receive an answer signal following transmission of a searching signal; and

a first light emitting device controlled by said microprocessor to generate a light signal when either of said two events occurs; and

(B) a plurality of sub kits, each sub kit comprising:

a receiving/transmitting control circuit for signal control and processing;

a second key switch circuit connected to said receiving/transmitting control circuit, said second key switch circuit forming a means for controlling generation of said second paging signal;

a second receiver to receive said first paging signals and said searching signals from said master kit;

a decoder to decode said first paging signals and said searching signals from said second receiver;

a receiving/transmitting control circuit including means for activating a buzzer and second light upon receipt of one of the first paging signals and for outputting answer signals upon receipt of respective first searching signals;

a second modulator controlled by said receiving/transmitting control circuit to transmit said second paging signals and said answer signals; and

wherein said master kit is operated to send searching signals to said sub kits respectively for tracking said sub kits indicated by the active state of the respective answering signals, the first buzzer and the first light emitting device of said master kit are triggered active respectively when one sub kit generates no answering signal; said master kit is selectively operated to generate a paging signal to a selected sub kit, causing said selected sub kit to generate a sound and a light indicating the calls from the master kit;

each of the sub kits is selectively operated to generate a paging signal to said master kit, causing said master kit to generate a paging signal to said master kit, causing said master kit to generate a sound and a light indicating which sub kit is calling.

5,673,036

SELECTIVE CALL RECEIVER MEMORY VALIDATION AND ACKNOWLEDGEMENT AND METHOD THEREFOR

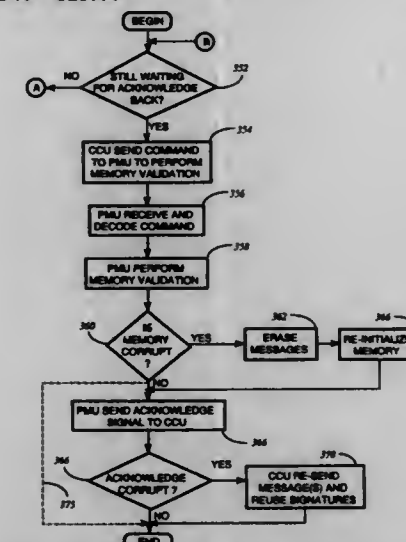
Paula Christine Gabrielle, Fort Lauderdale, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 27, 1995, Ser. No. 411,372

Int. Cl.⁶ H04Q 7/12

U.S. Cl. 340—825.44

18 Claims



1. In a selective call system, having at least one receiving unit comprising memory for storing received messages, a method for performing validation of said memory, comprising the steps of: receiving by said receiving unit a control transmission signal including a command directing said receiving unit to perform validation of said memory;

performing memory validation of said memory by said receiving unit in response to said command;

wherein said method further comprises, when said memory validation detects corrupted memory, the steps of erasing by said receiving unit said received messages stored in said memory; and

transmitting by said receiving unit a failed memory acknowledgement signal.

5,673,037

SYSTEM AND METHOD FOR RADIO FREQUENCY TAG GROUP SELECT

Christian Lenz Cesar, Shrub Oak; Shun Shing Chan, Flushing; Thomas Anthony Cofino, Rye, all of N.Y.; Kenneth Alan Goldman, Norwalk, Conn.; Sharon L. Greene, Mt. Kisco, N.Y.; Harley Kent Heinrich, Brewster, N.Y., and Kevin Patrick McAuliffe, Peekskill, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 9, 1994, Ser. No. 303,965

Int. Cl.⁶ G01S 13/75

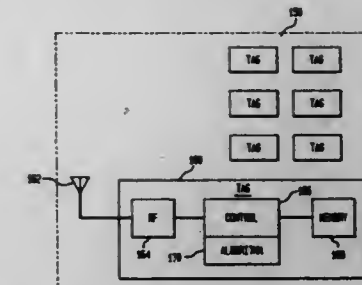
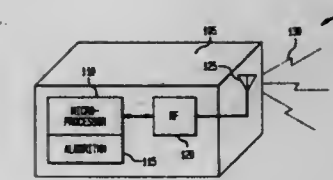
U.S. Cl. 340—825.54

23 Claims

1. A method of selecting subgroups of a group of radio frequency tags comprising the steps of:

a. sending a radio signal from a base station to a plurality of radio frequency tags, the radio signal carrying one or more commands, the commands each being one of a SELECT command and an UNSELECT command, the tags each having a radio frequency communications component for receiving the command and a tag memory with tag fields;

b. using one or more of the SELECT commands to initiate a comparison between a select condition on the respective SELECT commands to a select tag data value in the tag memory of each of the tags, and moving one or more of the tags to a SELECTED state if the tag data value meets the selection condition, the tags moved to the SELECTED state being in a selected subgroup; and



c. using one or more of the UNSELECT commands to initiate a comparison between an unselect condition on the respective UNSELECT commands to an unselect tag data value in the tag memory of each of the tags, and moving one or more of the tags to an UNSELECTED state if the unselect tag data value meets the unselection condition, the tags moved to the UNSELECTED state being in an unselected subgroup.

5,673,038

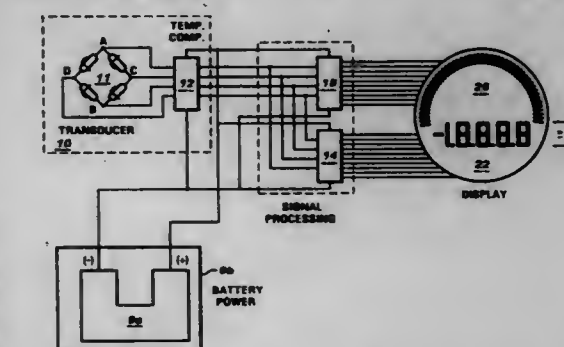
PROCESS VARIABLE MEASURING AND DISPLAY DEVICE AND PORTABLE POWER SUPPLY

Richard Colgate McLatchy, and Jon Douglas de Silva, both of Houston, Tex., assignors to Houston Digital Instruments, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 765,432, Sep. 25, 1991, abandoned. This application Jul. 9, 1993, Ser. No. 89,669
Int. Cl.⁶ G08C 19/16

U.S. Cl. 340—870.21

20 Claims



1. A battery powered process variable display device capable of reading a process variable input signal from a process variable measuring device, comprising:

a. a first ADC with digit drive capabilities configured to receive a process variable input signal from a process variable measuring device;

b. a second ADC with bar graph driving capabilities configured to receive a process variable input signal from a process variable measuring device;

c. a multi-digit LCD electronically coupled to receive an input signal from said first ADC;

d. a multi-segment bar graph electronically coupled to receive an input signal from said second ADC; and

e. a portable power supply operatively coupled to supply power to said first ADC, said second ADC, said multidigit LCD, and said multi-segment bar graph, said portable power supply comprising at least two battery assemblies arranged in parallel and further comprising a current limiting device connected in series with each of said battery assemblies, said current lim-

iting devices capable of reducing the probability of explosion if said battery assemblies are short circuited.

5,673,039

METHOD OF MONITORING VEHICULAR TRAFFIC AND OF PROVIDING INFORMATION TO DRIVERS AND SYSTEM FOR CARRYING OUT THE METHOD

Heinz Werner Pietzsch, Karlsruhe; Rigobert Oplitz, Waldbrunn; Rolf Edelmann, Durmersheim, and Jürgen Jaki, Linkenheim-Hochstetten, all of Germany, assignors to Pietzsch AG, Ettlingen, Germany

Continuation-in-part of Ser. No. 45,590, Apr. 9, 1993, abandoned. This application Sep. 6, 1995, Ser. No. 524,048

Claims priority, application Germany, Apr. 13, 1992, 42 12 341.0; Dec. 24, 1992, 42 44 169.2; Dec. 29, 1992, 42 44 393.8

Int. Cl.⁶ G08G 1/09

U.S. Cl. 340—905

33 Claims



1. A traffic-monitoring and information-providing system for monitoring and analyzing vehicular traffic and providing information and warnings to drivers on traffic disruptions, driver errors, dangerous road conditions, and severe weather conditions, comprising: sensing means enclosing detection points with induction loops; drive over scales and dynamic wheel-load-sensors; a specific number of road-event-processors connected to said dynamic wheel-load sensors; an intelligent bus system interconnected to said road-event processors; a varying processor network of distributed intelligence interconnected to said road-event processors through said intelligent bus system; signal processors connected to said varying processor network; a signal network for generating traffic signals; a lighting bus for connecting said signal processors to said signal network; a plurality of interconnected luminescent elements receiving traffic signals from said signal network; said luminescent elements having signal lamps as optical signal generators.

5,673,040

ERGONOMIC KEYBOARD APPARATUS

William R. Hargreaves, Bellevue; Shirley A. Lunde, and William P. Farrand, both of Seattle, all of Wash., assignors to Kinesis Corporation, Bothell, Wash.

Continuation of Ser. No. 683,980, Apr. 10, 1991, abandoned.

This application Jun. 2, 1993, Ser. No. 128,325

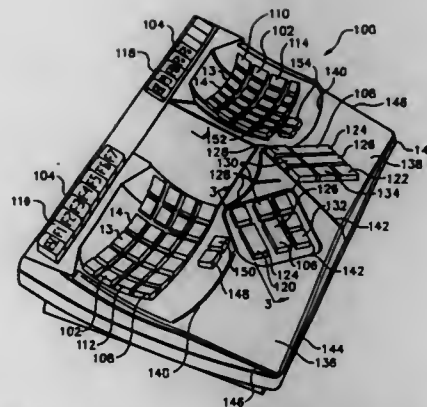
Int. Cl.⁶ H03K 17/94

U.S. Cl. 341—22

38 Claims

1. A keyboard for interfacing the fingers of an operator's hand with a data processing device comprising:

first and second laterally spaced alphanumeric key arrays having a plurality of alphanumeric key means for identifying alphanumeric characters to the data processing device by a non-pivoting, linear movement in a direction of actuation, said key means including a home row having home keys wherein the home keys have keycaps oriented to be manipulated by the fingers of the operator, said home key keycaps defining a reference surface substantially perpendicular to the



direction of actuation of said home keys, said alphanumeric key array having a first end and a second opposed end positioned on opposite sides of said reference surface wherein said first end is closer to the operator when the keyboard is being used than the second end a hand of the operator defining a reference position when the fingers of said hand of the operator are adjacent the reference surface; and

first and second laterally spaced apart function key arrays each having a plurality of function key means for identifying functions to be performed by the data processing device, said first and second laterally spaced apart function key arrays being substantially aligned, respectively, with said first and second spaced apart alphanumeric key arrays, said plurality of function key means being farther from said operator than said second end of the alphanumeric key array, said function keys having function key keycaps for manipulation by the fingers of the operator, vertically displaced above said reference surface, said plurality of function key means accessible to the fingers of the operator without moving the hand of the operator a substantial distance from the reference position.

10. Data input apparatus for interfacing the fingers of the hand of an operator with a data processing device comprising:

first and second key arrays having a plurality of key means constructed for manipulation by the fingers of the operator for providing input to the data processing device, said plurality of key means including home keys having surfaces that define a reference surface, said home keys further defining a reference position for a hand of the operator wherein the index finger of the operator defines a reference line when said hand of the operator is positioned in the reference position;

first and second auxiliary key arrays including a plurality of auxiliary key means constructed for manipulation by the thumb of said hand of the operator for providing input to the data processing device by depressing said auxiliary key means and with no substantial lateral movement of said auxiliary key means, said auxiliary key means being vertically displaced from the reference surface defined by said home keys and positioned so that the fingers of the operator extend downward from the thumb when said hand of the operator is in the reference position, each of said first and second auxiliary key arrays including first and second elongated keys positioned at an angle with respect to the reference line so that the thumb of the operator may be positioned along the surface of said elongated keys; and

palm rest means for receiving the palm of the operator.

31. Data input apparatus for interfacing the fingers of the hand of an operator with a data processing device comprising:

a first key array having a plurality of key means constructed for manipulation of the fingers of the operator for providing input to the data processing device, said plurality of key means including home keys having surfaces that define a reference position for a hand of the operator, wherein the index finger of the operator defines a reference line when said hand of the operator is positioned in the reference position; and

an auxiliary key array including a plurality of auxiliary key means constructed for manipulation by the thumb of said hand of the operator for providing input to the data processing device by depressing said auxiliary key means with no sub-

stantial lateral movement of said auxiliary key means, said auxiliary key means including at least first and second auxiliary keys which are elongated along first and second axes.

35. A data input device for interfacing the hands of an operator with a data processing device comprising:

palm rest means for receiving the palms of the hands of the operator during operation of the data input device; and

a key array including key means for providing input to the data processing device, said key means including first and second keys positioned to be aligned along the thumb of the operator, said first and second keys being constructed to move between first remote and second proximate positions remote from and proximate to the data input device, respectively, said first key being positioned so that its surface is vertically displaced from the surface of said second key when said first key is in said second proximate position and said second key is in said first remote position.

5,673,041

REFLECTIVE MODE ULTRASONIC TOUCH SENSITIVE SWITCH

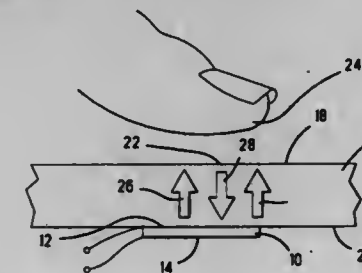
Joseph Victor Chatigny, 1650 Stephens Dr., Wayne, Pa. 19087; Kyung Tae Park, 710 Newtown Rd., Berwyn, Pa. 19312, and Minoru Toda, 135 Gadney Rd., Lawrenceville, N.J. 08648

Continuation of Ser. No. 220,066, Mar. 30, 1994, abandoned, and Ser. No. 220,070, Mar. 30, 1994, abandoned. This application Aug. 24, 1995, Ser. No. 518,692

Int. Cl.⁶ H03K 17/94

U.S. Cl. 341—22

9 Claims



1. A reflective mode ultrasonic touch sensitive switch comprising:

a substrate having first and second opposed parallel surfaces, said first surface having a touch region thereon;

a piezoelectric element having first and second generally planar and parallel opposed surfaces and an electrode on each of said piezoelectric element surfaces, said piezoelectric element being secured in parallel relation to said substrate second surface across said substrate from said touch region;

drive means coupled to said electrodes for applying a frequency modulated drive signal to said electrodes, the center frequency of said frequency modulated drive signal being a frequency where the impedance-frequency curve of the assembly of said piezoelectric element together with said substrate exhibits a positive slope;

detection means coupled to said electrodes for providing a demodulated amplitude modulated signal derived from said drive signal; and

discriminating means coupled to receive said demodulated amplitude modulated signal from said detection means for evaluating said demodulated amplitude modulated signal and providing an output signal indicative of a finger touch to said touch region.

5,673,042

METHOD OF AND AN APPARATUS FOR COMPRESSING/DECOMPRESSING DATA

Shigeru Yoshida; Yoshiyuki Okada; Yasuhiko Nakano, and Hironori Yahagi, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

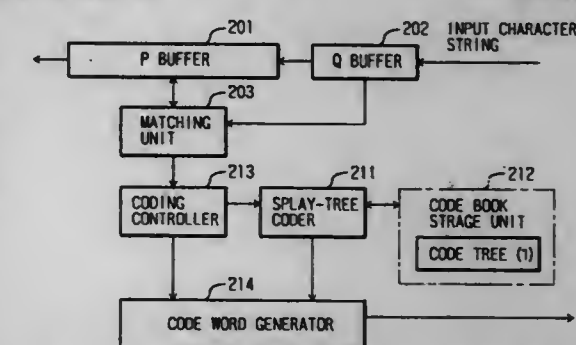
Filed Mar. 16, 1995, Ser. No. 405,209

Claims priority, application Japan, Mar. 16, 1994, 6-045874

Int. Cl.⁶ H03H 7/00

U.S. Cl. 341—51

33 Claims



7. An apparatus for compressing data by a sliding-dictionary technique, having matching means for finding a longest matching character string in a coding character string and in a coded character string stored in a dictionary and coding means for selectively activating, according to the length of the longest matching character string, a raw data mode to provide the matching character string that must consist of a single character as it is as a code, or a reproduction mode to code the position and length of the matching character string in the dictionary, comprising:

a first code book containing a tree of codes corresponding to consecutive numbers allocated to characters to be prepared by the coding means under the raw data mode and coincident lengths to be found by the coding means under the reproduction mode; and

first play-tree coding means for retrieving, from the first code book, a code corresponding to a character prepared under the raw data mode or a coincident length found under the reproduction mode, and rearranging the tree to halve the length of the retrieved code.

5,673,043

ENTROPY ENCODING WITH A REDUCED MEMORY SIZE OF CODE TABLE

Nobutake Hayashi, Hadano; Yutaka Sato, Minoo, and Tadanori Ryu, Ikeda, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

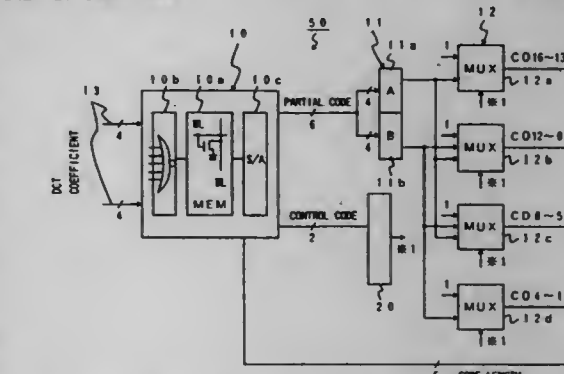
Filed Dec. 27, 1995, Ser. No. 579,296

Claims priority, application Japan, Dec. 28, 1994, 6-326848

Int. Cl.⁶ H03M 7/00

U.S. Cl. 341—106

11 Claims



1. An entropy data encoding method, comprising the steps of: compressing a code table containing original code words in terms of bits having first and second logic values, to produce

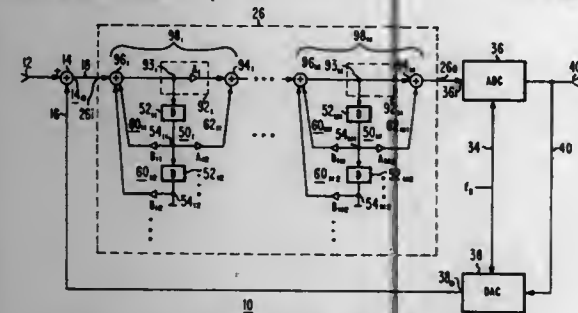
a compressed code table, said step of compressing the code table comprising the substeps of:
 detecting the number of continuing bits having said first logic value and continuing from the most significant bit for each of said original code words;
 classifying said original code words into at least three types, according to the number of said continuing bits of said first logic value, including a type in which there is no such continuing bits of the first logic value from the most significant bit; and
 compressing said original code words to create a compressed code table, by representing each of said original code words by a combination of:
 a control code indicative of said type of said original code word;
 code length data indicative of the length of said original code word; and
 a partial code indicative of the content of said original code word from which said continuing bits of the first logic value are removed; and
 restoring said original code word from said compressed code word by adding a predetermined number of continuing bits of said first logic value to said partial code word as higher order bits thereof, according to the type of said original code word as indicated by said control code.

5,673,044 CASCADED RECURSIVE TRANSVERSAL FILTER FOR SIGMA-DELTA MODULATORS

Leopold Ernest Pellon, Mt. Holly, N.J., assignor to Lockheed Martin Corporation, Moorestown, N.J.
 Continuation-in-part of Ser. No. 519,593, Aug. 24, 1995, Pat. No. 5,608,400. This application Jan. 29, 1996, Ser. No. 593,209
 Int. Cl.⁶ H03M 3/00

U.S. Cl. 341-143

5 Claims



1. A sigma-delta analog-to-digital converter comprising:
 an input summer stage including an input port coupled to receive analog signals to be converted into the desired digital output signals, and also including an output port, for summing said analog signals to be converted with an analog representation of the digital output signal of said sigma-delta analog-to-digital converter, for thereby producing difference signals;
 an analog-to-digital converter having an input port for receiving filtered difference signals, and also including an output port, for converting said filtered difference signals into said desired digital output signal at said output port of said analog-to-digital converter;
 a digital-to-analog converter stage coupled to said output port of said analog-to-digital converter and to said input summer stage, for converting said desired digital output signal into said analog representation of said desired digital output signals;
 a multistage loop filter coupled to said output port of said input summer stage for receiving said difference signals therefrom, said loop filter including a plurality of cascaded stages, all but one of said cascaded stages including first and second cascaded half-stages, and said one of said stages including at least one half-stage, the last one of said cascaded half-stages being coupled to said input port of said analog-to-digital

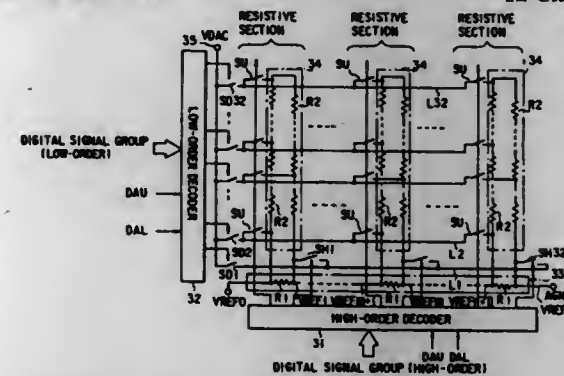
converter stage for coupling said filtered difference signals thereto, each of said first half-stages including an input summing circuit including an output port, and also including an input port coupled for receiving signal to be filtered from a preceding stage, for summing said signal to be filtered with at least one weighted, delayed signal fed back from said output port of said input summing circuit, for generating a shaped signal at said output port of said input summing circuit, each of said second half-stages including an output summing circuit including at least two input ports coupled to receive mutually delayed shaped signals from a preceding stage, for summing said mutually delayed shaped signals.

5,673,045 DIGITAL-TO-ANALOG CONVERSION CIRCUIT AND ANALOG-TO-DIGITAL CONVERSION DEVICE USING THE CIRCUIT

Kolchi Sato, and Kazuhiro Tsuji, both of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
 Filed Apr. 27, 1995, Ser. No. 429,794
 Claims priority, application Japan, Apr. 28, 1994, 6-091147
 Int. Cl.⁶ H03M 1/76

U.S. Cl. 341-144

12 Claims



1. A digital-to-analog conversion circuit comprising:
 a first reference voltage generation circuit for generating a plurality of first reference voltages;
 a plurality of second reference voltage generation circuits for generating a plurality of second reference voltages created by dividing a difference in potential between adjacent two of the first reference voltages;
 a first selective control circuit for, upon receiving a first digital input signal group, selecting one of the first reference voltages and applying the selected one to a specified one of a plurality of signal lines during a first period, and selecting all of second reference voltages generated in one of said plurality of second reference voltage generation circuits and applying all the selected second reference voltages to signal lines other than the specified signal line, respectively, during a second period succeeding the first period; and
 a second selective control circuit for, upon receiving a second digital input signal group, applying a voltage of the specified signal line to an analog output terminal during the first period, and applying voltages of the signal lines other than the specified signal line to the analog output terminal during the second period;
 wherein said first selective control circuit comprises:
 a first decoder for, upon receiving the first digital input signal group and first and second control input signal, generating a first decoded output signal group when the first control input signal is activated and generating a second decoded output signal group when the second control input signal is activated;
 a plurality of first switching elements each provided between the specified signal line and each of nodes from which the plurality of first reference voltages are generated, and selectively turned on in response to the first decoded output signal group of said first decoder; and

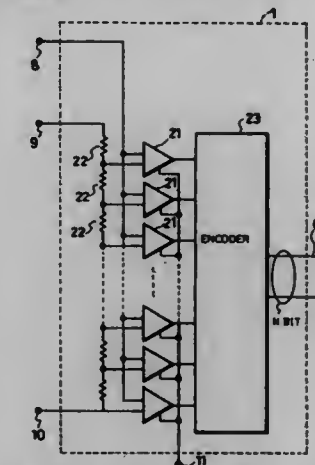
a plurality of second switching elements each provided between each of the signal lines other than the specified signal line and each of nodes from which the plurality of second reference voltages are generated, and selectively turned on in response to the second decoded output signal group of said first decoder, and
 wherein said second selective control circuit comprises:
 a second decoder for, upon receiving the second input digital signal group and the first and second control input signal, generating a first output control signal when the first input control signal is activated and generating a third decoded output signal group corresponding to the second input digital signal group when the second input control signal is activated;
 a third switching element connected between the specified signal line and the analog output terminal and turned on in response to the first output control signal generated from the second decoder; and
 a plurality of fourth switching elements connected between each of the signal lines other than the specified signal line and the analog output terminal and selectively turned on in response to the third decoded output signal group generated by the second decoder.

5,673,046 ANALOG-TO-DIGITAL CONVERSION CIRCUIT FOR USE IN INFORMATION REPRODUCTION APPARATUSES

Hiroshige Hirajima, Tenri; Hiroshi Fuji, Kyoto, and Tsuneo Fujiwara, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
 Filed Aug. 23, 1994, Ser. No. 294,357
 Claims priority, application Japan, Aug. 25, 1993, 5-210736
 Int. Cl.⁶ G11B 2000/509

U.S. Cl. 341-159

26 Claims



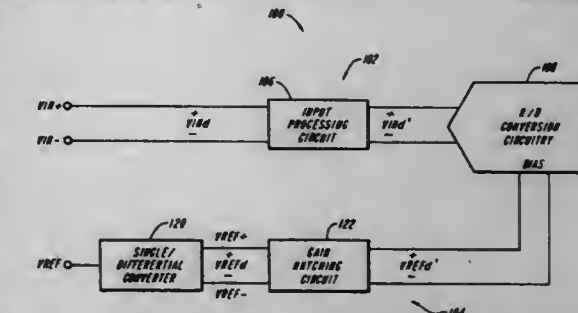
1. An analog-to-digital conversion circuit for use in an information reproduction apparatus, comprising:
 envelope generation means for extracting an upper-side envelope signal and a lower-side envelope signal from a reproduced signal reproduced from a recording medium; and
 an analog-to-digital converter for converting the reproduced signal into digital data by using a reference voltage that is obtained from a difference between an upper-side reference voltage and a lower-side reference voltage,
 the upper-side reference voltage being set to the level of the upper-side envelope signal and the lower-side reference voltage being set to the level of the lower-side envelope signal, wherein the analog-to-digital converter includes,
 a plurality of resistors for dividing the reference voltage into a plurality of secondary reference voltages,
 a plurality of comparators, each for comparing the reproduced signal with one of the secondary reference voltages and for generating an output, and
 an encoder for converting the outputs from the plurality of comparators into digital data.

5,673,047 GAIN-COMPENSATING DIFFERENTIAL REFERENCE CIRCUIT

Carl W. Moreland, Greensboro, N.C., assignor to Analog Devices, Inc., Norwood, Mass.
 Filed Jun. 6, 1995, Ser. No. 465,885
 Int. Cl.⁶ H03M 1/18

U.S. Cl. 341-139

24 Claims



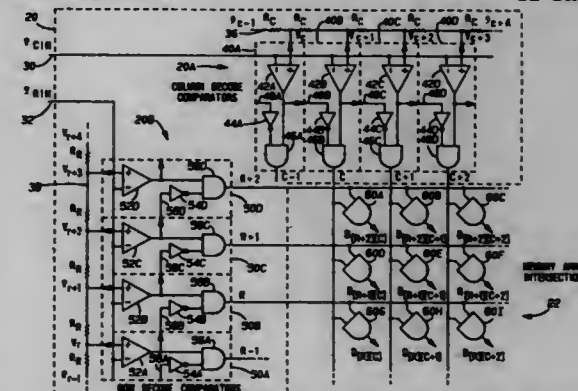
1. A compensating circuit for compensating for gain changes in a processing circuit, with the gain compensating circuit generating an output with a full-scale range substantially the same as an output of the processing circuit, comprising:
 voltage reference source for generating an output that is a voltage reference at a predetermined level; and
 a first input circuit that receives as an input the output of the voltage reference source, with the first input circuit having gain setting means to match the gain of an input circuit of the processing circuit, the first input circuit generating an output with substantially a same gain as an output of the input circuit of the processing circuit.

5,673,048 ANALOG VOLTAGE ADDRESS DECODER CIRCUIT

Mark Billings Kearney, Kokomo, and Dennis Michael Koglin, Carmel, both of Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.
 Filed Apr. 14, 1995, Ser. No. 423,008
 Int. Cl.⁶ H03M 1/36

U.S. Cl. 341-159

12 Claims

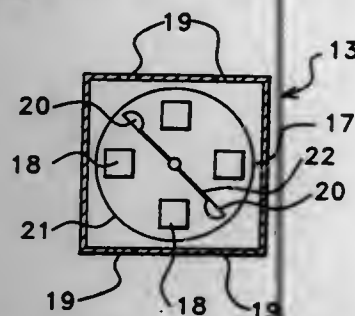


1. An analog voltage address decoder circuit for addressing locations in an array, said address decoder circuit comprising:
 an input for receiving an analog input voltage, said analog input voltage having a voltage potential that is determinative of a location to be addressed;
 a plurality of reference voltages of different predetermined voltage amplitudes;
 a comparator network including an array of successively interconnected comparator circuits configured to receive the reference voltages and provide a series of successive voltage windows, the comparator network comparing the analog input voltage with the voltage windows and producing a binary output when the analog input voltage is detected within a corresponding voltage window, wherein each of said comparator circuits comprises a comparator, a logic AND gate and

an inverter, said comparator comparing the analog input voltage with an upper reference voltage and supplying an output to one input of the logic AND gate, said logic AND gate further receiving an inverted output from a comparator output in the next lowest comparator circuit; and an array of output lines coupling the comparator circuits to an array of addressable locations for providing the binary output to the corresponding addressed location.

5,673,049
POLICE RADAR JAMMER
William J. Kitchen, 10385 Sailor Ct., Longmont, Colo. 80501
Filed Jan. 26, 1996, Ser. No. 591,918
Int. Cl.⁶ G01S 7/38; H01Q 15/18
U.S. Cl. 342—6

20 Claims

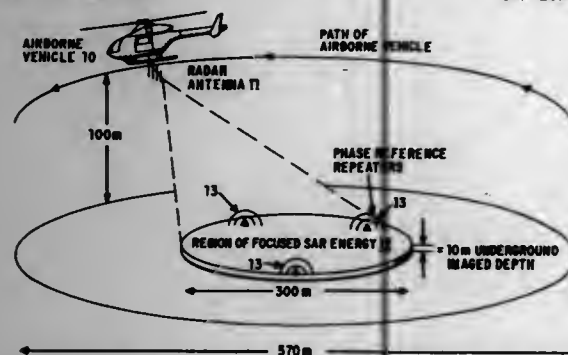


1. A method to thwart an interrogating doppler radar from detecting the speed of a vehicle comprising the steps of: mounting a plurality of passive radar reflector antennas on a base, said plurality of passive radar reflector antennas being disposed around a center point of said base; rotatably mounting said base to the vehicle; and rotating said base about said center point in a field of view of the interrogating doppler radar.

5,673,050
THREE-DIMENSIONAL UNDERGROUND IMAGING RADAR SYSTEM
George Moussally, 33185 Lark Way, Fremont, Calif. 94555-1117; Robert Ziernicki, 615 Milverton Rd., Los Altos, Calif. 94022; Philip A. Fialer, 742 Torreya Ct., Palo Alto, Calif. 94303, and Fred Judson Heinzman, 820 Vista Grande Ave., Los Altos, Calif. 94024
Filed Jun. 14, 1996, Ser. No. 664,176
Int. Cl.⁶ G01S 13/00

U.S. Cl. 342—22

20 Claims



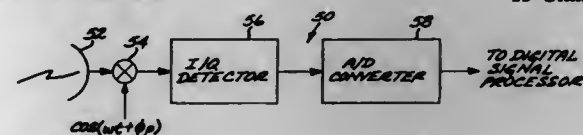
1. A system for investigating a subsurface area of interest, comprising:
a radar platform circumscribing the subsurface area of interest;
a radar antenna including a transmitter and a receiver provided on said radar platform for transmitting an interrupted frequency modulated continuous wave (FMCW) directed to the subsurface area of interest and receiving a reflected wave from the subsurface area of interest, said FMCW being trans-

mitted as said vehicle circumscribes the subsurface area of interest, and said reflected wave being received by said radar antenna when said vehicle circumscribes the subsurface area of interest;
processing device in communication with said radar antenna for processing said reflected wave;
memory device in communication with said processing device including a library of known characteristics of underground objects and ground characteristics, said processing device providing an output based upon a comparison of said reflected wave and said library of known characteristics of underground objects and ground characteristics; and
a first display device for displaying said output produced by said processing device.

5,673,051
DISCRETE PHASE MODULATOR
Howard S. Nussbaum, Los Angeles; William P. Posey, Palos Verdes Estates; Steve I. Hsu, Rancho Palos Verdes, and Stephen D. Taylor, Agoura, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.
Filed Dec. 21, 1995, Ser. No. 576,325
Int. Cl.⁶ G01S 13/00

U.S. Cl. 342—202

15 Claims

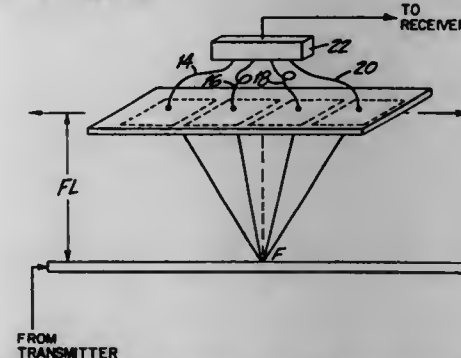


1. A radar system, comprising:
a radar transmitter system for transmitting a sequence of pulses to form a transmit pulse train, said pulse train including pulse repetition intervals between pulses;
a receiver system for receiving return signals from said transmitted pulse train and producing receive antenna signals; and
means for modulating said received antenna signals with a constant frequency modulating signal with step changes of phase from pulse to pulse.

5,673,052
NEAR-FIELD FOCUSED ANTENNA
John M. Cosenza, St. James, and Michael Kane, Ridge, both of N.Y., assignors to Dorne & Margolin, Inc., Bohemia, N.Y.
Filed Dec. 13, 1995, Ser. No. 571,811
Int. Cl.⁶ H01Q 1/38

U.S. Cl. 343—700 MS

20 Claims



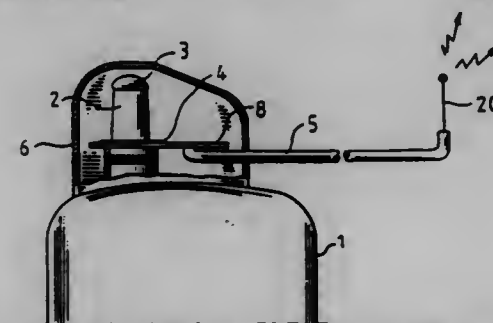
1. A fixed beam array antenna focused at a focal point located in its near field region comprising:
(a) a plurality of conductive patch elements arranged in a linear fashion for transducing electromagnetic energy with corresponding electric signals, said patch elements being juxtaposed such that at least one of said patch elements is located closer to the focal point than at least one other of said patch elements;

(b) signal adding means comprising a four way power divider for coherently adding together the signals obtained from each of the patch elements; and
(c) phase shifting means coupled between the plurality of patch elements and the signal adding means for shifting, prior to being added, the phase of the signal obtained from each patch element located relatively closer to the focal point relative to the phase of the signal obtained from each patch element located relatively further away from the focal point such that the signals are coherently added together substantially in phase by said signal adding means.

5,673,053
ANTENNA COUPLING DEVICE FOR COUPLING AN ANTENNA OF A HAND-PORTABLE TELEPHONE TO A REMOTELY LOCATED ANTENNA
Magnus Marthinsson, Åkersberga, Sweden, assignor to Allgon AB, Åkersberga, Sweden
PCT No. PCT/SE94/00771, § 371 Date Mar. 5, 1996, § 102(e) Date Mar. 5, 1996, PCT Pub. No. WO95/07556, PCT Pub. Date Mar. 16, 1995
PCT Filed Aug. 24, 1994, Ser. No. 600,995
Claims priority, application Sweden, Sep. 6, 1993, 9302870
Int. Cl.⁶ H01Q 1/24; 1/32

U.S. Cl. 343—728

14 Claims



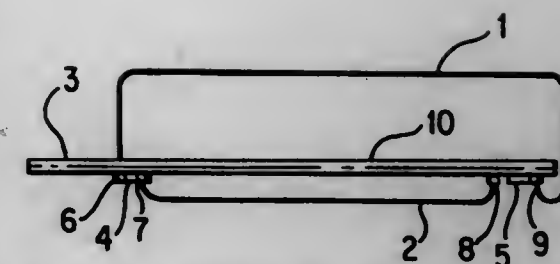
1. An antenna coupling device for providing RF energy coupling, substantially inductively, between a first antenna included in a hand-portable telephone, and a second antenna remotely located with respect to the telephone, said antenna coupling device comprising a transmission line having first and second ends, the first end being connected to a loop antenna with two poles, said loop antenna being arranged to surround the first antenna, the second end of said transmission line being connected to the second antenna.

5,673,054
ANTENNA AND MINIATURE PORTABLE WIRELESS TRANSCEIVER
Norio Hama, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan
Continuation of Ser. No. 972,452, Jan. 8, 1993, abandoned.
This application Aug. 31, 1994, Ser. No. 299,335
Claims priority, application Japan, May 9, 1991, 3-104245; Oct. 1, 1991, 3-253773
Int. Cl.⁶ H01Q 11/12

U.S. Cl. 343—744

36 Claims

1. A loop antenna device for use in a portable apparatus having said loop antenna device, at least one of a transmission circuit and a receiving circuit, a data decoder, a CPU, a data display means and an informing circuit, said portable apparatus having a horizontal position and a vertical position, said loop antenna device comprising:
a first loop portion having a first terminal connected to a first variable capacitance means and a second terminal connected to a first terminal of a second variable capacitance means; and
a second loop portion forming a loop antenna with the first loop portion, said loop antenna detecting a magnetic field compo-

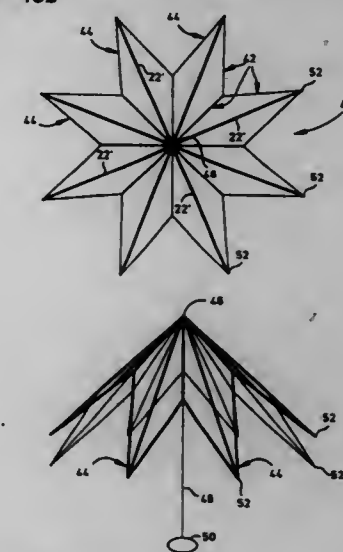


nent of an electromagnetic wave, said second loop portion having a first terminal connected to a second terminal of said second variable capacitance means and a second terminal connected to a high-frequency grounded surface, said high-frequency grounded surface having a rectangular form, a plane of the loop antenna being substantially parallel to a shorter side of said high-frequency grounded surface and substantially perpendicular to a longer side of said high-frequency grounded surface, said grounded surface detecting the electric field component of the electromagnetic wave, said first loop portion and said second loop portion being spaced away from said grounded surface between the first and second terminals of said first and second loop portions, wherein when said portable apparatus is in the horizontal position, a ratio of a capacitance of the second variable capacitance means to a capacitance of said first variable capacitance means is substantially equal to a ratio of a length of said first loop portion to a length of said second loop portion of said loop antenna.

5,673,055
ROSETTE-SHAPED MONOPOLE ANTENNA TOP-LOAD FOR INCREASED ANTENNA VOLTAGE AND POWER CAPABILITY
Peder M. Hansen, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Apr. 21, 1994, Ser. No. 232,784
Int. Cl.⁶ H01Q 9/00

U.S. Cl. 343—752

13 Claims



1. An apparatus comprising:
an antenna having a top end and a base; and
an antenna top-load configuration operably coupled to said antenna including a plurality of top-load elements arranged to form rhombic-shaped frames that originate at said top end of said antenna and that extend away from said antenna towards said base of said antenna to end at a top-load end point where two or more of said top load elements converge.

5,673,056
IDENTICAL SURFACE SHAPED REFLECTORS IN SEMI-TANDEM ARRANGEMENT

Parthasarathy Ramanujam, Redondo Beach; Eng-Chong Ha, Torrance, and Thomas A. Bockrath, Hawthorne, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

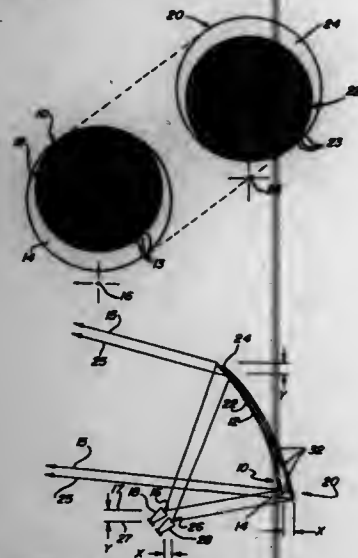
Continuation of Ser. No. 948,191, Sep. 21, 1992, abandoned.

This application Jul. 14, 1995, Ser. No. 502,436

Int. Cl.⁶ H01Q 19/00

U.S. Cl. 343—756

20 Claims



1. A shaped reflector arrangement comprising:
 - a first body member having a first surface shape;
 - a first shaped reflective array covering only a portion of the first body member and attached thereto for reflecting signals having a first polarization within a first shaped beam coverage, the first shaped reflective array having a first focal point;
 - a second body member having a second surface shape different from the first surface shape; and
 - a second shaped reflective array covering only a portion of the second body member and attached thereto for reflecting signals having a second polarization within a second shaped beam coverage, the second shaped reflective array being substantially identical in shape to the first shaped reflective array and having a second focal point,
 wherein said first body member is positioned directly in front of said second body member and spaced therefrom and said first and second shaped reflective array are arranged in tandem and offset from one another so that said first and second focal points are separate one from the other while said first and second shaped beam coverages are substantially identical.

5,673,057
THREE AXIS BEAM WAVEGUIDE ANTENNA
 Brent T. Toland, Manhattan Beach; William M. Hughes, Torrance, and Dan R. Johnson, Los Angeles, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

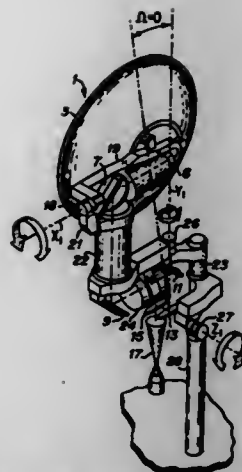
Filed Nov. 8, 1995, Ser. No. 556,321

Int. Cl.⁶ H01Q 19/19

U.S. Cl. 343—761

18 Claims

1. An antenna system comprising:
 - a dual reflector antenna angularly positionable over a range of contiguous spherical angles, said antenna including a main reflector and a subreflector;
 - a base;
 - a feed horn mounted to said base;
 - beam waveguide means for coupling microwave energy between said feed horn and said dual reflector antenna;
 - said beam waveguide means, comprising:
 - a first beam transmission line, said first beam transmission line, comprising:



- first microwave rotary joint means connecting a first end of said first beam transmission line to said main reflector for joint rotational movement of said first beam transmission line and said main reflector about a first axis and for coupling microwave energy between therebetween;
- second microwave rotary joint means connected between a second end of said first beam transmission line and said first rotary joint means for joint rotational movement about a second axis, oriented perpendicular to said first axis;
- a second beam transmission line, said second beam transmission line being supported by said base and further comprising:
 - third microwave rotary joint means connected between said second end of said first beam transmission line and a second end of said second beam transmission line for supporting said antenna, said first beam transmission line, and said first and second microwave rotary joints for joint rotary movement about a third axis, oriented perpendicular to said second axis and for propagating microwave energy between said first and second beam transmission lines; and
 - said feed horn and said first end of said second beam transmission line being electromagnetically coupled for transmitting microwave energy therebetween.

5,673,058
ONE-CHIP SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE CAPABLE OF OUTPUTTING ANALOG COLOR SIGNAL OR DIGITAL COLOR SIGNAL

Akira Uragami, and Shinichi Kojima, both of Takasaki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

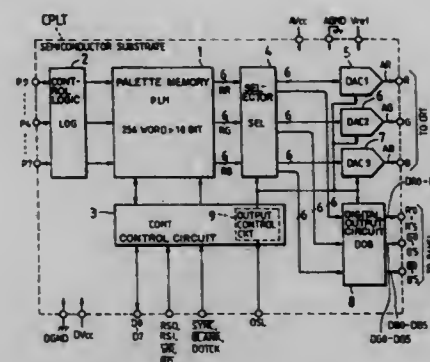
Continuation of Ser. No. 300,065, Sep. 2, 1994, Pat. No. 5,515,068, which is a continuation of Ser. No. 87,028, Jul. 6, 1993, abandoned, which is a continuation of Ser. No. 818,729, Jan. 6, 1992, abandoned, which is a continuation of Ser. No. 423,794, Oct. 18, 1989, abandoned. This application Mar. 22, 1996, Ser. No. 621,753

Claims priority, application Japan, Oct. 31, 1988, 63-276680
 Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—3

9 Claims

1. A color palette semiconductor integrated circuit device on a semiconductor substrate used to provide red, green and blue analog color signals to an analog color display, and for use with a frame memory, the device comprising:
 - first to third digital to analog converters each having inputs and an output;
 - a first external analog terminal coupled to the output of the first digital to analog converter;
 - a second external analog terminal coupled to the output of the second digital to analog converter;



- a third external analog terminal coupled to the output of the third digital to analog converter;
 - external address input terminals to which address data are to be supplied from the frame memory;
 - a memory circuit coupled to the external address input terminals and accessed by the address data, the memory circuit having memory capacity of a predetermined number of words defined by the number of the address data, each word defining color of one pixel to be displayed on a screen of the analog color display and containing first digital data of a plurality of bits for red color, second digital data of a plurality of bits for green color, and third digital data of a plurality of bits for blue color;
 - external data terminals, which are greater in number than the number of the external address input terminals, and to which digital color data are to be supplied from outside of the color palette semiconductor integrated circuit device;
 - a selector having first inputs coupled to outputs of the memory circuit to receive the first to third digital data, respectively, second inputs coupled to the external data terminals and first outputs coupled to the inputs of the first to third digital to analog converters, respectively; and,
 - a control circuit coupled to the selector and responsive to mode control data and controlling an operation of the selector so as to bring the selector into a first mode or a second mode, where the first mode enables the selector to couple the first inputs thereof to the first outputs thereof, and is defined as a mode where the number of colors, corresponding to the number of the words in the memory circuit, are displayed simultaneously on the screen of the analog color display, and where the second mode enables the selector to couple the second inputs thereof to the first outputs thereof, and is defined as a mode where the number of colors corresponding to the nth power are displayed simultaneously on the screen of the analog color display, where n is the number of the external data terminals;
- wherein, in the first mode, the memory circuit is accessed by address data supplied thereto in synchronization with a display timing and supplies the first to third digital data included in one word corresponding to the supplied address data to the inputs of the first to third digital to analog converters, respectively, via the selector so that the first to third digital to analog converters convert the first to third digital data into red, green and blue analog color signals, respectively, and provide the converted red, green and blue analog color signals to the first to third external analog terminals, respectively, and
- wherein, in the second mode, the first to third digital to analog converters receive at the inputs thereof the digital color data via the selector so that the first to third digital to analog converters convert the digital color data into red, green and blue analog color signals, respectively, and provide the converted red, green and blue analog color signals to the first to third external analog terminals, respectively.

5,673,059
HEAD-MOUNTED DISPLAY APPARATUS WITH COLOR SEQUENTIAL ILLUMINATION

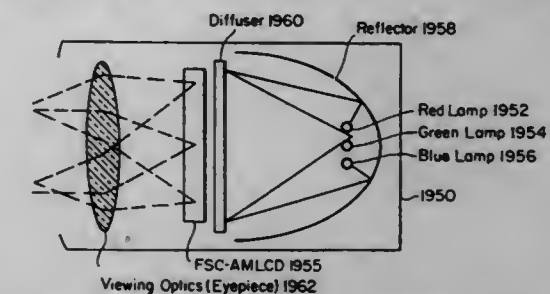
Matthew Zavracky, Plympton; Wen-Foo Chern, Wayland; Ronald Gale, Sharon, all of Mass.; Peter A. Ronzani, Los Gatos, and Stephen Pombo, Sunnyvale, both of Calif., assignors to Kopin Corporation, Taunton, Mass.

Continuation-in-part of Ser. No. 216,817, Mar. 23, 1994. This application Mar. 23, 1995, Ser. No. 410,124

Int. Cl.⁶ G02B 27/00; H04N 9/30

U.S. Cl. 345—8

32 Claims



1. A head-mounted display apparatus comprising:
 - a display panel having pixels for forming an image to be displayed to a viewer by selectively passing light; and
 - a sequential color generator optically disposed between a light source for generating light and the display panel, the sequential color generator operating on the light from the light source to direct a plurality of primary colors toward the display panel in a sequential order; and
 - a frame that mounts the panel and sequential color generator on a user's head.

5,673,060
DEFORMABLE MIRROR DEVICE DRIVING CIRCUIT AND METHOD

Peter William Blaxtan, Welwyn, and John David Millward, Ware, both of England, assignors to Rank Brimar Limited, England

PCT No. PCT/GB91/02033, § 371 Date Sep. 16, 1993, § 102(e) Date Sep. 16, 1993, PCT Pub. No. WO92/09065, PCT Pub. Date May 29, 1992

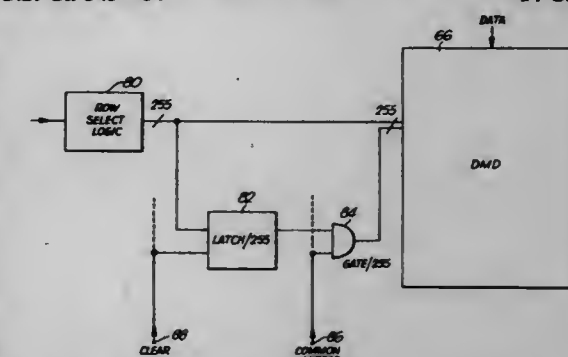
PCT Filed Nov. 18, 1991, Ser. No. 50,290

Claims priority, application United Kingdom, Nov. 16, 1990, 9024978; Nov. 16, 1990, 9024985

Int. Cl.⁶ G09G 3/34

U.S. Cl. 345—84

14 Claims



1. A method of displaying an image using a plurality of mirror elements in a two-dimensional array, the array having a plurality of sections, each section having a plurality of groups of mirror elements, each mirror element being switchable between an "OFF" state and an "ON" state by application of respective data signals to the mirror elements, a plurality of reset means being connected to a respective different group of mirror elements within a first said section, each said reset means being additionally connected to a respective corresponding group of mirror elements in each of the other sections of the array,

the method including the steps of:
selectively activating said reset means to enable data signals to be selectively applied to the mirror elements of said groups connected to said respective reset means,
providing a succession of image signals, each image signal being representative of successive image frames, each image signal comprising a plurality of multi-bit numbers each corresponding to a respective different mirror element, the different bits of each said number defining respective different "ON" periods of respective different lengths for the corresponding mirror element so that the multi-bit number represents the light level for the corresponding mirror element in the corresponding frame;

deriving said respective data signals for each mirror element which are representative of said bits for each image frame; and

applying said data signals which are representative of each of said different bits defining respective different "ON" periods in sequence to all the mirror elements to be turned "ON" for the corresponding period within each of said corresponding groups of mirror elements connected to each successively activated reset means, until data signals representative of bits representative of all said different "ON" periods of different length have been applied to the mirror elements to be turned "ON" for the corresponding periods in all groups within the array within each image frame.

5,673,061

DRIVING CIRCUIT FOR DISPLAY APPARATUS

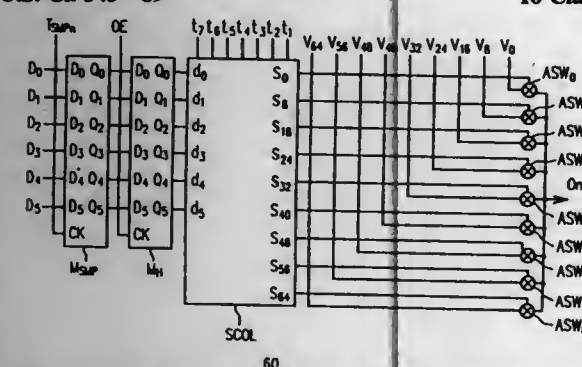
Hisao Okada, Nara-ken; Yuji Yamamoto, Kobe; Mitsuyoshi Seo, Tenri, and Kuniaki Tanaka, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 330,385, Oct. 27, 1994, abandoned, which is a continuation-in-part of Ser. No. 234,375, Apr. 28, 1994, abandoned. This application Sep. 9, 1996, Ser. No. 708,784

Claims priority, application Japan, May 14, 1993, 5-113465; Nov. 26, 1993, 5-297103

Int. Cl. G09G 3/36

U.S. Cl. 345—89

16 Claims



1. A driving circuit for driving a display apparatus which includes pixels and data lines for applying voltages to the pixels and which displays an image with multiple gray scales in accordance with video data consisting of a plurality of bits, the driving circuit comprising:

oscillating signal specifying means for receiving a plurality of oscillating signals and for defining a variable T to have a frequency corresponding to one of the plurality of oscillating signals, the received oscillating signals having respective mean values which are different from each other, wherein the variable T is determined in accordance with a value represented by bits selected from the plurality of bits of the video data, and for defining a variable T-bar which is obtained by inverting the variable T;

gray-scale voltage specifying means for producing gray-scale voltage specifying signals which specify a first gray-scale voltage and a second gray-scale voltage among a plurality of gray-scale voltages supplied from gray-scale voltage supply

means, in accordance with a value represented by bits other than the selected bits of the plurality of bits of the video data; and

output means for outputting one of the first gray-scale voltage and the second gray-scale voltage specified by the gray-scale voltage specifying signals to the data lines, in accordance with the variable T and the variable T-bar.

5,673,062

LIQUID CRYSTAL APPARATUS

Kazunori Katakura, and Akira Tsuboyama, both of Atsugi, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 147,540, Nov. 5, 1993, abandoned.

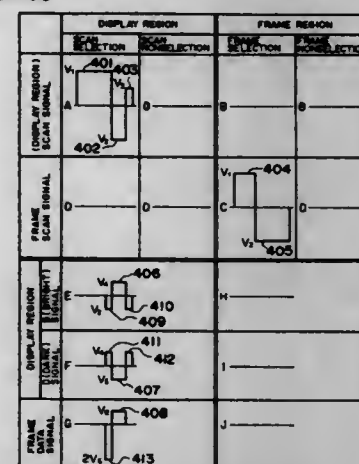
This application Nov. 28, 1995, Ser. No. 563,347

Claims priority, application Japan, Nov. 6, 1992, 4-321485; Nov. 10, 1992, 4-323773

Int. Cl. G09G 3/36

U.S. Cl. 345—95

12 Claims



1. A liquid crystal apparatus, comprising:
a matrix display device including a first electrode plate having thereon a group of display scanning electrodes and a frame scanning electrode outside the display scanning electrodes, a second electrode plate having thereon a group of display data electrodes and a frame data electrode outside the display data electrodes, and a liquid crystal having a memory characteristic disposed between the first and second electrode plates so as to form a display region defined by an overlapping of the display scanning electrodes and the display data electrodes and a frame region outside the display region defined by the frame scanning electrode and the frame data electrode, wherein the liquid crystal is allowed to assume either one of two stable states at each pixel formed at each intersection of any data electrode and any scanning electrode, and

a drive means for applying a display signal waveform corresponding to given display data to the liquid crystal in the display region, and applying a frame signal waveform providing one of the two stable states of liquid crystal to the liquid crystal in the frame region, respectively via the electrode plates,

wherein the two stable states of the liquid crystal provide a bright state and a dark state, respectively, and the frame signal waveform applied to the liquid crystal in the frame region keeps the liquid crystal in the frame region in the bright state and has a wider signal range for ensuring said bright state than the display signal waveform, and wherein:

(a) the display signal waveform includes:

a scanning signal applied to each selected display scanning electrode including a reset pulse for resetting the liquid crystal into the dark state, a scanning selection pulse for setting a desired display state of the liquid crystal and a scanning auxiliary pulse, and

a data signal applied to each display data electrode including a data selection pulse synchronized with the scanning selection pulse for forming a desired stable state at a pixel at an

intersection of the selected display scanning electrode and said each display data electrode, and a display auxiliary pulse placed before and after the data selection pulse for providing an average voltage of zero together with the data selection pulse; and

(b) the frame signal waveform applied to the frame data electrode includes a frame selection pulse synchronized with the scanning selection pulse for setting the bright state at a frame pixel formed at an intersection of the selected display scanning electrode and the frame data electrode and a frame auxiliary pulse placed before the frame selection pulse for providing an average voltage of zero together with the frame selection pulse,

wherein the data auxiliary pulses placed before and after the data selection pulse have mutually identical pulse width and pulse amplitude, and

the frame auxiliary pulse placed before the frame selection pulse has a substantially identical pulse width with the data auxiliary pulse;

said average voltage and pulse amplitude being respectively defined with respect to the voltage level of a non-selected display scanning electrode.

5,673,063

DATA LINE DRIVER FOR APPLYING BRIGHTNESS SIGNALS TO A DISPLAY

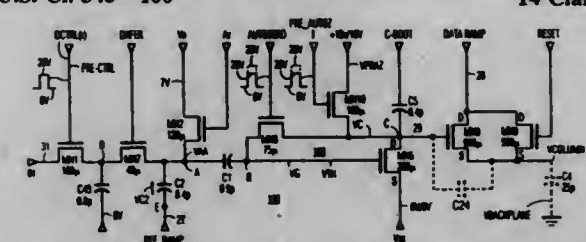
Sherman Weisbrod, Skillman, N.J., assignor to Thomson Consumer Electronics, S.A., Courbevoie, France

Filed Mar. 6, 1995, Ser. No. 399,011

Int. Cl. G02F 1/133

U.S. Cl. 345—100

14 Claims



1. A data line driver for developing a signal containing picture information in pixels arranged in a given column of a display device, comprising:

a source of a data ramp signal,

a first transistor coupled to said source of data ramp signal for applying said data ramp signal to a data line associated with said column;

a second transistor for generating a first portion of a control voltage of said first transistor that varies in accordance with a variation of a threshold voltage of one of said first and second transistors;

a source of a pulse voltage;

a first capacitance for coupling said pulse voltage to a second capacitance that is formed with respect to a control terminal of said first transistor to generate a second portion of said control voltage such that said first and second capacitances form a voltage divider with respect to said pulse voltage, said control voltage conditioning said first transistor for operation in a first switching state; and

a source of a video signal and a source of a reference ramp signal coupled to an input of said second transistor for disabling said first switching state when a signal that is developed at said second transistor input from said video and reference ramp signals exceeds a threshold voltage of said second transistor.

5,673,064

SIMPLIFIED VECTOR-FORMAT PATTERN GENERATION

Kunio Seto, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

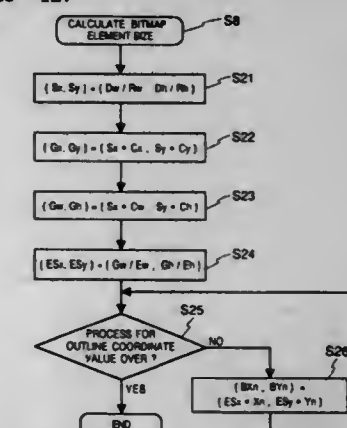
Continuation of Ser. No. 153,168, Nov. 17, 1993, abandoned.

This application Sep. 29, 1995, Ser. No. 536,677

Claims priority, application Japan, Nov. 30, 1992, 4-320669 Int. Cl. G09G 5/00

U.S. Cl. 345—127

12 Claims



1. A character pattern generating apparatus comprising:

calculating means for, first, calculating a scale factor of a character based on a basic size and a designated size of the character;

calculating means for, second, calculating a size of a stroke element which is at least part of a stroke of the character based on the scale factor of the character calculated by said first-calculating means and a basic size of the stroke element;

calculating means for, third, calculating a scale factor of an element pattern to be generated, similar to the stroke element, based on the size of the stroke element calculated by said second-calculating means and a basic size of a common element pattern, said common element pattern being changed to stroke elements different in size by being extended or reduced in accordance with a scale factor of an element pattern;

calculating means for, fourth, calculating coordinate values of the element pattern to be generated based on coordinate values of the common element pattern and the scale factor of the element pattern to be generated calculated by said third-calculating means; and

generating means for generating an element pattern which is at least part of the stroke of the character pattern to be generated, based on the coordinate values of the element pattern to be generated calculated by said fourth-calculating means to obtain the character pattern composed of generated element patterns.

5,673,065

COLOR REDUCTION AND CONVERSION USING AN ORDINAL LOOKUP TABLE

William C. DeLeeuw, Hillsboro, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 29, 1995, Ser. No. 581,459

Int. Cl. B09G 5/04

U.S. Cl. 345—153

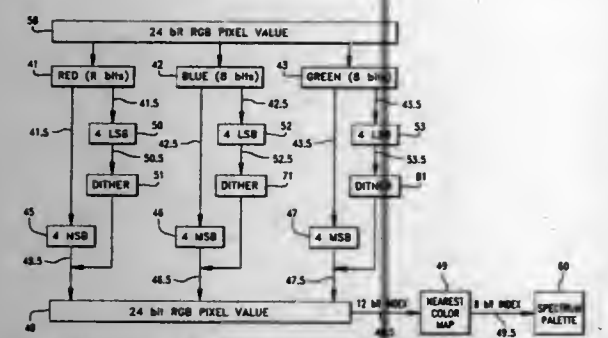
42 Claims

1. A computer-implemented method for converting a color image composed of color pixels, comprising the steps of:

(a) receiving components of a color pixel of the color image;

(b) truncating most-significant bits from each component of the color pixel;

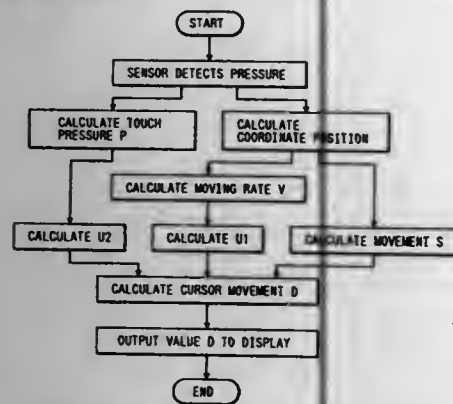
(c) combining the most-significant truncated bits to form a color number, the color number representing an index to a nearest-color map;



- (d) generating an index to a color palette using the nearest-color map index, the color palette containing a plurality of colors; and
(e) accessing one of the plurality of colors to represent the color pixel using the color palette index.

5,673,066
COORDINATE INPUT DEVICE
Yasushi Toda, and Hideki Suzuki, both of Iwaki, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 47,221, Apr. 14, 1993, abandoned.
This application Oct. 5, 1994, Ser. No. 317,688
Claims priority, application Japan, Apr. 21, 1992, 4-101351; Apr. 21, 1992, 4-101352; Apr. 21, 1992, 4-101353; Mar. 29, 1993, 5-093583

Int. Cl.⁶ G09G 5/08
U.S. Cl. 345—157 4 Claims

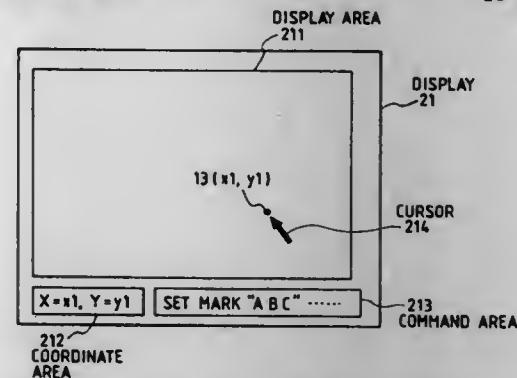


1. A coordinate input device wherein when a control member such as a finger is moved on an operation surface, signals corresponding to a direction and movement thereof are issued to a computer body to control a position of a cursor on a display, the coordinate input device comprising:

an operation plate having said operation surface and a back surface opposite said operation surface;
an operation pressure detecting means having a pressure-sensitive sensor for detecting a touch pressure of said control member; and
an arithmetic circuit for calculating a movement amount, a moving rate and a touch pressure of said control member in accordance with a detection signal of said operation pressure detection means, and for calculating the movement of said cursor in accordance with a product of a first qualified value, a second qualified value and the movement amount, said first qualified value being increased in accordance with an increase of the moving rate of said control member, said second qualified value being decreased in accordance with an increase in a total touch pressure exerted on said control member.

5,673,067
INFORMATION PROCESSING APPARATUS AND METHOD
Yasuyuki Ogawa, Kawasaki; Tsuneaki Kadosawa, Kanagawa-ken; Takashi Nakamura, Hiratsuka; Hiroshi Watanabe, Yokohama, and Satoshi Asada, Inagi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 354,465, Dec. 12, 1994, abandoned.
This application Jan. 16, 1997, Ser. No. 783,359
Claims priority, application Japan, Dec. 10, 1993, 5-310501; Dec. 7, 1994, 6-303743

Int. Cl.⁶ G09G 5/08
U.S. Cl. 345—157 16 Claims

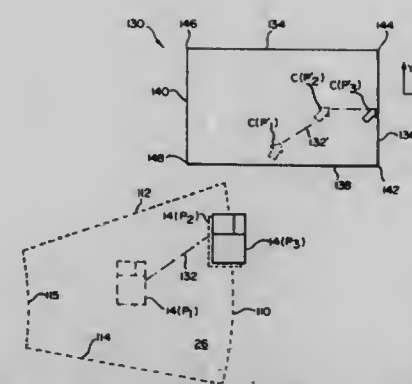


1. An information processing apparatus comprising:
analysis means for analyzing input coordinate information to mark a coordinate point;
marking means for giving a mark name to the coordinate point marked by said analysis means;
memory means for storing marking information comprising the coordinate point marked by said analysis means and the mark name given by said marking means, the coordinate point and the mark name being in correspondence to each other;
input means for inputting a name;
search means for searching said memory means for the mark name coincident with the name input by said input means; and
display control means for controlling a display device to replace information currently displayed on a display area of the display device by information at the marked coordinate point based on the marking information, stored in said memory means, corresponding to the mark name searched by said search means when the marked coordinate point is not present in the display area.

5,673,068
END-OF-TRAVEL DETECTION SENSOR AND METHOD OF CALIBRATING CONFINED POINTING DEVICE
Timothy J. Jondrow, and Mark A. Smith, both of Corvallis, Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 7, 1995, Ser. No. 482,157
Int. Cl.⁶ G09G 5/08 17 Claims

1. A pointing apparatus controlling movement of an on-screen reference for a computer having a computer screen and a housing, comprising:
a handle movable within a confined movement area, the confined movement area defining a plane;
a link member having an outer end connected to the handle and an inner end received in the housing, the inner end and outer end of the link member moving with the handle, the link member moving within the plane defined by the confined movement area relative to a pivot point;
a first signal varying with changes in handle position for use in controlling movement of the on-screen reference;
an elastomeric conductor located about the pivot point, the elastomeric conductor receiving force exerted on the pivot point; and

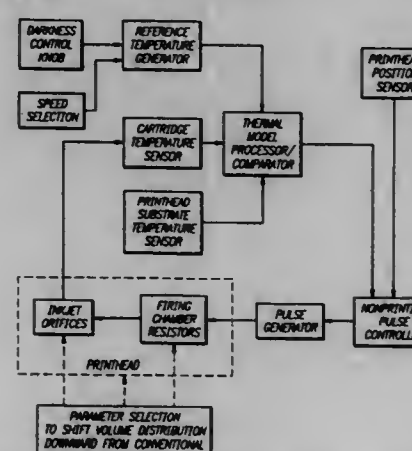


a plurality of directional contacts adjacent to the elastomeric conductor; and
wherein in response to the handle moving to a peripheral border of the confined movement area, an end-of-travel force is exerted on the elastomeric conductor via the link member, the force effecting an electrical circuit comprising the elastomeric conductor and at least one of the plurality of directional contacts to indicate that the handle has moved to an end of the handle's travel path, the electrical circuit generating an indication signal for indicating an end-of-travel direction for the handle, the indication signal derived independently from the first signal.

5,673,069
METHOD AND APPARATUS FOR REDUCING THE SIZE OF DROPS EJECTED FROM A THERMAL INK JET PRINTHEAD

Brian Canfield, San Diego; Clayton Holstun, Escondido, and King-Wah W. Yeung, Cupertino, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Continuation of Ser. No. 983,009, Nov. 30, 1992, abandoned, which is a continuation-in-part of Ser. No. 694,185, May 1, 1991, Pat. No. 5,168,284. This application Aug. 1, 1994, Ser. No. 283,965

Int. Cl.⁶ B41J 2/07
U.S. Cl. 347—15 14 Claims



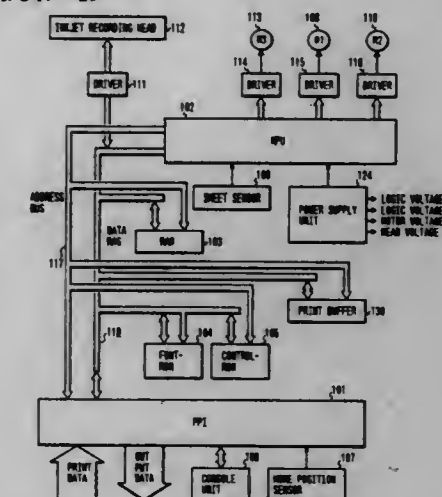
1. A method for reducing variation in the drop volume of drops ejected from an inkjet printhead having an average print-cycle temperature and a maximum temperature, comprising the steps of:
a. selecting a reference temperature that is less than the maximum temperature;
b. measuring the printhead temperature;
c. comparing the printhead temperature with the reference temperature, during the print cycle; and
d. restricting fluctuation of the printhead temperature, during the print cycle, to between the reference temperature and the maximum temperature by:

- (1) heating the printhead when the printhead temperature is less than the reference temperature,
(2) refraining from heating the printhead, except for heating used to produce printing and except for ambient temperature fluctuations, when the printhead temperature exceeds the reference temperature, and
(3) allowing the printhead temperature to ascend to the maximum temperature so that the drop volume fluctuates between the volume of a drop ejected when the printhead temperature equals the reference temperature and the volume of a drop ejected when the printhead temperature equals the maximum temperature.

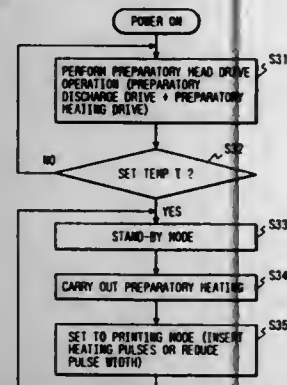
5,673,070
RECORDING APPARATUS FOR CONTROLLING RECORDING IN ACCORDANCE WITH BATTERY CAPACITY

Hideki Nakanishi, Tokyo; Junichi Arakawa, Yokohama; Hideo Horigome, Tokyo; Yuichi Kaneko, Yokohama; Tetsuhito Ikeda, and Akira Kuribayashi, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 22, 1993, Ser. No. 171,165
Claims priority, application Japan, Dec. 28, 1992, 4-348688

Int. Cl.⁶ B41J 2/00 5 Claims
U.S. Cl. 347—19



5,673,071
PREPARATORY HEAD DRIVE METHOD FOR AN INK JET PRINTER
 Takeshi Fuse, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan
 Filed Sep. 16, 1993, Ser. No. 121,469
 Claims priority, application Japan, Sep. 18, 1992, 4-273421
 Int. Cl.⁶ B41J 2/165
 U.S. Cl. 347—35

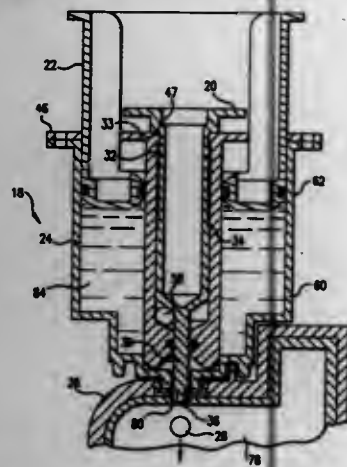


1. A method of preparatively driving a head for an ink jet printer, said method comprising the steps of:
 detecting a current head temperature t ($^{\circ}\text{C}$.); and
 continuously executing a preparatory head drive operation until said current head temperature reaches a predetermined head temperature T ($^{\circ}\text{C}$.), given by a linear relationship between ambient temperature and head set temperature:

$$T = a \cdot t + b$$

wherein "a" is a variable defining a slope of the linear relationship and "b" is a variable representing the y-intercept of the linear relationship.

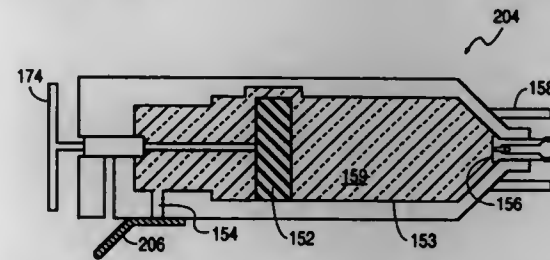
5,673,072
METHOD AND APPARATUS FOR REFILLING A PRINT CARTRIDGE HAVING A SPHERICAL STOPPER
 Joseph E. Scheffelin, San Diego, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
 Filed Oct. 31, 1994, Ser. No. 332,009
 Int. Cl.⁶ B41J 2/17
 U.S. Cl. 347—85



1. Apparatus for refilling a print cartridge with ink, said print cartridge having a spherical stopper, comprising:
 a) a cylinder and a piston received therein, said cylinder having an ink outlet which transfers ink from said cylinder to the print cartridge as said piston is pushed further into said cylinder;
 b) a sealing surface on said ink outlet for establishing an ink-tight seal between the ink outlet and the print cartridge; and

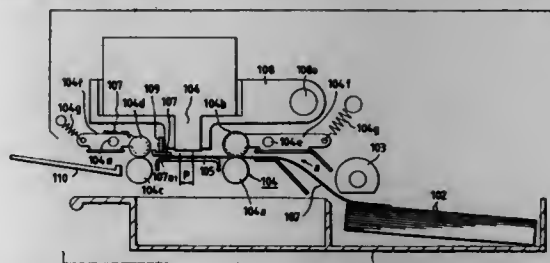
c) a stopper remover for engaging and dislocating the spherical stopper for opening the print cartridge for receiving ink while said ink-tight seal is established, said stopper remover being operatively connected to the cylinder, wherein the apparatus is portable and hand-held during use.

5,673,073
SYRINGE FOR FILLING PRINT CARTRIDGE AND ESTABLISHING CORRECT BACK PRESSURE
 Winthrop D. Childers, and Joseph E. Scheffelin, both of San Diego, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
 Continuation-in-part of Ser. No. 314,978, Sep. 29, 1994. This application Mar. 14, 1996, Ser. No. 615,936
 Int. Cl.⁶ B41J 2/175
 U.S. Cl. 347—86



1. An ink recharging system for recharging a reservoir within a print cartridge comprising:
 a syringe for containing ink, said syringe comprising:
 a chamber for containing ink;
 an ink outlet port in fluid communication with said chamber;
 a plunger disposed in said chamber; and
 an ambient air intake port communicating with said chamber.

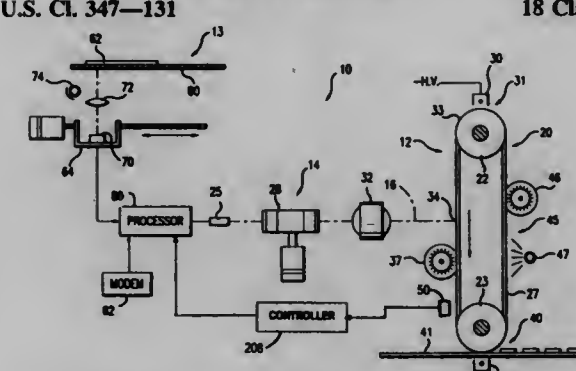
5,673,074
RECORDING APPARATUS HAVING URGING MEMBER TO PREVENT FLOATING OF RECORDING SHEET
 Yasuo Miyauchi, Hiroshi Tajika, and Haruo Uchida, all of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Continuation of Ser. No. 747,941, Aug. 21, 1991, abandoned.
 This application Dec. 9, 1993, Ser. No. 164,829
 Claims priority, application Japan, Aug. 24, 1990, 2-223268; Sep. 21, 1990, 2-250300; Sep. 21, 1990, 2-250301
 Int. Cl.⁶ B41J 2/05; 13/16
 U.S. Cl. 347—104



1. A recording apparatus, comprising:
 a guide for supporting a sheet at a recording area thereof;
 a feeding rotary member for feeding the sheet to said guide;
 a recording head for recording an image on the sheet at the recording area by adhering an ink to the sheet; and
 an urging plate for urging the sheet against said guide, said urging plate having a water repellent surface abutted to the sheet and being disposed downstream of the recording area, and said urging plate assuming one of a first mode to urge the sheet against said guide while said recording head is adhering

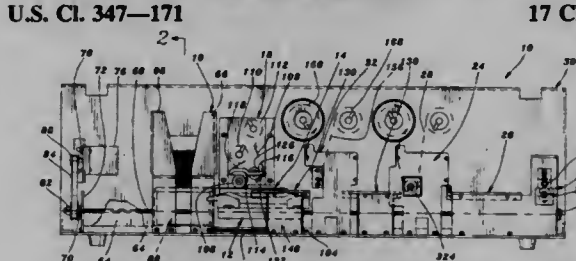
the ink to the sheet and a second mode not urging the sheet against said guide means while said recording head is adhering the ink to the sheet.

5,673,075
CONTROL OF TONER DEPOSITION IN GRAY PIXEL HALFTONE SYSTEMS AND COLOR PRINTING
 Timothy W. Jacobs, Fairport, and Jeffrey D. Kingsley, William, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.
 Continuation-in-part of Ser. No. 84,094, Jul. 1, 1993, abandoned. This application Jul. 28, 1995, Ser. No. 508,504
 Int. Cl.⁶ B41J 2/47
 U.S. Cl. 347—131



1. A method of controlling deposition of toner for printing of a final halftoned image by a printer, comprising the steps of:
 (a) generating a continuous tone image based on an original document;
 (b) generating a first halftoned image by encoding as gray pixel data, the continuous tone image as a plurality of gray pixels, wherein the encoded gray pixel data is in the form of one of a plurality of pixel codes, each of which designate specific combinations of the overall darkness of the pixel and the location of the darkness within the pixel boundary;
 (c) producing a feedback signal based on toner application operation of the printer; and
 (d) generating the final halftoned image based on the encoded gray pixel data and the feedback signal, wherein the feedback signal only effects the generating of the final halftoned image.

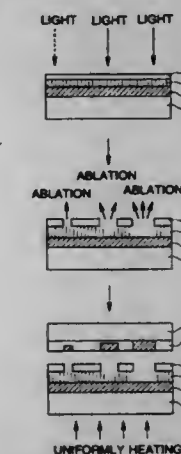
5,673,076
CARD PRINTING AND LAMINATING APPARATUS
 Edward A. Nardone, Wakefield; Paul R. Caron, Tiverton; Christian S. Rothwell, North Kingstown; Harold D. Schofield, Narragansett, and Gary Field, Portsmouth, all of R.I., assignors to Atlantek Inc., Wakefield, R.I.
 Filed Mar. 13, 1995, Ser. No. 403,072
 Int. Cl.⁶ B41J 2/325
 U.S. Cl. 347—171



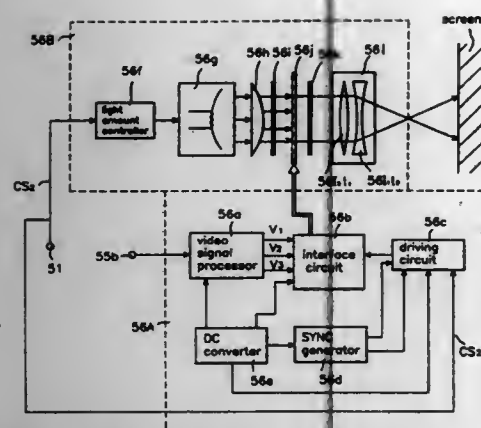
8. Thermal printing and laminating apparatus for printing and laminating plastic identification cards comprising:
 a thermal transfer ribbon supply apparatus for supplying thermal transfer ribbon, the thermal transfer ribbon including a plurality of different colored sections, reoccurring in a repetitive pattern;

a thermal printhead for printing an image on a receptor surface of a receptor card, said thermal transfer ribbon passing intermediate said printhead and said receptor surface of said receptor card during a printing operation;
 lamination film supply apparatus for supplying a lamination film;
 a heated laminating roller mounted for engagement with said receptor surface of said receptor card during a laminating operation, said lamination film passing intermediate said heated laminating roller and said receptor surface of said receptor card during said laminating operation;
 a carriage for receiving said receptor card with said receptor surface facing upwardly;
 guide means for guiding said carriage beneath said printhead during said printing operation and beneath said heated laminating roller during said laminating operation;
 a threaded rod passing through a threaded bore in said carriage such that rotation of said threaded rod causes movement of said carriage along said guide means;
 motor means for rotating said threaded rod; and
 a pair of output nip rollers including a heated lower roller for engaging and heating a lower surface of said receptor card, said carriage further transporting said receptor card from said heated laminating roller to said nip rollers.

5,673,077
PROCESS OF FORMING A TRANSFER-IMAGE OF ABLATION TYPE IMAGE-TRANSFER RECORDING MATERIAL
 Sota Kawakami, and Atsushi Nakajima, both of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan
 Filed Sep. 14, 1994, Ser. No. 306,145
 Claims priority, application Japan, Sep. 16, 1993, 5-230482
 Int. Cl.⁶ B41J 2/355; 2/47; G01D 15/10; 15/16
 U.S. Cl. 347—183



1. A method for recording an image comprising the steps of:
 (a) providing a recording material comprising a support, a colorant layer containing a colorant on the support, and a colorant barrier layer containing a light-absorbable substance on the colorant layer, wherein the colorant barrier layer further contains a resin selected from the group consisting of a water-soluble resin, a resin having an ionic bonding and a resin having a glass-transition point at a temperature not lower than 80° C.,
 (b) image-wise exposing said recording material so as to produce an ablated hole in said colorant barrier layer, said exposing including controlling the size of said ablated hole which is subject to change corresponding to the image, and
 (c) transferring an amount of said colorant from said colorant layer to an image receiving material through said ablated hole by contacting said colorant barrier layer with an image receiving layer of said image receiving material in the presence of heat or pressure.



function, and a recording select signal to select the video signal recorded by the video signal recording means;

control means for generating a first control signal in response to the mode select signal from the key signal input means, a second control signal in response to the function select signal from the key signal input means, and a third control signal in response to the recording select signal from the key signal input means;

first switching means, responsive to the third control signal from the control means, for transferring the video signal from the camera means to the video signal recording means;

second switching means, responsive to the first control signal from the control means, for selectively transferring as an output video signal one of the video signal from the camera means and the video signal played back by the video signal playback means; and

display means, responsive to the second control signal from the control means, for view finding the output video signal thereon or for projecting the output video signal on an external screen, wherein the display means includes:

a video signal processor for processing the output video signal from the second switching means so that the processed output video signal can be displayed, the processed output video signals including red, green and blue color signals;

a display device including a matrix of pixels;

an interface circuit for sequentially providing the processed video signal to the display device to display an optical image on the display device;

a driving circuit, responsive to the second control signal from the control means, for driving the interface circuit and changing an arrangement of the processed video signal;

a synchronous signal generator for outputting a plurality of vertical and horizontal synchronous signals to the driving circuit to synchronize vertical and horizontal portions of the processed video signal having the changed arrangement;

a DC converter for supplying DC power to the video signal processor, the interface circuit, the driving circuit and the synchronous signal generator;

a light source for generating light;

a light amount controller, responsive to the second control signal from the control means, for generating a light control signal to control an amount of the light generated by the light source;

a condensing lens for condensing the light generated by the light source;

a first polarizing plate for polarizing the condensed light, the polarized light illuminating the display device;

a second polarizing plate for polarizing the optical image displayed on the display device; and

a focus lens unit, adjustably spaced from the display device, for focusing the optical image polarized by the second polarizing plate on the external screen.

5,673,085

Patent Not Issued For This Number

5,673,086

IMAGE ASPECT RATIO CONVERSION PROCESSING APPARATUS

Hiroyuki Fukuoka, Hiratsuka; Koji Takahashi, and Hisataka Hirose, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 771,179, Oct. 4, 1991, abandoned.

This application Dec. 29, 1993, Ser. No. 175,188

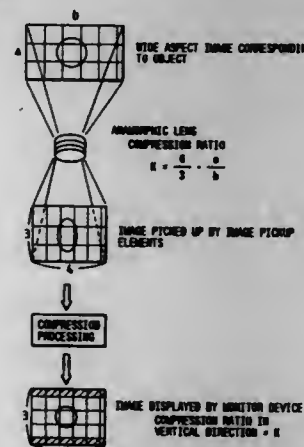
Claims priority, application Japan, Oct. 5, 1990, 2-266457;

Sep. 3, 1991, 3-222763

Int. Cl.⁶ H04N 7/01; 11/20; 9/74; 3/223

U.S. Cl. 348—445

7 Claims



1. An image conversion processing apparatus for converting a compressed image signal corresponding to a compressed image, formed by compressing an image having a first aspect ratio with a predetermined compression ratio in a horizontal direction, into an image signal corresponding to an image having a second aspect ratio different from the first aspect ratio, said apparatus comprising: designation means for designating an expansion ratio corresponding to the predetermined compression ratio; and image signal processing means for performing thinning-out processing on the compressed image signal using a thinning-out ratio corresponding to the expansion ratio designated by the designation means, the thinning-out processing being performed so as to thin out, in a vertical direction, an image represented by the compressed image signal.

5,673,087

SCREEN OVERLAY DEVICE FOR OUTPUTTING CURSOR COORDINATES BASED ON MOVEMENT OF A POINTING DEVICE AND AN ON-SCREEN DISPLAY RELATING TO A MENU AND A METHOD THEREFOR

Eun-suk Choi, Seoul, and Sang-gyun Kim, Suwon, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

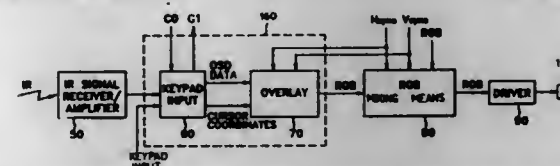
Filed Jun. 7, 1995, Ser. No. 478,518

Claims priority, application Rep. of Korea, Nov. 25, 1994, 94-31227

Int. Cl.⁶ H04N 5/445

U.S. Cl. 348—511

11 Claims



1. A screen overlay device for overlaying a menu and cursor on a screen comprising:

a pointing device wireless transmitter for transmitting an infrared (IR) signal corresponding to one of a key-input and movement of a pointing device;

an IR signal receiving and amplifying unit for receiving said IR signal and amplifying the signal by a predetermined gain;

a controller for calculating, in response to said amplified signal, cursor coordinates corresponding to movement of said pointing device and outputting said cursor coordinates and on-screen display (OSD) data related to the menu, wherein said controller calculates the cursor coordinates by adding a first displacement value based on the movement of the pointing device to a current first-axis coordinate value thereby generating a first sum and setting said first-axis coordinate value to a minimum first coordinate value if the first sum is less than the minimum first coordinate value and setting said first-axis coordinate value to a maximum first coordinate value if the first sum is greater than the maximum first coordinate value, and adding a second displacement value based on the movement of the pointing device to a current second-axis coordinate value thereby generating a second sum and setting said second-axis coordinate value to a minimum second coordinate value if the second sum is less than the minimum second coordinate value and setting said second-axis coordinate value to a maximum second coordinate value if the second sum is greater than the maximum second coordinate value;

an overlay unit for receiving said cursor coordinates and OSD data and generating a corresponding red-green-blue (RGB) signal in synchronization with horizontal and vertical sync signals; and

an RGB mixer for mixing said RGB signal generated by said overlay unit with an external RGB signal synchronized with said horizontal and vertical sync signals.

5,673,088

MULTI-BROADCAST SELECTION APPARATUS

Il-koo Nah, Kwangmyung, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

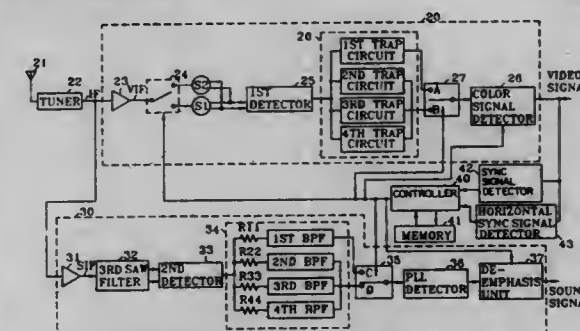
Filed Nov. 30, 1995, Ser. No. 565,127

Claims priority, application Rep. of Korea, Nov. 30, 1994, 94-32214

Int. Cl.⁶ H04N 5/46

U.S. Cl. 348—555

23 Claims



1. A multi-broadcast channel selection apparatus having a tuner for receiving a modulated signal broadcast according to a plurality of broadcast modes from a transmitter and converting the received modulated signal into an intermediate frequency (IF) signal having video and sound portions, wherein the video portion includes a sync signal, the multi-broadcast channel selection apparatus comprising:

a video signal processing circuit, coupled to an output of said tuner, for demodulating the video portion of the IF signal, and outputting a video signal adapted for each of the plurality of broadcast modes;

a sound signal processing circuit, coupled to said output of said tuner separately from said video signal processing circuit, for demodulating the sound portion of the IF signal, and outputting a sound signal adapted for each of the plurality of broadcast modes;

a sync signal detector, coupled to an output of said video signal processing circuit, for detecting the sync signal among of the video portion of the IF signal; and

a controller, coupled to an output of said sync signal detector, for receiving the sync signal, determining the broadcast mode of the video signal output from said video signal processing circuit, and outputting a control signal to said video and sound signal processing circuits according to the determined result, wherein said video and sound signal processing circuits demodulate the IF signal based on the broadcast mode of the received modulated signal.

5,673,089

APPARATUS AND METHOD FOR CHANNEL SCANNING BY THEME

Henry C. Yuen, Redondo Beach, and Elsie Y. Leung, South Pasadena, both of Calif., assignors to Gemstar Development Corporation, Pasadena, Calif.

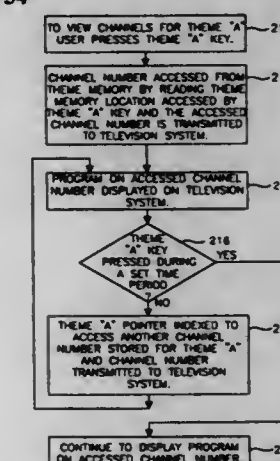
Continuation of Ser. No. 354,946, Dec. 13, 1994, abandoned.

This application Jul. 11, 1996, Ser. No. 679,652

Int. Cl.⁶ H04N 5/445

U.S. Cl. 348—734

47 Claims



1. A remote controller for selecting channels on a television system by theme, the remote controller comprising: means responsive to actuation of first selected keys on the remote controller for identifying each of a plurality of themes; means responsive to actuation of second selected keys on the remote controller for entering channel indicators corresponding to each of the themes; means for storing the entered channel indicators corresponding to each theme; means for accessing and transmitting to the television system each channel indicator in sequence corresponding to a first theme of the plurality of themes to control channel selection for the television system, if the first selected keys on the remote controller for identifying the first theme are actuated; means for pausing a set period of time after accessing and transmitting a channel indicator of the first theme before continuing to access and transmit channel indicators corresponding to the first theme in sequence; and means for continuing to display the channel represented by the channel indicator beyond the set period of time, if the first selected keys on the remote controller for identifying the first theme are actuated again within the set period of time.

5,673,090

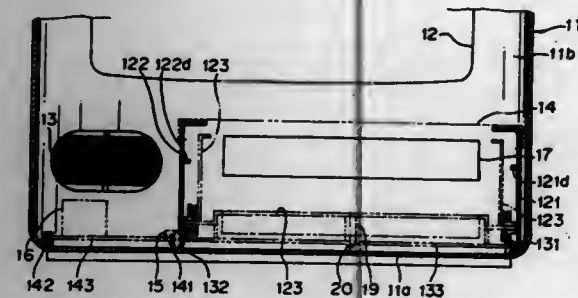
VIDEO INTEGRAL-TYPE TELEVISION

Yoshio Higuchi, and Kazuyuki Okada, both of Daito, Japan, assignors to Funai Electric Co., Ltd., Osaka, Japan
Continuation of Ser. No. 431,475, May 1, 1995, and Ser. No. 887,292, May 22, 1992. This application Mar. 1, 1996, Ser. No. 609,511

Claims priority, application Japan, Oct. 31, 1991, 3-313994
Int. Cl.⁶ H04N 5/64; A47B 5/00; H01R 23/68

U.S. Cl. 348—836

11 Claims



1. A TV-VCR compound assembly in which a television set and a video set are jointly installed in a cabinet, comprising:
a CRT;

a mechanical deck for said video set;

a first printed circuit board for said television set; and

a second printed circuit board for said video set;

wherein said first and second printed circuit boards are slidably insertable from a rear part of said cabinet;

said mechanical deck is installed between said CRT and both of said first and second printed circuit boards; and

said cabinet is provided with guide members for said first and second printed circuit boards inserted from said rear part and for securing said first and second printed circuit boards within said cabinet.



the first end and in that the overlap is between the second end of the first face of the first element and the first end of the second face of the second element.

5,673,092

LIQUID CRYSTAL DEVICE AND METHOD FOR FABRICATING THE SAME

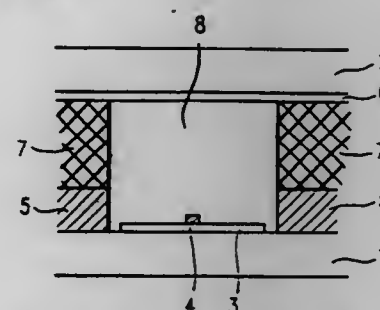
Wataru Horie, Hashimoto; Masayuki Okamoto, Tenri; Motohiro Yamahara, Osaka; Makoto Shiomi, Tenri; Nobuaki Yamada, Higashiosaka, and Shuichi Kozaki, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Jun. 7, 1995, Ser. No. 484,983

Claims priority, application Japan, Oct. 14, 1994, 6-249595; Feb. 23, 1995, 7-035759

Int. Cl.⁶ G02F 1/1333

U.S. Cl. 349—86

20 Claims



1. A liquid crystal device comprising a pair of electrode substrates opposing each other, a polymer wall, and a liquid crystal region surrounded by the polymer wall, the polymer wall and the liquid crystal region being sandwiched by the pair of electrode substrates,

wherein at least one of a concave portion and a convex portion is formed on a surface of at least one of the pair of electrode substrates facing the liquid crystal region, and liquid crystal molecules are oriented in the liquid crystal region axially-symmetrically around the vicinity of the at least one of the concave portion and the convex portion as an axis vertical to the electrode substrates,

and wherein a first wall is formed on a surface of at least one of the pair of substrates facing the liquid crystal region so as to surround the liquid crystal region or the liquid crystal domain, and a height H of the first wall and a height h of the convex portion have a relationship of H>h,

and further wherein, the polymer wall is formed on the first wall.

5,673,091

LIQUID CRYSTAL DISPLAY DEVICE W/PLURAL HOUSING ASSEMBLIES EDGES OVERLAP AND MAINTAIN CONSTANT PITCH BETWEEN PIXELS

Jean-Francois Boisdron, Paris, and Michel Chaudagne, St. Denis, both of France, assignors to Souriau Diagnostic Electronique, Paray Vieille Poste, France
PCT No. PCT/FR94/00066, § 371 Date Oct. 13, 1995, § 102(e) Date Oct. 13, 1995, PCT Pub. No. WO94/18659, PCT Pub. Date Aug. 18, 1994

PCT Filed Jan. 20, 1994, Ser. No. 501,079

Claims priority, application France, Feb. 12, 1993, 93 01589
Int. Cl.⁶ G02F 1/133; 1/1347; 1/1333; 1/1345

U.S. Cl. 348—58

8 Claims

1. Liquid crystal display device comprising an array of pixels including an assembly of at least first and second display elements having a first face and a second face opposite the first face, characterized in that said assembly is such that ends of the elements overlap to maintain a constant pitch between the pixels, said elements having a first end incorporating electrical contacts disposed on the first face of said elements and a second end opposite

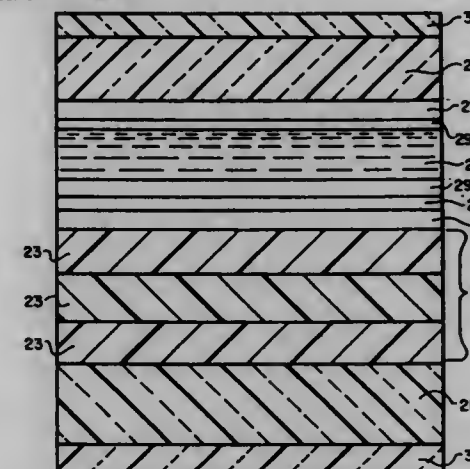
5,673,093

METHOD FOR MANUFACTURING LAMINATED COLOR FILTERS FOR LIQUID CRYSTAL DISPLAYS

Thomas P. Brody, 5823 Kentucky Ave., Pittsburgh, Pa. 15232
Continuation of Ser. No. 145,414, Oct. 29, 1993, Pat. No. 5,463,484. This application Oct. 31, 1995, Ser. No. 551,161
Int. Cl.⁶ G02F 1/1335; 1/1333

U.S. Cl. 349—106

15 Claims



1. A method of producing at least one color filter for an electronic display element comprising the steps of:

a) securing a pigmented layer structure onto a carrier sheet, wherein said pigmented layer structure includes an ultraviolet light-sensitive layer containing pigment of a first color of said at least one color filter;

b) exposing said light-sensitive layer to ultraviolet light;

c) developing said exposed light-sensitive layer;

d) securing another pigmented layer structure onto said developed layer, wherein said another pigmented layer structure includes another ultraviolet light-sensitive layer containing pigment of another color of said at least one color filter;

e) exposing said another light-sensitive layer to ultraviolet light;

f) developing said exposed another light-sensitive layer;

g) repeating steps d) to f) for remaining colors of said color filter forming a stack of developed layers; and

h) depositing transparent conductors onto said stack of developed layers.

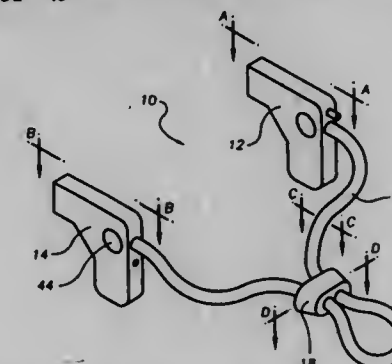
5,673,094

EYEGLOSS FLOTATION ASSEMBLY

Donald G. Babouth, 1052 McNeil Ave., Mobile, Ala. 36609
Filed Dec. 13, 1995, Ser. No. 571,388
Int. Cl.⁶ G02C 1/00; 5/00

U.S. Cl. 351—43

18 Claims



1. An eyeglass flotation assembly comprising:

a first and second resilient, buoyant, ear piece connector, each said ear piece connector having a curved orifice formed therein for resiliently receiving a curved end portion of an eyeglass ear piece; and

a strap member secured between said first and second ear piece connectors;
said strap member including an inflatable bladder member housed within a fabric sheath.

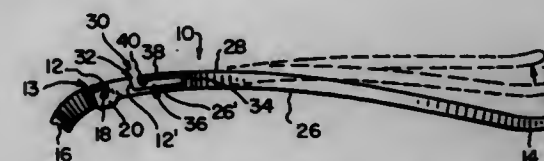
5,673,095

DUAL RATE SPRING-ACTION EYEWEAR TEMPLE

Simon M. Conway, Lima, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.
Filed Jul. 26, 1996, Ser. No. 687,824
Int. Cl.⁶ G02C 5/16; 5/22

U.S. Cl. 351—113

7 Claims



1. A spring-action temple for an eyewear front, said temple comprising:

a) an elongated temple member having opposite front and back end portions and opposite inner and outer side surfaces; and

b) an L-shaped notch formed in said temple member adjacent said front end thereof, said notch having an opening formed through said outer surface and directed toward said inner side surface for a first portion of said notch, said opening then directed rearwardly toward said back end of said temple for a second portion of said notch, said notch defining a finger portion with said outer side surface of said temple, said finger portion including a tip portion which is spaced from said front end in the unbiased position of said temple, said notch further defining a thinned wall section at said inner side surface of said temple opposite said finger portion.

5,673,096

INTERFEROMETRIC ARRANGEMENT WITH DIFFRACTIVE OPTICAL ELEMENT FOR MEASURING INTRAOCULAR DISTANCES

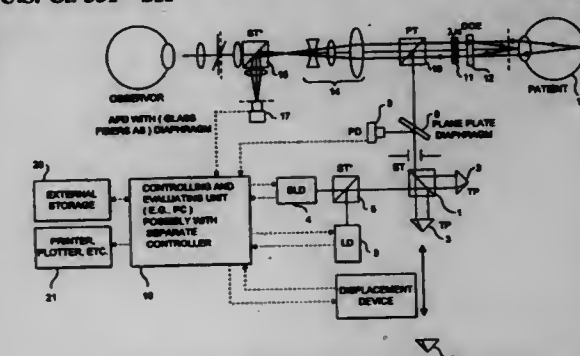
Andreas Dorsel, Menlo Park, Calif.; Karl-Heinz Donnerhacke, and Beate Moeller, both of Jena, Germany, assignors to Carl Zeiss Jena GmbH, Jena, Germany
Filed Dec. 26, 1995, Ser. No. 578,095

Claims priority, application Germany, Dec. 23, 1994, 44 46 183.6

Int. Cl.⁶ A61B 3/10

U.S. Cl. 351—211

21 Claims



1. An arrangement for measuring intraocular distances between different optical boundary surfaces of the human eye by at least one interferometric measurement system, said arrangement further comprising:

at least one diffractive optical element (DOE) for at least one of the following purposes: a) dividing an illumination beam path into partial beam paths for different boundary surfaces; b) allowing the combination and mutual adaptation of the wave-

fronts of measurement light components proceeding from different boundary surfaces; and c) adaptation of the wavefronts of measurement light components proceeding from different boundary surfaces of the eye to the wavefront of the measurement light of at least one interferometric reference arm.

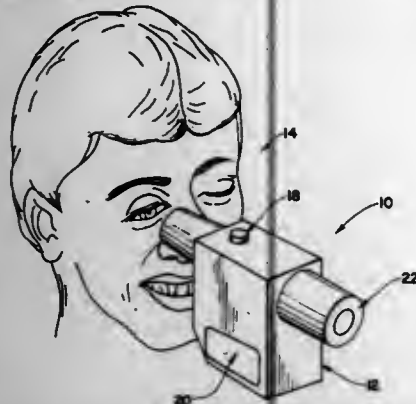
5,673,097
PORTABLE SCANNING LASER OPHTHALMOSCOPE
Gregory Lee Heacock, 505 Timber Valley Rd., Atlanta, Ga. 30342

Filed Apr. 15, 1996, Ser. No. 631,969

Int. Cl. A61B 3/10

U.S. Cl. 351-218

32 Claims



1. A portable scanning laser ophthalmoscope comprising:
a housing that is sufficiently small to be carried by a clinician;
a source of laser light contained in said housing;
a scanning system positioned in said housing so as to receive laser light from said source for generating a two dimensional area of illumination from said laser light;
a battery contained in said housing for providing power to said scanning system; and
an optical system contained in said housing for directing the illumination from the scanning system to the patient's eye for illuminating the fundus thereof and said optical system intercepting light reflected from the patient's eye to generate a magnified image of the interior of the patient's eye, said optical system including an eyepiece lens through which a clinician looks to directly view said magnified image of the interior of the patient's eye.

5,673,098
FEED DEVICE FOR MOTION PICTURE FILM AND DEVICE FOR DETECTING ABNORMALITIES IN PERFORATIONS

Akio Sakashita, Kanagawa, and Noriaki Sakata, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 8, 1995, Ser. No. 569,393

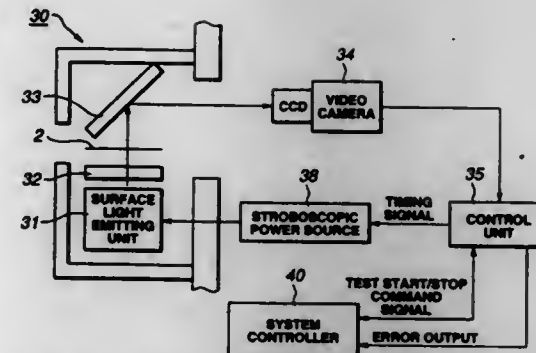
Claims priority, application Japan, Dec. 28, 1994, 6-328367

Int. Cl. G03B 29/00

U.S. Cl. 352-131

17 Claims

1. An apparatus for feeding a motion picture film, comprising:
film running means having a film running path for continuously reeling out a motion picture film from a film supply reel and for winding the motion picture film on a film take-up reel;
intermittent feed means arranged along said film running path for intermittently feeding the motion picture film using perforations formed in the motion picture film;
detection means arranged along said film running path between said film supply reel and said intermittent feed means for detecting abnormalities in said perforations formed in the motion picture film and for producing an error output signal indicating the presence of the abnormalities and including



sensor means arranged along said film running path, video camera means for imaging a portion of the running motion picture film in response to a signal from said sensor means, and image control means supplied with an imaging picture output corresponding to the portion of the film imaged by said video camera means for detecting the abnormalities in the perforations based on said picture output; and
stop control means for stopping film feed by said film running means and said intermittent feed means in response to said error output signal supplied thereto from said detection means.

5,673,099
LENS SHUTTER CAMERA INCLUDING ZOOM LENS
Kelsuke Haraguchi; Shinsuke Kohmoto; Takeo Kobayashi; Shigeru Kondoh; Hideki Ohkubo; Norio Numako; Saburo Sugawara; Susao Nakamura; Hirofumi Matsuo; Katsuhiko Nomura; Etsuro Nishio, and Haruo Ishii, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

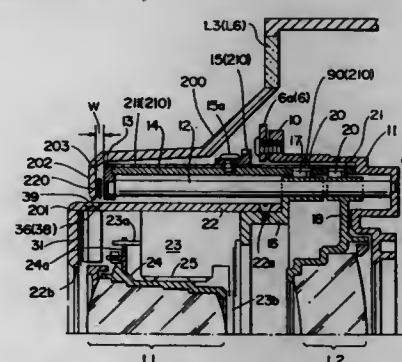
Continuation of Ser. No. 222,697, Mar. 10, 1994, Pat. No. 5,465,131, which is a division of Ser. No. 924,631, Aug. 4, 1992, Pat. No. 5,321,462, which is a continuation of Ser. No. 480,214, Feb. 14, 1990, Pat. No. 5,157,429, which is a division of Ser. No. 144,030, Jan. 7, 1988, Pat. No. 4,944,030. This application Jun. 5, 1995, Ser. No. 462,687

Claims priority, application Japan, May 12, 1986, 61-108278; May 12, 1986, 61-108279; May 28, 1986, 61-080861; May 28, 1986, 61-080862; Jun. 2, 1986, 61-083932; Jun. 2, 1986, 61-127496; Jun. 21, 1986, 61-145470; Jun. 26, 1986, 61-150995; Aug. 15, 1986, 61-125045; Aug. 22, 1986, 61-196911; Aug. 29, 1986, 61-132658; Aug. 29, 1986, 61-132659; Aug. 29, 1986, 61-132660; Aug. 29, 1986, 61-132661; WIPO, May 12, 1987, PCT/JP87/00293

Int. Cl. G03B 5/00; 13/12

U.S. Cl. 354-199

29 Claims



1. A zoom lens shutter camera having a finder optical assembly and a photographic optical assembly with different optical axes, said photographic optical assembly including a zoom lens, said camera including a system for moving said finder optical assembly in association with zooming movement of said zoom lens in order to vary the field of view through said finder optical assembly in

accordance with changes in position of said zoom lens, said zoom lens comprising a front lens group and a rear lens group, said camera further comprising a shutter block mounted around at least a portion of said front lens group, at least one lens in said front lens group being movably positioned within said shutter block, and along the optical axis of said photographic optical assembly, for focusing said zoom lens without movement of said rear lens group, said shutter block being drivably connected to a movable driving ring, wherein movement of said driving ring moves said shutter block axially along said photographic optical axis for effecting zooming movement of said front lens group.

5,673,100
METHOD FOR ENLARGING IMAGES FOR LENTICULAR PRINTS

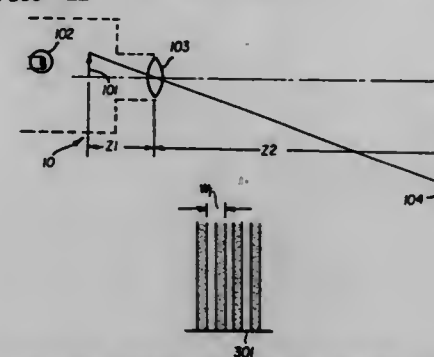
Roger A. Morton, Penfield, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 31, 1994, Ser. No. 331,787

Int. Cl. G03B 27/32

U.S. Cl. 355-22

9 Claims



4. A method for making large format lenticular 3-D images by utilizing an optical enlarger that is calibrated to enlarge a smaller image derived by photographing an original scene taken from spaced-apart positions by the steps of:
forming a first reference image pattern from a piece of lenticular material;
positioning the smaller image into an enlarger at the source plane;
positioning the first reference image into the enlarger at the copy plane;
adjusting the enlarger to produce a desired Moiré pattern;
removing the first reference image from the enlarger and positioning a film at the copy plane of the enlarger; and
exposing the film to the enlarged smaller image to provide the desired large format image for use in making a 3-D image using the lenticular material.

5,673,101
METHOD OF REPETITIVELY IMAGING A MASK PATTERN ON A SUBSTRATE, AND APPARATUS FOR PERFORMING THE METHOD

Manfred G. Tenner; Jan E. van der Werf; Cornelis M. J. van Uijen, and Peter Dirksen, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 25, 1995, Ser. No. 450,197

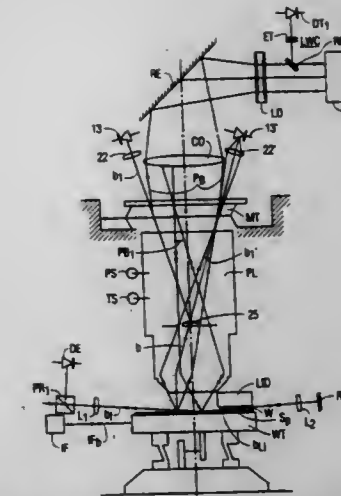
Claims priority, application European Pat. Off., Jun. 2, 1994, 94201577

Int. Cl. G03B 27/42

U.S. Cl. 355-53

14 Claims

1. A method of repetitively imaging a mask pattern, provided in a mask table, on a substrate provided in a substrate table, by means of a projection beam, which method comprises the following steps:
providing a mask having at least one test mark in the mask table;
providing a substrate having a photoresist layer in the substrate table;



projecting the image of at least one test mark of the mask in the photoresist layer by means of the projection beam and the projection lens system;
aligning the mask with respect to the substrate by means of an alignment device;
detecting the latent image of at least one test mark by means of a latent-image detection device in which non-actinic radiation is used;
setting at least one parameter influencing the quality and position of the mask pattern image by means of the output signal of the latent-image detection device, and
repetitively imaging a production mask pattern at consecutive, different positions on a production substrate, characterized in that a diffraction-limited scanning spot is used for the latent-image detection and in that said spot and the latent image are moved with respect to each other for point-by-point scanning of the latent image.

5,673,102
IMAGE FARMING AND MICRODEVICE MANUFACTURING METHOD AND EXPOSURE APPARATUS IN WHICH A LIGHT SOURCE INCLUDES FOUR QUADRANTS OF PREDETERMINED INTENSITY
Akiyoshi Suzuki, and Mlyoko Noguchi, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 427,709, Apr. 24, 1995, abandoned, which is a continuation of Ser. No. 357,786, Dec. 16, 1994, abandoned, which is a continuation of Ser. No. 270,414, Jul. 5, 1994, abandoned, which is a continuation of Ser. No. 159,954, Dec. 1, 1993, abandoned, which is a continuation of Ser. No. 65,498, May 24, 1993, abandoned, which is a division of Ser. No. 836,509, Feb. 18, 1992, Pat. No. 5,305,054. This application Jun. 6, 1995, Ser. No. 470,482

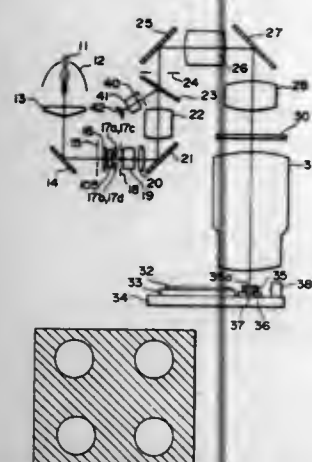
Claims priority, application Japan, Feb. 22, 1991, 3-028631; Apr. 30, 1991, 3-128446

Int. Cl. G03B 27/42

U.S. Cl. 355-53

54 Claims

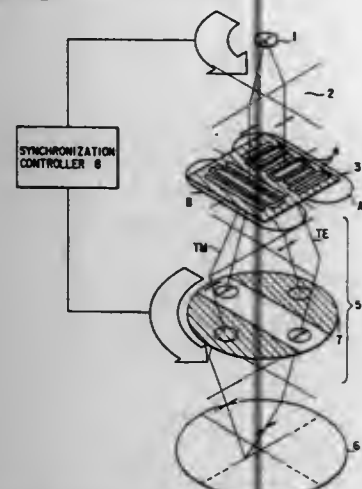
1. An exposure apparatus for forming an image of a fine pattern having linear features extending in orthogonal first and second directions, said apparatus comprising:
an illumination optical system for illuminating the pattern, said illumination optical system comprising means for forming a secondary light source having decreased intensity portions at a center thereof and on first and second axes defined to intersect with each other at the center and defined along the first and second directions, respectively; and
a projection optical system for projecting, on an image plane, an image of the pattern illuminated with light from said secondary light source, wherein said light source comprises four sections having substantially the same light intensity and being distributed in four quadrants defined by the center and the first and second axes,



wherein an image of said light source is projected onto a pupil of said projection optical system, and wherein, on the assumption of a coordinate system defined by X and Y axes extending along the first and second directions and intersecting at a center of the pupil, and that a radius of the pupil is 1, coordinates of centers of the four sections are (p, p), (-p, p), (-p, -p) and (p, -p), wherein $0.25 < p < 0.6$.

5,673,103
EXPOSURE APPARATUS AND METHOD
Solchi Inoue, Yokohama; Satoshi Tanaka, Kawasaki, and Tadahito Fujisawa, Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 311,342, Sep. 23, 1994, abandoned.
This application Aug. 23, 1996, Ser. No. 703,530
Claims priority, application Japan, Sep. 24, 1993, 5-238147;
Dec. 28, 1993, 5-354150

Int. Cl.⁶ G02B 21/14
U.S. Cl. 355—71



1. An exposure apparatus for projecting a plurality of patterns of a photomask, which are elongated in at least two different directions, onto a substrate through the photomask, comprising:
a polarized light source for illuminating the photomask;
polarization control means for changing a direction of polarization of polarized light from said polarized light source;
a slit filter arranged at a position where the polarized light source is focused, and having a slit through which a polarized light is transmitted, and a longitudinal direction of the slit is at a first angle with respect to a polarization direction of the polarized light;

means for changing the longitudinal direction of said slit in said slit filter in synchronism with a change in polarization direction of the polarized light which is made by said polarization control means; and
means for illuminating the photomask with the polarized light wherein a longitudinal direction of the pattern is at a second angle with respect to the polarization direction of the polarized light, thereby exposing a pattern of the photomask onto said substrate.

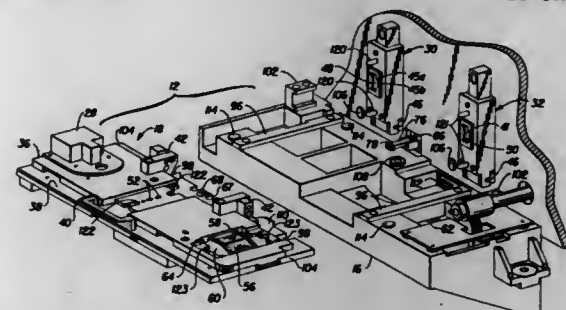
5,673,104
PHOTOFINISHING DEVICE WITH INTERCHANGEABLE FILM DECKS

Bruce E. Rottner, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 7, 1995, Ser. No. 568,914
Int. Cl.⁶ G03B 27/62

U.S. Cl. 355—75

18 Claims



1. A photofinishing device for handling different formats of photographic film, said photofinishing device comprising:
a work station for receiving at least one format type of photographic film;
means for moving said one format type of photographic film along said work station; and
at least one sensor assembly pivotably mounted to said photofinishing device so as to move between an engaged position and a non-engaged position, said at least one sensor assembly having a sensor, said sensor being in substantial contact with said film when said at least one sensor assembly is in the engaged position, said at least one sensor assembly when in the non-engaged position allowing easy access to said sensor, said at least one sensor assembly having means for precisely locating the sensor with respect to said work station.

5,673,105
SCANNING SYSTEM COVER HAVING A PLURALITY OF BENDING AXES

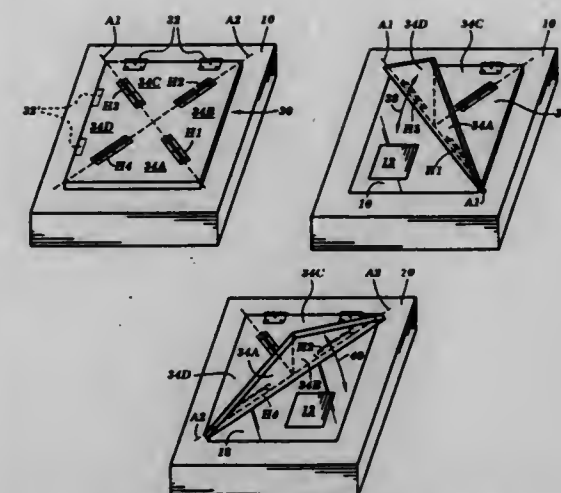
Mark George Brook, III, Londonderry, N.H., assignor to AGFA Division, Bayer Corporation, Wilmington, Mass.

Filed Feb. 7, 1996, Ser. No. 597,718
Int. Cl.⁶ G03B 27/62

U.S. Cl. 355—75

7 Claims

1. A cover for a scanning system comprising:
a plurality of cover panels, said cover panels collectively forming said cover;
first hinge means for pivotally securing said plurality of cover panels together along a plurality of substantially diagonal bending axes, wherein selective combinations of said cover panels can be pivoted about said plurality of substantially diagonal bending axes; and



second hinge means for pivotally securing at least one of said cover panels to said scanning system, wherein said plurality of cover panels can be pivoted as a unit relative to said scanning system.

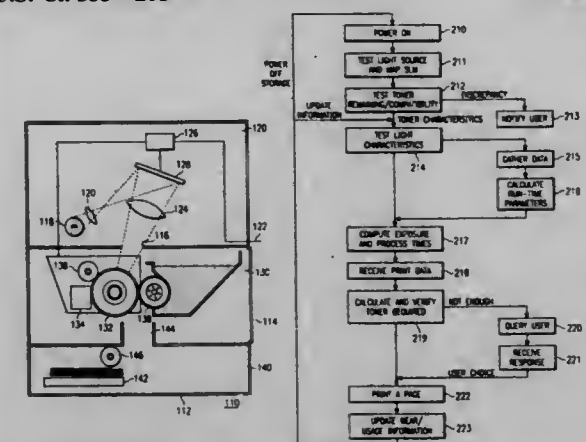
5,673,106
PRINTING SYSTEM WITH SELF-MONITORING AND ADJUSTMENT

E. Earle Thompson, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., and AGFA-Gevaert N.V., Mortsel-Belgie, Belgium

Filed Jun. 17, 1994, Ser. No. 261,614
Int. Cl.⁶ G03G 15/00; 21/00

U.S. Cl. 355—208

3 Claims



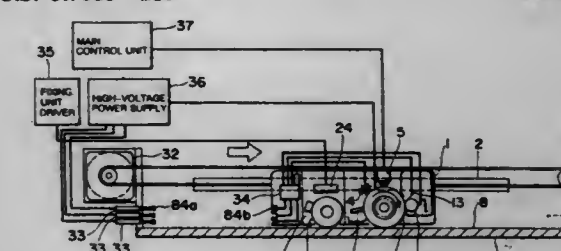
1. A printing system comprising:
a. a light-imaging subsystem;
b. an EP subsystem including:
i. at least one photoreceptor operable to receive light from said light-imaging subsystem;
ii. at least one toner dispenser operable to dispense toner to photoreceptor, wherein said toner dispenser includes monitoring capability and is operable to transfer said toner to said photoreceptor;
iii. an interface with said light-imaging subsystem through which said light can pass;
iv. a transfer port for transferring said toner to printing substrates;
c. a substrate-handling subsystem wherein said at least one photoreceptor transfers toner to a printing substrate through said transfer port; and
d. a processor for continuously adjusting operation of said system in accordance with data received from said EP subsystem, wherein said adjustment includes controlling numbers and selection of gray levels and colors available to a user and notification of system failures for said user.

5,673,107
SERIAL-TYPE ELECTROPHOTOGRAPHIC APPARATUS
Syuzou Masuda, c/o Fujitsu Limited, 1015, Kamikodanaka, Nakahara-ku, Kawasaki-shi, Kanagawa, 211, Japan
Filed Sep. 1, 1994, Ser. No. 299,304
Claims priority, application Japan, Nov. 19, 1993, 5-290448;
Jul. 4, 1994, 6-152333

Int. Cl.⁶ G03G 15/00

U.S. Cl. 355—210

16 Claims



1. An electrophotographic apparatus comprising:
a moving body moving in reciprocation in directions perpendicular to a feeding direction of a chart;
an image carrier mounted on said moving body and rotating in synchronism with a movement of said moving body;
charging means, mounted on said moving body, for charging said image carrier;
developing means, mounted on said moving body, for developing an electrostatic latent image formed by irradiating said image carrier charged by said charging means with the light to produce a developed image; and
voltage dividing means, moving in synchronism with said moving body, for dividing a predetermined voltage and supplying the divided voltages to said charging means and said developing means.

5,673,108
LIGHT RETURN LOSS MEASUREMENT SYSTEM AND METHOD

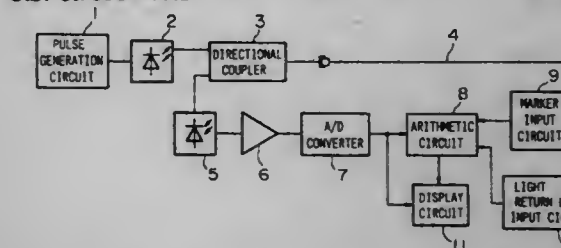
Nobunari Takeuchi, Tokyo, Japan, assignor to Ando Electric Co., Ltd., Tokyo, Japan

Filed Mar. 26, 1996, Ser. No. 621,964

Claims priority, application Japan, Mar. 31, 1995, 7-100308
Int. Cl.⁶ G01N 21/84

U.S. Cl. 356—73.1

13 Claims



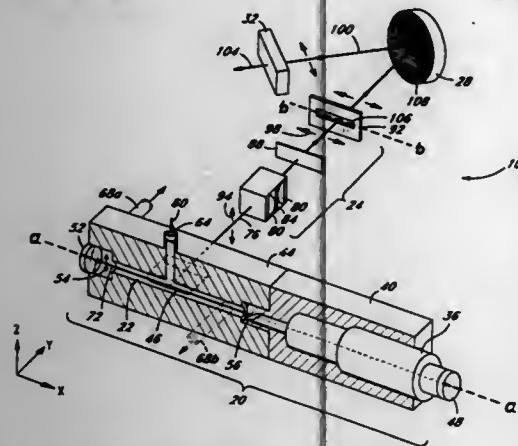
1. A light return loss measurement system including an optical time delay reflectometer (OTDR) for displaying an output of an arithmetic circuit, said system comprising:
a pulse generation circuit for generating a pulse,
an electricity-light conversion circuit for converting the output from said pulse generation circuit to a light pulse,
a directional coupler for transmitting the output from said electricity-light conversion circuit to an optical fiber to be measured and for inputting the return light into said light-electricity conversion circuit for converting to an electrical signal,
an A/D converter for converting the output from said light-electricity conversion circuit from an analog signal to digital signal, a display circuit for taking the output from said A/D converter and displaying a measured waveform data,
a marker input circuit for setting a measurement interval in the measured waveform data displayed via said display circuit.

an arithmetic circuit for calculating a light return loss across the measurement interval set by said marker input circuit, and a light return loss input circuit for inputting the light return loss for a calibration optical fiber having a predetermined light return loss value.

5,673,109
SYSTEM AND METHOD FOR INCREASING THE EFFICIENCY OF A RAMAN GAS ANALYSIS SYSTEM
 Kevin A. Keilbach, Boulder, Colo., assignor to Ohmeda Inc., Liberty Corner, N.J.

Filed Jul. 10, 1996, Ser. No. 678,642
 Int. Cl.⁶ G01J 3/18; 3/44
 U.S. Cl. 356—301

12 Claims

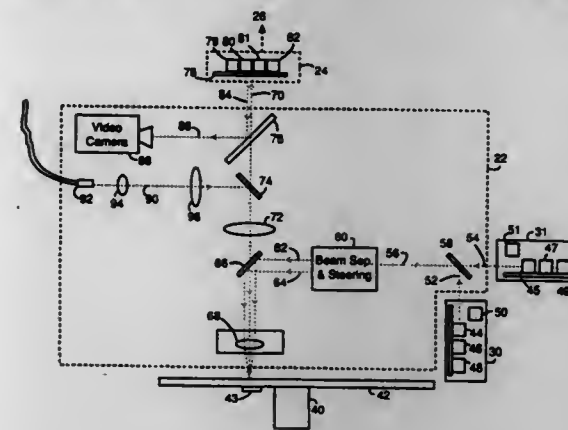


1. A Raman gas analysis system comprising:
 - a laser having a resonant cavity which produces and transmits a beam of polarized light having a first polarization state along an optical axis of said resonant cavity, wherein said first polarization state is substantially perpendicular to said resonant cavity optical axis;
 - a gas analysis cell positioned within said laser resonant cavity along said resonant cavity optical axis such that said beam of polarized light passes through a gas sample contained within said gas analysis cell, wherein the interaction of said polarized light beam with said gas sample produces Raman scattered light having wavelength and intensity characteristics determined by the composition of said gas sample;
 - optics for collecting and focusing a portion of said Raman scattered light to form a beam of Raman scattered light having said first polarization state, said optics further directing said beam of Raman scattered light onto a spectrometer input slit, said spectrometer input slit having a longitudinal dimension which is substantially parallel to said resonant cavity optical axis;
 - a polarization rotation element positioned in said beam of Raman scattered light such that said beam of Raman scattered light enters said polarization rotation element in said first polarization state and exits said polarization rotation element in a second polarization state;
 - a diffraction grating for receiving said Raman scattered light in said second polarization state and for dispersing said beam of Raman scattered light in said second polarization state into a spectrum of wavelengths and intensities; and
 - a detector for detecting said dispersed beam of Raman scattered light and generating an output signal which is representative of said spectrum of wavelengths and intensities comprising said dispersed beam of Raman scattered light.

5,673,110
MULTIPLEXED LASER INTERFEROMETER FOR NON-DISPERSED SPECTRUM DETECTION IN A DYNAMIC FLYING HEIGHT TESTER

Tod L. Erickson, San Jose, and John P. Lauer, Palo Alto, both of Calif., assignors to Phase Metrics, Inc., San Diego, Calif.
 Continuation of Ser. No. 9,281, Jan. 26, 1993, abandoned.
 This application Apr. 17, 1996, Ser. No. 634,670
 Int. Cl.⁶ G01B 9/02
 U.S. Cl. 356—357

5 Claims



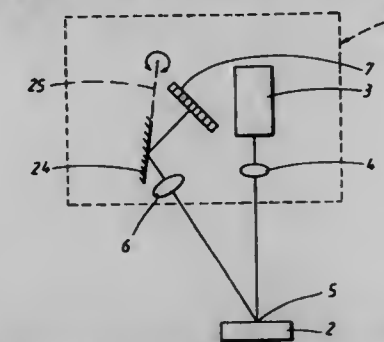
1. An improved flying height tester (10) including at least two different-wavelength laser diodes (44, 45) that are time multiplexed through an optical system (58, 60, 66, 68, 72, 74, 76) to a measurement gap and having a photodetector (24) for measuring the amplitude of light reflected from said measurement gap through a pin-hole to determine the dimension of said measurement gap by light interferometry, the improvement comprising:
 - emission wavelength stabilization means (28, 29, 46-49) connected to each of said different-wavelength laser diodes (44, 45) for maintaining the respective temperatures of said different-wavelength laser diodes at a constant value, wherein the light emitted by each is maintained at a constant wavelength;
 - emission amplitude stabilization means (28, 29, 50, 51) connected to each of said different-wavelength laser diodes (44, 45) for maintaining the respective light-output amplitudes of said different-wavelength laser diodes at a constant value;
 - computer means (18) including calibration and test application software for interpreting signals received by included analog-to-digital connections (26, 32) to said different-wavelength laser diodes (44, 45) and said photodetector (24) into dynamic flying height measurements based on monochromatic interferometry phenomenon, and wherein the actual wavelengths of operation of said different-wavelength laser diodes (44, 45) are predetermined to provide ultimate measurement results that are substantially accurate;
 - an aperture mask (78) in which said pin-hole is disposed and including a reflective surface surrounding said pin-hole and a partial reflectance mirror (76) the outputs a visual image (84, 86) of said measurement gap, wherein said pin-hole in said visual image marks a point of measurement; and
 - a video camera (88) positioned to receive said visual image output (84, 86) reflected by the aperture mask (78) and mirror (76), wherein a video image marked by said pin-hole is obtained for manual targeting of a measurement.

5,673,111
METHOD AND ARRANGEMENT FOR MEASURING DISTANCE

Per Nyquist, Onsala, Sweden, assignor to Limab Laser & Instrumentmekanik AB, Sweden
 PCT No. PCT/SE94/00011, § 371 Date Jul. 11, 1995, § 102(e)
 Date Jul. 11, 1995, PCT Pub. No. WO94/16289, PCT Pub. Date Jul. 21, 1994
 PCT Filed Jan. 11, 1994, Ser. No. 491,873
 Claims priority, application Sweden, Jan. 11, 1993, 9300047
 Int. Cl.⁶ G01B 11/14

U.S. Cl. 356—375

11 Claims



1. A method of measuring a distance, comprising:
 - illuminating an area of a measured object with light from a laser-light source which, after reflection, produces an image of said area on a detector arrangement located offset from a line through said laser source and the illuminated area; said detector arrangement comprising at least one line of detector elements;
 - displacing said image of said area across said at least one line of detector elements; and
 - sampling and accumulating a light intensity-dependent output signal from each detector element as the image is displaced.

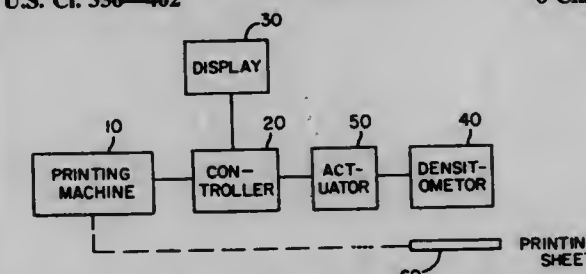
5,673,112
METHOD FOR DETECTING COLOR CONTAMINATION
 Peter Schramm, Frankfurt am Main, Germany, assignor to MAN Roland Druckmaschinen AG, Germany
 Filed Mar. 22, 1996, Ser. No. 620,242

Claims priority, application Germany, Mar. 25, 1995, 195 11 076.5

U.S. Cl. 356—402

Int. Cl.⁶ G01J 3/50

6 Claims

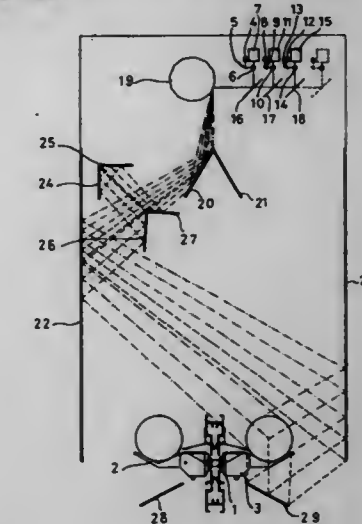


1. A method for detecting color contamination in the production of multi-color printed products using color density values determined densitometrically for a plurality of spectral ranges for each color, where a greatest color density value for each color is the main color density and the other color density values are subsidiary color densities, the method comprising the steps of (1) determining the values of the main and the subsidiary color densities at a measurement location printed with an uncontaminated color, (2) determining the values of the main and subsidiary color densities of the same color on a printed sample, (3) and forming the difference between the values of the subsidiary color densities of steps (1) and (2), where the values of the subsidiary color densities of the uncontaminated color are extrapolated from the value of the main color density of the printed sample.

5,673,113
ANALYSIS DEVICE FOR THE AUTOMATIC GRADING OF PRODUCTS, IN PARTICULAR OF FRUITS OR VEGETABLES

Philippe Blanc, Montauban, France, assignor to Materiel pour l'Arboriculture Fruitiere, Montauban, France
 Filed Mar. 29, 1996, Ser. No. 625,032
 Claims priority, application France, Apr. 6, 1995, 95 04361
 Int. Cl.⁶ B03D 1/00; G01N 9/04; G01J 1/40
 U.S. Cl. 356—429

11 Claims



1. Analysis device for the automatic grading of products, in particular of fruits or vegetables, moving longitudinally on a conveyor furnished with supports (2, 3) for said products which are suited to masking as little as possible the lower face of the latter, said grading device being characterised in that it comprises in combination:

- punctiform lighting means (4, 8, 12) capable of generating a polarised incident beam,
- means (19) for deflecting the polarised incident beam which are capable of causing said beam to scan the upper surface of the conveyor along a line of light crosswise with respect to the direction of movement of said conveyor,
- first, lateral, reflection means (22, 23), arranged laterally with respect to the conveyor so as to intercept a portion of the line of light and to allow the products to be lighted laterally,
- second, lower, reflection means (28, 29), arranged below the conveyor so as to intercept a portion of the line of light reflected by the lateral reflection means (22, 23) and to allow the lower face of the products to be lighted,
- separation means (6, 10, 14) aligned on the optical axis of the polarised incident beam and suited to separating said incident beam and the depolarised light energy backscattered by the products and the reflection means (22, 23, 28, 29),
- a collection chain (7, 11, 15) comprising sensors arranged so as to receive the back-scattered light energy, and suited to delivering analog signals representative, for each point of each line of light, of the light intensity of said point and
- a processing unit comprising analog/numeric conversion means suited to receiving the analog signals leaving the sensors and to converting said signals into series of numeric values, and calculation means suited to calculating, on the basis of pre-defined programmed criteria, usable items of grading information.

5,673,114
APPARATUS FOR MEASURING OPTICAL ABSORPTION OF SAMPLE AND SAMPLE HOLDER APPLICABLE TO THE SAME

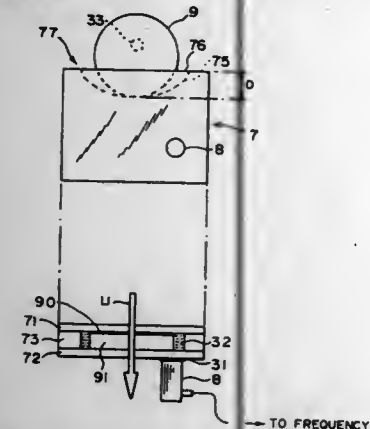
Yoshihiro Ushio, Kawasaki, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Jun. 24, 1996, Ser. No. 668,862

Int. Cl.⁶ G01N 21/01

U.S. Cl. 356-432

36 Claims



1. A sample holder applicable to an apparatus which measures an optical absorption of a sample with respect to measurement light having a predetermined wavelength by photoacoustic measurement, said sample holder comprising:

a holder body having a sample supporting section which saves a predetermined amount of a liquid and supports the sample while a part of the sample is immersed in the liquid, said sample supporting section having an opening through which a part of the sample to be irradiated with the measurement light is placed above a liquid level of the liquid;

an acoustic sensor for detecting an acoustic signal generated upon a change in volume of the sample occurring due to the optical absorption of the sample irradiated with the measurement light; and

a holding mechanism for directly attaching said acoustic sensor to a predetermined position of said holder body.

5,673,115
IMAGE RECORDING METHOD AND DEVICE WITH MEMORY PRINTING OF PLURAL RECORDING MEDIA ON A RECORDING DRUM

Shinobu Arimoto, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 231,685, Apr. 25, 1994, abandoned.

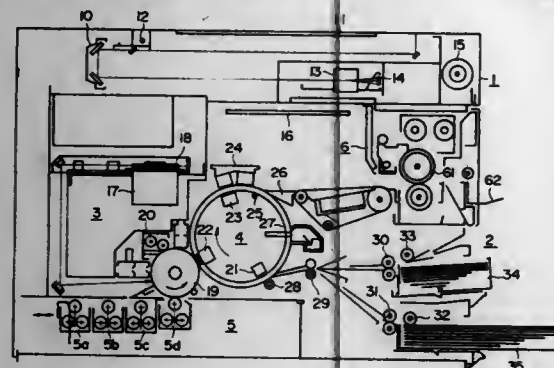
This application May 13, 1996, Ser. No. 645,036

Claims priority, application Japan, May 6, 1993, 5-105529

Int. Cl.⁶ H04N 1/23; G03G 15/01

U.S. Cl. 358-296

77 Claims



1. An image recording method in an apparatus having recording means for recording an image by superimposing images of different colors, comprising:

a reading step of starting reading of an image based upon a first timing signal, produced by said recording means, representing a recording-medium retention position;

a processing step of processing an image signal, which has been obtained at said reading step, for obtaining an image signal of a prescribed color;

a first recording step of storing the image signal, which has been obtained at said processing step, in memory means in synchronization with a synchronizing signal produced by said recording means, and recording this image signal of a first recording medium; and

a second recording step of recording the image signal, which has been read out of said memory means in synchronization with the synchronizing signal, on a recording medium from a second recording medium onward.

5,673,116
IMAGE FORMING APPARATUS WHEREIN DATA IS CONVERTED BETWEEN MULTI-LEVEL DATA AND BI-LEVEL DATA

Shigenobu Fukushima, Yokohama, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 955,028, Oct. 1, 1992, abandoned.

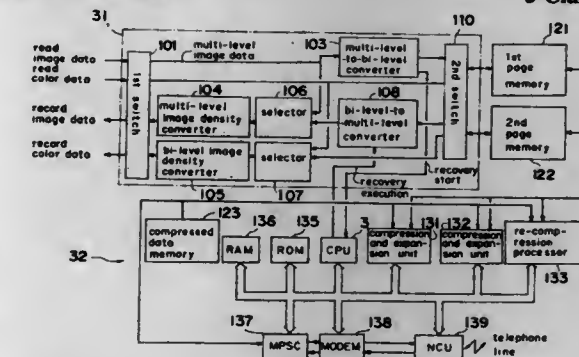
This application Dec. 26, 1995, Ser. No. 587,779

Claims priority, application Japan, Oct. 3, 1991, 3-256729; Oct. 3, 1991, 3-256732; Oct. 3, 1991, 3-256740

Int. Cl.⁶ H04N 1/387; 1/41; 1/393

U.S. Cl. 358-298

5 Claims



1. An image processing apparatus comprising: read means for reading each pixel of an image of a document having a plurality of pages and generating multi-level image data for each page;

conversion means for converting the multi-level image data generated by said read means to bi-level image data which represents black and white;

memory means for storing the bi-level image data converted by said conversion means;

recovery means for successively reading the bi-level image data from said memory means and converting the read data to multi-level image data;

magnification change means for changing a number of pixels of the multi-level image data converted by said recovery means so as to change a size of the image;

said conversion means further converts the data changed by said magnification change means to bi-level image data; and

transmitter means for transmitting the bi-level image data converted by said conversion means via a communication line.

5,673,117
DATA COMMUNICATION APPARATUS WITH DETACHABLE NETWORK CONTROL UNIT</

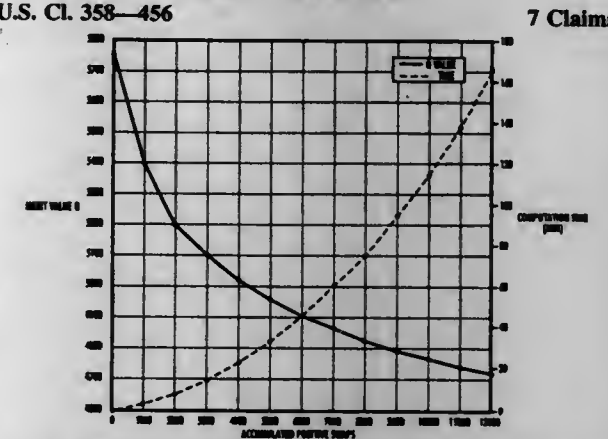
second packing means for packing the encoded second image data by the predetermined unit;
third switching means for selecting said first or second packing means; and
control means for controlling switching operations of said first and second switching means so as to cause said encoding means to alternately encode the first or second image data in units of one scanning line,
wherein said control means controls a switching operation of said third switching means.

5,673,120
IMAGE OUTPUT DEVICE
Shuji Fujii, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Dec. 21, 1994, Ser. No. 360,941
Claims priority, application Japan, Dec. 24, 1993, 5-347902
Int. Cl.⁶ H04N 1/40; G09G 1/00; G06F 3/00
U.S. Cl. 358—456 **4 Claims**



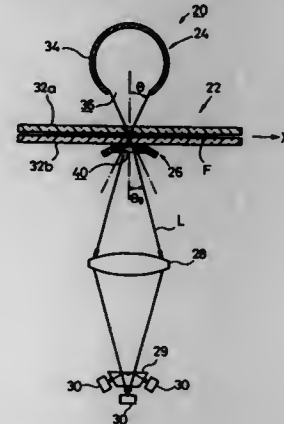
1. An image output device comprising:
an image receiving circuit for receiving picture data containing density value data and position data representing border positions of a region having a density value indicated by the density value data;
an image processing circuit for converting received picture data into image data;
an image memory circuit for storing the image data, said image memory circuit being addressed every constant number of bits and changing a memory capacity corresponding to a resolution of the region; and
an image output circuit for reading and outputting the image data from said image memory circuit,
wherein said image processing circuit comprises:
a tone pattern generating circuit for generating a tone dot pattern having colored dots the number of which corresponds to the density value indicated by the density value data;
a closed region assigning circuit for assigning a closed region on said image memory circuit by address information, said closed region assigning circuit including a first generator circuit corresponding to the position data for generating an address in which the border positions of the closed region exist, and a second generator circuit for generating a parameter indicating a bit in the address in which the border position exists and outputs the address and the parameter as the address information; and
a filling-out processing circuit for writing the tone dot pattern generated from said dot pattern generating circuit in the closed region by said address information.

5,673,121
STOCHASTIC HALFTONING SCREENING METHOD
Shen-ge Wang, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Jun. 17, 1996, Ser. No. 663,419
Int. Cl.⁶ G03B 21/60
U.S. Cl. 358—456 **7 Claims**



1. A method of designing a halftone cell, for converting an image received at d levels, for reproduction at 2 levels, the method including the steps:
a. initially assigning a set of threshold signals varying across a range of gray levels to locations in a screen matrix, each threshold signal defined by value and position in the matrix;
b. selecting at least two threshold signals in said screen matrix;
c. for a selected halftone level, characterizing the uniformity of distribution of spots through the halftone screen cell;
d. swapping the two threshold signal positions in the screen matrix;
e. recharacterizing the uniformity of distribution of spots through the halftone screen cell;
f. as a function of the recharacterization, selecting one of maintaining the threshold signals in the swapped positions on the halftone screen and otherwise returning the threshold values to the initial positions;
g. iteratively repeating a preselected number of iterations, steps b through f.

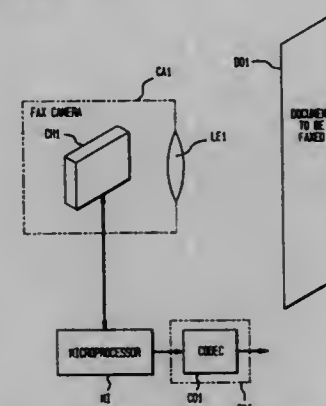
5,673,122
IMAGE READING APPARATUS INCLUDING SLIT MEMBER DISPOSED BETWEEN FILM ORIGINAL AND READING LENS
Toshihiko Omori, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Feb. 14, 1995, Ser. No. 388,469
Claims priority, application Japan, Feb. 14, 1994, 6-017420
Int. Cl.⁶ H04N 1/04; G02B 26/02; F21V 7/00
U.S. Cl. 358—471 **10 Claims**



1. An image reading apparatus comprising:

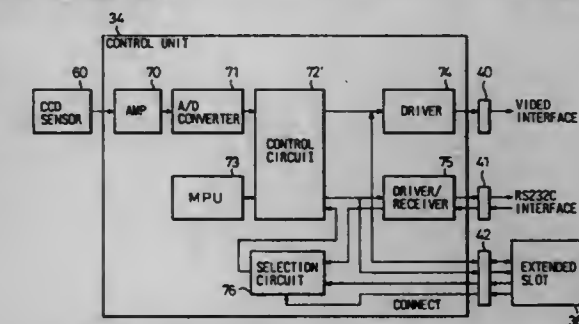
an illuminating system for applying reading light to an original with image information recorded thereon, said illuminating system comprising a linear light source for emitting reading light of a substantially fully diffused light intensity distribution;
a condensing optical system for converging the reading light which bears the image information from the original;
a slit member positioned between said original and said condensing optical system and disposed closely to said original for controlling a field of view with respect to the reading light from said original; and
photoelectric transducer means for detecting and photoelectrically converting the image information borne by the reading light which is converged by said condensing optical system, into an electric signal, said condensing optical system being positioned between said slit member and said photoelectric transducer means.

5,673,123
METHODS AND MEANS FOR PROCESSING IMAGES
Alexander George Dickinson, Neptune, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.
Filed Jun. 30, 1994, Ser. No. 268,426
Int. Cl.⁶ H04N 1/195
U.S. Cl. 358—474 **22 Claims**



1. A method of converting an image of an object data and transmitting the data, comprising:
setting a plurality of photosensitive cells along a multiplicity of rows and columns of a random access memory to a given value;
exposing the plurality of cells of the random access memory to an image so the cells change to exposure values on the basis of exposures of the cells;
in sequence from row to row, simultaneously reading the cells along each row and, on the basis of the reading, writing refresh values representative of the exposure values back into the read cells;
repeating the row to row reading and writing of refresh values cyclically, and
sequentially transmitting the refresh value in each cell;
the step of writing refresh values representative of the exposure values into the read cells including writing the refresh values into all the cells in a row for each transmission of the refresh value in one cell so that all the cells in each row are refreshed each time a single cell is transmitted;
the step of exposing the plurality of cells of the random access memory to an image includes forming an image of the entire object on the random access memory.

5,673,124
IMAGE SCANNER HAVING SYSTEM EXTENDING FUNCTION AND IMAGE CORRECTING FUNCTION
Yukio Kaji, Ishikawa; Norio Kanemitsu, Kawasaki, and Mikio Murosaki, Ishikawa, all of Japan, assignors to PFU Limited, Ishikawa, and Fujitsu Limited, Kawasaki, both of Japan
Filed May 23, 1995, Ser. No. 447,808
Claims priority, application Japan, May 24, 1994, 6-109863; Sep. 20, 1994, 6-224942
Int. Cl.⁶ H04N 1/04; I/32; G06F 17/00; I/500
U.S. Cl. 358—474 **2 Claims**



1. An image scanner comprising:
an image read means at least including a lamp, a mirror and CCD sensors to read a manuscript;
an image control means operatively connected to said image read means to process an image read by said image read means;
a host computer operatively connected to said image control means;
said image control means including a main printed-circuit board provided for original functions of said image scanner, a main connector connecting said image control means to said host computer, a user printed-circuit board selectively provided by a user as an extended slot and said board mounted within said image control means, and a user connector connecting said main printed-circuit board to said user printed-circuit board;
wherein said image control means further comprises: a control circuit operatively connected to said CCD sensors; a microprocessor connected to said control circuit; a driver and a driver/receiver both connected to said control circuit; a video connector connected to said driver to send image signals to said host computer; a control connector connected to said driver/receiver to send and receive control signals to/from said host computer; and an extended connector connected between said control circuit and said extended slot to send and receive the image/control signals to/from said extended slot without passing through said flat bed type and said automatic document type.

5,673,125
SCANNING SYSTEM FOR SCANNING TRANSMISSIVE AND REFLECTIVE ORIGINALS
John A. Merecki, Brentwood, N.H., and John F. Omvik, North Andover, Mass., assignors to Agfa Division, Bayer Corporation, Wilmington, Mass.
Filed Aug. 3, 1995, Ser. No. 510,954
Int. Cl.⁶ H04N 1/04; H01J 3/14
U.S. Cl. 358—487 **13 Claims**

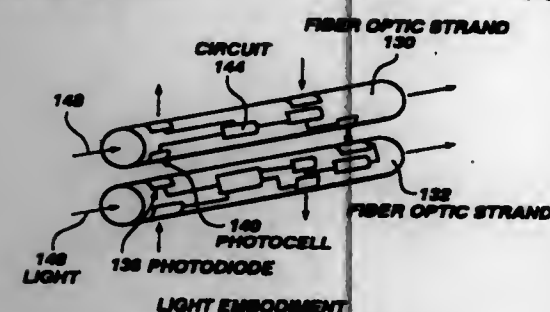
9. A scanning system for providing a digitized representation of an original, comprising:
a displaceable scan carriage including an illumination module for illuminating a scan line on said original, a sensor system for obtaining a digitized representation of said illuminated scan line, and an optic system for focusing said illuminated scan line on said sensor system;
means for displacing said original through said scan carriage along an object focal plane to obtain digitized representations

a decoder coupled for receiving said transmitted clock and recovering said decode invert signal from said transmitted clock.

5,673,131
HIGH DENSITY, THREE-DIMENSIONAL, INTERCOUPLED CIRCUIT STRUCTURE
 Stephen C. Jacobsen, Salt Lake City, Utah, assignor to Sarcos Group, Salt Lake City, Utah
 Continuation of Ser. No. 114,132, Aug. 30, 1993, abandoned, which is a division of Ser. No. 871,336, Apr. 21, 1992, Pat. No. 5,270,485, which is a continuation-in-part of Ser. No. 816,628, Dec. 31, 1991, Pat. No. 5,269,882. This application Sep. 5, 1995, Ser. No. 523,754
 Int. Cl.⁶ H04B 10/12

U.S. Cl. 359-173

4 Claims



1. Circuit coupling apparatus comprising a plurality of cylindrical elongate base elements arranged generally in a parallel configuration, and a plurality of electrical components disposed on the base elements, said components including at least one signal emitter means on at least one base element for producing a coupling signal whose magnitude varies in response to control signals, means on said at least one base element for supplying control signals to said signal emitter means, at least one coupling signal detector means on at least another base element disposed to intercept coupling signals produced by the signal emitter means for producing actuation signals representing the magnitude of coupling signals intercepted by the signal detector means, and means on said at least another base element for receiving the actuation signals.

5,673,132
APPARATUS FOR REPOWERING AND MONITORING SERIAL LINKS

Quledo Joseph Carbone, Jr., Kingston; Gerald Holt Miracle, Pleasant Valley, both of N.Y., and Peter Lloyd Potvin, Holly Springs, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

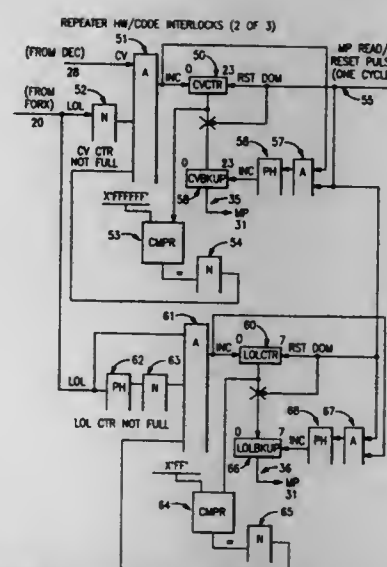
Division of Ser. No. 376,269, Jan. 23, 1995, Pat. No. 5,572,352, which is a division of Ser. No. 76,027, Jun. 14, 1993, Pat. No. 5,517,519. This application Jan. 16, 1996, Ser. No. 586,451
 Int. Cl.⁶ H04B 10/16; 10/08

U.S. Cl. 359-177

1 Claim

1. An apparatus for use with a serial channel interface connecting a serial channel with a serial component said serial channel interface conforming to a predetermined protocol, said apparatus comprising:

a repeater unit having a connector for connecting into a serial link between the serial channel and the serial component, said repeater unit repowering a plurality of serial bit streams passing in both directions on the serial link, wherein the apparatus interrogates serial characters being repeated in both in both directions, but without disturbing the repowered serial bit streams,

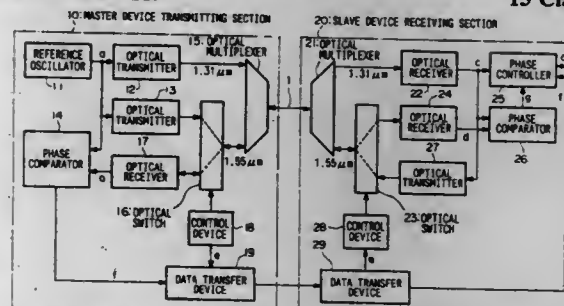


wherein the interrogated repeated serial characters are tested for being valid characters or code violations (CV's), and if the repeated serial characters are valid, then they are tested for being idle or non-idle, and wherein the repeater unit reshapes and redrives the serial bit stream for serial links, and also provides conversion between multi-mode fiber optic cables driven by LED's and single-mode fiber optic cables driven by LASER's whereby the repeater may be configured as LED-to-LASER, LASER-to-LASER or LED-to-LED, and wherein a plurality of repeater units may be inserted in a single serial link, allowing connected end points to be extended apart.

5,673,133
PHASE SYNCHRONIZATION SYSTEM
 Atsushi Imaoka, Zushi, and Masami Kihara, Kamakura, both of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan
 Filed Apr. 11, 1996, Ser. No. 624,360
 Claims priority, application Japan, Apr. 14, 1995, 7-089855
 Int. Cl.⁶ H04B 10/00; 10/06

U.S. Cl. 359-189

15 Claims



1. A receiving device for a phase synchronization system, comprising: an optical multiplexer for receiving optical signals from an optical fiber connected to a transmitting device provided in a master or slave device, and separating said optical signals into optical signals of a first wavelength λ_1 and optical signals of a second wavelength λ_2 ; a first optical receiver for separating first phase signals from said optical signals of wavelength λ_1 ; a second optical receiver for separating second phase signals from said optical signals of wavelength λ_2 ; a phase comparator for determining a phase difference between said first phase signals and said second phase signals, by determining a difference between a first delay time for said optical signals of wavelength λ_1 to travel from said transmitting device to the present device and a second delay time for

said optical signals of wavelength λ_2 to travel from said transmitting device to the present device, and outputting second phase difference data indicating said phase difference; an optical transmitter for generating optical signals of wavelength λ_2 modulated by said first phase signals, and sending said optical signals through said optical multiplexer to said optical fiber;

an optical switch for switching between a first state wherein optical signals of wavelength λ_2 generated by said optical transmitter are inputted into said optical multiplexer and a second state wherein optical signals of wavelength λ_2 separated by said optical multiplexer are inputted into said second optical receiver;

a data transfer section for receiving switch control signals for switching between the states of said optical switch and first phase difference data indicating the sum of said first delay time and said second delay time;

a control section for controlling the state of said optical switch based on said switch control signals received by said data transfer section;

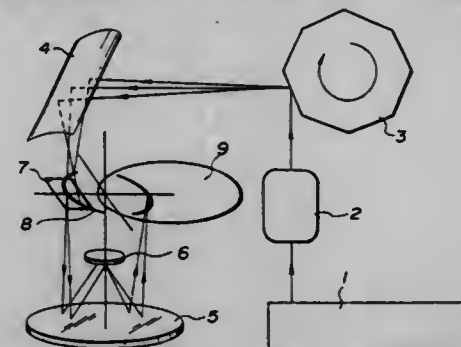
a delay time calculation section for determining a first delay time by adding the values of said first phase difference data and said second phase difference data, and dividing the resulting sum by 2; and

a phase control section for generating phase signals synchronized with reference phase signals generated by said transmitting device by adjusting the phase of said first phase signals based on said first delay time determined by said delay time calculation section.

5,673,134
LIGHT EXPOSURE AND ILLUMINATING APPARATUS
 Michio Oka, Kanagawa, and Hiroshi Suganuma, Ibaragi, both of Japan, assignors to Sony Corporation, Tokyo, Japan
 Filed Jul. 14, 1995, Ser. No. 502,460
 Claims priority, application Japan, Jul. 15, 1994, 6-163948
 Int. Cl.⁶ G02B 26/08

U.S. Cl. 359-196

6 Claims

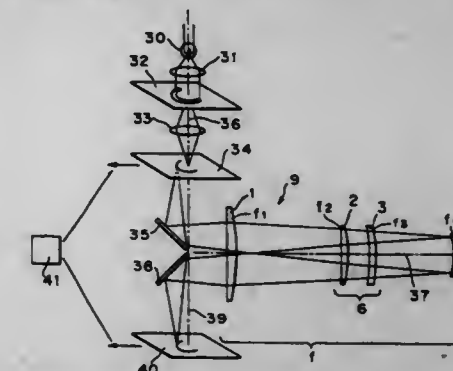


1. A light exposure illuminating apparatus for conducting a light beam source to an object to be exposed to light comprising: harmonics light generating means for continuously radiating the light of harmonics; a scanning optical system for sweeping the light of harmonics continuously radiated from said harmonics generating means, said scanning system comprising a scanning lens which sets the diameter of the light harmonics to a scanning beam diameter and a mirror with at least one moving reflector surface which reflects the light of harmonics from the scanning lens in a sweeping motion; a patterned mask irradiated in a sweeping motion with the light of harmonics swept by the scanning optical system; a cylindrical mirror which receives the light of harmonics reflected by the mirror with the moving reflection surface and which reflects said light onto said patterned mask; and an imaging optical system for forming an image of the light of harmonics transmitted through said pattern in the object to be exposed to light.

5,673,135
SCANNING PROJECTION OPTICAL DEVICE
 Hisakazu Yoshino; Takuji Satoh, and Toshiki Okumura, all of Tokyo, Japan, assignors to Kabushiki Kaisha Topcon, Tokyo, Japan
 Continuation of Ser. No. 288,713, Aug. 15, 1994, abandoned.
 This application Dec. 10, 1996, Ser. No. 762,985
 Claims priority, application Japan, Aug. 17, 1993, 5-203413
 Int. Cl.⁶ G02B 26/08

U.S. Cl. 359-196

4 Claims



1. A scanning projection optical device, which projects an object by scanning with a predetermined scanning width, comprising: an illuminator for illuminating the object upon an arc-shaped region, a catadioptric system for forming on an image plane an image of the object illuminated on the arc-shaped region by the illuminator, a photosensitive member located in the image plane, and a driving device for relatively moving the object and the photosensitive member relative to both the illuminator and the catadioptric system in the direction perpendicular to the direction of the illumination, wherein said catadioptric system is an optical system telecentric in both object and image-field sections, and has a first, positive power lens-system, a second, substantially non-power lens-system, and a concave mirror; said first, positive power lens-system and said concave mirror cooperatively satisfy a Petzval condition to correct field curvature; and without impairing the Petzval condition satisfied by the first lens-system and the concave mirror, said second lens-system corrects aberration of the arc-shaped region centering around the optical axis.

5,673,136
OPTICAL SCANNER
 Nozomu Inoue; Takashi Hama; Yujiro Nomura, and Kyu Takada, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
 Filed Feb. 22, 1996, Ser. No. 604,901
 Claims priority, application Japan, Feb. 23, 1995, 7-059894
 Int. Cl.⁶ G02B 26/08

U.S. Cl. 359-205

5 Claims

1. An optical scanner, comprising: a light source for emitting a light beam, first optics, including a collimator lens, for providing a transformed light beam by transforming said light beam to have specified characteristics, a deflector for providing a deflected light beam by deflecting said transformed light beam in a main scanning direction, and second optics, including a scanning lens, for providing a focused light beam by focusing said deflected light beam to form a focused image on a predetermined surface to be scanned, said focused image defining an image point which has an image plane and cross sections, said cross sections including a main scanning cross section defined in said image plane in said main scanning direction, and a sub-scanning cross section

a magnet fixedly positioned on said lens housing, when said lens housing is attached to said device housing said magnet being in juxtaposition to said magnetically permeable portion of said device housing;

a second magnet moving between a first position and a second position dependent upon position of said power-adjustment portion, said second magnet in only one of said first and second positions providing a magnetic field which penetrates into said chamber via said magnetically permeable portion of said device housing;

a magnetically-responsive sensor disposed within said chamber in juxtaposition to said magnetically permeable portion of said device housing;

whereby said magnetically-responsive sensor indicates the presence of said lens assembly at said optical aperture; and

another magnetically-responsive sensor responding to said magnetic field of said second magnet in said one of said first and second positions to uniquely identify the power setting of said lens assembly.

5,673,144

OBLIQUE VIEWING MICROSCOPE SYSTEM

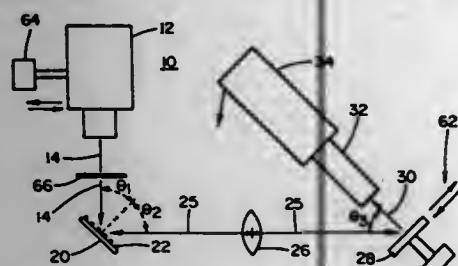
Jean-Claude Andre Chastang, Mahopac; Kathryn Barr Kirtley, Katonah, and Alan Edward Rosenbluth, Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 14, 1994, Ser. No. 306,238

Int. Cl.⁶ G02B 21/00; G01B 9/02

U.S. Cl. 359—385

21 Claims



1. An oblique viewing microscope system for providing a high-resolution, multi-color image of an object, comprising:

means for reflecting an image of an object at a first oblique angle with the normal to the object;

relay means for projecting the reflected image with a magnification of magnitude substantially unity;

a movable diffraction grating having a grating period for diffracting the projected image into a plurality of orders, said grating being tilted so that said relay means projects the image onto said grating at a second oblique angle to the normal of the grating, said orders as a group being diffracted substantially parallel to the normal of said grating;

means for oscillating said diffraction grating in the plane of the grating;

means for illuminating the object through a filter means having a plurality of slits and means for oscillating the illumination means so that said reflected image is an array of parallel slit-like images; and

detection means for capturing at least two orders and projecting said captured orders into a display means for combining said orders into a high-resolution, multi-color image of said object for viewing.

5,673,145

REAR PROJECTION SCREEN MULTI-PANEL CONNECTION SYSTEM

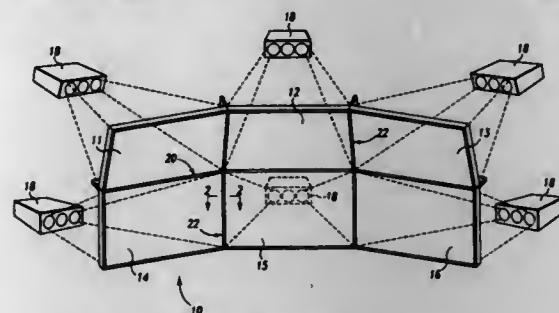
Robert M. Wilson, 746 Cranberry Dr., Greenfield, Ind. 46140

Filed Mar. 24, 1995, Ser. No. 410,796

Int. Cl.⁶ G03B 21/56

U.S. Cl. 359—449

11 Claims



1. A rear projection screen assembly comprising:

a plurality of screen panels each including a rear surface, a front surface, and edges, said panels arranged in a screen-forming relationship providing a contiguous viewing area, said panels including a first panel and a second panel, wherein a first panel edge is flush with or in closely spaced relationship with a second panel edge, and wherein at least one of said first panel edge and said second panel edge comprises fastener receiving notch means;

a framing system mounting said panels in said screen-forming relationship, said framing system comprising:

a front bracket located along the front surfaces of said first and second panels at said first panel edge and said second panel edge;

a rear bracket separate from said front bracket and located along the rear surfaces of said first and second panels at said first panel edge and said second panel edge;

at least one fastener integrally formed with said front bracket and extending through said notch means and connecting said front bracket to said rear bracket to secure said first and second panels between said front and rear brackets, whereby said at least one fastener and said front bracket comprise a one-piece construction.

5,673,146

BINOCULAR IMAGING SYSTEM

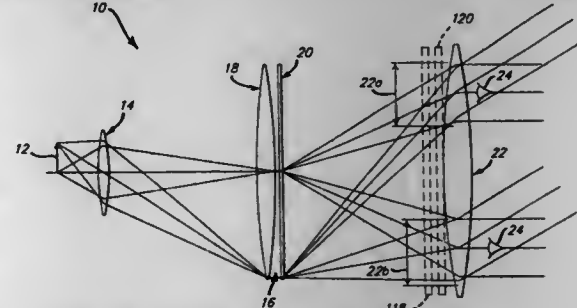
Shawn L. Kelly, 8479 Pine Cove Dr., Commerce Township, Mich. 48382

Filed Aug. 9, 1994, Ser. No. 287,967

Int. Cl.⁶ G02B 27/22; 21/22; 23/00

U.S. Cl. 359—462

17 Claims



1. A binocular imaging system comprising:

means for forming an intermediate image of an object;

a field lens positioned proximate the intermediate image for concentrating the intermediate image;

a beam splitting means positioned proximate the intermediate image for imparting a positive angular deviation to a portion of the intermediate image and a negative angular deviation to the remaining portion of the intermediate image; and

means for re-imaging the positive angular deviation and negative angular deviation in the intermediate image to form respective left and right eye virtual images.

5,673,147

STEREO VIDEO ENDOSCOPE OBJECTIVE LENS SYSTEMS

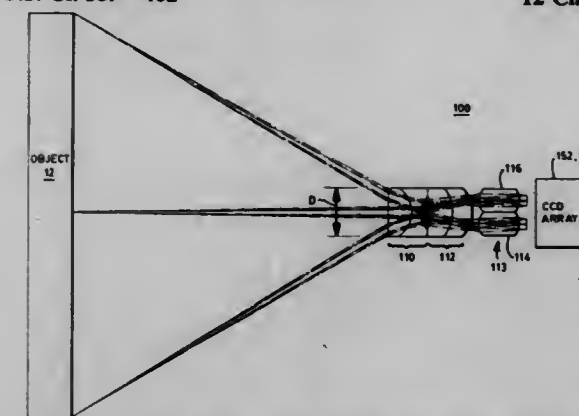
Harry R. McKinley, Southampton, Mass., assignor to McKinley Optics, Inc., Southampton, Mass.

Filed Apr. 18, 1995, Ser. No. 424,704

Int. Cl.⁶ G02B 27/22

U.S. Cl. 359—462

12 Claims



1. A stereoscopic objective lens system for a stereo video endoscope, the objective lens system converting light propagated from an object and received at an objective end of the objective system to pixel-mapped left and right optical images of said object at an image plane end of the objective system, the objective lens system comprising:

A. a first collimator doublet lens element proximate to the objective end for collecting light from points on the object, said first doublet lens having a first optical axis, a selected diameter and a selected optical power,

B. a second collimator doublet lens for collecting light from said first collimator doublet lens, said second collimator doublet lens being disposed adjacent to said first collimator doublet lens and having an optical axis substantially collinear with the optical axis of the first collimator doublet lens, said second collimator doublet lens having a selected diameter and a selected optical power, whereby said first and second collimator doublet lenses cooperate to image the object points substantially to infinity so that light transmitted by the second collimator doublet lens from the object points is substantially collimated,

C. a right/left stereo lens pair, said pair including a right ball lens and a left ball lens, said right and left ball lenses being adjacent to said second collimator doublet lens and disposed for collecting light from said second collimator doublet lens, said right ball lens and said left ball lens each having a respective optical axis substantially parallel to the optical axis of the second collimator doublet lens,

wherein said first and second collimator doublet lenses and said right/left stereo lens pair cooperate so that the first and second collimator doublet lenses present equal-angle light ray pairs from symmetrically disposed object points to the ball lenses of said right/left stereo lens pair, whereby said right ball lens generates a right image at the image plane, and said left ball lens generates a left image at the image plane, such that corresponding portions of each right/left image are mapped to within a selected distance of each other.

5,673,148

ENCAPSULATED RETROREFLECTIVE ELEMENTS AND METHOD FOR MAKING SAME

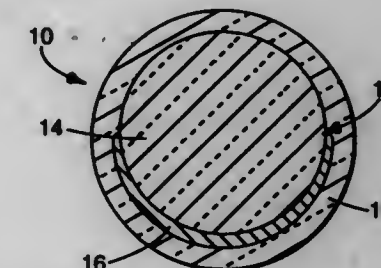
Geoffrey P. Morris, White Bear Lake, and Kenton D. Budd, Woodbury, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 23, 1994, Ser. No. 264,729

Int. Cl.⁶ G02B 5/128; 5/122

U.S. Cl. 359—536

19 Claims



1. An encapsulated retroreflective element comprising a retroreflective assembly that comprises a transparent optical body and a reflective member wherein said retroreflective assembly is essentially completely encapsulated within a dense substantially transparent oxide coating.

5,673,149

OPTICAL APPARATUS HAVING A FUNCTION OF PREVENTING IMAGE BLUR OR SHAKE AND HAVING LENS BARRELS OF DIFFERENT DIAMETERS

Tadanori Okada, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

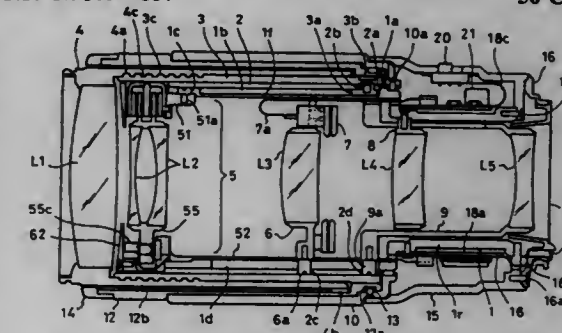
Filed Nov. 29, 1994, Ser. No. 350,099

Claims priority, application Japan, Dec. 1, 1993, 5-301739

Int. Cl.⁶ G02B 7/02; 27/64

U.S. Cl. 359—557

50 Claims



1. An optical apparatus having a function for preventing image shake, said apparatus comprising:

a first lens barrel member;

a second lens barrel member having a larger diameter than a diameter of said first lens barrel member, said first and second lens barrel members being capable of moving relative to each other in a direction of the optical axis;

an optical unit held by said second lens barrel member; and

an image shake prevention unit including an image shake prevention optical member for preventing image shake, and a holding member for movably holding said image shake prevention optical member, said image shake prevention unit being fixedly held on at least one of said first and second lens barrel members between said optical unit and said first lens barrel member, and at least at a stepped portion formed by said first and second lens barrel members due to a difference between the diameters of said lens barrel members.

5,673,150

ANTI-GLARE ELECTROCHROMIC MIRROR

Koichi Ono, Yutaka Yoshida, Hideki Miyatake, and Tamotsu Horiba, all of Aichi, Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

Continuation of Ser. No. 334,382, Nov. 3, 1994, abandoned.

This application Feb. 14, 1996, Ser. No. 601,496

Claims priority, application Japan, Nov. 5, 1993, 5-276678

Int. Cl.⁶ G02B 5/08; G02F 1/15; 1/153

U.S. Cl. 359—603

29 Claims



1. An anti-glare electrochromic mirror comprising in the following order:

- a transparent substrate;
- a transparent electroconductive film on top of said transparent substrate;
- an oxidatively coloring film having a first refractive index on top of said transparent electroconductive film;
- an interference suppressing film on top of said oxidatively coloring film;
- an electrolyte film having a second refractive index on top of said interference suppressing film;
- a reductively coloring film on top of said transparent electrolyte film; and
- a reflective film of an electroconductive material on top of said reductively coloring film; wherein said interference suppressing film has a refractive index intermediate said first and second refractive indices.

5,673,151

IMAGE CORRECTION IN VIRTUAL REALITY AND HEADS UP DISPLAYS

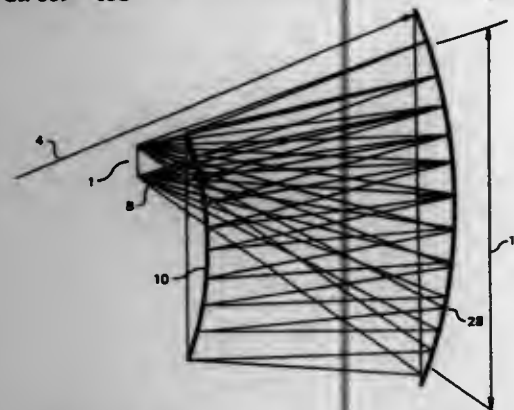
Richard Dennis Rallison, Paradise, Utah, assignor to Virtual I/O, Seattle, Wash.

Continuation of Ser. No. 436,494, May 8, 1995, Pat. No. 5,619,377, which is a continuation of Ser. No. 152,213, Nov. 12, 1993, abandoned, which is a division of Ser. No. 832,237, Feb. 7, 1992, Pat. No. 5,303,085. This application Jun. 6, 1995, Ser. No. 473,459

Int. Cl.⁶ G02B 27/14

U.S. Cl. 359—631

6 Claims



1. A method for providing a head-mounted display for a user comprising:

- generating a plurality of image pixels to provide image light using an image generator wherein said pixels have edges, said pixels define a pixel size;
- blurring the edges of the pixels by transmission through a fiber optic means, said fiber optic means defining a distance between said fiber optic means and said image generator

having a numerical aperture approximately equal to twice the pixel size of said pixels divided by the distance between said fiber optic means and said image generator;

redirecting said image light output by said fiber optic means in a first direction away from the eye of the user;

redirecting said light from said first direction to a second direction for transmission to the eye of the user.

5,673,152

OPTICAL PICKUP COMPRISING A HEAT-INSULATING MATERIAL

Yasuo Yokota, Hirakata; Yukihiko Iwata, Takatsuki; Hirotsugu Fusayasu, Katano; Hiroto Inoue, Hirakata; Atsufumi Ishizuka, Yokohama, and Yukihiko Okada, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

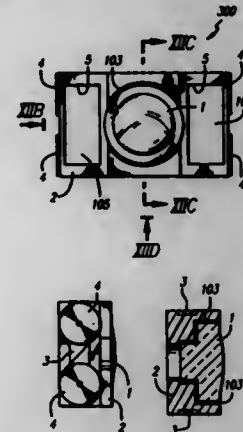
Filed Sep. 16, 1996, Ser. No. 714,568

Claims priority, application Japan, Sep. 20, 1995, 7-241071

Int. Cl.⁶ G02B 7/02

U.S. Cl. 359—813

19 Claims



1. An optical pickup, comprising:

- an object lens;
- a lens holder for holding the object lens;
- a visco-elastic suspender for suspending the lens holder so as to be movable in a focusing direction and a tracking direction;
- a driving section for driving the lens holder in the focusing direction and the tracking direction, the driving section including a magnet, a yoke and a driving coil provided on the lens holder, the magnet and the yoke forming a magnetic circuit;
- wherein a heat-insulating area is located between the object lens and the driving coil, the heat-insulating area including a heat-insulating material which has a thermal conductivity lower than that of the lens holder.

5,673,153

VIEWING ASSEMBLY FOR PRODUCING AN OPTICALLY CORRECTED REFLECTED IMAGE

David B. Soll, Rydal, Pa., and Richard Evans Feinbloom, New York, N.Y., assignors to Image Optical Corporation, Wilmington, Del.

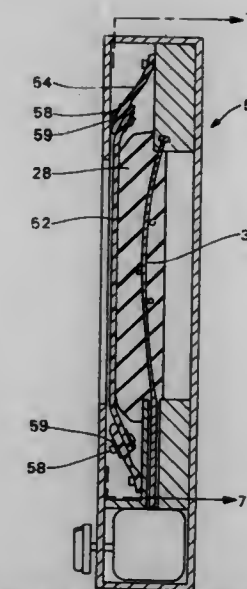
Continuation of Ser. No. 116,169, Sep. 2, 1993, Pat. No. 5,497,274. This application Oct. 13, 1995, Ser. No. 542,771

Int. Cl.⁶ G02B 5/08

U.S. Cl. 359—846

23 Claims

- 20. A viewing apparatus comprising:
- a flexible material having a front surface, a back surface and a periphery, said front surface being reflective;
- a support structure having a first surface receiving said back surface of said flexible material in corresponding facing engagement, said first surface having a contour;
- a tensioning device pulling said flexible material taut over said first surface of said support structure by pulling around the



periphery of the flexible material, wherein said flexible material conforms to the contour of said first surface; and

an adjustment mechanism selectively adjusting said contour of said first surface, thereby altering the shape to which said flexible material conforms and creating a desired optical correction in an image reflected from said flexible material.

5,673,154

DIGITAL TRANSMISSION SIGNAL PROCESSING SYSTEM AND RECORDING/REPRODUCING SYSTEM

Hideo Arai, Chigasaki; Hitoaki Owashi; Kyoichi Hosokawa, both of Yokohama; Keizo Nishimura, Yokosuka; Yoshizumi Watatani, Fujisawa, and Akira Shibata, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 457,486, Jun. 1, 1995, Pat. No. 5,517,368, which is a continuation-in-part of Ser. No. 457,597, Jun. 1, 1995, Pat. No. 5,530,598, which is a continuation of Ser. No. 238,528, May 5, 1994, Pat. No. 5,671,095, which is a division of Ser. No. 727,059, Jul. 8, 1991, Pat. No. 5,337,199.

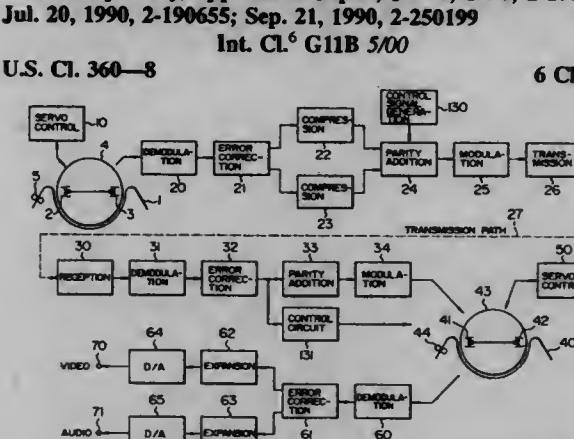
This application Mar. 22, 1996, Ser. No. 620,880

Claims priority, application Japan, Jul. 6, 1990, 2-177406; Jul. 20, 1990, 2-190655; Sep. 21, 1990, 2-250199

Int. Cl.⁶ G11B 5/00

U.S. Cl. 360—8

6 Claims



1. A receiving apparatus for receiving a transmitted bit-compressed signal and a transmitted control signal which controls a performance of a recording apparatus, the transmitted bit-compressed signal and the transmitted control signal being transmitted after adding of a parity signal thereto and effecting modulation thereof, comprising:

- reception means for receiving the transmitted bit-compressed signal and the transmitted control signal;
- demodulation means for demodulating the bit-compressed signal and the control signal from said reception means correspond-

ing to the modulation thereof and outputting a demodulated bit-compressed signal and a demodulated control signal;

error correction means for correcting errors in the demodulated bit-compressed signal and the demodulated control signal from said demodulation means based upon the parity signal added thereto and for outputting an error-corrected bit-compressed signal and an error-corrected control signal; and

control detection means for detecting the error-corrected control signal from said error correction means and for controlling performance of the recording apparatus in response to the detected error-corrected control signal.

5,673,155

MAGNETIC TAPE LIBRARY APPARATUS HAVING LEADER BLOCK ENGAGING MECHANISM

Nobuhiko Motoyama; Yukio Katsuyama, and Hiroyuki Sugihara, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

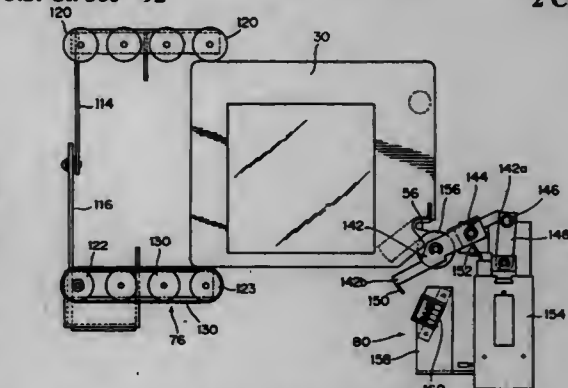
Division of Ser. No. 52,656, Apr. 26, 1993, abandoned. This application Jan. 24, 1996, Ser. No. 590,084

Claims priority, application Japan, Apr. 28, 1992, 4-109637; May 26, 1992, 4-133626; Feb. 10, 1993, 5-022225

Int. Cl.⁶ G11B 15/68; 15/675

U.S. Cl. 360—92

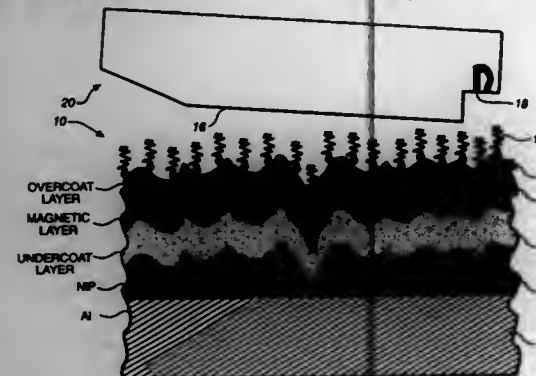
2 Claims



1. A magnetic tape library apparatus comprising:

- a cell unit having a plurality of cells each accommodating a magnetic tape cartridge, said magnetic tape cartridge including a magnetic tape, a leader block attached to a leading tip portion of said magnetic tape and a latch for engaging with said leader block;
- a magnetic tape drive unit for writing and reading data to and from said magnetic tape in said magnetic tape cartridge;
- an accessor for automatically switching magnetic tape cartridges between said cell unit and said magnetic tape drive unit;
- stacker means for stacking a plurality of magnetic tape cartridges entered externally;
- delivery means for selecting one of said plurality of magnetic tape cartridges stacked in said stacker means for delivery to said accessor, said delivery means including retaining means for retaining the selected magnetic tape cartridge; and
- leader block engaging means for pushing said leader block of the magnetic tape cartridge retained by said retaining means so that said leader block engages with said latch, wherein said leader block engaging means includes:
- a hammering member for applying a direct impact onto said leader block;
- biasing means for biasing said hammering member away from said leader block; and
- a solenoid for driving said hammering member against the biasing force of said biasing means.

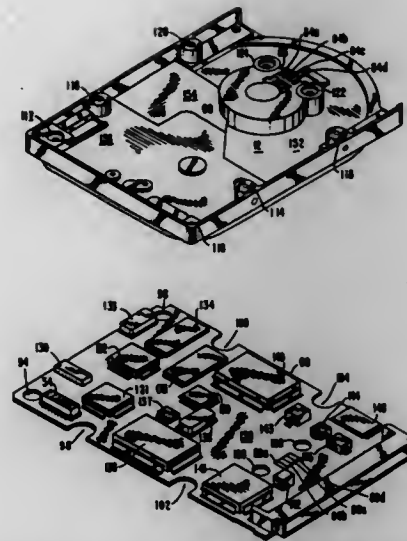
5,673,156
HARD DISK DRIVE SYSTEM HAVING VIRTUAL CONTACT RECORDING
 Tu Chen, Monte Sereno; Tsutomu Tom Yamashita, Milpitas; Kyou H. Lee, San Jose, and Yasuo Sakane, Cupertino, all of Calif., assignors to Komag, Inc., Milpitas, Calif.
 Continuation of Ser. No. 80,339, Jun. 21, 1993, abandoned.
 This application Feb. 17, 1995, Ser. No. 390,909
 Int. Cl.⁶ G11B 17/00; 21/21
 U.S. Cl. 360—97.01 52 Claims



1. A hard disk drive system comprising:
 - a magnetic disk having a texture roughness RA (high freq.) greater than or equal to about 10 Å and less than or equal to about 60 Å; and
 - a read-write head comprising a ceramic slider comprising at least two phases, said slider being manufactured by being subjected to a first manufacturing step which introduces damage into the slider material at a surface of said slider by lapping said surface with hard abrasive particles, the damaged slider material being mechanically weaker than slider material that is not damaged, and a second manufacturing step wherein the damage at said surface of said slider is mechanically selectively removed by rubbing said surface of said slider against a treatment surface, thereby substantially preventing slider material from dislodging from said slider during use, and thereby leaving irregular texture pattern features on said surface of said slider, said features having walls at irregular and non-uniform angles, said surface of said slider being rougher and less abrasive to the disk after said second manufacturing step than before said second manufacturing step, said surface of said slider serving as an air bearing surface and having an air bearing surface roughness RA (AFM) less than or equal to about 150 Å, said surface of said slider being sufficiently textured so that said read-write head can be used in conjunction with said magnetic disk.

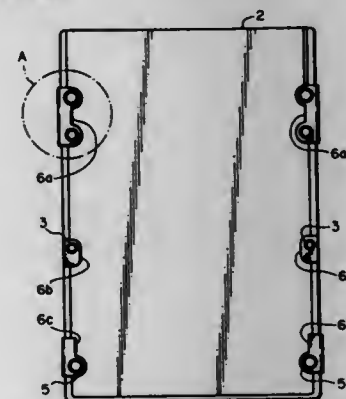
5,673,157
INTEGRAL BASE PLATE/SPIN MOTOR ASSEMBLY WITH TAPED COVER
 John A. Ycas; Stefan J. Malek, both of Boulder, and Wayne G. Soderfelt, Westminster, all of Colo., assignors to Fujitsu Limited, Kanagawa, Japan
 Division of Ser. No. 333,945, Nov. 11, 1994, abandoned, which is a continuation of Ser. No. 966,311, Oct. 26, 1992, abandoned. This application May 11, 1995, Ser. No. 439,113
 Int. Cl.⁶ G11B 17/00
 U.S. Cl. 360—97.01 24 Claims

1. A disk drive apparatus comprising a housing having an overall maximum height not greater than 17 mm and including a cover, a lower plate having a top surface and a bottom surface with said cover and said lower plate thereby defining a disk enclosure, and an electronics circuit board having means thereon for providing signal processing to a host computer; at least one storage disk rotatably mounted within said housing; drive means for rotating said at least one storage disk, said drive means being formed integrally with said lower plate wherein said drive means is in the form of a spin motor including a hollow stator hub formed as a



one-piece construction with said lower plate; read/write transducer means for writing information on and reading information from said at least one storage disk; support means for supporting said read/write transducer means and for positioning said read/write transducer means at a selected one of a plurality of substantially circular, concentric data tracks on said at least one storage disk; and circuit means for communicating electrical signals between said read/write transducer means and said electronic circuit board wherein said electronics circuit board includes first connection means for providing said drive signals to said drive means, said first connection means including contact pads embedded in said electronics circuit board, and said drive means includes second connection means directly contacting said first connection means for electrically connecting said drive means to said electronics circuit board, said second means including spring finger connections projecting outwardly from said lower plate with each said spring finger connection being an elongated member which is located along a line parallel to the bottom surface of said lower plate, each said spring finger connection contacting one of said contact pads to electrically connect said drive means to said electronics circuit board.

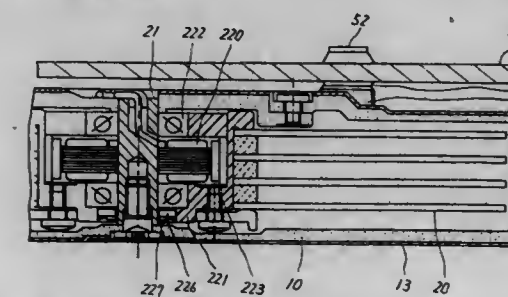
5,673,158
SHOCK ABSORBING DEVICE FOR A MAGNETIC DISK DRIVE
 Masaru Ichimura, Ibaraki, Japan, assignor to NEC Corporation, Japan
 Filed Jul. 17, 1995, Ser. No. 502,899
 Claims priority, application Japan, Jul. 20, 1994, 6-168133
 Int. Cl.⁶ G11B 17/02
 U.S. Cl. 360—97.01 2 Claims



1. A shock absorbing device for a magnetic disk drive, comprising:

shock absorbing members respectively received in a plurality of recesses formed in each of a right and a left edge of an outside surface of an enclosure housing of the magnetic disk drive, such that a portion of each of said shock absorbing members fitted in one of said plurality of recesses extends beyond the outside surface in which the recess is formed; each of said recesses being dimensioned so that a gap is formed between an inner periphery of each of said recesses and an outer periphery of the respective shock absorbing member; said extending portion of said shock absorbing members being fully received in said respective recesses by being deformed into said gap when said enclosure is fastened to a casing via fastening means located on the same surface of said housing as said shock absorbing members.

5,673,159
MAGNETIC DISK APPARATUS
 Masaki Jinbo; Tsuyoshi Furukawa; Hisashi Kaneko; Masaharu Sugimoto; Tsuneyori Ino; Shinichi Fukuzawa, and Katsuki Ishida, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan
 Continuation of Ser. No. 268,851, Jun. 30, 1994, abandoned.
 This application Nov. 8, 1996, Ser. No. 745,223
 Claims priority, application Japan, Aug. 30, 1993, 5-237455
 Int. Cl.⁶ G11B 17/02
 U.S. Cl. 360—98.01 5 Claims

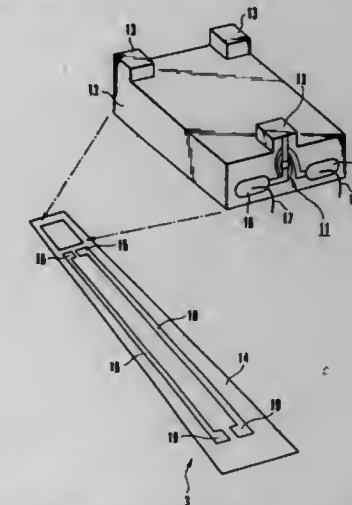


1. A magnetic disk apparatus comprising:
 - a case defining accommodation space inside;
 - an insulating layer provided around said case;
 - at least one magnetic disk disposed in said accommodation space;
 - a spindle motor rotatable around a shaft having both ends secured to said case, for rotating said at least one magnetic disk;
 - magnetic heads each including a magneto-resistive element for reading data from said magnetic disk when a voltage is applied thereto and an inductive element for writing data on said at least one magnetic disk;
 - a rotary actuator for supporting said magnetic heads at a distal end, said rotary actuator being rotatable around a shaft having both ends secured to said case; and
 - a printed circuit board provided on the exterior of said case and having a control circuit mounted thereon for controlling said magnetic heads, said rotary actuator and said spindle motor, said printed circuit board having a nonzero source voltage potential; and means electrically connecting said printed circuit board to said case to supply said nonzero source voltage potential of said printed circuit board to said at least one magnetic disk via said case.

5,673,160

Patent Not Issued For This Number

5,673,161
LOW WEAR RATE MAGNETIC HEAD SLIDER WITH HIGH RECORDING DENSITY
 Masahiro Yanagisawa; Akinobu Sato, and Ken Ajiki, all of Tokyo, Japan, assignors to NEC Corporation, Japan
 Filed Mar. 18, 1996, Ser. No. 617,242
 Claims priority, application Japan, Mar. 24, 1995, 7-065795
 Int. Cl.⁶ G11B 5/60; 5/48
 U.S. Cl. 360—103 21 Claims



1. A magnetic disk device comprising: a magnetic head for performing recording and reproduction with respect to a magnetic disk medium; and driving means for driving said magnetic head, wherein said magnetic head comprises:
 - a magnetic recording/reproducing element;
 - a contact magnetic head slider on which said magnetic recording/reproducing element is mounted, said magnetic head slider having a press load of not more than 1 gf, and a mass of not less than 2 mg; and
 - a support mechanism for supporting said magnetic head slider.

5,673,162
MAGNETORESISTIVE HEAD WITH SOFT ADJACENT LAYER COMPRISING AMORPHOUS MAGNETIC MATERIAL
 Masamichi Saito, Nigata-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan
 Filed Mar. 26, 1996, Ser. No. 624,733
 Claims priority, application Japan, Apr. 7, 1995, 7-108122
 Int. Cl.⁶ G11B 5/39; B32B 9/00
 U.S. Cl. 360—113 12 Claims

1. An anisotropic magnetoresistive head comprising:
 - a magnetoresistive layer and a soft adjacent layer stacked with a non-magnetic layer therebetween; and
 - an electric-current supplying path for said magnetoresistive layer;
 wherein said soft adjacent layer comprises an amorphous magnetic material comprising magnetic elements including cobalt (Co), iron (Fe) and an amorphous element X; wherein said amorphous element X is at least one element selected from the group consisting of tantalum (Ta), niobium (Nb), yttrium (Y), nickel (Ni), boron (B), silicon (Si), titanium (Ti), vanadium (V), chromium (Cr), zirconium (Zr), molybdenum (Mo), hafnium (Hf), and tungsten (W); wherein the cobalt (Co) concentration is in the range of 70 to 85 (at %); wherein the iron (Fe) concentration is in the range of 0 to 24 (at %); and wherein the amorphous element X concentration is in the range of 6 to 30 (at %); and

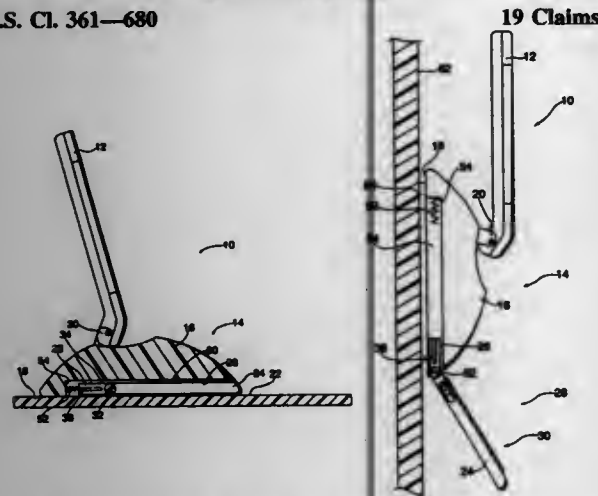
sealing the opening therein to the outer diameter of the interior tube whereby fluid movement through the interior tube conveys heat from the capacitor and the thermally conductive material of the outer casing conducts heat from the interior tube to the bottom and the outer side wall.

5,673,169
WALL MOUNTED PERSONAL COMMUNICATIONS ROUTING SYSTEM

James E. Wicks, Tarrytown, N.Y., assignor to Sony Corporation, Tokyo, Japan, and Sony Corp. of America, New York, N.Y.

Filed Oct. 3, 1995, Ser. No. 538,329
Int. Cl.⁶ H05K 7/00

U.S. Cl. 361—680



1. A computer system for use on a vertical surface, comprising: a computer having a base with a cavity; a viewing device for displaying information from said computer, said device being rotatably mounted to said computer to enable rotation of said computer and said device relative to each other; and input key means for inputting commands to said computer, said input key means being rotatably mounted to a main block section to enable rotation of said input key means relative to said computer, wherein upon placement of said base on said vertical surface said device is rotatable to a substantially vertical position suitable for viewing the device and said input key means is rotatable to a substantially vertical position suitable for accessing said input key means; and moving means for moving said input key means from a stowed position within said cavity to an exposed position.

5,673,170
SECONDARY DISPLAY SYSTEM FOR COMPUTER
David S. Register, Austin, Tex., assignor to Dell U.S.A., L.P., Austin, Tex.

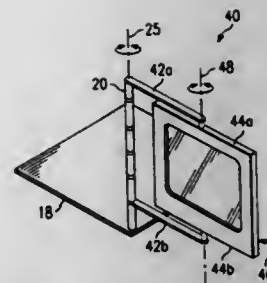
Division of Ser. No. 544,341, Oct. 17, 1995, Pat. No. 5,594,620, which is a continuation of Ser. No. 94,846, Jul. 16, 1993, Pat. No. 5,590,021. This application Oct. 4, 1996, Ser. No. 691,606

Int. Cl.⁶ G06F 1/16; H05K 7/02

U.S. Cl. 361—681

24 Claims

20. A display system for a computer, the system comprising: a primary display interfaceable to a main chassis of a computer; a secondary display interfaceable to said main chassis and



movably connected to said primary display for enabling movement between first and second positions relative to said primary display.

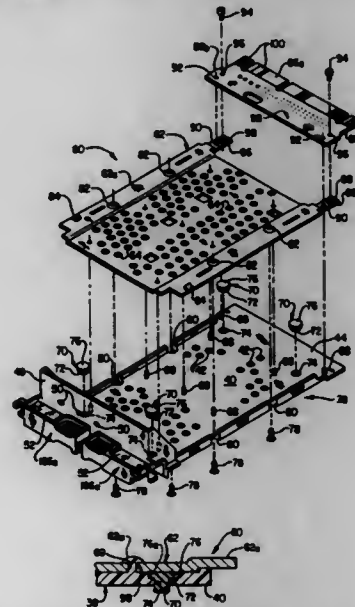
5,673,171
HARD DISC DRIVE SUPPORT TRAY APPARATUS WITH BUILT-IN HANDLING SHOCK REDUCTION, EMI SHIELDING AND MOUNTING ALIGNMENT STRUCTURES

Paily T. Varghese, Tomball; Robert J. Hastings, Kingwood, and William D. Lobato, Spring, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Dec. 5, 1995, Ser. No. 567,566
Int. Cl.⁶ G06F 1/16; H05K 7/10; 9/00

U.S. Cl. 361—685

19 Claims



1. For use in conjunction with a housing cage structure having an open end, and an end wall spaced rearwardly apart from and facing the open end and having a plug socket thereon, disk drive apparatus insertable rearwardly through the open housing cage structure end in a manner removably holding said disk drive apparatus therein and operatively coupling it to the plug socket, said disk drive apparatus comprising:

- a support tray member having a rear end portion and a top side portion disposed forwardly of said rear end portion, said support tray member being rearwardly movable inwardly through the open housing cage structure end, toward the plug socket on its end wall, to an operating position;
- a mounting plate spaced apart from said support tray member top side portion in an overlying, parallel, facing relationship therewith, said mounting plate having a top side and a rear end portion;
- fastening means for securing said mounting plate to said support tray member top side portion;
- means captively retained between said mounting plate and said support tray member top side portion and protruding down-

wardly from the bottom side of said support tray member to form resiliently handling shock absorbing projections thereon; means for securing a disk drive to said top side of said mounting plate;

a printed circuit board having a connector edge portion;

means for mounting said printed circuit board on said rear end portion of said mounting plate for movement therewith in a manner such that when said support tray member is rearwardly moved through the cage structure to said operating position said connector edge portion of the mounted printed circuit board is conductively and removably received within the plug socket;

coupling means for electrically coupling said printed circuit board to the disk drive; and

support means associated with said mounting plate and cooperatively engageable with a portion of the housing cage structure, in response to movement of said support tray member into the housing cage structure to said operating position, to removably support said support tray member within the housing cage structure.

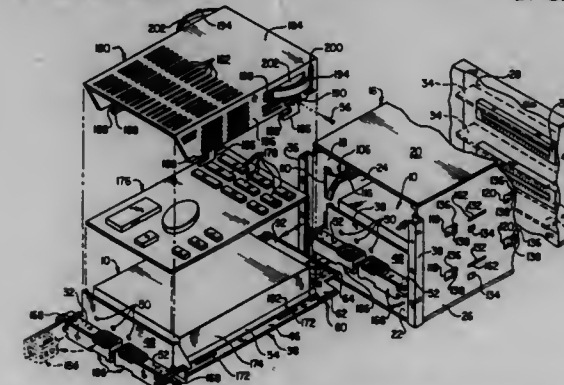
5,673,172
APPARATUS FOR ELECTROMAGNETIC INTERFERENCE AND ELECTROSTATIC DISCHARGE SHIELDING OF HOT PLUG-CONNECTED HARD DISK DRIVES

Robert J. Hastings, Humble; Paily T. Varghese, Tomball; Lowell M. Good, Cypress, and Barry S. McAuliffe, Houston, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Jan. 5, 1996, Ser. No. 583,415
Int. Cl.⁶ G06F 1/16; H05K 7/10; 9/00

U.S. Cl. 361—685

17 Claims



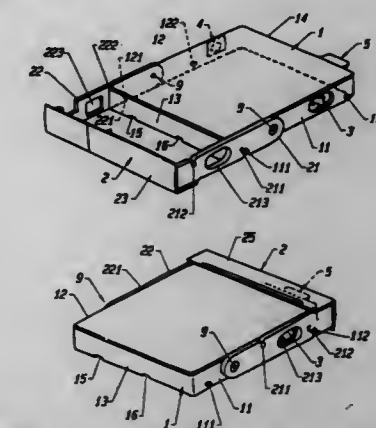
1. A shield for a disk drive of a type mountable on a support tray for insertion rearwardly into a sheet metal housing having opposing interior sides, the disk drive being susceptible to electromagnetic interference and electrostatic discharge from a source external thereto, the shield comprising: an enclosure made of an electrically conductive material and having a top portion and opposing side portions; means for mounting said enclosure to the support tray so that the disk drive is enclosed by said enclosure on the support tray; means for electrically coupling said enclosure to the disk drive; and means disposed on a rear portion of one of said enclosure opposing side portions for grounding said enclosure to the opposing interior sides of the sheet metal housing, whereby the disk drive is electrically coupled and thereby grounded to the sheet metal housing when the support tray is inserted rearwardly into the sheet metal housing and is protected from the electromagnetic interference and electrostatic discharge.

5,673,173
PORTABLE COMPUTER HAVING A MODULAR POWER CONVERSION UNIT
Chu-Zia Tsai, Taipei, Taiwan, assignor to Acer Incorporated, Taipei, Taiwan

Filed Mar. 1, 1995, Ser. No. 396,145
Int. Cl.⁶ H05K 7/00; G06F 1/16

U.S. Cl. 361—686

27 Claims



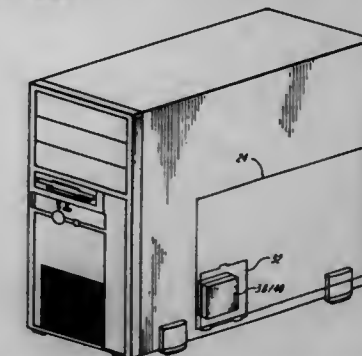
1. A modular power conversion unit for use with a portable computer, the modular power conversion unit comprising: a housing containing an assembly which converts AC power to DC power, the housing having a DC output connector coupled to the assembly; and a cover movably attached to said housing, said cover movable between a first position and a second position; wherein the power conversion unit with said cover in said first position is configured as an internal power converter for use within the portable computer; and wherein the power conversion unit with said cover in said second position is configured as an external power converter for use outside the portable computer.

5,673,174
SYSTEM PERMITTING THE EXTERNAL REPLACEMENT OF THE CPU AND/OR DRAM SIMMS MICROCHIP BOARDS
Babar Hamirani, Fremont, Calif., assignor to Nexar Technologies, Inc., Westborough, Mass.

Filed Mar. 23, 1995, Ser. No. 409,317
Int. Cl.⁶ G06F 1/16; H05K 7/06

U.S. Cl. 361—686

10 Claims



1. A computer having means for external replacement of circuit boards, comprising: a) a chassis having a motherboard disposed thereon; b) an external chassis cover disposed over said chassis; c) at least one primed circuit board disposed in electrical communication with said motherboard; d) said motherboard having a component side and a solder side and wherein said at least one printed circuit board is disposed on said solder side of said motherboard; and

e) said external chassis cover having an access opening proximate said at least one printed circuit board on the solder side of said motherboard, said access opening being sized to permit access to said at least one printed circuit board.

5,673,175

PCI EXPANSION CARD DOUBLE-DOOR RETAINER

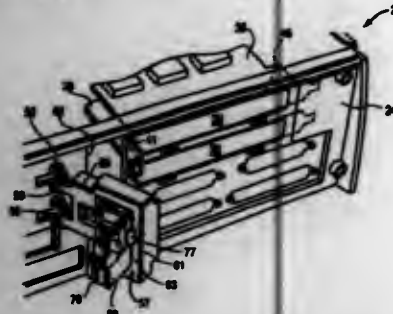
James M. Carney, Pepperell; Dave Desjardis, Hopkinton, both of Mass.; Clifford Willis, Tracy; Lee Winick, San Jose, both of Calif., and Chris Chiodo, Andover, Mass., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 1, 1996, Ser. No. 674,554

Int. Cl.⁶ G06F 1/16; H05K 7/12

U.S. Cl. 361—686

7 Claims



1. In combination, an enclosure panel formed with a first opening having a first opening end and a second opening end, a cover shaped to close said first opening having a first cover end and a second cover end, first means adjacent said first opening end for securing said first cover end to said panel, said panel being formed with a second opening adjacent but spaced laterally of said first opening, and a retainer for said second cover end, said retainer comprising a latch door, second means mounting said latch door for movement between a first position engaging said panel and a second position remote from said first position, said latch door having a resilient latch engageable with said second cover end when said latch door is in second latch door position to engage said second cover end to retain said cover in position closing off said first opening.

5,673,176

INTEGRATED CIRCUIT DUAL COOLING PATHS AND METHOD FOR CONSTRUCTING SAME

Mark B. Penniman, Austin, Tex.; Peter N. Skillman, San Carlos, Calif.; Tony J. Lillios, and Dennis J. Boyle, both of Palo Alto, Calif., assignors to Dell USA, L.P., Round Rock, Tex.

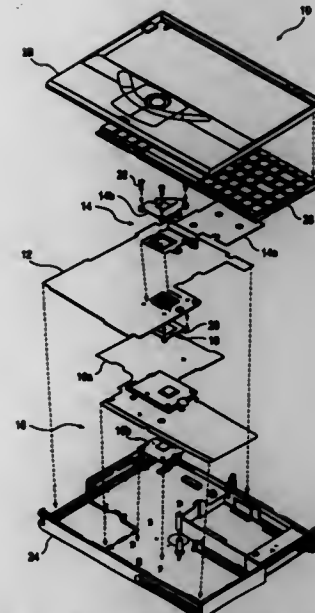
Filed Dec. 6, 1995, Ser. No. 571,703

Int. Cl.⁶ H05K 7/20

U.S. Cl. 361—687

20 Claims

1. A system for cooling a heat source, comprising:
a printed circuit board having a plurality of plated vias extending therethrough;
a heat source having opposed first and second sides, said first side is adapted for connection to the printed circuit board in thermal contact with a first end of the plated vias;
an upper heatsink assembly thermally connected to a second end of said plated vias, opposite the first end;
a lower heatsink assembly thermally connected to the second side of said heat source; and



a compliant, thermally conductive material placed between the second end of said vias and said upper heatsink.

5,673,177

HEAT SINK STRUCTURE WITH CORRUGATED WOUND WIRE HEAT CONDUCTIVE ELEMENTS

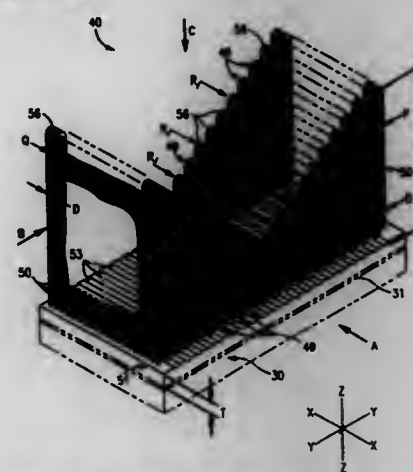
William Louis Brodsky, Binghamton; Glenn Lee Kehley, Endicott, and Sanjeev Balwant Sathe, Johnson City, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 1, 1995, Ser. No. 509,915

Int. Cl.⁶ H05K 7/20

U.S. Cl. 361—704

61 Claims



33. A heat sink structure comprising:
a heat-conducting base member including a plurality of substantially parallel slots therein;
a plurality of substantially planar corrugated wound wire heat conductive elements each formed from a substantially singular continuous wire;
selected ones of said heat conductive elements being positioned in a side-by-side, substantially parallel, spaced-apart relationship so as to permit fluid flow through said elements in at least two different directions, said selected ones of said heat conductive elements including a series of curved end portions positioned within said slots within said base member in a thermally conductive manner.

5,673,178

Patent Not Issued For This Number

5,673,179

PLASTIC INTEGRATED CIRCUIT CARD WITH REINFORCEMENT STRUCTURE OUTER TO THE CARD AND PROTECTING INTEGRATED CIRCUIT MODULE

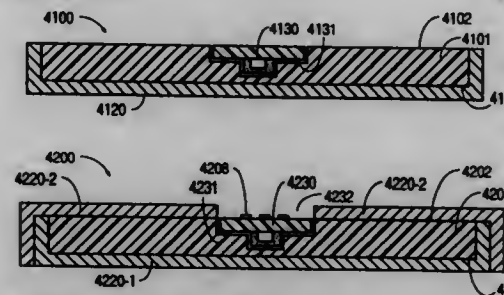
Charles F. Horejs, Jr., Morgan Hill, and Thomas H. Templeton, Jr., Fremont, both of Calif., assignors to US3, Inc., Santa Clara, Calif.

Division of Ser. No. 197,022, Feb. 14, 1994, Pat. No. 5,581,445. This application Jul. 29, 1996, Ser. No. 688,079

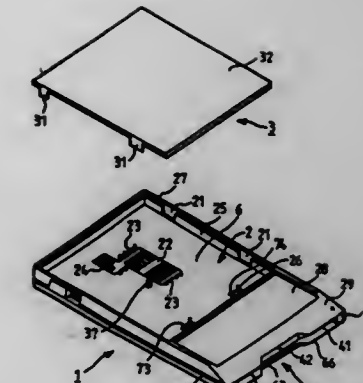
Int. Cl.⁶ H05K 1/18

U.S. Cl. 361—737

6 Claims



1. A semi-rigid card comprising:
a semi-rigid body having a first modulus of elasticity, the semi-rigid body having a first surface, a second surface opposite the first surface, and outer edge surfaces joining the first and second surfaces at an outer perimeter of the semi-rigid body;
a module having an electronic component, said module disposed in a first cavity located in the first surface of the semi-rigid body; and
a first reinforcement structure having a second modulus of elasticity, said second modulus of elasticity being higher than said first modulus of elasticity, said first reinforcement structure being connected to the second surface and the outer edge surface; of the semi-rigid body.
4. A semi-rigid card comprising:
a semi-rigid body having a first modulus of elasticity, the semi-rigid body having a first surface, a second surface opposite the first surface, and edge surfaces joining the first and second surfaces;
a module having an electronic component, said module disposed in a first cavity located in the first surface of the semi-rigid body;
a first reinforcement structure having a second modulus of elasticity, said second modulus of elasticity being higher than said first modulus of elasticity, said first reinforcement structure being connected to the second surface and the edge surfaces of the semi-rigid body; and
a second reinforcement structure having a modulus of elasticity higher than the first modulus of elasticity, the second reinforcement structure connected to the first surface of the semi-rigid body and to the first reinforcement structure, wherein the first and second reinforcement structures substantially enclose the semi-rigid body.



guiding a card (100) and holding it in position, a connector provided with elastic contact segments, ensuring electrical contact between conductor elements belonging to said card (100) and said electronic circuit, at least one elastic element (13, 55) supporting said card (100) by elastic force and a case cover (60) mounted on said case body and delimiting a space (101) for insertion on said card (100), wherein, in one area (4) designed for insertion of said card (100), said case body (2) incorporates a housing (50) for an electric power-feed device, said housing (50) having a housing cover (16) which is held elastically in place by at least one of said elastic elements, both in open position in the absence of said card (100), and in closed position when the card (100) is inserted, by exerting on said card (100) an elastic force which presses a rear area (102) of said card down on an inner surface (68) of said case cover (60).

5,673,181

IC CARD ASSEMBLY

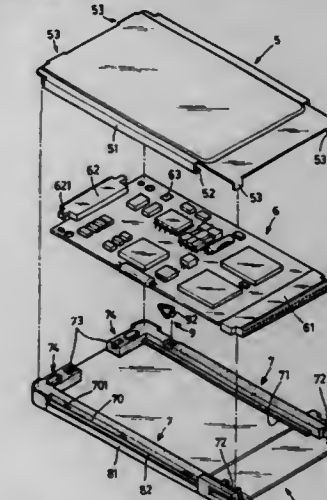
Fu-Yu Hsu, No. 44-1, Potu Tayuan Hsiang, Taoyung Hsien, Taiwan

Filed Apr. 23, 1996, Ser. No. 636,330

Int. Cl.⁶ H05K 1/00

U.S. Cl. 361—760

1 Claim



1. An IC card assembly, comprising:
a lower housing formed from a metal sheet, said lower housing having a pair of opposing longitudinally extended sides with a longitudinally extended groove formed therein, each of said longitudinally extended sides having a plurality of tongues extending therefrom in longitudinally spaced relationship, each said groove having an upper surface with a plurality of recesses formed in spaced longitudinal relationship and a lower surface with a plurality of concavities formed in spaced longitudinal relationship;
a pair of mounting frames respectively disposed adjacent said longitudinally extended sides and molded integrally to said

5,673,180

CASE FOR MICROCIRCUIT CARD READER

Michel Pernet, Pontarlier, France, assignor to Framatome Connectors International, Courbevoie, France

Filed Mar. 17, 1995, Ser. No. 405,870

Claims priority, application France, Mar. 21, 1994, 94 03266

Int. Cl.⁶ H05K 5/00

U.S. Cl. 361—756

7 Claims

1. Case for microcircuit card reader, comprising a case body, an electronic circuit incorporated into said case body, a device for

plurality of tongues, each of said pair of mounting frames having a flange extending from an interior facing side thereof; a circuit board disposed between said pair of mounting frames and supported by said flanges thereof, said circuit board having a ground pad formed thereon;

a ground element having an inwardly bent resilient first end for electrical contact with said ground pad, said ground element having an opposing second end disposed within an aperture formed in one of said pair of mounting frames and making electrical contact with said lower housings and,

an upper housing formed from a metal sheet, said upper housing having a pair of opposing longitudinally extended sides, each of said pair of sides of said upper housing having an inwardly directed portion inserted into a respective one of said grooves, said inwardly directed portion having (a) a plurality of upwardly protruding stop blocks formed therein for respective engagement with said plurality of recesses of said upper surface of said groove, and (b) a plurality of downwardly projecting concavities formed therein for respective engagement with said plurality of concavities of said lower surface of said groove.

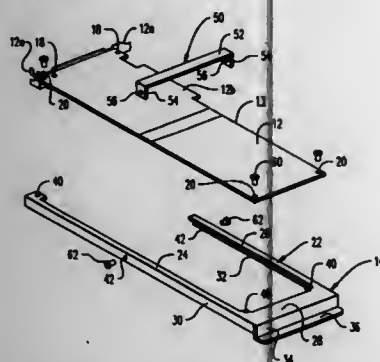
5,673,182
SUPPORT FRAME ASSEMBLY FOR A PRINTED
CIRCUIT CARD HAVING A TIE BAR BRIDGING
ACROSS THE FRAME

Robin E. Garner, Glendale, Ariz., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sep. 17, 1996, Ser. No. 718,639
Int. Cl.⁶ H02B 1/01; H05K 7/18

U.S. Cl. 361—829

15 Claims



1. A support frame assembly for an elongate printed circuit card having electrical connectors along at least a portion of one edge of said card and opening respectively adjacent at least three corners of the card, the frame assembly comprising:

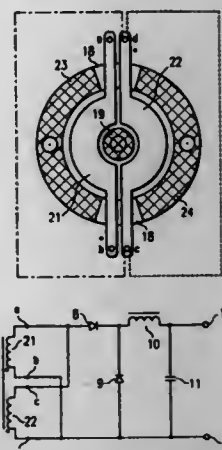
- a generally U-shaped frame defined by spaced parallel side elements and a connecting end element, the frame having a flat top, the perimeter of the side elements and end element having downward stiffening flanges extending therealong, threaded openings formed in the flat top in alignment with the openings in the card, the flanges of the respective side elements formed with aligned threaded openings intermediate their ends,
- a tie bar bridging flatly across the top of the frame and having downward legs at its opposite ends, the tie bar being dimensioned to have its downward legs secured to the outside of the flanges of the respective side elements and thereby having a surface adapted to overlie the card and hold it against the frame, and
- threaded fasteners adapted to pass through the openings in the card and to threadably engage the threaded openings respectively in the frame and also extending respectively through the openings in the legs of the tie bar and threadably engage the threaded openings in the flanges of the side elements.

5,673,183
DC/DC CONVERTER FOR LOW OUTPUT VOLTAGES
Johann Milavec, Windisch, Switzerland, and Nigel Springett, Freiburg, Germany, assignors to Melcher, AG
PCT No. PCT/CH93/00286, § 371 Date Oct. 23, 1995, § 102(e)
Date Oct. 23, 1995, PCT Pub. No. WO95/15609, PCT Pub. Date Jun. 8, 1995
PCT Filed Dec. 17, 1993, Ser. No. 416,894
Claims priority, application Switzerland, Dec. 1, 1993, 3578/93

U.S. Cl. 363—15

Int. Cl.⁶ H02M 3/00

8 Claims



1. In a direct current/direct current converter for low voltages, both in accordance with the forward-current converter principle, as well as with the fly-back converter principle and the push-pull converter principle, with a primary section that chops the primary voltage, a transformer (3) that is supplied by the chopped primary voltage (U_1) and that has a primary coil (4) and at least one secondary coil (21, 22, 29, 30), a secondary section that is supplied by the transformer (3) exhibits a center limb (19) which carries the magnetic flux Φ generated by the primary coil, and exhibits at least two outer limbs (23, 24), to which the cited magnetic flux Φ is distributed in equal portions, and the outer limbs (23, 24) are separated by openings (18), the improvement comprising: the secondary coil (21, 22, 29, 30) consists of several fractional winding segments through which current flows symmetrically.

5,673,184
SWITCH MODE POWER SUPPLY CIRCUIT WITH
INCREASED POWER FACTOR FOR MAINS

Gerard Rilly, Unterkirnach; José I. Rodríguez Duran, Villingen-Schwenningen; Harald Roth, Mönchweiler; Gerard Morizot, Villingen-Schwenningen, and Thomas Schulz, St. Georgen, all of Germany, assignors to Deutsche Thomson-Brandt GmbH, Villingen-Schwenningen, Germany
Filed May 31, 1995, Ser. No. 454,931

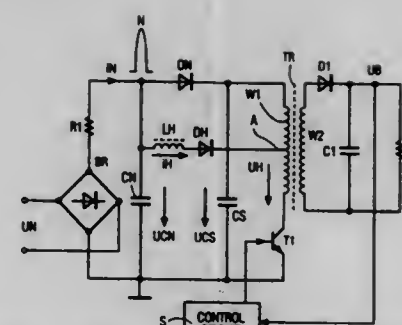
Claims priority, application Germany, Sep. 1, 1994, 44 31 120.6; Jan. 28, 1995, 195 02 647.0

U.S. Cl. 363—21

Int. Cl.⁶ H02M 3/335

14 Claims

1. A switch mode power supply with a reduced harmonic load on mains, comprising:
a mains rectifier,
an output of the mains rectifier being coupled to a charge capacitor and to a series circuit,
the series circuit comprising:
a diode,
a primary winding of a transformer,
a switching transistor, and



an energy storage capacitor coupled in parallel with said primary winding and said switching transistor, with the voltage thereacross being a smoothed DC voltage, the charge capacitor being further coupled to a tap of said primary winding via a second series circuit comprising an inductor and a diode.

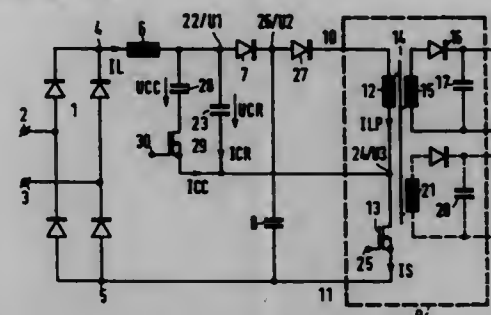
5,673,185
CIRCUIT ARRANGEMENT FOR GENERATING A
DC-SEPARATED OUTPUT VOLTAGE
Manfred Albach, and Thomas Dürbaum, both of Aachen, Germany, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 2, 1996, Ser. No. 626,529

Claims priority, application Germany, Apr. 7, 1995, 195 13 065.0

U.S. Cl. 363—45

Int. Cl.⁶ H02M 3/335

1 Claim



1. A circuit arrangement for generating at least one DC output voltage from an at least substantially sine-shaped AC input voltage of a first frequency by means of a first rectifier arrangement to which the AC input voltage is applied and which has a DC output from which a rectified voltage is obtainable, a first inductance, a second rectifier arrangement and a first filter capacitance which, in this order, constitute a series arrangement connected in parallel to the DC output, a switched-mode power supply having two input terminals with which said switched-mode power supply is arranged in parallel to the first filter capacitance, said switched-mode power supply comprising, between said input terminals, a series arrangement of a second inductance and a switching device which is alternately switchable in a conducting state and in a blocked state at a second frequency and from which the at least one DC output voltage is obtainable, as well as a first control capacitance by which a junction point between the first inductance and the second rectifier arrangement is combined with a junction point between the second inductance and the switching device, as well as a series arrangement of a second control capacitance and a second switching device which is arranged in parallel to the first control capacitance between the junction points, the first inductance and the first control capacitance being dimensioned in such a way that a resonance frequency determined thereby is larger than the second frequency and the second frequency is chosen to be large with respect to the first frequency, while the second control capacitance is chosen to be large with respect to the first control capacitance.

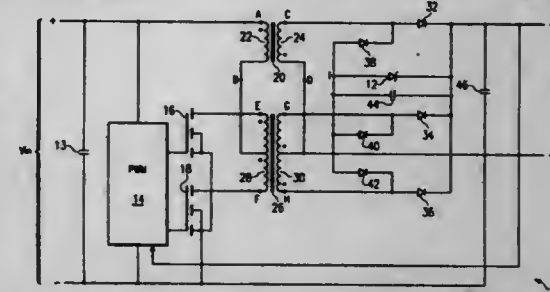
5,673,186
APPARATUS FOR PROTECTING MULTIPLE OUTPUT
RECTIFIERS IN A CURRENT-FED DC-TO DC
CONVERTER

Edward D. Johnson, Plano, Tex., assignor to DSC Telecom L.P., Plano, Tex.

Filed Jul. 1, 1996, Ser. No. 673,010
Int. Cl.⁶ H02H 7/125

U.S. Cl. 363—53

18 Claims



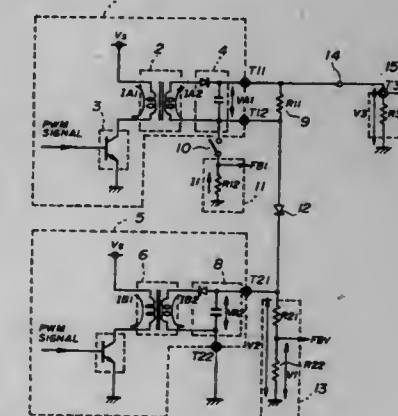
1. A circuit for protecting a plurality of output rectifiers against voltage transients in a current-fed converter, comprising:
a plurality of isolation diodes, each isolation diode coupled to the anode of an output rectifier; and
transient voltage suppression means coupled to the isolation diodes, the transient voltage suppression means operable to limit the magnitude of voltage transients in the converter, thereby protecting the plurality of output rectifiers.

5,673,187
POWER SUPPLY SYSTEM
Atsuo Tokunaga, Hadano, and Masahide Nakaya, Chigasaki, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 21, 1995, Ser. No. 576,200
Claims priority, application Japan, Dec. 26, 1994, 6-322688
Int. Cl.⁶ H02M 7/00

U.S. Cl. 363—65

8 Claims



1. A power supply system comprising:
a first power source having a first terminal of a first polarity to be connected to a first terminal of a given load, and a second terminal of a second polarity to be connected to a second terminal of said given load via a switching element, said switching element connecting said second terminal of said first power source with said second terminal of said given load when said first power source is active;
a second power source having a first terminal of the second polarity to be connected to said second terminal of said first power source via a rectifying element, and a second terminal of the first polarity to be connected to said second terminal of said given load; and

a first resistance element connected between said first and second terminals of said first power source;
 wherein
 said rectifying element allows an electric current to substantially flow along one direction according to said second and first polarities of said first and second terminals of said second power source though said given load, said first resistance element and said rectifying element when said second power source is instead active.

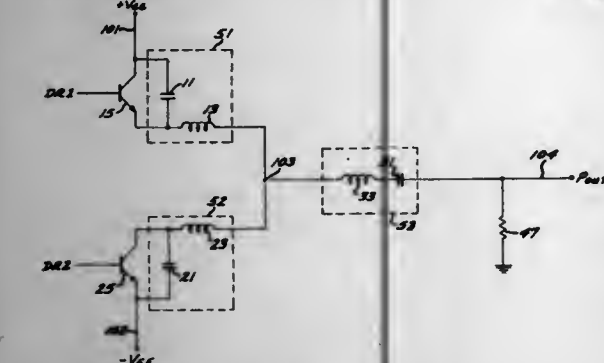
5,673,188

ZERO VOLTAGE SWITCHING SERIES RESONANT HALF BRIDGE VHF INVERTER

David M. Lusher; Wilbur E. Hong, both of Torrance, and William B. Hwang, Los Angeles, all of Calif., assignors to Hughes Electronic, Los Angeles, Calif.

Filed Mar. 25, 1996, Ser. No. 622,511
 Int. Cl.⁶ H02H 7/122

U.S. Cl. 363—132



1. A DC to AC inverter comprising:

- a first capacitor and a first inductor connected in series between a first supply voltage node and a central node, said first supply voltage node being at a positive voltage relative to ground;
- first switching means connected across said first capacitor, said first switching means being driven with a first periodic drive signal of a predetermined frequency;
- said first capacitor and said first inductor comprising a first resonant circuit that is configured to have a close to zero voltage across the first capacitor when the first switching means is switched to a conductive state;
- a second capacitor and a second inductor connected in series between a second supply voltage node and the central node, said second supply voltage node being at a voltage that is less than said positive voltage;
- second switching means connected across said second capacitor, said second switching means being driven with a second periodic signal of said predetermined frequency and being out of phase by 180 degrees relative to said first periodic drive signal;
- said second capacitor and said second inductor comprising a second resonant circuit that is configured to have a close to zero voltage across the second capacitor when the second switching means is switched to a conductive state; and
- wherein said first and second inductors prevent rapid buildup of current through said first and second switching means.

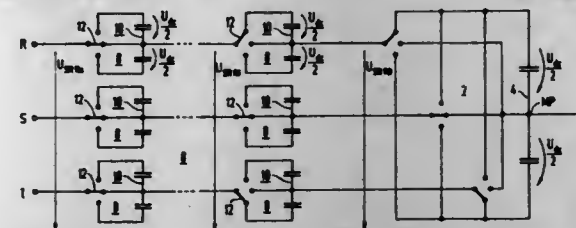
5,673,189 DEVICE FOR INCREASING THE POWER YIELD OF THE FUNDAMENTAL COMPONENT OF A SELF-COMMUTATED POWER INVERTER

Frank Schettler, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, München, Germany
 Filed Aug. 8, 1995, Ser. No. 512,595
 Claims priority, application Germany, Oct. 6, 1994, 9416048

Int. Cl.⁶ H02M 7/521

U.S. Cl. 363—137

18 Claims



1. A device for increasing the fundamental power yield of a self commutated inverter having a plurality of capacitive storage devices in a multiplex network said device comprising:
- a single phase cascade for each phase of the multi-phase configuration wherein each single phase cascade includes,
 - i. a capacitive storage device;
 - ii. a switching device for selectively switching the capacitive storage device into phase and out of phase with respect to the phase with which that cascade is associated.

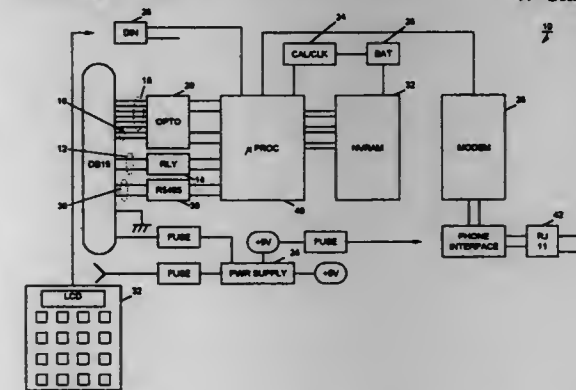
5,673,190

MULTIPURPOSE REMOTE OFFICE MACHINE MANAGEMENT SYSTEM

Curtis O. Kahleck, Savage; Steven D. Riedel, Eden Prairie, and Thomas D. Correll, Bloomington, all of Minn., assignors to Atrix International, Inc., Burnsville, Minn.
 Filed Mar. 22, 1995, Ser. No. 408,563
 Int. Cl.⁶ G05B 15/02; 23/02

U.S. Cl. 364—131

47 Claims



1. A externally attached multi-purpose remote office machine management system device for reporting usage signals concerning the office machine being monitored, said device comprising:
- a microprocessor including memory operatively associated therewith;
 - receiving means coupled to said microprocessor for receiving at least one signal indicative of at least one office machine usage condition to be reported, each said at least one usage condition signal being generated by any one of contact closure and pulse level change thereof, wherein said receiving means is adapted to solely receive usage condition signals which are distinct and isolated from internally generated office machine diagnostic signals and office machine data signals;
 - a calendar clock coupled to said microprocessor for supplying time signals indicative of date and time of day thereto;

a signal generator coupled to said microprocessor for generating signals at a predetermined time for initiating a call to a host computer and for transmitting data thereto corresponding to said signals indicative of said office machine usage conditions to be reported; and
 a controller coupled to said microprocessor for altering a mode of operation for said office machine via commands from said host computer.

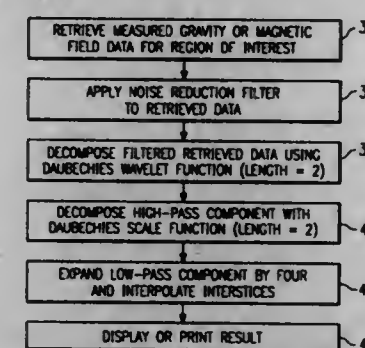
5,673,191

METHOD AND APPARATUS FOR IDENTIFYING GEOLOGICAL STRUCTURES USING WAVELET ANALYSIS OF POTENTIAL FIELDS

David A. Chapin, and Charles C. Mosher, both of Plano, Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.
 Filed Apr. 10, 1995, Ser. No. 419,160
 Int. Cl.⁶ G01V 3/00

U.S. Cl. 364—420

19 Claims



1. A method of operating a computer to identify the location of geological features through the analysis of potential field measurements taken at a plurality of surface locations in a survey region of the earth, comprising:
- retrieving, from memory, data corresponding to a discrete space-domain representation of measurements of a potential field over a spatial range of the survey region;
 - performing wavelet decomposition of the discrete space-domain representation to produce a selected decomposition component from at least a second level of decomposition;
 - expanding the selected decomposition component to correspond to the spatial range; and
 - displaying the expanded selected decomposition component to identify the location of geological features in the spatial range.

5,673,192

ELECTRICAL EQUIPMENT CONTROL SYSTEM FOR A VEHICLE UTILIZING ONE CENTRAL PROCESSING UNIT

Morio Sato, Saitama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 213,748, Mar. 16, 1994, abandoned.

This application Aug. 27, 1996, Ser. No. 703,834

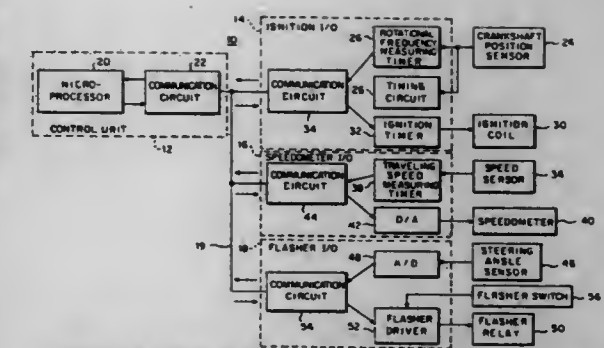
Claims priority, application Japan, Mar. 17, 1993, 5-057512

Int. Cl.⁶ B60K 31/02

U.S. Cl. 364—424.045

19 Claims

1. An electrical equipment control system for controlling electrical equipment of a vehicle comprising:
- a plurality of input/output means, wherein each of said input/output means includes
 - sensor output read means for reading outputs of sensors of the electrical equipment,
 - input data producing means for producing input data on the basis of outputs of said sensor output read means,
 - first communication means for transforming outputs of said input data producing means into signals of a predetermined



transmission format, for delivering the transformed signals of the predetermined transmission format to a data communication network and for extracting electrical equipment driving signals from input signals delivered thereto via the data communication network, and
 driving means for driving the electrical equipment on the basis of the electrical equipment driving signals extracted by said first communication means; and
 central control means having
 second communication means respectively connected through the data communication network to said first communication means for mutual data communication with said first communication means, and
 control means for controlling respective electrical equipment by sending electrical equipment driving signals through said second communication means to respective, first communication means, said control means initially processing ignition control of an engine in the vehicle.

5,673,193

SYSTEM AND METHOD FOR PROCESSING BULK MAIL

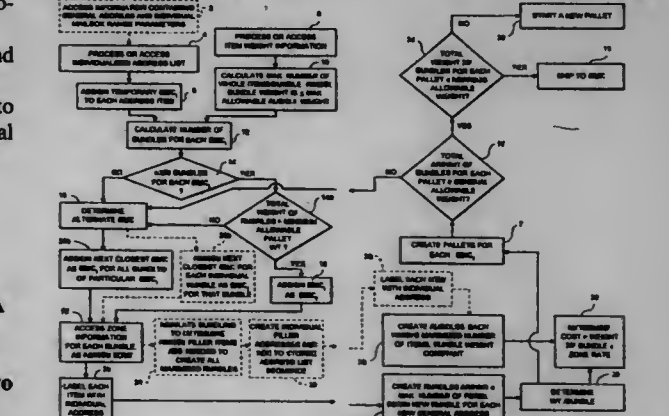
Jonathan Brust, New York, N.Y., and Peter Kraft, Tenafly, N.J., assignors to Creative Media Generations, Inc., New York, N.Y.

Filed Aug. 21, 1995, Ser. No. 517,506

Int. Cl.⁶ G07B 17/02; G06F 19/00

U.S. Cl. 364—464.16

64 Claims



1. A system for processing a mailing consisting of a plurality of identical printed items to be grouped into bundles, each bundle having items with an identical general address, the system comprising:
- means for calculating the maximum number of items of a given weight which can be grouped in a bundle, such that each bundle weighs less than or equal to a given maximum allowable weight,
 - means for calculating the total weight of each maximized bundle,
 - means for receiving postal rate information based on postal zones,
 - means for receiving addressee information, including a general address having a zip code and particularized information for each addressee, wherein the means for receiving addressee

information is capable of receiving a general address and individual addressee information in the form of range parameters for the general address, the system further comprising means for forming a series of individual addresses for the general address based on the range parameters, and means for calculating the postal rate for each bundle, wherein the postal rate for each bundle is calculated based on the total weight and postal zone for each bundle.

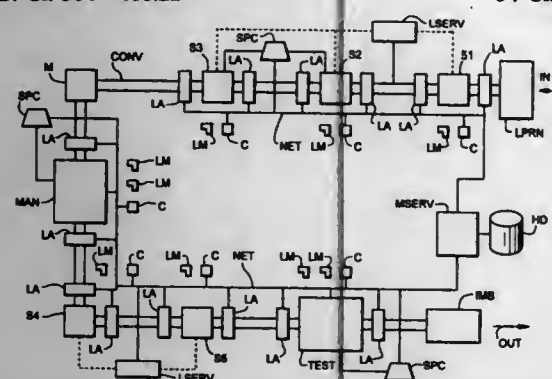
5,673,194

RECORDING SYSTEM FOR A PRODUCTION LINE
Marco Cipelletti, and Orlando Pardi, both of Pavia, Italy, assignors to Marelli Autronica S.p.A., Italy

Filed Nov. 4, 1994, Ser. No. 334,152
Claims priority, application Italy, Nov. 5, 1993, TO93A0838
Int. Cl. G06F 19/00

U.S. Cl. 364-468.22

34 Claims



1. A system for recording data relating to production conditions and a production process for an article produced on a production line, said production line having an input and an output and a plurality of work stations, said system comprising:

central processing means,
memory means associated with said central processing means,
communication means connecting the work stations and said central processing means to one another,
time measuring devices in the production line for making time measurements for said work stations,
means for associating with each article a mark bearing an identification code which can be detected by instruments at the input of the production line,
means for detecting and communicating to said central processing means, when the article, is input to and/or output from at least some of the work stations of the production line, the identification code associated with the article, a datum indicative of a manufacturing step carried out in the work station, and a datum indicative of the time at which the code is detected as measured by a time measuring device,
means for detecting and communicating to the central processing means, for at least some of the work stations of the line, changes of state in operating conditions of the station and a datum indicative of the time at which the change of state of the operating condition of the station occurred as measured by a time measuring device,
wherein said central processing means is configured to store the identification codes, the changes of state, and the data in said memory means in order to be able to formulate a full reconstruction of the entire history of the production process of each article output by said production line by determining the operating conditions existing when said each article passed through each work station on the basis of the times at which the identification code of the article has been detected and the changes of state that occurred for each of said at least some of the work stations.

5,673,195

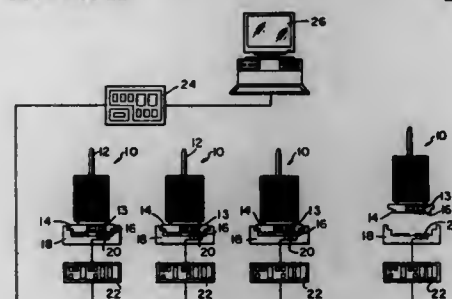
COMPACT DISC TRACKING SYSTEM AND METHOD
Vladimir Schwartz, 12 Revolutionary Rd.; Michael Schwartz, 314 Bedford St., both of Lexington, Mass. 02173, and Klaus Blerwagen, 45 Wadsworth Ave., Waltham, Mass. 02154

Filed Jun. 12, 1995, Ser. No. 489,484

Int. Cl. G06F 19/00

U.S. Cl. 364-468.22

25 Claims



1. A system for tracking compact discs comprising:
a spindle comprising a central shaft and a base for holding a plurality of compact discs thereon;
memory means connected to said spindle;
data transfer means selectively cooperative with said spindle to send and receive information identifying CDs carried by said spindle from or to said memory means; and
locking means for preventing unauthorized removal or addition of CDs from or to said spindle wherein said locking means comprises finger projections which are moveable between a locking deactivated position, wherein said finger projections are contained within said central shaft of said spindle so that CDs can be removed from or inserted on said spindle, and a locking activated position, wherein said finger projections extend outwardly from said central shaft to thereby prevent CDs from being removed from said spindle.

5,673,196

VECTOR ELECTRICITY METERS AND ASSOCIATED VECTOR ELECTRICITY METERING METHODS

Mark E. Hoffman, Rochester; Roland J. Provost, Dover, both of N.H.; Thomas Maehl, Philadelphia, Pa.; Gregory P. Lavole, Lee, N.H.; Mark J. Plis, Barrington, N.H.; David D. Elmore, Somersworth, N.H.; Warren R. Germer, Hampton, N.H.; Jeffrey W. Mammen, Farmington, Conn.; Donald F. Bullock, Madbury, N.H.; Sivarama Seshu Putcha, Somersworth, N.H.; Daniel A. Staver, Scotia, N.Y.; Arthur C. Burt, Dover, N.H.; Curtis W. Crittenden, Dover, and Ellen D. Edge, Portsmouth, both of N.H., assignors to General Electric Company, New York, N.Y.

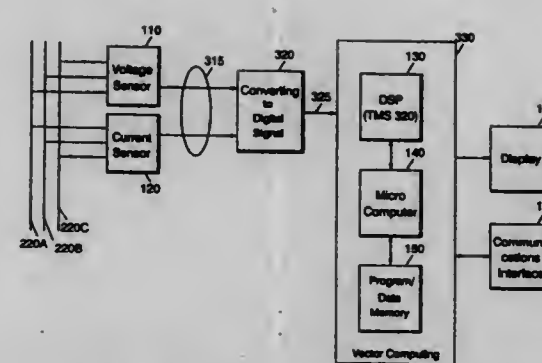
Filed Nov. 30, 1995, Ser. No. 564,543

Int. Cl. G01R 21/133

U.S. Cl. 364-483

118 Claims

1. A method of metering electricity on a power line having at least two conducting paths, comprising the following steps which are performed by an electricity meter:
sensing a line voltage signal and a line current signal on the power line;
determining an interval of orthogonality for the sensed line voltage and line current signals;



converting the sensed line voltage and line current signals into a digital signal; and
computing a vector metering quantity for the power line for the determined interval of orthogonality from the digital signal.

5,673,197

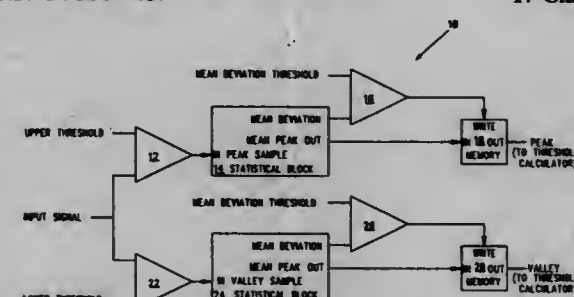
APPARATUS AND METHOD FOR UPDATING THRESHOLDS FOR PEAK AND VALLEY SYSTEMS
James Michael Keba, Wellington, and Clinton C. Powell, II, Lake Worth, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 28, 1995, Ser. No. 495,857

Int. Cl. G06F 19/00

U.S. Cl. 364-487

17 Claims



1. An improved detection decoder comprising:
first means for detection, said first means for detection coupled to an input signal and to an upper threshold signal for detecting a peak signal magnitude and producing a peak output signal corresponding thereto;
second means for detection, said second means for detection coupled to said input signal and to a lower threshold signal for detecting a valley signal magnitude and producing a valley output signal corresponding thereto;
first means for computing, said first means for computing coupled to said first means for detection and receiving said peak output signal, said first means for computing calculating a first mean value of said peak output signal, said first means for computing further calculating a deviation of said peak output signal over a predetermined time interval and producing a peak deviation output signal corresponding thereto;
second means for computing, said second means for computing coupled to said second means for detection and receiving said valley output signal, said second means for computing calculating a second mean value of said valley output signal, said second means for computing further calculating a deviation of said valley output signal over a predetermined time interval and producing a valley deviation output signal corresponding thereto;
first means for comparing, said first means for comparing coupled to said first means for computing and comparing said peak deviation output signal to a first predetermined deviation threshold, said first means for comparing producing a first deviation output signal;
second means for comparing, said second means for comparing coupled to said second means for computing and comparing said valley deviation output signal to a second predetermined

5,673,198

CONCURRENT ELECTRONIC CIRCUIT DESIGN AND IMPLEMENTATION

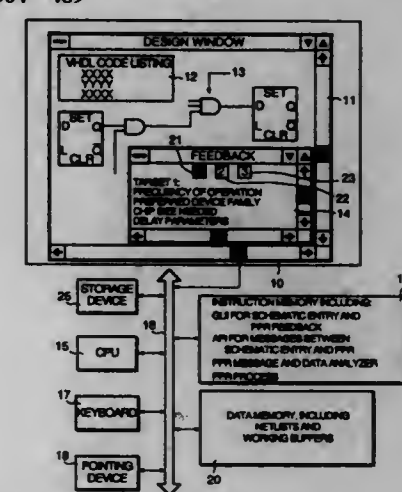
Gary R. Lawman, San Jose, and Robert W. Wells, Cupertino, both of Calif., assignors to Xilinx, Inc., San Jose, Calif.

Filed Mar. 29, 1996, Ser. No. 625,480

Int. Cl. G06F 17/50

U.S. Cl. 364-489

32 Claims

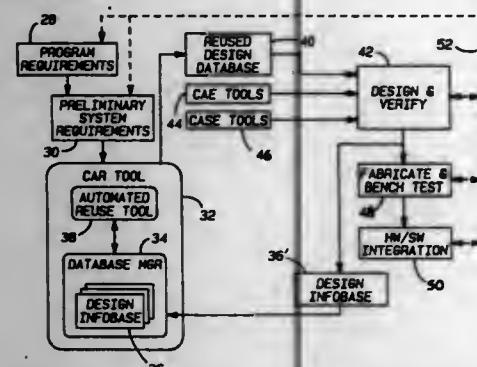


1. In a data processor including a display system, a user input process which displays user input on the display system for designing an electronic circuit, and an implementation process which generates an implementation of the electronic circuit on a selected programmable logic device by performing a partition, place and route function, a method for providing design feedback to a user of the system, comprising:
monitoring the user input process to detect a change in design of the electronic circuit;
producing, concurrently with the user input process, implementation data for the change;
analyzing the implementation data to produce a feedback message; and
displaying information about the implementation data on the display system as said feedback message while the user is designing the electronic circuit;
wherein the feedback message includes information indicating a particular plurality of programmable logic devices is suitable for the electronic circuit being designed and information indicating a performance characteristic of the generated implementation, said feedback message indicating either of the selected programmable logic device and the performance characteristic to be changed by the user.

5,673,199
COMPUTER AIDED REUSE TOOL
 Roy M. Gentry, Manhattan Beach, Calif., assignor to Hughes Electronics, Los Angeles, Calif.
 Filed May 1, 1995, Ser. No. 431,602
 Int. Cl.⁶ G06F 17/50

U.S. Cl. 364-490

20 Claims



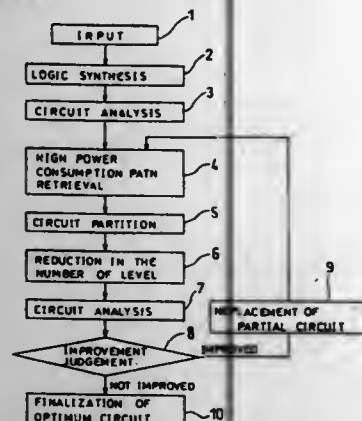
1. A programmable machine system for designing a predefined target system by combining a plurality of selected functions to define the target system, the target system including a functional description and system constraints, the machine system including a plurality of system components, the machine comprising:

- first means for storing a plurality of designs for carrying out specified operations, each design being executable in at least one implementation, and a selected one design of the plurality is combinable with a selected other design of the plurality to yield a predetermined result;
- second means for combining selected designs of the plurality to substantially satisfy the functional description of the preselected target system; and
- third means for automatically selecting for reuse particular implementations of each design of the combined designs such that the system constraints are partitioned over the selected implementations to substantially satisfy the constraints for the entire target system.

5,673,200
LOGIC SYNTHESIS METHOD AND LOGIC SYNTHESIS APPARATUS
 Masahiko Toyonaga, Hyogo, and Michiaki Muraoka, Nara, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
 Continuation of Ser. No. 389,038, Feb. 15, 1995, abandoned.
 This application Jun. 20, 1996, Ser. No. 667,284
 Claims priority, application Japan, Feb. 16, 1994, 6-019390
 Int. Cl.⁶ G06F 15/00

U.S. Cl. 364-490

10 Claims



1. A logic synthesis method for synthesizing a gate level logic circuit using a computer based on behavioral description of LSI, comprising steps of:

- a input processing for inputting the behavioral description of said LSI and element information including at least an element area, a delay time of signal propagation and a power consumption;
- a logic synthesis processing for synthesizing a logic circuit taking area specification and speed specification into consideration based on said behavioral description and element information entered in said input processing;
- a high power consumption path retrieval processing, in a plurality of signal propagation paths in the logic circuit synthesized by said logic synthesis processing, obtaining respective power consumptions of logic elements existing on each of the signal propagation paths, which are respectively calculated based on counting the number of times of change in output of the logic elements, to obtain respective sums of the power consumptions of all the logic elements existing on the respective signal propagation paths and finding out a specific signal propagation path having a larger power consumption than another of said signal propagation paths;
- a level number reduction processing for reducing a number of level of a partial logic circuit constituting a part of said specific signal propagation path having a large power consumption which is found out by said high power consumption path retrieval processing, and producing another partial logic circuit a number of level of which is smaller than that of said partial logic circuit; and
- a circuit replacement processing for replacing said partial logic circuit constituting a part of said specific signal propagation path having a large power consumption by said another partial logic circuit created by said level number reduction processing.

5,673,201
SUB-PROBLEM EXTRACTION METHOD FOR WIRING LOCALIZED CONGESTION AREAS IN VLSI WIRING DESIGN

Richard LaVerne Malm, and Charles L. Melley, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

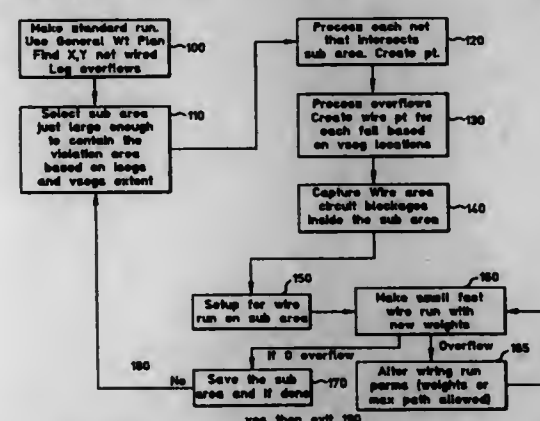
Continuation of Ser. No. 953,611, Sep. 29, 1992, abandoned.

This application Mar. 21, 1996, Ser. No. 621,258

Int. Cl.⁶ G06F 17/50

U.S. Cl. 364-491

21 Claims



11. A computer-implementable method for wiring congested areas in a VLSI design following a failed global wiring attempt, comprising the steps of:
- detecting a congested area containing one or more identified invalid net segments in the VLSI design using the output of a global wiring program which has produced the failed global wiring attempt and which output contains a listing of said one or more identified invalid net segments;
 - determining a bounding area for the congested area which is larger in size than said congested area;
 - fixing perimeter attachment points at locations where wires cross the bounding area;

- extracting from said VLSI design the bounding area and the perimeter attachment points as a sub-problem extraction area; associating wiring parameters with the sub-problem extraction area;
- generating initial weight values for the wiring parameters including a maximum total weight value associated with the sub-problem extraction area;
- setting wire weight iteration range values;
- modifying in a series of iterative nested loops the maximum total weight followed by selected other wire weight values, and during each wire weight modification iteration, performing the following steps:
 - (a) running said global wiring program based on the modified wire weight values;
 - (b) testing for a zero overflow solution;
 - (c) if a zero overflow solution is found, outputting one or more attributes associated with the zero overflow solution; and
 - (d) if a zero overflow solution is not found, repeating sub-steps (a)-(d) using a next modified wire weight parameter.

5,673,202
SYSTEM FOR MINIMIZING THE ENERGY CONSUMPTION OF AN ELECTRICAL LOAD
 Urs Baldenweg, Seuzach, and Beat Sauter, Ermatingen, both of Switzerland, assignors to Energy Management Team AG, Frauenfeld, Switzerland
 PCT No. PCT/CH94/00172, § 371 Date Apr. 7, 1995, § 102(e) Date Apr. 7, 1995, PCT Pub. No. WO95/07500, PCT Pub. Date Mar. 16, 1995

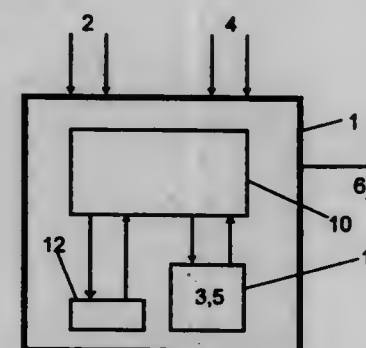
PCT Filed Sep. 2, 1994, Ser. No. 416,685

Claims priority, application Switzerland, Sep. 4, 1993, 02709/93; Aug. 31, 1994, 02663/94

Int. Cl.⁶ G06F 1/32; G04G 15/00

U.S. Cl. 364-492

14 Claims



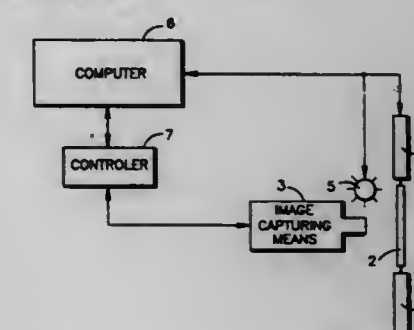
1. A method for minimizing the energy consumption of an electrical load controlled by a controlling device, the controlling device operating continuously throughout each day, the method comprising the steps of:

- (a) processing at least one primary measured value and at least one primary nominal value to obtain a control value, the control value being output by the controlling device for controlling the flow of energy to the electrical load throughout the day; and
- (b) adjusting the at least one primary nominal value for individual conditions occurring throughout the day by using an output obtained by processing at least one secondary measured value and at least one secondary nominal value, the at least one secondary measured value being influenced by a user, wherein the energy consumption of the electrical load is minimized.

5,673,203
CRACK MONITORING APPARATUS
 Balkrishna S. Annigeri, Manchester; Leroy H. Favrow, Newington; Robert J. Haas, Coventry; Michael Winter, New Haven; Ronald I. Holland, Jr., East Hampton, all of Conn.; Jason S. Wegge, Springfield, Mass., and David M. Sanford, Colchester, Conn., assignors to United Technologies Corporation, Hartford, Conn.
 Division of Ser. No. 321,349, Oct. 11, 1994, Pat. No. 5,539,656.
 This application Mar. 28, 1996, Ser. No. 623,294
 Int. Cl.⁶ G01B 9/08

U.S. Cl. 364-508.444

20 Claims

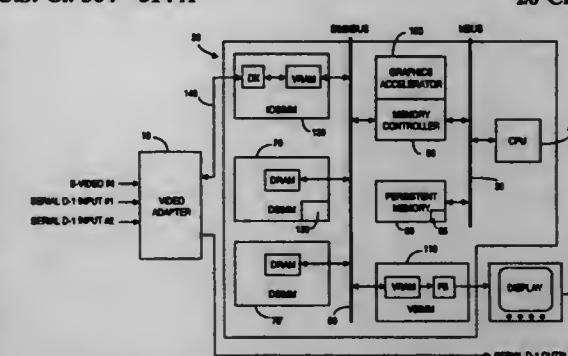


1. An apparatus for monitoring cracks in a specimen, comprising:
- a. means for applying a load to the specimen, wherein said means for applying a load has a frequency;
 - b. means for illuminating the specimen during the application of a load, wherein said illuminating means has a frequency greater than or equal to said frequency of said means for applying a load;
 - c. means for capturing images of the specimen, wherein said capturing means is synchronized with said illuminating means such that crack formation images can be obtained during the application of a load, wherein said means for capturing images captures both the image of the crack and microstructural features of the specimen; and
 - d. means for processing images obtained by said image capturing means to produce crack data real-time.

5,673,204
LOOPBACK VIDEO PREVIEW FOR A COMPUTER DISPLAY
 Marc E. Klingelhofer, Redwood City, Calif., assignor to Sun Microsystems, Inc.
 Filed Jul. 6, 1995, Ser. No. 499,089
 Int. Cl.⁶ G07F 3/14

U.S. Cl. 364-514 A

20 Claims



1. A system for internally providing video data for output in a first format and for processing said data for output in a previewable second format, the system useable with a computer processing sub-system that includes a central processor unit (CPU) and a memory coupled to said CPU to store said video data and a video

buffer unit coupled to receive said video data from said memory and to output a signal in said previewable second format, the system comprising:

- a video adapter, coupled to said CPU, including:
 - a controller unit;
 - a master data rate-decreasing unit having an output coupled to an input of said controller unit;
 - a video scaling-color-space converting unit having an input coupled to an output of said controller unit;
 - a master data rate-increasing unit having an input coupled to an output of said video scaling-color-space converting unit and having an output that is fed back to an input of said master data rate-decreasing unit;
- said CPU causing said video data to be coupled to said video adapter, said master data rate-decreasing unit, and said controller unit such that said controller unit outputs a video signal in said first format;
- said controller unit further providing a signal to said video scaling-color-space converting unit, whose output is increased in data rate by said master data rate-increasing unit and coupled as an input to said computer processing sub-system for storage and coupling to said video buffer unit, said video buffer unit outputting a signal in said previewable second format.

5,673,205

ACCESSING A VIDEO MESSAGE VIA VIDEO SNAPSHOTS

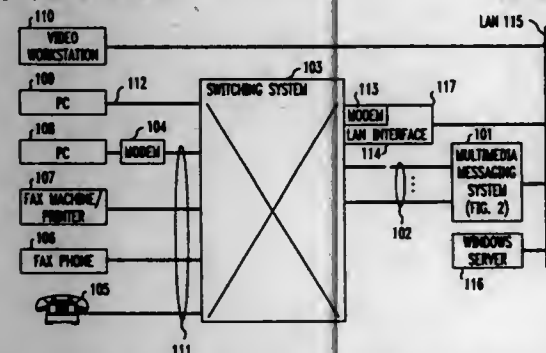
Gordon R. Brunson, Broomfield, Colo., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 8, 1996, Ser. No. 629,112

Int. Cl.⁶ H04N 9/79

U.S. Cl. 364—514 A

20 Claims



1. A method of presenting a video message to a recipient of the message, comprising the steps of:
 - playing back only a soundtrack of the video message to the recipient;
 - in response to receipt of a request from the recipient during playback of the soundtrack, capturing an image frame of the video message that substantially corresponds in the video message to a point in the playback of the soundtrack at which the request was made or received; and
 - conveying the captured image frame to the recipient as a still image.

5,673,206

REAL-TIME DIGITAL AUDIO COMPRESSION/DECOMPRESSION SYSTEM

Ronald Henry Jones, Jr., Delray Beach, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 174,800, Dec. 29, 1993, Pat. No.

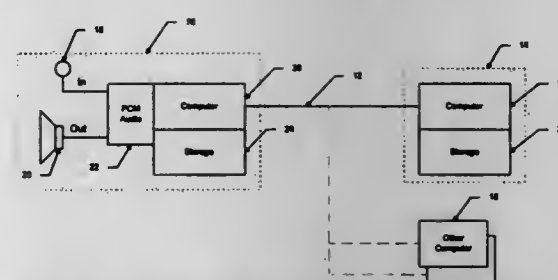
5,561,688. This application Jun. 26, 1996, Ser. No. 670,483

Int. Cl.⁶ G06F 17/00

U.S. Cl. 364—514 R

13 Claims

1. A computer program product comprising:



- a computer useable medium having computer program code means embodied in said medium for compressing a stream of coded data samples, the computer useable medium further comprising:

- computer program code means for comparing a first data sample value and a second consecutive data sample value in the stream and for forming a difference value between the first data sample value and the second data sample value;
- computer program code means responsive to the difference value and the second data sample value for forming a compressed data stream by inserting the difference value into the compressed data stream in place of the second data sample value when the difference value occupies less storage space than the second data sample value; and
- computer program code means responsive to the compressed data stream forming code means for inserting a predetermined flag value into the compressed data stream when the difference value occupies at least the same storage space as the second data sample value.

5,673,207

METHOD FOR PROCESSING MOTION IMAGE TO DETERMINE OPTICAL FLOW AND SYSTEM FOR SAME

Masahide Nomura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

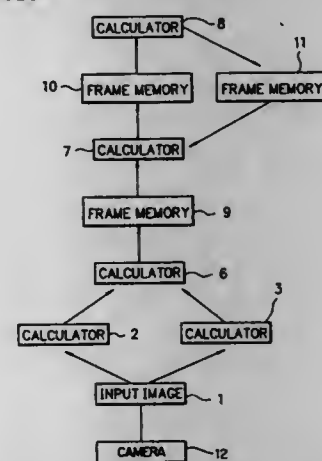
Filed Dec. 27, 1994, Ser. No. 363,838

Claims priority, application Japan, Dec. 27, 1993, 5-331477

Int. Cl.⁶ G01S 17/50

U.S. Cl. 364—516

21 Claims



1. An image processing method in a motion image measuring apparatus which measures movement of an object by processing a sequence of motion images of the object, the method comprising the steps of:

- capturing the sequence of motion images of said object in an image pick-up camera, said sequence of motion images having a plurality of brightness patterns;
- applying the plurality of brightness patterns to a spatiotemporal filtering differentiator having a plurality of differing initial phases to obtain local differential values grouped by the plurality of differing initial phases;
- calculating local brightness gradients based on the local differential values; and

providing a measurement of movement of said object based on the local brightness gradients.

5,673,208

FOCUS SPOT DETECTION METHOD AND SYSTEM

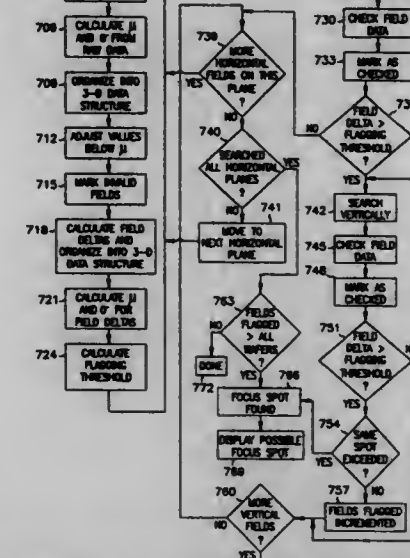
Daniel Meler, Boise; Gregory King, Meridian, and Michael McMahon, Boise, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Apr. 11, 1996, Ser. No. 631,306

Int. Cl.⁶ G03B 27/42; G01J 1/20

U.S. Cl. 364—525

18 Claims



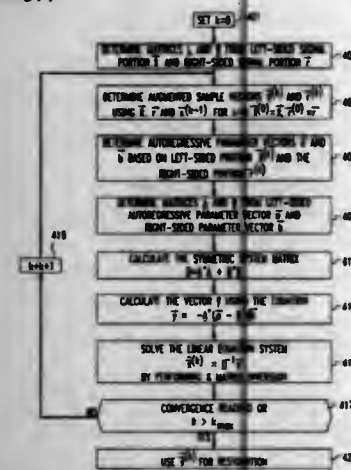
5,673,210
SIGNAL RESTORATION USING LEFT-SIDED AND RIGHT-SIDED AUTOREGRESSIVE PARAMETERS
 Walter Etter, Highlands, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 29, 1995, Ser. No. 536,548

Int. Cl.⁶ G06F 5/31

U.S. Cl. 364—577

23 Claims



1. A signal reconstruction method for reconstructing a missing portion of a signal, the method comprising the steps of:
 - (a) generating a first estimate of the missing portion of the signal from a first known portion of the signal preceding the missing portion and a second known portion of the signal succeeding the missing portion; and
 - (b) generating a new estimate of the missing portion from the first estimate, from the first known portion of the signal, and from the second known portion of the signal.

5,673,211
DIGITAL DATA REPRODUCING APPARATUS
 Hideki Hayashi, and Masaru Umezawa, both of Tsurugashima, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

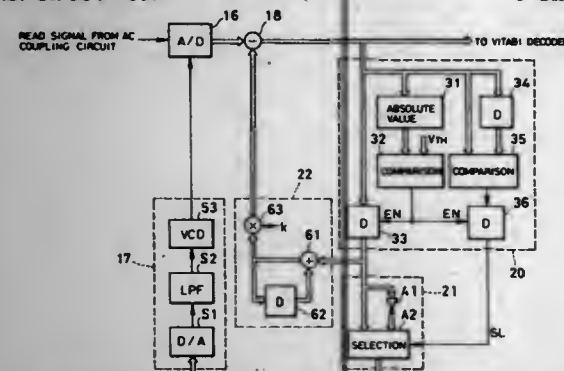
Filed Mar. 21, 1996, Ser. No. 619,298

Claims priority, application Japan, Mar. 24, 1995, 7-066532

Int. Cl.⁶ G06J 1/00; G06F 1/02

U.S. Cl. 364—607

5 Claims



1. A digital data reproducing apparatus for reading out a recorded signal in a recording medium in which digital data is recorded and regenerating said digital data comprising:
 - an analog to digital converting means for converting an analog read signal read out from said recording medium by a reading means to a digital sample value and outputting it according to a timing of a sampling clock pulse;
 - a sample extracting means for outputting, when a sample value with an absolute value smaller than a specified value is extracted from a sample value series successively outputted from said analog to digital converting means, the sample value described above as an extracted sample value and

- outputting a slant signal indicating a positive or negative sign of a slant in a portion corresponding to said extracted sample value in said sample value series;
- a phase control means for correcting a phase in said sampling clock pulse according to said extracted sample value as well as to said slant signal;
- a level control means for correcting a level of an output sample value from said analog to digital converting means according to said extracted sample value; and
- a decoding means for decoding said digital data according to the sample value subjected to level correction by said level control means.

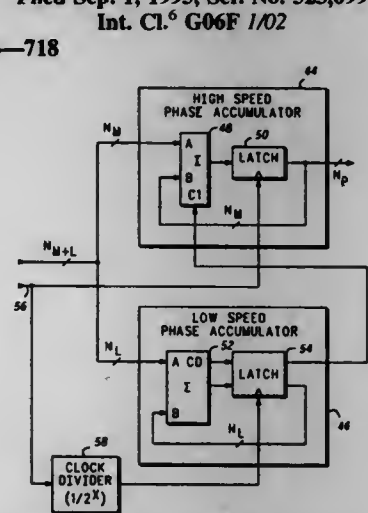
5,673,212
METHOD AND APPARATUS FOR NUMERICALLY CONTROLLED OSCILLATOR WITH PARTITIONED PHASE ACCUMULATOR
 Robert Karl Hansen, Scottsdale, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 1, 1995, Ser. No. 523,099

Int. Cl.⁶ G06F 1/02

U.S. Cl. 364—718

20 Claims



1. A numerically controlled oscillator (NCO) for generating an oscillation signal having a frequency determined in response to a frequency word having more significant bits and having less significant bits, said NCO comprising:
 - a first phase accumulator adapted to accumulate at a first rate and to receive said more significant bits of said frequency word; and
 - a second phase accumulator, coupled to said first phase accumulator, said second phase accumulator being adapted to accumulate at a second rate, said second rate being less than said first rate, and to receive said less significant bits of said frequency word.

5,673,213
ADAPTIVE FILTER
 Konrad Michael Weigl, Friedenspromenade 1a, Munich, Germany, 81827

Continuation of Ser. No. 244,062, Jun. 22, 1994, abandoned.

This application Aug. 28, 1996, Ser. No. 704,358

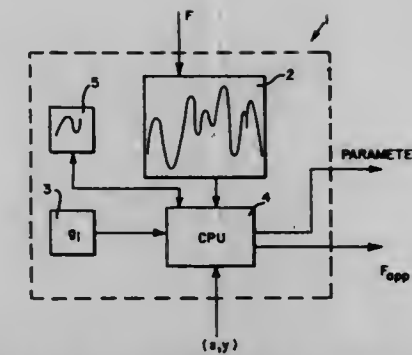
Claims priority, application Germany, Sep. 16, 1992, 42 31 005.9; Aug. 6, 1993, 43 26 487.5

Int. Cl.⁶ G06F 17/10

U.S. Cl. 364—724.19

18 Claims

1. An adaptive filter whose output characteristics correspond to the sum of the characteristics of a plurality of elementary filters comprising:
 - a first memory for storing sets of m input signals and m wanted output signals, with m an integer ≥ 1 , said m wanted output signals defining together an Fm vector, and representing a



- function (F) of said input signals to be approximated, with said function defining a function space;
 - a second memory containing modifiable parameters;
 - filter calculation means cooperating with said second memory, for defining therewith n elementary filters, where n is an integer ≥ 1 and i has all of the n possible values, the elementary filters spanning a sub-space in the function space;
 - intermediate calculating means comprising:
 - i) means for applying said m input signals to said filter calculation means thereby obtaining nm values, with each one g_i of the n elementary filters delivering m outputs arranged as an m-component filter vector g_i ;
 - ii) n scalar multiplication means for multiplying each of the m-component filter vectors g_i with the Fm vector to obtain n resulting quantities representing the normal projections of the vector Fm onto the respective vectors g_i , said resulting scalar multiplication quantities together forming an n-component vector A, of normal projection;
 - iii) linear algebraic calculation means receiving said filter vectors g_i and said vector A, of normal projection for calculating therefrom intermediate results representing the projection of the function (F) to be approximated on said spanned sub-space in the function space;
 - a third memory for storing said intermediate results of said intermediate calculating means;
 - calculating means cooperating with the first and third memories for calculating the difference D between the function (F) to be approximated and a corresponding recombination of said intermediate results of said intermediate calculating means; and
 - minimization means, responsive to the output of said calculating means for changing said modifiable parameters in accordance with one of a deterministic and a stochastic calculation method;
- whereby the desired approximated function (F) is obtained at said output of the filter, from the superimposition of the elementary filters adjusted by the minimization in accordance with the intermediate results of said intermediate calculating means.

5,673,214
DISCRETE COSINE TRANSFORM PROCESSOR
 Lee-Sup Kim, Dongdaemoon-Ku, Rep. of Korea; Tetsu Nagamatsu, Kawasaki, and Takayasu Sakurai, Setagaya-Ku, both of Japan, assignors to Kabushiki Kaisha Toshiba, Tokyo, Japan

Continuation of Ser. No. 346,817, Nov. 30, 1994, abandoned.

This application Aug. 28, 1996, Ser. No. 704,922

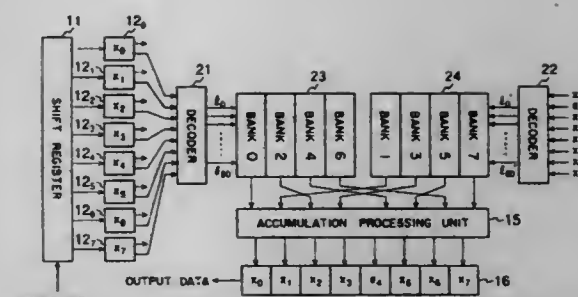
Claims priority, application Japan, Nov. 30, 1993, 5-300375

Int. Cl.⁶ G06F 17/14

U.S. Cl. 364—725

3 Claims

1. A discrete cosine transform processor comprising:
 - input means for receiving image data to be processed;
 - storage means responsive to a read line for storing multiplication and accumulation values corresponding to the image data and transform matrix components for use in a discrete cosine transform arithmetic so that the same value is read from the same read line, wherein said storage means includes a first



- storage unit for storing the multiplication and accumulation values corresponding to even-numbered rows of the transform matrix components and a second storage unit for storing the multiplication and accumulation values corresponding to odd-numbered rows of the transform matrix components;
- decoding means for selecting the read line, in which the image data includes a plurality of bits representing address data, wherein said decoding means has a first decoder for accessing said first storage unit and a second decoder for accessing said second storage unit, wherein each one of the first decoder and the second decoder includes subdecoders for outputting three address values from two bits of the image data;
- accumulating means for accumulating the data read from said storage means; and
- output means for outputting a result of the accumulation processing as output data.

5,673,215
NON-RESTORING FIXED-POINT DIVIDER APPARATUS
 Albert Suan-Wei Tsay, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

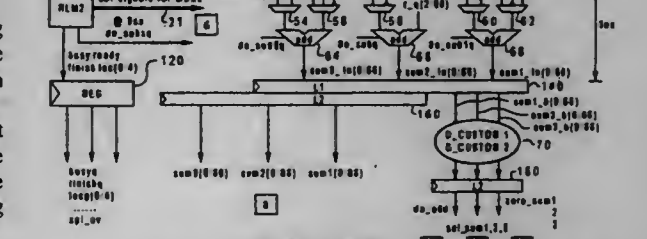
Continuation of Ser. No. 319,203, Oct. 5, 1994, abandoned.

This application Nov. 15, 1996, Ser. No. 746,708

Int. Cl.⁶ G06F 7/52

U.S. Cl. 364—767

13 Claims



1. A fixed-point divider apparatus having a divider-input providing first, second, third, fourth, and fifth groups of input signals, said groups of input signals including a partial remainder and a divisor, wherein said fixed-point divider produces quotient bits as an output, said divider apparatus comprising:
 - first, second, and third adders, coupled in parallel one with another, for performing add or subtract functions, each adder being precharged during a first clock phase and executing one of said functions during a second clock phase, said first and second clock phases occurring during a single clock cycle;
 - first and second multiplexors, coupled to said divider-input and to said first adder, for selecting a respective first operand and a second operand for said first adder, which said first and second operands are selected from said first and second group of input signals, respectively;
 - a third multiplexor, coupled to said divider-input and to said second adder, for selecting a first operand for said second adder, which first operand for said second adder is selected from said third group of input signals;
 - fourth and fifth multiplexors, coupled to said divider-input and to said third adder, for selecting a respective first operand and

a second operand for said third adder, which first and second third adder operands are selected from said fourth and fifth group of input signals, respectively;

an adder operand select logic circuit, coupled to said first, second, and third adders and said multiplexors, for selecting whether to perform the add or subtract function and for selecting which operands said first second third, fourth, and fifth multiplexors feed to said first, second, and third adders; and

a remain quotient determination circuit, coupled to said first second, and third adders, for determining when a divide operation has been completed, what the divide result is in the form of said quotient bits, and whether there is a remainder quotient increment.

5,673,216

PROCESS AND SYSTEM FOR ADDING OR SUBTRACTING SYMBOLS IN ANY BASE WITHOUT CONVERTING TO A COMMON BASE

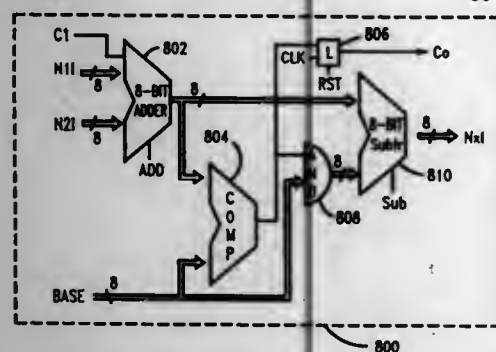
Edward E. Kelley, Wappingers Falls; Norman J. Dauerer, Hopewell Junction; Franco Motika, Hopewell Junction, and Aziz M. Ahsan, Hopewell Junction, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 19, 1995, Ser. No. 575,105

Int. Cl.⁶ G06F 7/50

U.S. Cl. 364-771

60 Claims



1. A data system comprising:

- a first logic circuit for receiving data defining at least two numbers in a number system having a base, each number having at least one digit, the data further defining a desired base, the logic circuit adding the digits of the numbers to produce a first interim sum, the logic circuit comparing the first interim sum to the base, the logic circuit subtracting the desired base from the first interim sum to produce a difference if the interim sum is greater than or equal to the base when the signal has the first state, the first logic circuit outputting the difference if the interim sum is greater than or equal to the desired base or the interim sum if the interim sum is less than the desired base; and
- a second logic circuit producing a carry signal for input to the first logic circuit for a succeeding digit-addition operation if the first interim sum is greater than or equal to the desired base, the second logic circuit producing no carry signal if the first interim sum is less than the desired base.

5,673,217

IDEA PROCESSOR

Hiroaki Imaizumi, Tokyo, Japan, assignor to HiroArt Directions, Inc., Tokyo, Japan

Filed Jan. 11, 1996, Ser. No. 584,303

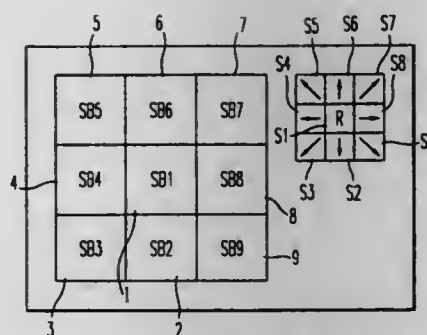
Claims priority, application Japan, Jan. 11, 1995, 7-000376

Int. Cl.⁶ G11C 1/00

U.S. Cl. 365-49

5 Claims

1. An idea processor in which a plurality of sentences are managed in a hierarchical structure having a plurality of levels by developing a plurality of sentences from a key sentence, wherein



the number of sentences that are developed from the key sentence is limited to eight, and these nine sentences are displayed on a screen such that the key sentence is displayed at the center cell of nine cells arranged in a 3x3 matrix, while the developed sentences are displayed in cells that surround the center cell, thereby providing a display having a nested structure.

5,673,218

DUAL-ADDRESSED RECTIFIER STORAGE DEVICE

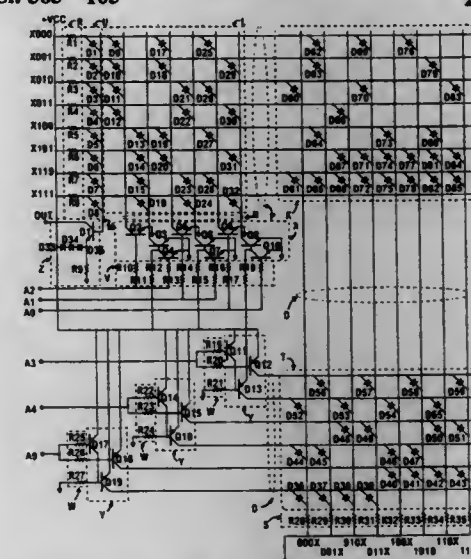
Daniel R. Shepard, 88 Union St., Portsmouth, N.H. 03801

Filed Mar. 5, 1996, Ser. No. 610,992

Int. Cl.⁶ G11C 17/06

U.S. Cl. 365-105

20 Claims



11. An electronic information storage device comprising:
 - a plurality of generally parallel conductive means;
 - a second plurality of generally parallel conductive means that is generally perpendicular to and overlapping with the first said plurality of generally parallel conductive means;
 - a plurality of bits of potential information storage where a bit of said plurality of bits is present in the general vicinity of each point of intersection of each conductive means of the first said plurality of generally parallel conductive means and each conductive means of the second said plurality of generally parallel conductive means, and where the state of any said bit is determined by the presence or absence of a rectifying conductive means at each said general vicinity of said point of intersection;

means for selecting a conductive means of one plurality of generally parallel conductive means, and means for biasing the generally parallel conductive means of the other plurality of generally parallel conductive means such that each said rectifying conductive means present between a conductive means of said biased plurality of generally parallel conductive means and a conductive means of the other said plurality of generally parallel conductive means is potentially forward biased; and

means for selecting a biased conductive means by electronically disabling conductive means within said biased plurality of generally parallel conductive means by shifting the voltage of those biased conductive means that are to be disabled.

5,673,219

APPARATUS AND METHOD FOR REDUCING LEAKAGE CURRENT IN A DYNAMIC RANDOM ACCESS MEMORY

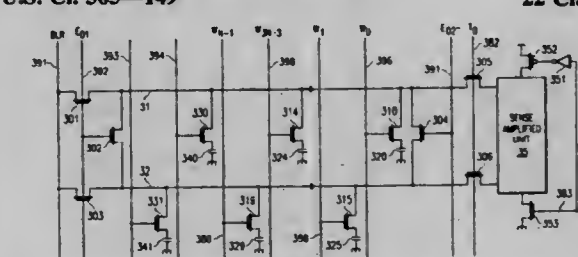
Masashi Hashimoto, Ibaraki, Japan, assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 21, 1996, Ser. No. 620,716

Int. Cl.⁶ G11C 11/24

U.S. Cl. 365-149

22 Claims



1. A method for reducing the leakage current from a storage cell capacitor in a dynamic random access memory when a charged storage cell capacitor is isolated from a zero potential bitline by a pass transistor, said bitline potential being determined by a sense amplifier unit, said method comprising the steps of:
 - electrically isolating said zero potential bitline from an associated sense amplifier unit; and
 - raising said zero potential bitline by a small voltage increment thereby creating a negative base-to-source potential for said pass transistor.

5,673,220

MEMORY MATERIAL AND METHOD FOR ITS MANUFACTURE

Shimon Gendlin, New York, N.Y., assignor to Kappa Numerics, Inc., Guilford, N.Y.

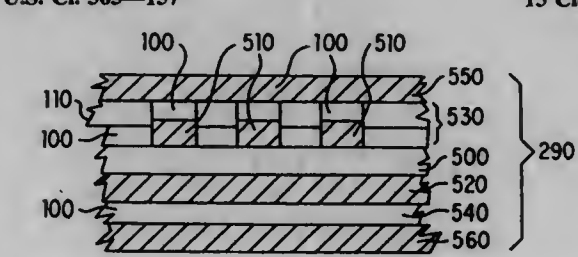
Division of Ser. No. 437,007, May 8, 1995, which is a continuation of Ser. No. 968,759, Oct. 30, 1992, Pat. No. 5,313,176.

This application Jun. 7, 1995, Ser. No. 487,128

Int. Cl.⁶ H01L 43/08

U.S. Cl. 365-157

13 Claims



1. A non-volatile, random-accessible memory device comprising:
 - a substrate having first and second surfaces;
 - a first address line formed on the first surface of the substrate;
 - a second address line formed on the second surface of the substrate;
 - a first composition of materials formed on the first surface of the substrate, the first composition of materials having ferromagnetic and piezoelectric properties and comprising the elements of Pb, Cd, Fe, Cr, Zn and an element selected from a group consisting of Te and Ti; and
 - a second composition of materials formed on the second surface of the substrate, the second composition of materials having ferromagnetic and piezoelectric properties and comprising the

elements of Pb, Cd, Fe, Cr, Zn and an element selected from a group consisting of Te and Ti.

the first and the second compositions of materials comprising a first layer of material formed on the substrate and a second layer of material formed on the first layer, the first layer of material comprising the elements of Pb, Cd, and Fe, wherein the ratio between Pb, Cd, and Fe in the first layer is $(1-x-y):x:y$ where the values of $(1-x-y)$, x and y are within the ranges of $0 \leq (1-x-y) \leq 1$, $0 \leq x \leq 1$, and $0 \leq y \leq 1$, and the second layer of material comprising elements of Cr, Zn, and R where R is an element selected from the group consisting of Te and Ti, wherein the ratio between Cr, Zn and R in the second layer is $(1-z-w):z:w$ where the values of $(1-z-w)$, z and w are within the ranges of $0 \leq (1-z-w) \leq 1$, $0 \leq z \leq 1$, and $0 \leq w \leq 1$.

5,673,221

CIRCUIT AND METHOD FOR READING A MEMORY CELL THAT CAN STORE MULTIPLE BITS OF DATA

Cristiano Calligaro, Torre D'Isola; Vincenzo Daniele, Brughiero; Roberto Gastaldi, Agrate Brianza; Alessandro Manstretta, Brioni; Nicola Teleco, Monleale, and Guido Torelli, S. Alessio Con Vialone, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

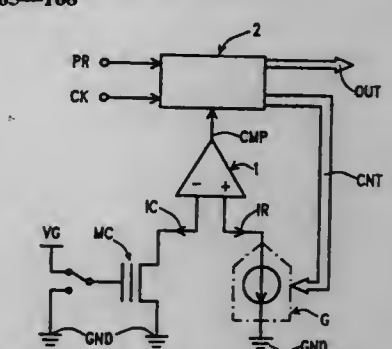
Filed Jan. 29, 1996, Ser. No. 592,939

Claims priority, application European Pat. Off., Mar. 23, 1995, 95830110

Int. Cl.⁶ G11C 11/56

U.S. Cl. 365-168

28 Claims



1. A sense circuit for reading a memory cell that can store one of a number of data levels, said number greater than two, and that can provide on an output terminal one of a number of signal levels that each identify a corresponding one of said data levels, said one signal level on said output terminal identifying said stored data level, said circuit comprising:
 - a comparator having a first input terminal coupled to said output terminal of said memory cell, a second input terminal, and an output terminal;
 - a successive approximation register having an input terminal coupled to said output terminal of said comparator, an output terminal that provides said stored data level, and a control output terminal; and
 - a reference-signal generator having a control input terminal that is coupled to said control output terminal of said successive approximation register, an output terminal that is coupled to said second input terminal of said comparator, an offset-reference generator that generates an offset-reference value, a number of reference generators that each generate a reference value substantially equal to one of said signal levels, and a switch circuit that is coupled to said control input terminal, said switch circuit operable to provide said offset-reference value on said output terminal of said reference-signal generator when said successive approximation register selects none of said reference values, and operable to provide on said output terminal of said reference-signal generator a sum of said offset-reference value and one of said reference values selected by said successive approximation register.

a first data line portion, positioned adjacent to the memory array and the redundant column and disposed from the redundant column to a first periphery of the integrated circuit memory, for receiving data from the redundant column;

a second data line portion, positioned adjacent to the memory array and the redundant column and disposed from the redundant column to a second periphery of the integrated circuit memory, for receiving data from the redundant column; and

a redundant multiplexer, coupled to the first and second data line portions, for determining which of the first or second data line portions is to receive the data from the redundant column.

5,673,228

INTEGRATED CIRCUIT HAVING AN EEPROM, SEMICONDUCTOR WAFER PROVIDED WITH SUCH INTEGRATED CIRCUITS, AND METHOD OF TESTING SUCH A SEMICONDUCTOR WAFER

Volker Timm, Plinneberg, Dirk Armbrust, and Tom Holtz, both of Hamburg, all of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

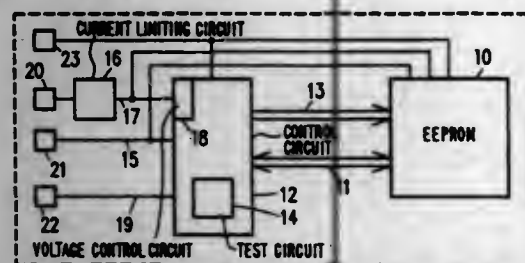
Filed Apr. 13, 1995, Ser. No. 423,248

Claims priority, application Germany, Apr. 16, 1994, 44 13 257.3

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—201

6 Claims



1. An integrated circuit, comprising an EEPROM and a control circuit for controlling the reading and writing of information in the EEPROM, and voltage terminals for application of a supply voltage, characterized in that the control circuit (12) comprises a test circuit (14) which alternately and repetitively writes binary information "0" and "1" into all memory cells of the EEPROM (10) in a highly automatic manner only when a voltage is applied to selected voltage terminals (20, 21) of the integrated circuit for the first time.

5,673,229

DYNAMIC RANDOM ACCESS MEMORY

Junichi Okamura, Yokohama, and Tohru Furuyama, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 340,471, Nov. 14, 1994, abandoned, which is a continuation of Ser. No. 160,840, Dec. 3, 1993, abandoned, which is a continuation of Ser. No. 813,492, Dec. 26, 1991, Pat. No. 5,287,312. This application Mar. 8, 1996, Ser. No. 612,759

Claims priority, application Japan, Dec. 26, 1990, 2-418371

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—201

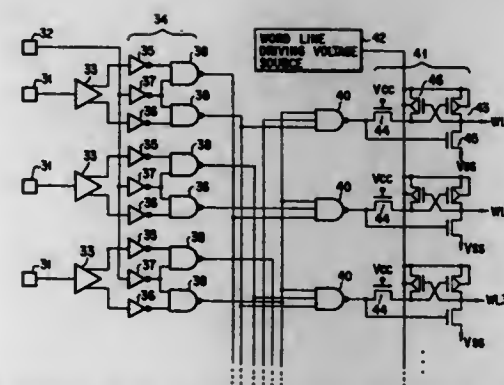
20 Claims

1. A dynamic random access memory comprising:

a dynamic memory cell having a transfer N-channel MOS transistor and a capacitive element for storing data which is connected to the transfer N-channel MOS transistor;

a word line connected to a gate of the transfer N-channel MOS transistor of said dynamic memory cell;

a word line driving voltage source, to which power voltage is input for raising the input power voltage to generate a word line driving voltage, said word line driving voltage source being a voltage raising circuit for outputting a steady-level voltage as the word line driving voltage;



an address circuit for generating internal address signals in accordance with externally input address signals;

a word line selecting circuit, connected to said word line driving voltage source, for decoding the internal address signals, said word line selecting circuit including a precharge circuit and a discharge circuit serially connected between a first node and a ground potential node and outputting a word line selecting signal via a series-connection node connecting said precharge circuit and said discharge circuit, the word line selecting signal having a voltage which varies between a first voltage and a second voltage; and

a word line driving circuit for driving a corresponding word line in accordance with the word line selecting signal, said word line driving circuit being provided in correspondence with said word line and having a P-channel MOS transistor which has a source connected to the first node having the word line driving voltage, a drain connected to said word line and a gate to which the word line selecting signal is applied,

wherein said word line driving voltage source outputs the steady-level voltage during a first period in which said precharge circuit precharges the series-connection node and during a second period in which said word line driving circuit drives the corresponding word line.

5,673,230

SEMICONDUCTOR MEMORY DEVICE CAPABLE OF OPERATING AT HIGH SPEED AND STABLY EVEN UNDER LOW POWER SUPPLY VOLTAGE

Hirofada Kuriyama, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

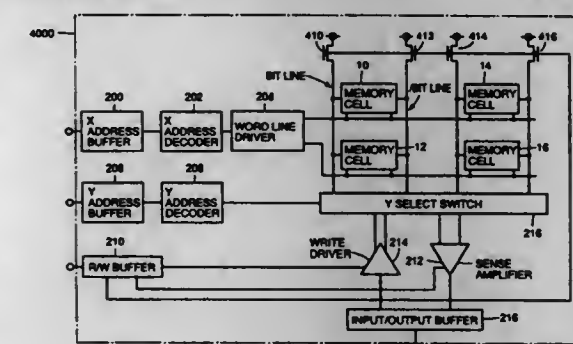
Filed Feb. 16, 1996, Ser. No. 602,666

Claims priority, application Japan, May 30, 1995, 7-131471

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—203

5 Claims



1. A semiconductor memory device, comprising:

a memory cell array having a plurality of memory cells, said each memory cell including

a flip-flop circuit having a first inverter having a first driver transistor of a first conductivity type and a first load element, and a second inverter having a second driver transistor of the first conductivity type and a second load element,

a first access transistor of the first conductivity type connected to an output node of said first inverter, and

a second access transistor of the first conductivity type connected to an output node of said second inverter;

first and second bit lines connected to at least one of said memory cells through said first and second access transistors, respectively;

bit line load means connected between said each bit line and a power source,

said bit line load means including

a first bit line load MOS transistor connected between said bit line and the power source with its gate supplied with a first potential; and

a word line connected to the gates of said first and second access transistors in common, wherein

a current supplying capability of said first bit line load MOS transistor is equal to or less than five times a current supplying capability of an access transistor connected to a corresponding bit line, and a current supplying capability of a driver transistor to which said access transistor is connected is equal to or larger than the current supplying capability of said access transistor.

5,673,231

SEMICONDUCTOR MEMORY DEVICE IN WHICH LEAKAGE CURRENT FROM DEFECTIVE MEMORY CELL CAN BE SUPPRESSED DURING STANDBY

Kiyohiro Furutani, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

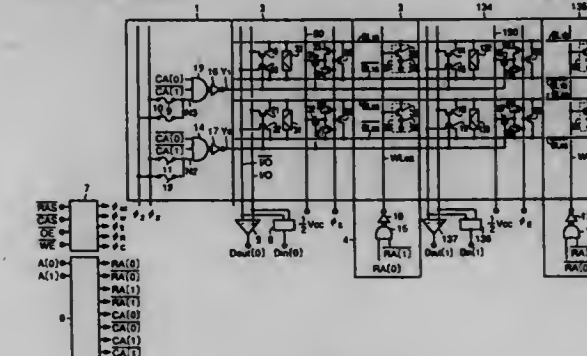
Filed Jun. 21, 1996, Ser. No. 668,169

Claims priority, application Japan, Jun. 23, 1995, 7-157786; Feb. 1, 1996, 8-016738

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—203

6 Claims



1. A semiconductor memory device, comprising:

a memory cell array including a plurality of word lines, a plurality of bit line pairs crossing said plurality of word lines and a plurality of memory cells connected to these word lines and bit line pairs;

a precharge potential supply interconnection for supplying precharge potential of said bit line pairs;

power supply interconnections arranged parallel to said bit line pairs, there being at least one of said power supply interconnections for every set of a predetermined number of said bit line pairs;

power supply interconnection potential setting means existing in every one of said power supply interconnection for setting the supplying potential at either one of first and second potential according to whether there is a defective bit in the corresponding one of said bit line pairs; and

a plurality of bit line equalizing means provided corresponding to said bit line pair for opening/closing the connection between said bit line pair and said precharge power supply in response to external bit line equalizing signal when said power supply interconnection potential is set at the first potential and for rendering the connection non-conductive when said power supply interconnection potential is set at said second potential level.

5,673,232

SEMICONDUCTOR MEMORY DEVICE OPERATING STABLY UNDER LOW POWER SUPPLY VOLTAGE WITH LOW POWER CONSUMPTION

Kiyohiro Furutani, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

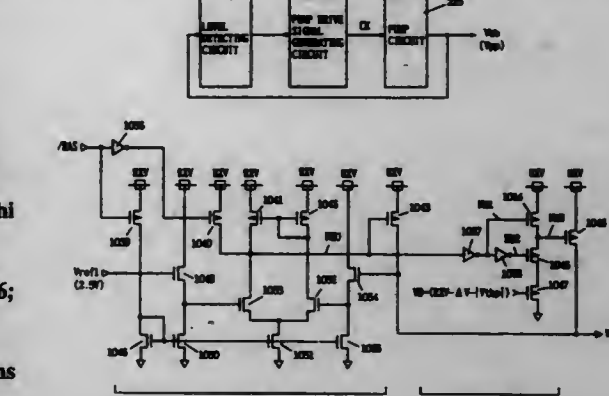
Filed Jun. 6, 1995, Ser. No. 486,755

Claims priority, application Japan, Jul. 18, 1994, 6-165614

Int. Cl.⁶ H01L 27/04

U.S. Cl. 365—226

10 Claims



1. An internal power supply voltage generating circuit down-converting an external power supply voltage applied to an external power supply node for generating an internal power supply voltage on an internal power supply line, comprising:

comparing means for comparing a voltage on said internal power supply line and a reference voltage;

buffer means for buffering an output of said comparing means;

a first drive element supplying current from said external power supply node onto said internal power supply line in response to the output of said comparing means; and

a second drive element supplying current from said external power supply node to said internal power supply line in response to an output of said buffer means.

5,673,233

SYNCHRONOUS MEMORY ALLOWING EARLY READ COMMAND IN WRITE TO READ TRANSITIONS

Jeffrey P. Wright, and Hua Zheng, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 601,290, Feb. 16, 1996, Pat. No. 5,587,961. This application Nov. 8, 1996, Ser. No. 746,410

Int. Cl.⁶ G11C 8/00

U.S. Cl. 365—233

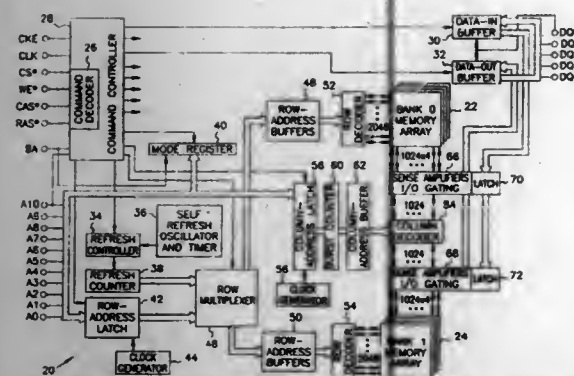
22 Claims

1. A memory device responsive to command signals and operating in synchronization with active edges of a system clock, the memory device comprising:

a memory array having storage cells;

a mode register for storing mode information; and

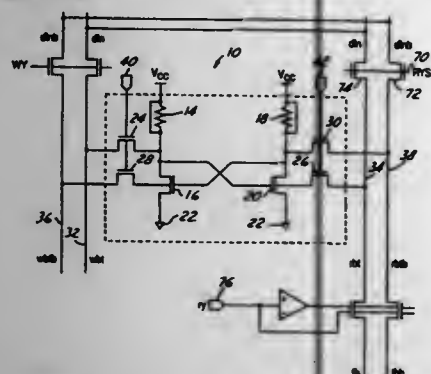
a command decoder/controller responsive to selected command signals and the mode information to initiate, at a first active edge of the system clock, a burst write command controlling a burst write operation to transfer multiple input data sets to the memory array and to initiate, at a second active edge of the



system clock, a read command controlling a read operation to transfer at least one output data set from the memory array, wherein one of the multiple input data sets transferred during the burst write operation is input into the memory device during a second system clock cycle beginning with the second active edge, and wherein each input and output data set includes at least one bit of data.

5,673,234
READ BITLINE WRITER FOR FALLTHRU IN FIFO'S
 Andrew L. Hawkins; Muthukumar Nagarajan, and Ajay Srikrishna, all of Starkville, Miss., assignors to Cypress Semiconductor Corp., San Jose, Calif.
 Filed Dec. 13, 1995, Ser. No. 572,181
 Int. Cl. G11C 15/00

U.S. Cl. 365-239 9 Claims

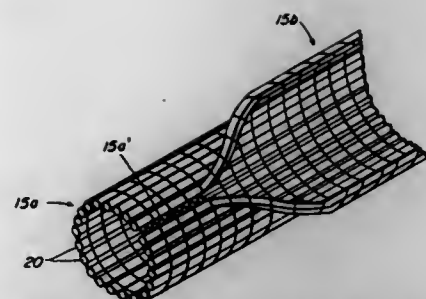


1. A method for writing data onto a read bitline of a FIFO buffer comprising the steps of:
 connecting a data input to said read bitline, wherein said read bitline is not shorted to a write bitline;
 detecting when a read pointer and a write pointer are in the same row; and
 writing data from the data input to the read bitline as the data from the data input is written to a write bitline when said read pointer and said write pointer are in the same row.

5,673,235
SOCK SHAPED INTERNAL STRENGTH MEMBER FOR TOWED ARRAYS
 Howard A. Miller, Encinitas, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
 Filed Jul. 30, 1987, Ser. No. 81,813
 Int. Cl. G01V 1/38

U.S. Cl. 367-20 3 Claims

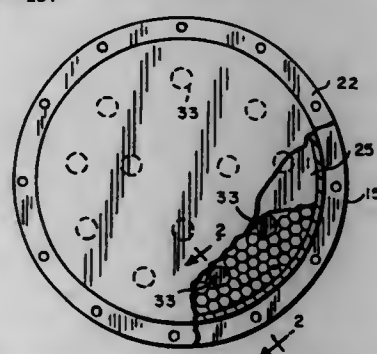
1. An apparatus for providing tensile strength for an elongate array of sensors and their associated electronics contained in a hose-like sheath comprising:
 means disposed contiguously adjacent to and on the inside of the sheath for longitudinally extending the length thereof, the



longitudinally extending means reaches from one end of the sheath to the other, and defining a contained elongate chamber therein sized to contain at least one sensor and associated electronics in a non-compressive relationship, the longitudinally extending means is fabricated to provide longitudinal tensile strength capabilities uniformly about the elongate chamber and the longitudinally extending means is a plurality of cords made from a number of ends of an aramid fiber arranged in a juxtaposed relationship with respect to one another on the inner wall of the hose-like sheath in an equidistantly spaced relationship;
 means disposed coextensively along the longitudinally extending means for providing structure to position it so that the longitudinal tensile strength capability is assured; and
 means formed at at least one end of the longitudinally extending means for braiding back onto itself to assure securing to a towing vessel, the structure providing means is a weave of lateral fills woven among the cords of aramid fiber.

5,673,236
UNDERWATER ACOUSTIC PROJECTOR
 James E. Barger, Winchester, Mass., assignor to BBN Corporation, Cambridge, Mass.
 Continuation-in-part of Ser. No. 390,638, Feb. 17, 1995, abandoned. This application Jul. 2, 1996, Ser. No. 681,706
 Int. Cl. H04R 17/00

U.S. Cl. 367-157 16 Claims



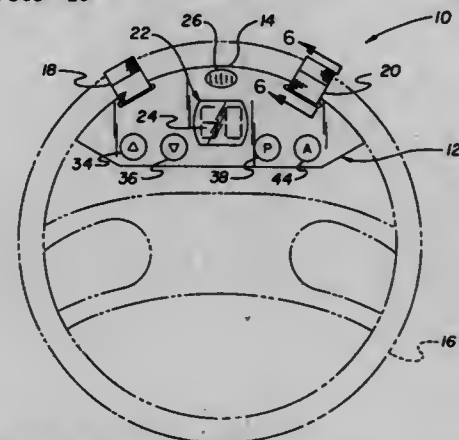
1. An underwater sound projector for radiating sound energy over a range of frequencies F1 to F2 into a body of water into which the projector is immersed, said projector comprising:
 a pair of complementary, aligned and spaced-apart panels constructed as lightweight plates;
 means for flexibly sealing the peripheries of said panels to exclude water from the space between them;
 a plurality of actuators between said panels for driving said panels in opposition, thereby to radiate sound energy into said body of water, the inertial component of the radiation impedance being substantially greater than the mass of the panels over the frequency range F1-F2, the compliance of the actuators being such that

$$C_m \alpha \geq 1$$

where α is the product of angular frequency and the radiation reactance of water within the range F1-F2 and C_m is the compliance of the actuators.

5,673,237
STEERING WHEEL ALARM CLOCK
 Steve Blank, 6 Sturdevant Dr., Danbury, Conn. 06811
 Filed Jan. 29, 1996, Ser. No. 592,971
 Int. Cl. G04B 47/00

U.S. Cl. 368-10 1 Claim

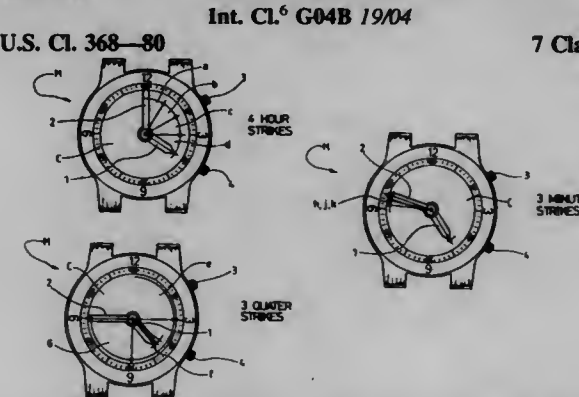


1. A steering wheel alarm clock comprising:
 a steering wheel;
 a housing having a semi-circular upper edge which can be abuttingly positioned against an interior surface of a steering wheel, the housing is shaped so as to define a pair of strap slots, the semi-circular upper edge is shaped so as to define a concave surface;
 a pair of straps including a first strap and a second strap mounted to the housing which can be secured about the steering wheel, the straps being directed through strap slots in the housing;
 an electronic alarm clock module mounted within the housing, the electronic alarm clock module includes a digital display mounted on a front face of the housing, and a beeper mounted to the housing and electrically coupled to the alarm clock module. The alarm clock module includes an increase switch and a decrease switch mounted to the housing and electrically coupled to the module for adjusting an amount of time for the alarm clock module to monitor.

5,673,238
ELECTRONIC WATCH WITH MINUTE-REPEATER FUNCTION
 Jean-Claude Berney, Les Charbonnières, Switzerland, assignor to Eta SA Fabriques d'Ebauches, Grenchen, Switzerland
 Filed May 9, 1995, Ser. No. 437,308
 Claims priority, application Switzerland, May 20, 1994, 01577/94

Int. Cl. G04B 19/04 7 Claims

U.S. Cl. 368-80

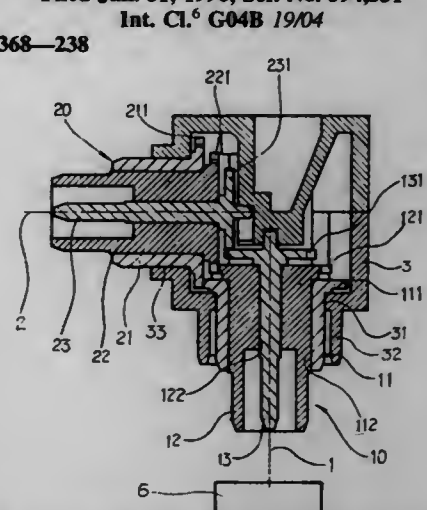


1. A watch with a minute-repeater function, said watch comprising:
 control means, an hour hand and a minute hand driven by at least one stepping motor for displaying the time of day when the hands are in a normal position, and an electronic circuit comprising hour and minute counting means and means for

generating hour and minute acoustic signals in connection with these counting means and in response to manipulation of said control means, said electronic circuit being arranged to act on said hour and minute hands so that, in response to said manipulation of the control means, the hands pass from said normal position to a reference position and then return to said normal position, and that said hands perform characteristic movements in association with said hour and minute acoustic signals when the hands pass between said normal position and said reference position.

5,673,239
CLOCK MOVEMENT POWER TRANSMISSION UNION
 Chen-Sheng Wong; Jung-Che Hsieh, both of Hsinchu; Shen-Yuan Chien, Hsiang, and Shern Lin, Hsinchu, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan
 Filed Jan. 31, 1996, Ser. No. 594,551
 Int. Cl. G04B 19/04

U.S. Cl. 368-238 2 Claims



1. A clock movement power transmission union for driving the hour, minute, second hands and other movable members of a clock, comprising:
 a casing having main input and main output holes said main input and main output holes are disposed such that their fictitious axes intersect at a specific angle; and
 main input shaft and main output shaft received by said main input hole and said main output hole for rotating about their fictitious axes respectively so as to drive said hour minute and second 121 hands independently;
 wherein said main input shaft comprises:
 first, second, and third input shafts all rotatable about a common fictitious axis, said first input shaft being received by said main input hole, said second input shaft being received by a first input hole provided inside said first input shaft, and said third input shaft being received by a second input hole provided inside said second input shaft; said first, second, and third input shafts being able to receive power from clock movement independently;
 first, second, and third drive gears provided near top ends of said first, second, and third input shafts, respectively;
 and said main output shaft comprises:
 first, second, and third output shafts all rotatable about a common fictitious axis, said first output shaft being received by said main output hole, said second output shaft being received by a first output hole provided inside said first output shaft, and said third output shaft being received by a second output hole provided inside said second output shaft;
 first, second, and third driven gears provided near inner ends of said first, second, and third output shafts, respectively, engageable with said first, second, and third drive gears, respectively, so as to cause said first, second, and third output shafts to receive rotational power from said first,

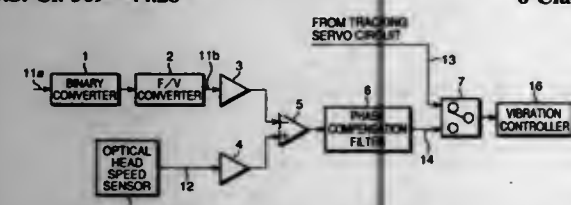
second, and third input shafts, respectively and independently of each other.

5,673,240
SEEK CONTROL CIRCUIT FOR SUPPRESSING
VIBRATION OF OBJECTIVE LENS IN OPTICAL HEAD
DURING SEEK OPERATION
 Satoshi Kawasaki, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Mar. 18, 1996, Ser. No. 616,893
 Int. Cl.⁶ G11B 7/005

U.S. Cl. 369—44.28

6 Claims



1. A seek control circuit for an optical disk device having an optical head which includes an objective lens actuator for holding a data recording/reproducing beam spot at a predetermined track position of an optical disk and which is moved in a radial direction of the optical disk by a radial direction movement means, said seek control circuit comprising:

- an optical head movement speed detection means for detecting a movement speed of said optical head;
- an objective lens movement speed detection means for detecting a movement speed of an objective lens in accordance with a tracking error signal during an optical head movement operation;
- a relative movement speed calculating means for providing a relative speed of said objective lens with respect to said optical head from a difference between the optical head movement speed and the objective lens movement speed; and
- a vibration control means for controlling vibration of said objective lens during said optical head movement operation in accordance with the relative speed calculated by said relative movement speed calculating means.

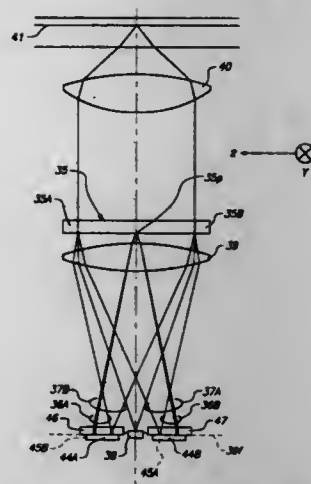
5,673,241
FOCUS DETECTION MECHANISM AND OPTICAL HEAD
AND OPTICAL STORAGE DEVICE THAT USE IT
 Fumio Koyama; Masatoshi Yonekubo; Takashi Takeda; Toshio Arimura; Hidefumi Sakata, and Osamu Yokoyama, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 87,681, Sep. 10, 1993, abandoned.
 This application Apr. 29, 1996, Ser. No. 641,119
 Claims priority, application Japan, Nov. 8, 1991, 3-293329;
 Dec. 19, 1991, 3-337245; Apr. 7, 1992, 4-85541
 Int. Cl.⁶ G11B 7/00

U.S. Cl. 369—44.23

37 Claims

1. An optical head for performing recording and/or playback on an optical medium disposed on a target plane, comprising:
- a light source for emitting a light beam onto a surface of said medium along an optical axis, the light beam being reflected off said medium as a return light;
 - a focus detection mechanism for detecting focusing of the light beam on said surface, said mechanism comprising:
- converging means for focusing the light beam on said surface and for directing the return light reflected off said surface, holographic means including first and second areas and a boundary line in between the first and second areas, each area having a periodic light modulatory pattern for diffracting the return light directed by said converging means to produce two astigmatic diffracted beams, each periodic light modulatory pattern including a group of curves substantially following



hyperbolic patterns oriented about an origin, wherein said holographic means is arranged with respect to said light source such that the optical axis of the light beam is offset from the origin,

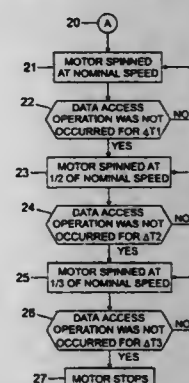
- means for receiving the astigmatic diffracted beams, said receiving means including four photodetection means disposed on a substantially same detection plane for detecting the respective astigmatic diffracted beams to produce corresponding output signals, and
- means for processing the output signals to detect focusing of the light beam on said surface; and
- actuating means, responsive to said processing means, for adjusting the position of at least said converging means in accordance with the output of said processing means so that the light beam is continually focused on said surface.

5,673,242
METHOD FOR CONTROLLING THE SPINDLE MOTOR
SPEED OF AN AUDIO/VIDEO DISK PLAYER
 Chi-Cheng Lin, No. 6, Feng Shu Tsuen, Kweishan, Taoyuan, Taiwan

Filed Oct. 27, 1995, Ser. No. 549,041
 Int. Cl.⁶ G11B 5/00

U.S. Cl. 369—50

2 Claims



1. A method for controlling speed of a spindle motor within a disk player, the spindle motor driving a disk thereon, comprising the steps of:

- (1) set speed of the spindle motor to operate at a Nominal speed which is greater than zero RPM;
- (2) test if disk data access operation has not occurred for a first predetermined amount of time $\Delta T1$;
- (3) if result of step 2 is YES, set the spindle motor running at a speed $S1$ which is substantially equal to one half of the Nominal speed;
- (4) test if disk data access operation has not occurred for a second predetermined amount of time $\Delta T2$; and

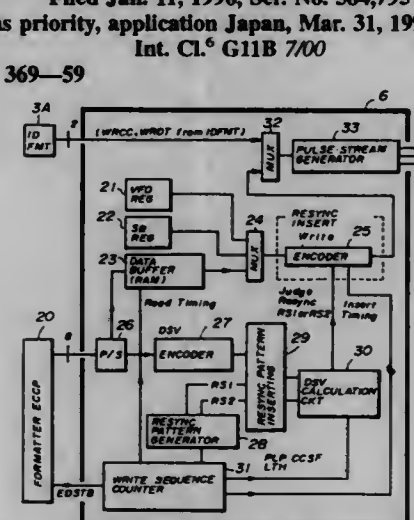
- (5) if result of step 4 is YES, set the spindle motor running at a speed $S2$ which is substantially equal to one third of the Nominal speed.

5,673,243
ENCODING UNIT AND STORAGE UNIT USING THE SAME
 Shigenori Yanagi, Kawasaki, and Satoshi Furuta, Kato-gun, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 11, 1996, Ser. No. 584,795
 Claims priority, application Japan, Mar. 31, 1995, 7-076760
 Int. Cl.⁶ G11B 7/00

U.S. Cl. 369—59

26 Claims



1. An encoding unit which encodes data to be recorded on a recording medium, said encoding unit comprising:
- first means for inserting resynchronizing bytes between two data blocks within a data field when converting data coded by a predetermined modulation code which generates patterns having D.C. components into pulse width modulation data, said resynchronizing bytes having resynchronizing patterns and achieving synchronization when a clock slip occurs within the data field;
 - second means for calculating a digital sum value for a predetermined data block, said digital sum value indicating a difference between a sum total of logic values "1" and a sum total of logic values "0" in the pulse width modulation data; and
 - third means for controlling said first means so that the resynchronizing bytes having resynchronizing patterns that minimize the digital sum value is inserted in a present data block.

5,673,244
DISK LOADING AND MAGNETIC HEAD LIFTING
MECHANISM USING A SINGLE POWER SOURCE FOR A MINIDISK PLAYER
 Han-kook Choi, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Dec. 29, 1995, Ser. No. 581,376
 Int. Cl.⁶ G11B 17/04

U.S. Cl. 369—772

3 Claims

3. A minidisk player comprising:
- a turntable for rotating a disk in a disk cartridge;
 - an optical pickup for reading out information from the disk by irradiating light on the disk;
 - a magnetic head for recording information on the disk;
 - a main chassis on which said turntable is installed;
 - a holder, slidably installed in said main chassis, for receiving the disk cartridge;
 - a guiding means for guiding said holder in a horizontal direction and a vertical direction with respect to said main chassis;
 - a driving means for driving said holder;
 - an ascending/descending means for ascending and descending said magnetic head so as to contact said magnetic head to the

disk seated on said turntable and separating said magnetic head from the disk; and

an ejecting means for ejecting said disk cartridge from said holder, said ejecting means comprising:

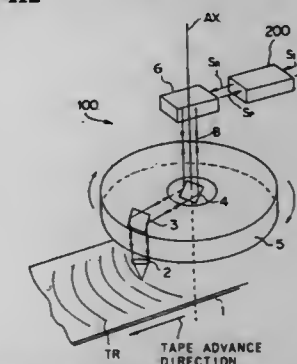
- an ejecting lever having a pushing piece which is vertically extended toward an inside of said holder to contact an end of the disk cartridge, and rotatably installed on said holder;
 - a spring for elastically biasing said ejecting lever in an ejecting direction of the disk cartridge; and
 - a locking means for locking/releasing said ejecting lever, wherein said locking means comprises:
- a stopper member of which one end portion is fixed on said main chassis and the other end portion is located on said holder, and having a guide side which is parallel with respect to an insertion direction and the ejecting direction of the disk cartridge; and
 - a roller member provided on said ejecting lever, which contacts said guide side as the disk cartridge is inserted into said holder, and said roller member contacts said guide side as said holder moves in the inserting direction of the disk cartridge, thereby locking said ejecting lever.

5,673,245
ROTARY OPTICAL SYSTEM FOR GUIDING AND
CONVERGING DIVIDED LIGHT BEAMS TO A TAPE
RECORDING MEDIUM
 Naoharu Yanagawa; Susumu Nomura, and Fumihiko Sano, all of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Japan

Filed Dec. 27, 1995, Ser. No. 579,351
 Claims priority, application Japan, Dec. 27, 1994, 6-326468
 Int. Cl.⁶ G11B 7/09

U.S. Cl. 369—112

9 Claims

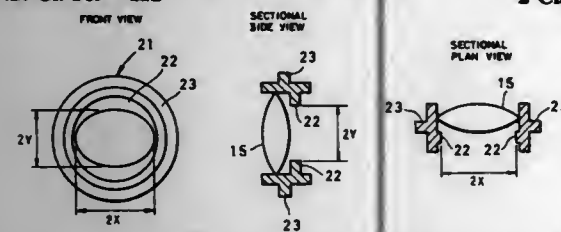


1. An optical pickup device comprising:
- a stationary optical system for emitting a light beam and for producing a tracking error signal; and
 - a rotary optical system rotatable around a rotary axis, said rotary optical system comprising:
- a dividing means for dividing the light beam emitted from said stationary optical system into a main beam and sub-beams;
 - an objective lens for converging the main beam and the sub-beams on a recording surface of an optical recording medium and for receiving the main beam and the sub-beams reflected by the recording surface; and
 - a guiding means for guiding the main beam and the sub-beams to the objective lens and for guiding the main beam and the sub-beams reflected by the recording surface to said stationary optical system, said dividing means, said objective lens and said guiding means being arranged so as to be integrally rotated along with said rotary optical system and said dividing means being arranged on an optical path of the light beam between said stationary optical system and said objective lens.

5,673,246
OPTICAL PICKUP DEVICE
 Sakashi Ootaki, and Ryo Sato, both of Tsurugashima, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan
 Filed Jun. 7, 1996, Ser. No. 660,472
 Claims priority, application Japan, Jun. 8, 1995, 7-141965
 Int. Cl.⁶ G11B 7/115

U.S. Cl. 369-112

2 Claims



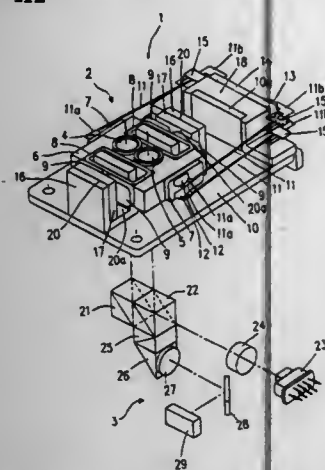
1. An optical pickup device for irradiating a light beam to a data recording surface of an optical disk through an objective lens, receiving the light reflected therefrom through said objective lens, and generating a read signal in accordance with intensity of the received light,

wherein a numerical aperture of said objective lens in a radial direction of said optical disk is made smaller than that in a tangential direction to a track on said optical disk.

5,673,247
OPTICAL PICKUP HAVING TWO OBJECTIVE LENSES
 Yoshihiro Sekimoto, Soraku-gun; Yasuo Nakata, Takachi-gun; Nobuo Ogata, and Tomoyuki Miyake, both of Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
 Filed Nov. 27, 1996, Ser. No. 758,010
 Claims priority, application Japan, Nov. 29, 1995, 7-311440
 Int. Cl.⁶ G11B 7/00

U.S. Cl. 369-112

18 Claims



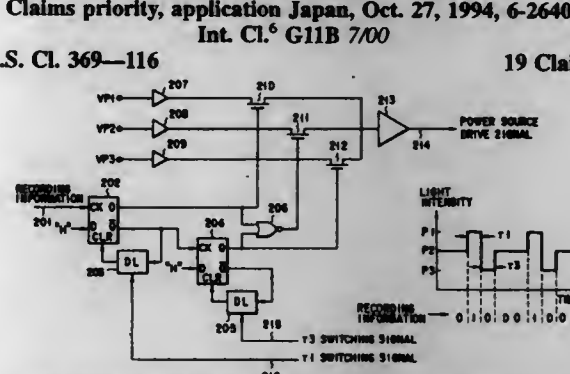
1. An optical pickup for irradiating a first recording medium and a second recording medium with light, at least one of the substrate thickness and the refractive index of the first recording medium being different from that of the second recording medium, the optical pickup comprising:

- a light source for emitting the light;
- a polarized beam splitter for receiving the light and for transmitting at least a portion of the light while reflecting a remaining portion of the light depending on the polarization direction of the light;
- a first objective lens for focusing the reflected light portion by the polarized beam splitter onto the first recording medium; and
- a second objective lens for focusing the transmitted light portion by the polarized beam splitter onto the second recording medium.

5,673,248
PHASE CHANGE TYPE OPTICAL RECORDING APPARATUS AND OPTICAL RECORDING METHOD USING AN OVERWRITE SYSTEM
 Hiroshi Hasegawa, Yokosuka, and Hiromichi Kobori, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
 Filed Oct. 26, 1995, Ser. No. 548,469
 Claims priority, application Japan, Oct. 27, 1994, 6-264085
 Int. Cl.⁶ G11B 7/00

U.S. Cl. 369-116

19 Claims



1. An optical recording apparatus for recording information on a disk-like optical recording medium by irradiating the recording medium with a light beam of a first intensity P1 during a first irradiation period t1 so as to form an amorphous state area at the recording medium and then irradiating the recording medium with a light beam of a third intensity P3 during a third irradiation period t3 and irradiating the recording medium with a light beam of a second intensity P2 so as to form a crystal state area at the recording medium, comprising:

light beam irradiating means for irradiating the optical recording medium with the light beam; and
 control means for controlling the intensities P1, P2 and P3 so that P1>P2>P3 and for controlling the irradiation periods t1 and t3 of the light beam to satisfy the following relation:

$$\{(P2-P3) \times t3\} / \{(P1-P2) \times t1\} = \text{below } 1, \text{ and}$$

wherein the control means causes data indicative of the first intensity P1, the second intensity P2, the third intensity P3, and the irradiation periods t1 and t3 to be stored in at least one of an outer circumference portion and an inner circumference portion of the disk-like optical recording medium.

5,673,249
PHASE CHANGE TYPE OPTICAL RECORDING APPARATUS AND OPTICAL RECORDING METHOD USING AN OVERWRITE SYSTEM
 Hiroshi Hasegawa, Yokosuka, and Hiromichi Kobori, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
 Continuation-in-part of Ser. No. 548,469, Oct. 26, 1995. This application Mar. 19, 1996, Ser. No. 617,630
 Claims priority, application Japan, Oct. 27, 1994, 6-264085; Oct. 27, 1995, 7-280778

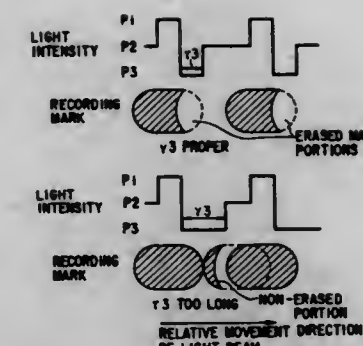
U.S. Cl. 369-116

Int. Cl.⁶ G11B 7/00

13 Claims

1. An optical recording medium for recording information by irradiating the recording medium with a light beam of a first intensity P1 during a first irradiation period t1, with a light beam of a third intensity P3 during a third irradiation period t3 and with a light beam of a second intensity P2 under a predetermined condition, comprising:

- an information recording area provided for recording the information; and
- a recording condition recording area, provided on at least one of an outer circumference side and an inner circumference side of the information recording area, for recording recording condition data, the recording condition data representing the intensities P1, P2, and P3, wherein P1>P2>P3, and irradiation periods t1 and t3 associated with radial positions of the

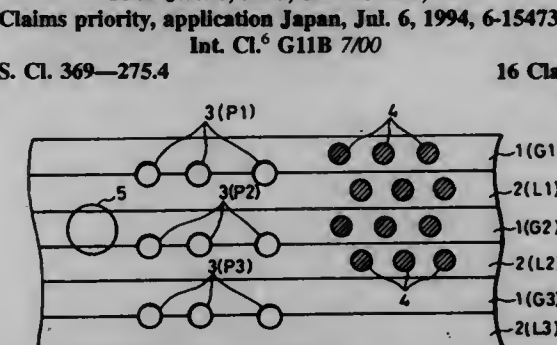


optical recording medium and satisfying a condition $\{(P2-P3) \times t3\} / \{(P1-P2) \times t1\} = \text{below } 1$ for each radial position.

5,673,250
OPTICAL RECORDING MEDIUM HAVING PIT ROWS ON EVERY OTHER BOUNDARY AND REPRODUCING METHOD THEREOF
 Michinobu Mieda, Shiki-gun; Junji Hirokane; Akira Takahashi, both of Nara; Kenji Ohta, Kitakatsuragi-gun, and Shigeo Terashima, Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
 Filed Jun. 6, 1995, Ser. No. 468,776
 Claims priority, application Japan, Jul. 6, 1994, 6-154735
 Int. Cl.⁶ G11B 7/00

U.S. Cl. 369-275.4

16 Claims



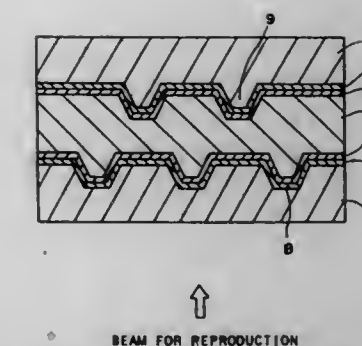
1. An optical recording medium comprising:
 grooves and lands, said grooves and lands being alternately provided, recording bit strings being formed on said grooves and lands respectively; and
 pit rows representing address information of a recording/reproducing track, said pit rows being formed on every other boundary by digging boundaries between said adjoining grooves and lands.

5,673,251
TWO SUBSTRATES BONDING TYPE OPTICAL DISK AND METHOD OF PRODUCING THE SAME
 Kenji Suzuki; Takahiro Kobayashi; Naoto Kozasa, and Jiro Fujimori, all of Yamanashi-ken, Japan, assignors to Pioneer Electronic Corporation, Tokyo-to, and Pioneer Video Corporation, Yamanashi-ken, both of Japan
 Filed Dec. 1, 1995, Ser. No. 566,017
 Claims priority, application Japan, Jan. 31, 1995, 7-014658
 Int. Cl.⁶ G11B 7/24

U.S. Cl. 369-275.4

28 Claims

1. An optical disk comprising:
 a first partial structure which comprises a first transparent substrate having a first pit-groove surface provided with first pits or grooves carrying first information signals, and a first optical film formed on the first pit-groove surface;
 a second partial structure which comprises a second substrate having a second pit-groove surface provided with second pits



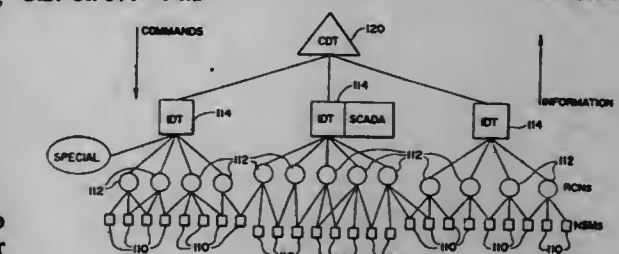
or grooves carrying second information signals, and a second optical film formed on the second pit-groove surface; and an intermediate layer interposed between the first and second partial structures, with the first optical film side of the first partial structure and the second optical film side of the second partial structure disposed opposite to each other, wherein, the first optical film partially transmits an incident light beam,

each of the second pits or grooves has a shape capable of having the second information signal read by irradiating the optical disk with the incident light beam from a first transparent substrate side of the optical disk, and the intermediate layer is formed of a dry photohardenable film of light transmissive type consisting of a photo-polymerization type photo-sensitive resin compound, which has a viscosity of 3,500 to 400,000 poises at a room temperature and in a non-hardened condition and has a thickness of 5 to 200 μm in the non-hardened condition and said photo-polymerization type photo-sensitive resin compound comprises ethylene unsaturated monomer, photo-polymerization initiator, and binder-polymer.

5,673,252
COMMUNICATIONS PROTOCOL FOR REMOTE DATA GENERATING STATIONS
 Dennis F. Johnson; Don Marcynuk, and Erwin Holowick, all of Winnipeg, Canada, assignors to Itron, Inc., Spokane, Wash.
 Continuation of Ser. No. 247,988, May 23, 1994, abandoned, which is a continuation-in-part of Ser. No. 124,495, Sep. 22, 1993, abandoned, which is a continuation of Ser. No. 732,183, Jul. 19, 1991, which is a continuation-in-part of Ser. No. 480,573, Feb. 15, 1990, Pat. No. 5,056,107. This application May 26, 1995, Ser. No. 451,386
 Int. Cl.⁶ H04J 3/16

U.S. Cl. 370-94.1

85 Claims

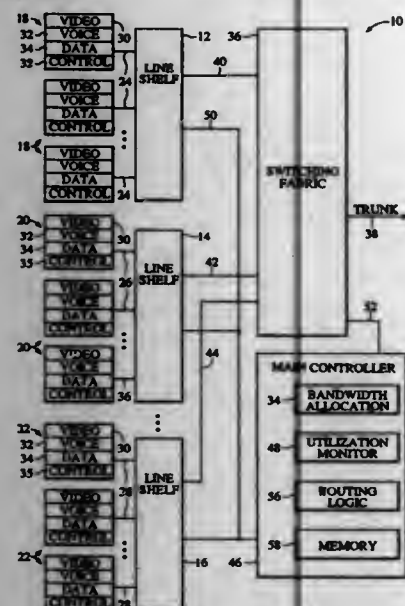


1. A method for communicating between an intermediate data terminal (IDT), a plurality of remote cell nodes (RCN), and a plurality of network service modules (NSM), using a plurality of frames with each frame having a plurality of channels, comprising the steps, during each frame, of:
 transmitting, in a first channel of the frame, from the intermediate data terminal to the plurality of remote cell nodes, an IDT-synchronization signal;
 transmitting, synchronized to the IDT-synchronization signal in a second channel of the frame, from the intermediate data terminal to a first remote cell node, a first polling signal;
 receiving, at each of the plurality of remote cell nodes, the IDT-synchronization signal;

synchronizing, at each of the plurality of remote cell nodes, responsive to receiving the IDT-synchronization signal, an RCN-timing circuit to the IDT-synchronization signal; receiving, at the first remote cell node, the first polling signal; transmitting, synchronized to the IDT-synchronization signal in a third channel of the frame, from the first remote cell node to the intermediate data terminal, responsive to the first polling signal, an RCN-packet signal; transmitting, using radio waves, in a fourth channel of the frame, from each of the plurality of remote cell nodes to the plurality of network service modules, responsive to receiving and synchronizing to the IDT-synchronization signal, an RCN-synchronization signal; receiving, at each of the plurality of network service modules, the RCN-synchronization signal; synchronizing, at each of the plurality of network service modules, responsive to receiving the RCN-synchronization signal, a NSM-timing circuit to the RCN-synchronization signal; collecting, at a first network service module, data from a first physical device; and transmitting, using radio waves, responsive to receiving and synchronizing to the RCN-synchronization signal, in a fifth channel of the frame, from the first network service module to at least one of the plurality of remote cell nodes, a first NSM-packet signal containing the data from the first physical device.

5,673,253
DYNAMIC ALLOCATION OF TELECOMMUNICATIONS RESOURCES
Shmuel Shaffer, Palo Alto, Calif., assignor to Siemens Business Communication Systems, Iselin, N.J.
Filed Feb. 29, 1996, Ser. No. 609,152
Int. Cl.⁶ H04J 3/08; 3/16

U.S. Cl. 370-229 21 Claims

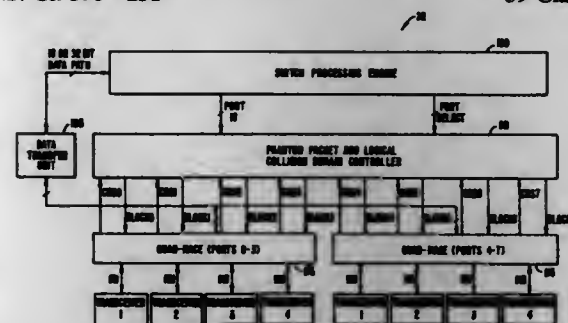


1. A network node within a telecommunications network of nodes comprising:
a first group of subscriber lines of said network node for providing telecommunication;
first support means connected to said first group for providing access and control to said subscriber lines of said first group; at least one second group of subscriber lines of said network node for providing telecommunication;
second support means connected to said second group for providing access and control to said subscriber lines of said second group;
switching means, connected to said first and second support means, for routing intranodal telecommunications connections

among said subscriber lines of said network node and for routing intermodal telecommunications connections between said subscriber lines and other nodes of said telecommunications network via an external trunk;
utilization monitoring means, connected to each of said switching means and said first and second support means for monitoring availability of bandwidth and for monitoring available routing capacity of said switching means; and
dynamic bandwidth allocation means, connected to said utilization monitoring means, for determining a specific bandwidth upon initiation of each intranodal telecommunications connection and for selectively varying the bandwidth for ongoing intranodal telecommunications connection based upon utilization of said first and second support means and based upon available routing capacity of said switching means.

5,673,254
ENHANCEMENTS TO 802.3 MEDIA ACCESS CONTROL AND ASSOCIATED SIGNALING SCHEMES FOR ETHERNET SWITCHING
Ian Crayford, San Jose, Calif., assignor to Advanced Micro Devices Inc., Sunnyvale, Calif.
Filed Jun. 7, 1995, Ser. No. 483,501
Int. Cl.⁶ H04L 5/14; 12/413

U.S. Cl. 370-231 39 Claims

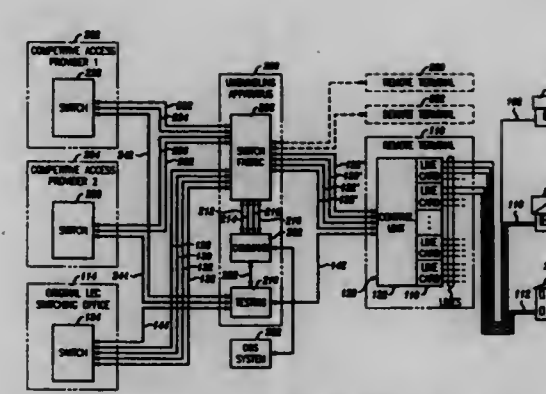


13. A full duplex capable Ethernet device, comprising:
means for producing flow control information; and
means for transmitting flow control information to a remote device using an Ethernet packet format conforming to the IEEE 802.3 standard.

5,673,255
APPARATUS FOR PROVIDING SERVICE TO TELEPHONE SUBSCRIBERS CONNECTED TO A REMOTE TERMINAL FROM MULTIPLE TELEPHONE SERVICE PROVIDERS
James Patrick Dunn, Sandwich; William Brohmer Paulson, Naperville; Carl Robert Posthuma, Wheaton, and Dorothy Voytko Stanley, Warrenville, all of Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.
Filed Dec. 28, 1995, Ser. No. 580,240
Int. Cl.⁶ H04Q 1/20; 3/58

U.S. Cl. 370-244 12 Claims

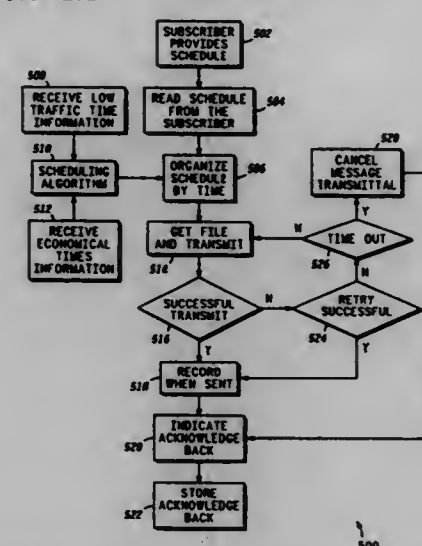
1. An unbundling apparatus for connecting a plurality of switches to a plurality of remote terminals, said remote terminals being connected to a plurality of customer lines, said apparatus comprising:
switching means for providing connections between said plurality of switches and said plurality of remote terminals;
command means connected to said switching means for receiving control messages from said plurality of switching means, multiplexing said control messages, and forwarding said control messages to one of said plurality of remote terminals, and for receiving control messages from said plurality of remote terminals, demultiplexing said control messages, and causing said control messages to be delivered to ones of said switching means via said switching means; and



testing means connected to said plurality of switching systems and said plurality of remote terminals for receiving test requests from said plurality of switching systems and forwarding said test requests to ones of said remote terminals, and receiving results from said plurality of remote terminals and forwarding said test results to the requesting switching system.

5,673,256
APPARATUS AND METHOD FOR SENDING DATA MESSAGES AT AN OPTIMUM TIME
Kristine Patricia Maine, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Jul. 25, 1995, Ser. No. 506,604
Int. Cl.⁶ H04B 7/212; H04M 11/00

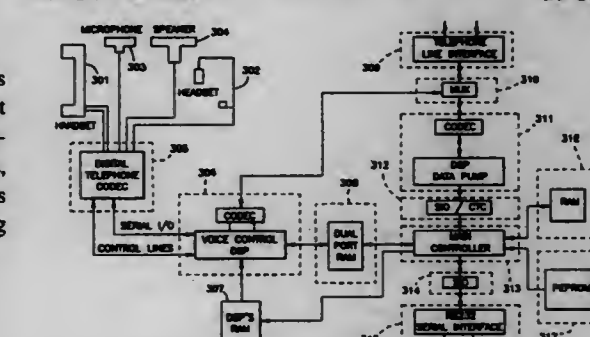
U.S. Cl. 370-271 22 Claims



1. A method of sending a data message from a subscriber unit comprising the steps of:
receiving updates from a communication system at said subscriber unit, said updates including an optimum time for transmission of data messages;
reading said data message and a set of personal preferences from a memory in said subscriber unit, said set of personal preferences indicating whether to transmit said data message at a pre-scheduled time or at said optimum time; and
transmitting by said subscriber unit, said data message during said pre-scheduled time or said optimum time depending on said set of personal preferences.

5,673,257
COMPUTER-BASED MULTIFUNCTION PERSONAL COMMUNICATION SYSTEM
Raghu Sharma, North Oaks; Jeffrey P. Davis, Ham Lake; Timothy D. Gunn, Mounds View; Ping Li, New Brighton, all of Minn.; Sidhartha Maitra, Saratoga, Calif.; Ashish Thannawala, Saratoga, Calif., and Steve Young, Saratoga, Calif., assignors to Multi-Tech Systems, Inc., Mounds View, Minn.
Division of Ser. No. 2,467, Jan. 8, 1993, Pat. No. 5,452,289.
This application Apr. 25, 1995, Ser. No. 428,904
Int. Cl.⁶ H04B 3/23; H04J 3/16

U.S. Cl. 370-286 10 Claims



1. A communications device, comprising:
1.) a voice compression section having means for
a.) receiving local voice signals from a local user,
b.) conveying remote voice signals to the local user;
c.) converting the local voice signals into outgoing digital voice data;
d.) converting incoming digital voice data into the remote voice signals;
e.) compressing the outgoing digital voice data into compressed outgoing digital voice data frames,
f.) placing the compressed outgoing digital voice data frames into a memory,
g.) receiving compressed incoming digital voice data frames from the memory,
h.) decompressing the compressed incoming digital voice data frames into the incoming digital voice data;
2.) the memory connected to the voice compression section and to a data transmission section; and
3.) the data transmission section having means for
a.) receiving the compressed outgoing digital voice data frames from the memory,
b.) receiving outgoing computer digital data from a personal computer,
c.) placing the compressed outgoing digital voice data frames into compressed outgoing digital voice data packets,
d.) placing the outgoing computer digital data into outgoing computer digital data packets,
e.) multiplexing the compressed outgoing digital voice data packets and the outgoing computer digital data packets to produce a multiplexed outgoing packet stream,
f.) transmitting the multiplexed outgoing packet stream over a communication line;
g.) receiving a multiplexed incoming packet stream from the communication line,
h.) demultiplexing the multiplexed incoming packet stream to produce incoming computer digital data packets and compressed incoming digital voice data packets,
i.) producing incoming computer digital data from the incoming computer digital data packets,
j.) producing incoming compressed digital voice data frames from the compressed incoming digital voice data packets,
k.) sending the incoming computer digital data to the personal computer through a communications interface, and
l.) sending the compressed incoming digital voice data frames to the memory.

5,673,258
METHOD AND APPARATUS FOR THE ENLARGEMENT
OF THE REACH OF THE TRANSMISSION CHANNEL
BETWEEN FUNCTIONAL GROUPS OF AN ISDN-USER
INTERFACE

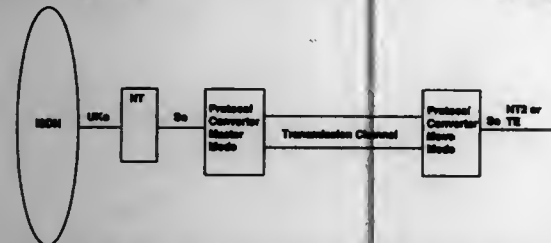
Klaus Helbig, Berlin; Roland Geissler, Dresden, and Norbert Wulst, Bischofswerda, all of Germany, assignors to DTM Data TeleMark GmbH, Berlin, Germany

Filed Mar. 3, 1995, Ser. No. 398,446

Claims priority, application Germany, Mar. 6, 1994, 44 07 214.7; Mar. 1, 1995, 195 06 906.4; Mar. 2, 1995, PCT/DE95/00268

Int. Cl.⁶ H04J 3/06; 1/12
U.S. Cl. 370—293

20 Claims



1. Process for the enlargement of the reach of the transmission channel between functional units of the ISDN user interface within an ISDN network

with one or more similar interfaces, in which information is exchanged between a net-side user interface and a terminal side user interface

and where the net-side user interface and the terminal side user interface both have a transmitting side and a receiving side wherein the information has an ISDN-specific structure and is coded in an ISDN specific, non-binary, code and wherein an ISDN protocol fixes a certain time interval within which the connection between two users is not established with the absence of a signal in that time interval characterized by

- accumulating on a transmitting side the information in a memory after conversion of the ISDN specific coded information to binary coding,
- transmitting the accumulated information over a transmission channel to a receiving side in a binary coded form, and
- receiving the transmitted accumulated information at the receiving side, then storing the information in a memory from which the binary coded information is coded back to an ISDN specific code whereby the information is delivered to the user interface without violation of the time interval.

5,673,259
RANDOM ACCESS COMMUNICATIONS CHANNEL FOR
DATA SERVICES

Roy F. Quick, Jr., San Diego, Calif., assignor to Qualcomm Incorporated, San Diego, Calif.

Filed May 17, 1995, Ser. No. 412,648

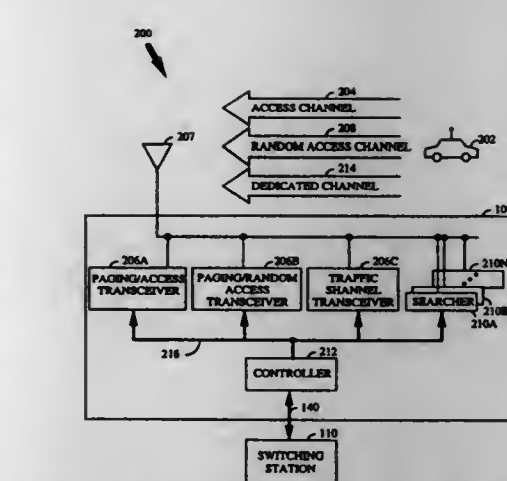
Int. Cl.⁶ H04J 13/00; H04Q 7/30

U.S. Cl. 370—342

48 Claims

1. In a digital communication system for communicating digital information, said digital communication system having a forward link and a reverse link, a system for communicating a data packet, comprising:

- a communicating transceiver, from among a plurality of transceivers each having a different long code, for sending said data packet on a random access channel over said reverse link using said long code corresponding to said communicating transceiver, and for receiving said digital information from said forward link; and
- a base station for receiving said data packet on said random access channel from said reverse link and for sending said digital information over said forward link, said base station having a searcher which recognizes said data packet as being



sent by the communicating transceiver based on said long code corresponding to said communicating transceiver; wherein said plurality of transceivers share said random access channel and wherein said communicating transceiver requests reservation of said searcher.

5,673,260
METHOD AND SYSTEM FOR CDMA MOBILE
COMMUNICATION

Narumi Umeda, Yokohamashi; Akihiro Higashi; Akira Hiroike, both of Yokosukashi, and Akira Kalyama, Yokohamashi, all of Japan, assignors to NTT Mobile Communications Network Inc., Tokyo, Japan

PCT No. PCT/JP95/00181, § 371 Date Oct. 5, 1995, § 102(e) Date Oct. 5, 1995, PCT Pub. No. WO95/22213, PCT Pub. Date Aug. 17, 1995

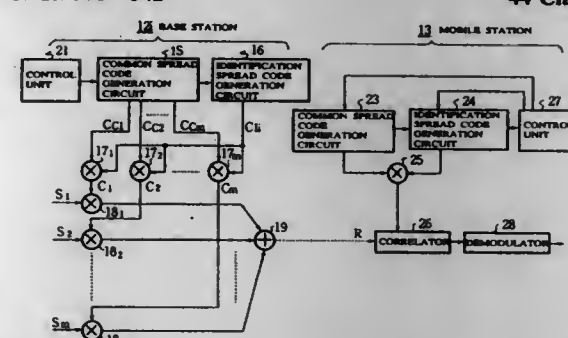
PCT Filed Feb. 9, 1995, Ser. No. 530,186

Claims priority, application Japan, Feb. 9, 1994, 6-015133; May 9, 1994, 6-095086; May 25, 1994, 6-110833

Int. Cl.⁶ H04B 7/216

U.S. Cl. 370—342

44 Claims



18. In a CDMA mobile communication system formed by a plurality of base stations and at least one mobile station which communicate in a CDMA scheme through radio channels, a CDMA mobile communication method comprising:

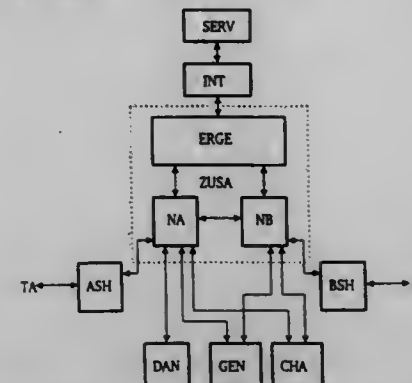
- a step of communicating by spreading each one of data to be communicated between a handover source base station and the mobile station and data to be communicated between a handover target base station and said mobile station by using both a long spread code and a short spread code;
- a step of carrying out a handover by composing data received from the handover source base station and data received from the handover target base station by adjusting timings at said mobile station; and
- a step of carrying out a handover by composing data received from the mobile station at a cell of handover source and data received from the mobile station at a cell of handover target by adjusting timings at each base station or an upper level device connected to that base station.

5,673,261
COMMUNICATION SYSTEM
Hermann Tjabben; Stephan Abramowski, both of Aachen, Germany, and Armand M. M. Leikens, Klimmen, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 29, 1995, Ser. No. 520,449

Claims priority, application Germany, Aug. 31, 1994, 44 30 876.0

Int. Cl.⁶ H04Q 1/30; H04M 3/42
U.S. Cl. 370—384

3 Claims



1. Communication system including a switching system which comprises a switching unit and a control circuit, wherein said control circuit comprises:

- a transmitting-side signalling handler procedure (ASH) means for managing a connection and for exchanging messages with other procedures, and
- a receiving-side signalling handler procedure (BSH) means for managing a connection and for exchanging messages with other procedures, wherein said switching unit is coupled to a service control system, said control circuit further comprises an additional procedure (ZUSA) means for exclusively exchanging messages with the transmitting-side and the receiving-side signalling handler procedure means (ASH, BSH), and, when certain messages occur, the additional procedure (ZUSA) means receives and sends messages by a service program (SERV) of the service control system and, in dependence on the messages produced by the service program (SERV), sends messages to the transmitting-side and/or receiving-side signalling handler procedure means (ASH, BSH), and wherein the additional procedure (ZUSA) means comprises both a transmitting-side and a receiving-side state procedure (NA, NB) means for detecting a state of the transmitting-side and receiving-side signalling handler procedure means (ASH, BSH) on the basis of the messages which the additional procedure (ZUSA) means receives.

5,673,262
COMMUNICATION NETWORK COMPRISING TRANSIT
SWITCHES WITHOUT ASYNCHRONOUS TRANSFER
MODE SWITCHING CAPABILITY

Hiroshi Shimizu, Tokyo, Japan, assignor to NEC Corporation, Japan

Continuation of Ser. No. 253,389, Jun. 3, 1994, abandoned.

This application Nov. 7, 1995, Ser. No. 553,238

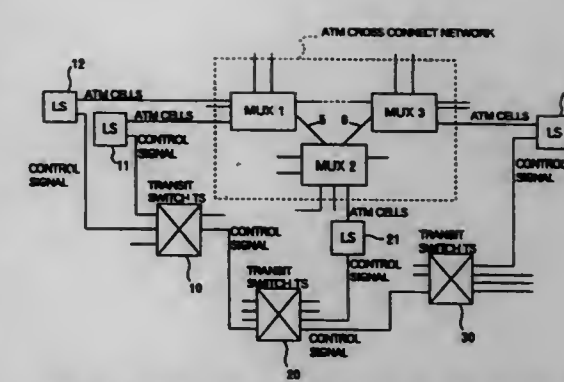
Claims priority, application Japan, Jun. 3, 1993, 5-133329
Int. Cl.⁶ H04L 12/56

U.S. Cl. 370—395

18 Claims

1. A communication network comprising:

- a plurality of nodes;
- a data transmission network for transferring a data signal between a first node and a second node, said data transmission network comprising a plurality of multiplexers and a plurality of transmission lines wherein said multiplexers are connected through said transmission lines, each of said multiplexers being connected to a plurality of said nodes so as to transfer



said data signal from said first node to said second node through at least one of said transmission lines; and a control signal transmission network, separate from said data transmission network, for transferring a control signal between said first node and said second node,

said control signal transmission network comprising:

a plurality of switching nodes each associated with one of said transmission lines of said data transmission network, said control signal being transferred between said first node and said second node through at least one of said switching nodes so as to establish a data connection between said first node and said second node in said data transmission network,

each of the switching nodes comprising:

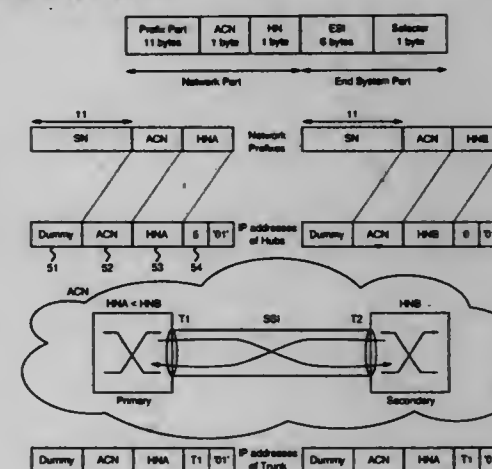
- switching means for transferring said control signal according to a destination address included in said control signal; and
- control means for performing bandwidth allocation control of an associated transmission line of said cross connect network based on a bandwidth request included in said control signal, said associated transmission line being association with said switching node.

5,673,263
METHOD FOR USING AN IP ADDRESS-BASED
ROUTING PROTOCOL IN AN ATM ENVIRONMENT
Claude Basso, Nice; Philippe Damon, La Gaude, and Jean-Bernard Schmitt, Nice, all of France, assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 25, 1995, Ser. No. 548,029

Claims priority, application European Pat. Off., Mar. 31, 1995, 95480037

Int. Cl.⁶ H04L 12/46; 12/56
U.S. Cl. 370—396

1 Claim



1. A method of implementing IP (Internet Protocol) routing protocols in an Asynchronous Transfer Mode (ATM) network comprising a plurality of individual systems, wherein each individual system has a unique network address including a network

part and an end system part, each of said parts including a plurality of fields, said method being implemented at one of said plurality of individual systems located within the ATM network and having route computing capabilities and comprising the steps of:

- receiving a request that a call be established to a target system identified by a target ATM network address supplied with said request;
 - analyzing the network part of the said target ATM network address to determine whether a routing protocol must be implemented in establishing a path to the target system;
 - in those instances where a routing protocol must be implemented, selecting system-identifying data from selected fields of the network part of the target network ATM address (into) and incorporating them in an IP-format network address for accessing the target system; and,
 - implementing a selected IP routing protocol using the created IP-format network address for the target system;
- wherein the selected fields in the target ATM network address comprises an ACN field identifying a cluster of ATM systems and an HN field identifying a particular system within the identified cluster.

5,673,264

IMAGE INFORMATION DISTRIBUTION SYSTEM
Naohisa Hamaguchi, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

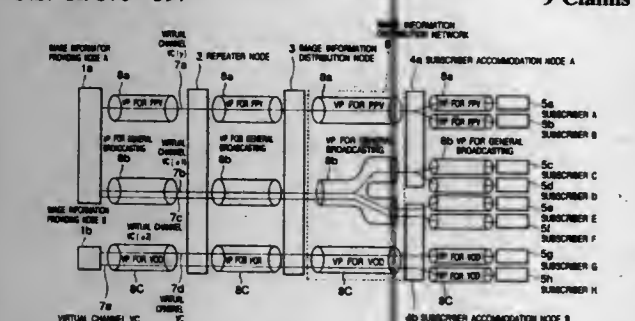
Filed Jul. 21, 1995, Ser. No. 505,630

Claims priority, application Japan, Jul. 21, 1994, 6-169210; Jul. 21, 1994, 6-169212

Int. Cl.⁶ H04L 12/56; H04N 7/173

U.S. Cl. 370-397

9 Claims



1. An image information distribution system comprising an image information providing node including an image information source; and a plurality of subscriber accommodation nodes for connecting said image information providing node to customer premises equipment of subscribers which receive image information through transmission lines in an asynchronous transfer mode, wherein said image information providing node comprises:

- setting means for setting asynchronous transfer mode virtual paths each of which corresponds to types of image information providing services on said transmission lines, and for setting asynchronous transfer mode virtual channels each of which corresponds to the image information on said transmission lines, and
 - distributing means for distributing the image information to said plurality of subscriber accommodation nodes through the asynchronous transfer mode virtual paths corresponding to the image information providing services and the asynchronous transfer mode virtual channels corresponding to the image information; and
- wherein each of said subscriber accommodation nodes comprises:
- a filter for extracting a cell of one of the asynchronous transfer mode virtual paths and one of the asynchronous transfer mode virtual channels transmitting the image information requested by one of the subscribers, and

transferring means for transferring the image information to the customer premises equipment of the subscriber who requests the image information, using the cell extracted by said filter.

5,673,265

SCALABLE MULTIMEDIA NETWORK

Dev Vrat Gupta, Flemington; Yu-Ren Brian Chen, Somerville, both of N.J.; Craig A. Sharper, Los Altos, Calif., and Alan E. Stone, Morristown, N.J., assignors to Integrated Network Corporation, Bridgewater, N.J.

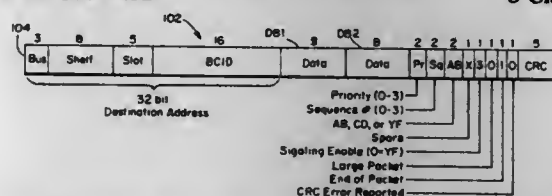
Division of Ser. No. 269,370, Jun. 30, 1994, Pat. No.

5,555,244, which is a continuation-in-part of Ser. No. 243,059, May 19, 1994, abandoned. This application Apr. 29, 1996, Ser. No. 639,595

Int. Cl.⁶ H04L 12/56; 12/44

U.S. Cl. 370-432

8 Claims



- In a communication system consisting of a root and a plurality of end points, said root and said end points forming a multi-cast group, a method of multi-cast addressing including steps of: forming a multi-cast cell wherein said multi-cast cell includes a destination address having a bus number, a shelf number, a slot number, and a BCID number; identifying said multi-cast group by setting a unique value in said BCID number; setting said bus number, said shelf number, and said slot number to predetermine values; sending said multi-cast cell from said root; receiving said multi-cast cell at said end points.

5,673,266

SUBSEQUENT FRAME VARIABLE DATA RATE INDICATION METHOD

Kaiping Li, Lawrenceville, Ga., assignor to Oki Telecom, Suwanee, Ga.

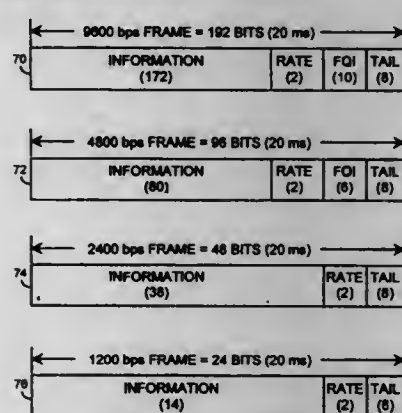
Continuation of Ser. No. 306,777, Sep. 15, 1994, Pat. No.

5,537,410. This application Jun. 6, 1995, Ser. No. 465,881

Int. Cl.⁶ H04T 3/22

U.S. Cl. 370-465

57 Claims



- A communication system for transmitting and receiving fixed boundary data frames including data at variable rates; said system comprising: a first transceiver including means for generating a current frame of data at a current frame data rate,

means for generating a next frame of data, at a next frame data rate, subsequent to the current frame of data, means for inserting in the current frame of data a next frame data rate indicator which indicates the next frame data rate of the next frame of data, and means for transmitting the current frame of data; and a second transceiver including means for receiving the current frame of data, and means for analyzing the current frame of data to detect the next frame data rate indicator.

5,673,267

METHOD OF ALLOCATING CARRIER FREQUENCIES FOR SIMULTANEOUS TRANSMISSION OF A PLURALITY OF MODULATED SIGNALS ESPECIALLY ON AN OPTICAL LINK

Lionel Adnet, Brussels, Belgium, assignor to Alcatel Cit, Paris, France

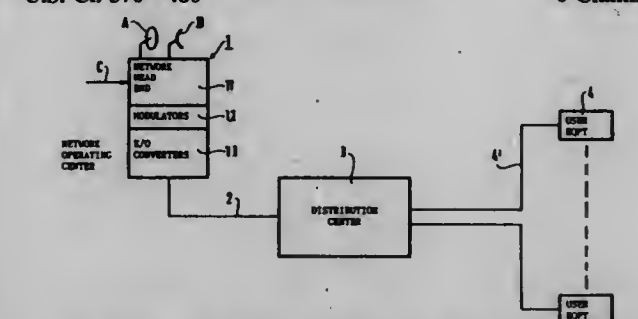
Filed Jun. 3, 1993, Ser. No. 70,872

Claims priority, application France, Jun. 4, 1992, 92 06799

Int. Cl.⁶ H04J 1/00

U.S. Cl. 370-480

6 Claims



- A method of allocating a plurality of carrier frequencies for simultaneous transmission of a plurality of modulated signals over a plurality of frequency channels in a transmission system, wherein said frequencies are chosen to satisfy the equation:

$$f = (2p+1) \pm k$$

where:

- p is an integer number specific to each carrier frequency;
- n represents a fixed frequency bandwidth, and either n is greater than a frequency bandwidth of the frequency channels occupied by said modulated signals if said frequency channels are all of the same width, or is greater than the frequency bandwidth of a widest one of said frequency channels if said frequency channels are not all of the same width; and
- k represents a given frequency bandwidth less than n and is greater than or equal to a null bandwidth.

5,673,268

MODEM RESISTANT TO CELLULAR DROPOUTS

Raghu Sharma, North Oaks; Jeffrey P. Davis, Ham Lake; Timothy D. Gunn, Mounds View; Ping Li, New Brighton, all of Minn.; Siddhartha Maitra, Saratoga, Calif.; Ashish Thannawala, Saratoga, Calif., and Steve Young, Saratoga, Calif., assignors to Multi-Tech Systems, Inc., Mounds View, Minn.

Division of Ser. No. 2,467, Jan. 8, 1993, Pat. No. 5,452,289.

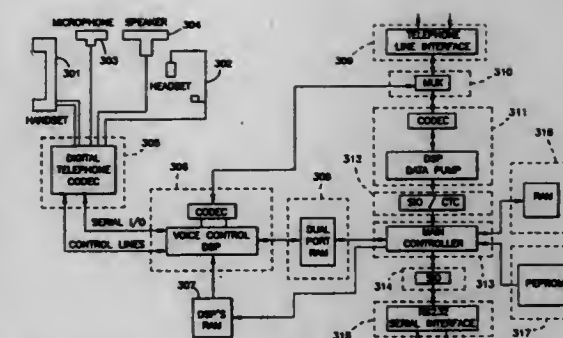
This application Aug. 11, 1994, Ser. No. 289,296

Int. Cl.⁶ H04J 3/12

U.S. Cl. 370-522

4 Claims

- A method of maintaining a modem connection over a telephone line connection which includes a cellular telephone link connection, comprising the steps of: calling a remote modem from a local modem over a telephone line connection, line a portion of which includes a cellular telephone link connection;



establishing a modem connection between the local modem and the remote modem:

- transmitting data packets over the telephone line connection from the local modem of a local computer at a local site to the remote modem of a remote computer at a remote site; periodically transmitting from the local modem a supervisory packet over the telephone line connection; ignoring the carrier detect of the remote modem during carrier dropouts; continuing to periodically send the cellular supervisory packet and continuing to maintain the modem connection over the telephone line if the remote site had acknowledged receipt of the cellular supervisory packet within a predetermined period of time; and
- disconnecting the modem connection over the telephone line if the remote site fails to acknowledge the receipt of the cellular supervisory packet within the predetermined period of time.

5,673,269

METHOD AND APPARATUS FOR DETECTING VALID DATA PEAKS

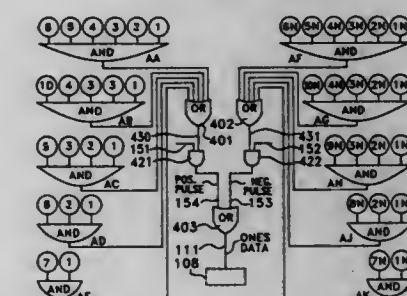
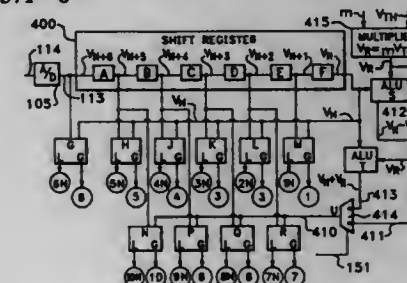
Richard Crane Schneider, Boulder, Colo., assignor to Storage Technology Corporation, Louisville, Colo.

Filed Jul. 13, 1995, Ser. No. 502,195

Int. Cl.⁶ H03M 13/00; G11B 5/09

U.S. Cl. 371-6

8 Claims



- In a detector for detecting received signals representing valid positive and negative peaks of data signals encoded in a (1,7) format, said detector comprising: means including a multi-stage shift register having at least six stages for receiving and storing successively received signals; comparator means having inputs connected to each stage of said shift register as well as to an input of said shift register;

said comparator means being responsive to the receipt of said signals by said shift register for generating output signals indicating the relative magnitude of signals stored in each different stage of said shift register;

logic means having inputs connected to outputs of said comparator means for receiving signals from said comparator means; said logic means being responsive to the receipt of said signals from said comparator means for generating an output signal indicating the presence of a valid data peak or absence of a valid data peak in response to each signal received by said detector;

said comparator means and said logic means being effective in response to a receipt of said signals by said detector when a valid data peak recorded in a first bit cell is received for enabling the detection of said valid data peak in the presence of noise in an adjacent bit cell having an amplitude less than F where F is equal to the average peak value of the amplitude of said valid data peak minus the average amplitude of an isolated pulse in an adjacent bit cell;

said comparator means and said logic means being effective in response to the receipt of said signals by said detector for bit cells not adjacent to a cell where a valid data peak has been recorded for enabling the detection of a valid data peak in the presence of noise whose amplitude is less than the average peak value of the amplitude of said valid data peak.

5,673,270

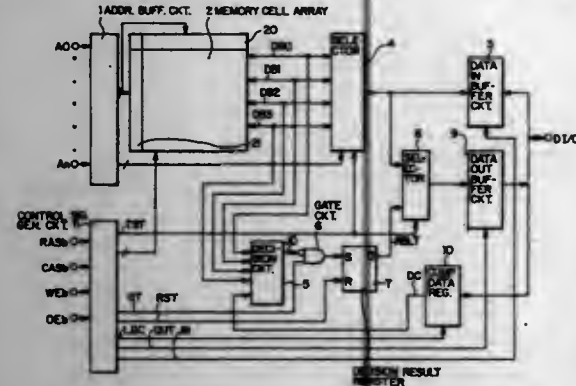
SEMICONDUCTOR MEMORY DEVICE HAVING REGISTER FOR HOLDING TEST RESULTANT SIGNAL
Akira Tsujimoto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 225,810, Apr. 11, 1994, abandoned.
This application Sep. 13, 1995, Ser. No. 527,761

Claims priority, application Japan, Apr. 9, 1993, 5-083190
Int. Cl.⁶ G11C 29/00

U.S. Cl. 371—21.1

7 Claims



1. A semiconductor memory device, having a normal operation mode and a test mode, comprising:

a plurality of memory cells,

means for detecting initiation of said test mode and for producing a test mode signal having a first level and a second level, wherein a test operation is repeated a plurality of times according to a predetermined test pattern, said test operation including a data write operation and a data read operation, write/read means for writing one bit data into at least one of said memory cells and for reading out one bit data from said at least one of said memory cells in response to said test mode signal having said first level, and for writing test data into a plurality of said memory cells and for simultaneously reading out data from said plurality of said memory cells in response to said test mode signal having said second level,

a comparison data register for receiving and temporarily storing said test data,

a decision circuit, operating each time said data is read from said plurality of said memory cells, which compares said data read out from said plurality of said memory cells with said test

data stored in said comparison data register and which outputs a decision signal having a first level when said data and said test data are coincident with one another and having a second level when said data and said test data supplied to said decision circuit are not coincident with one another,

a decision result register, coupled to said decision circuit, which is reset when said test mode signal is at second level, and which is set to hold said decision signal when said decision signal of said second level is received,

control means for outputting a control signal when said test mode is completed, and

an output circuit, responsive to said control signal, to produce an output signal, supplied to an input/output terminal, indicative of a state of said decision result register.

5,673,271

HIGH SPEED PATTERN GENERATOR

Toshimi Ohsawa, Saitama-ken, Japan, assignor to Advantest Corporation, Tokyo, Japan

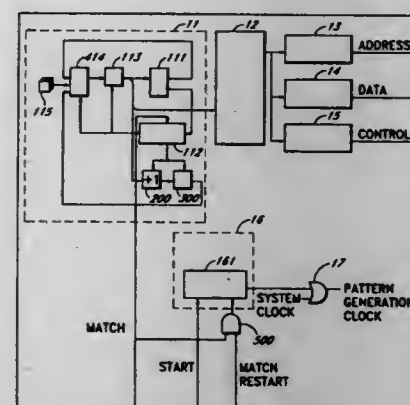
Filed Aug. 16, 1995, Ser. No. 515,716

Claims priority, application Japan, Aug. 19, 1994, 6-218112;
Aug. 22, 1994, 6-220976

Int. Cl.⁶ G01R 31/28

U.S. Cl. 371—21.1

5 Claims



1. A high speed pattern generator for generating a test pattern and an expected data pattern wherein the test pattern is applied to an electronic device to be tested and the resulted output of the electronics device is compared with the expected data pattern by a comparator, said pattern generator comprising:

an address generator (13) for generating address data of said test pattern, said address generator including a pipeline having a plurality of sequential stages wherein a plurality of instructions are executed in said sequential stages at the same time; an operation control memory (12) that stores a part of said instructions to be processed in said address generator (13);

a save register (300) that stores branch destination data in a sequence control section (11) in response to a match signal from the comparator (4), said sequence control section accesses said operation control memory to read said instructions; and

an inhibit gate (500) that prevents an initial clock generator (161) from generating an initial clock for driving said pipeline in said address generator to fill in commands in said plurality of sequential stages in response to the match signal.

5,673,272
APPARATUS AND METHOD FOR PERFORMING DIGITAL SIGNAL PROCESSING IN AN ELECTRONIC CIRCUIT TESTER

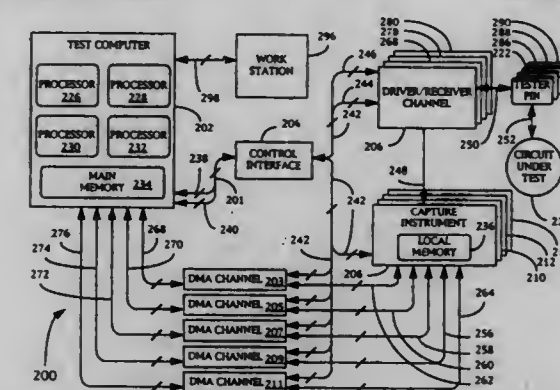
Daniel C. Proskauer, Newton; Mogens Ravn, Winchester; Kevin G. Hood, Waltham; Thomas G. Amann, Canton, and Thomas B. Westbom, Wayland, all of Mass., assignors to Teradyne, Inc., Boston, Mass.

Filed Feb. 13, 1996, Ser. No. 600,837

Int. Cl.⁶ G01R 31/28

U.S. Cl. 371—22.1

21 Claims



1. A method of performing digital signal processing on data samples using a plurality of processors, used for testing an electronic circuit, comprising the steps of:

(a) creating a main thread of control comprising the substeps of: (a1) initializing a plurality of capture instruments, (a2) operating the plurality of capture instruments to collect data samples in respective local memories, and (a3) repeating steps (a1) and (a2) after the data samples are moved from the respective local memories to a main memory in step (b1); and

(b) creating a plurality of side threads of control, each side thread of control being created when one of the plurality of capture instruments has finished collecting data samples in a respective local memory in step (a2), each side thread of control comprising the substeps of:

(b1) moving the data samples from the respective local memory to the main memory,
(b2) analyzing the data samples in the main memory using digital signal processing techniques,
(b3) saving analysis results in the main memory, and
(b4) terminating the side thread of control,

wherein a first processor executes the main thread of control, and wherein at least one remaining processor executes the plurality of side threads of control while the first processor executes the main thread, each side thread of control being executed when the at least one remaining processor becomes available.

5,673,273

CLOCK CONTROLLER FOR EMBEDDED TEST
Thomas A. Almy, Tualatin, Oreg., assignor to Tektronix, Inc., Wilsonville, Oreg.

Filed Apr. 30, 1996, Ser. No. 640,369

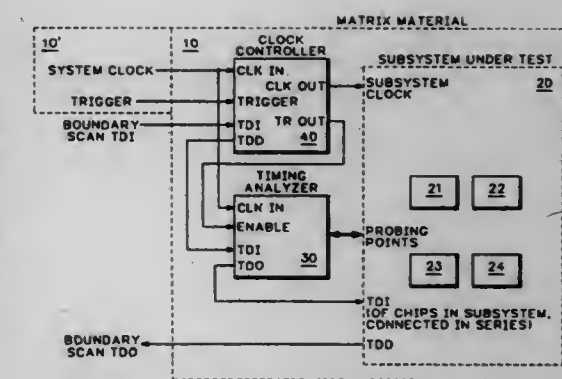
Int. Cl.⁶ G01R 31/28

U.S. Cl. 371—22.1

9 Claims

1. An embedded electronic system having internal test capabilities, the system comprising:

a subsystem under test, the subsystem under test being embedded in a matrix material and having a subsystem clock input for receiving a gated clock, a test data bus connection for receiving test data and returning test results, and a test point; electrical testing means, the electrical testing means being embedded in the matrix material and having a clock input for receiving a system clock signal, a test data bus connection for receiving test data and returning test results, a trigger/enabled



input for receiving trigger signals, and a subsystem under test monitoring input coupled to the test point of the subsystem under test; and

a clock controller, the clock controller being embedded in the matrix material and having a clock input for receiving system clock signals, a test data bus connection for receiving test data and returning test results data, a trigger input for receiving trigger signals, a trigger output coupled to the trigger/enabled input of the electrical testing means, and a gated clock output coupled to supply a gated clock to the subsystem clock input of the subsystem under test.

5,673,274

TEST METHOD FOR SEMICONDUCTOR DEVICE
Toshiya Yoshida, Saitama-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 719,936, Jun. 24, 1991, abandoned.

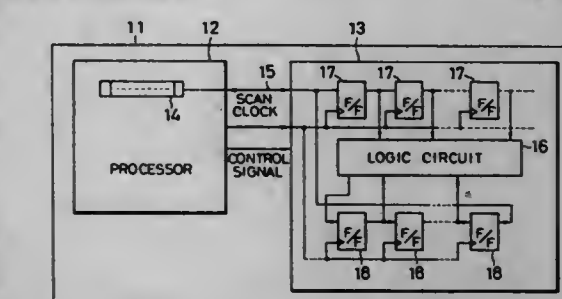
This application Jun. 28, 1996, Ser. No. 672,238

Claims priority, application Japan, Jun. 26, 1990, 2-165694

Int. Cl.⁶ H04B 17/00

U.S. Cl. 371—22.1

6 Claims



1. A test method of a single chip LSI device having a processor, a plurality of functional blocks to be tested, and a memory (or register) for storing test data and test results, comprising:

a step for causing the LSI device to enter a test mode from a normal operation mode;

a step for providing the test data from the memory to the functional blocks under the control of the processor in accordance with instructions programmed by using an instruction set of the processor;

a step for executing the test operation for the functional blocks under the control of the processor in accordance with the instructions programmed by using the instruction set of the processor;

a step for transferring the test results from the functional blocks to the memory under the control of the processor in accordance with the instructions programmed by using the instruction set of the processor;

a step for causing the LSI device to reenter the normal operation mode; and

a step for analyzing the test results, while in the normal operation mode, under the control of the processor in accordance with the programmed instructions programmed by using the instruction set of the processor.

5,673,275

ACCELERATED MODE TESTER TIMING

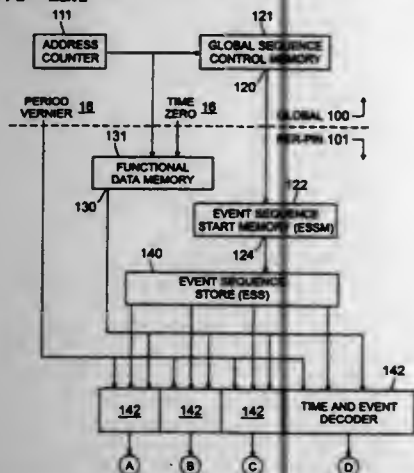
Rodolfo F. Garcia, San Jose, and Egbert Graeve, Los Altos, both of Calif., assignors to Schlumberger Technology, Inc., San Jose, Calif.

Continuation of Ser. No. 526,889, Sep. 12, 1995, abandoned.
This application Aug. 13, 1996, Ser. No. 696,346

Int. Cl.⁶ G06F 11/00

U.S. Cl. 371-22.1

13 Claims



1. A test system providing an event sequence for testing a circuit comprising:

- a first start memory and a second start memory that each output a sequence memory address in response to a global address input;
- a first sequence memory and a second sequence memory that each output events in response to a sequence memory address;
- a terminal carrying a mode signal indicating whether a current mode of operation is a normal mode or an accelerated mode; and
- a selector circuit, connected to the terminal and responsive to the mode signal, selecting from connections between the first and second start memories and the first and second event sequence memories, the connections formed so that (i) a same sequence memory address is presented to both the first and second event sequence memories in normal mode, and (ii) a first sequence memory address from the first start memory is presented to the first event sequence memory while a separate second sequence memory address from the second start memory is presented to the second event sequence memory in accelerated mode.

5,673,276

BOUNDARY-SCAN-COMPLIANT MULTI-CHIP MODULE
Najmi Taher Jarwala, Lawrenceville, N.J., and Chi Wang Yau, Yardley, Pa., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 172,778, Dec. 27, 1993, abandoned.
This application Feb. 5, 1996, Ser. No. 716,559

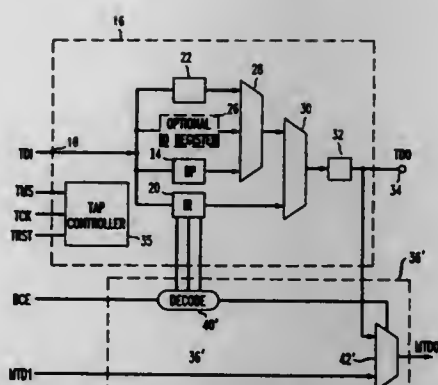
Int. Cl.⁶ H04B 17/00

U.S. Cl. 371-22.3

5 Claims

1. A multi-chip module having external inputs/outputs and being Boundary-Scan compliant both as a circuit board and as a macro device, comprising:

- n semiconductor chips (where n is an integer), each of said chips having inputs/outputs, some of which form said external inputs/outputs of said module, said chips each having a Boundary-Scan architecture and coupled in a Boundary-Scan chain, each of said chips including a Test Data Input (TDI) and a Test Data Output (TDO), a first one of said chips in the chain receiving a stream of test information bits at its TDI via a TDI associated with the module for shifting through the chain, a last one of said chips in the chain shifting out said stream of test information bits from its TDO to a TDO associated with the module, and each of said chips in the



chain other than said first and said last chips having its TDO coupled to the TDI of a downstream chip;

- a bypass circuit associated with at least n-1 of said chips for causing the stream of test information bits to be bypassed directly from the TDI to the TDO of each of n-1 of said chips during selected intervals so that said chips collectively appear as a single Boundary-Scan-compliant macro device during said selected intervals, including:

- a Test Data Input (TDI) forming the TDI associated with the module for receiving said stream of test information bits for selected transmission to the chain of said chips;
- an instruction register for storing an instruction contained within the stream of test information bits applied to the TDI of the bypass circuit (which also forms the TDI associated with the module);
- a bypass register for storing a bit of information contained in said stream of test information bits;
- a Test Data Output (TDO) at which information contained in one of said instruction and bypass registers is selectively supplied to the TDI of a first one of said chips in the chain;
- a multiplexer having a first input coupled to the TDO of the bypass circuit and a second input coupled to the TDO of a last one of said chips in the chain, the multiplexer passing a signal at a separate one of its inputs to its output (which serves as a Test Data Output (TDO) for the module) in response to a control signal applied to the multiplexer; and
- a decoder for generating the control signal for the multiplexer in accordance with the instruction contained in the instruction register circuit and in accordance with the state of a Boundary-Scan compliance enable signal supplied to the decoder to establish whether the module is to be Boundary-Scan-compliant as a macro-device or a circuit board and;

a module-level Boundary-Scan register having a first plurality of register elements each associated with one of said external inputs/outputs of the module and a second plurality of register elements each associated with one of said inputs/outputs that does not form an external input/output of said module, each of said second register elements being controllable for setting to a safe value during testing.

5,673,277

SCAN TEST CIRCUIT USING FAST TRANSMISSION GATE SWITCH

Zwie Amital, Sunnyvale, and Mark Muegge, Santa Clara, both of Calif., assignors to Quality Semiconductor, Inc., Santa Clara, Calif.

Continuation of Ser. No. 123,481, Sep. 16, 1993, abandoned.
This application Oct. 17, 1996, Ser. No. 732,952

Int. Cl.⁶ G01R 31/317

U.S. Cl. 371-22.3

10 Claims

- 1. A scan test device comprising: a bidirectional field-effect transistor including a first input/output terminal and a second input/output terminal and a gate terminal, said first input/output terminal being connected to a first node forming a first data path and said second input/output terminal being connected to a second node forming a second data path, such that said bidirectional field-effect transistor

5,673,279

VERIFICATION OF NETWORK TRANSPORTER IN NETWORKING ENVIRONMENTS

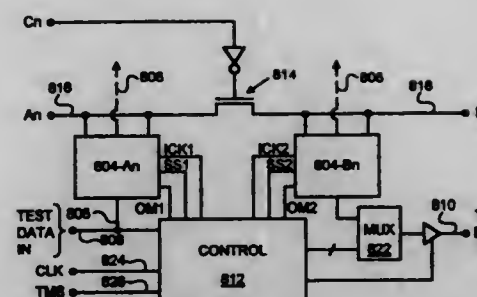
Rasoul M. Oskoury, Sunderraj V. Palaniraj, both of Fremont, and Andre J. Gaytan, Union City, all of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Nov. 6, 1995, Ser. No. 554,609

Int. Cl.⁶ G06F 7/02; H04L 1/14

U.S. Cl. 371-67.1

21 Claims



passes bidirectional external data signals between said first and second nodes when said bidirectional field-effect transistor is turned on and blocks the passage of external data signals between said first and second nodes when said bidirectional field-effect transistor is turned off;

wherein said bidirectional field-effect transistor has a channel length of no more than 1.5 microns and has a channel width of no less than 1000 microns, such that said bidirectional field-effect transistor exhibits a time constant of no more than 5 nanoseconds;

a driver circuit for providing an on/off control signal to said gate terminal of said bidirectional field-effect transistor; and first scan cell means operatively connectable to said first data path and operative to sense or store data signals from said first data path;

second scan cell means operatively connectable to said second data path and operative to sense or store data signals from said second data path.

5,673,278

METHOD AND APPARATUS FOR INTRODUCING DIAGNOSTIC PULSES INTO AN ANALOG SIGNAL GENERATED BY AN INSTRUMENT

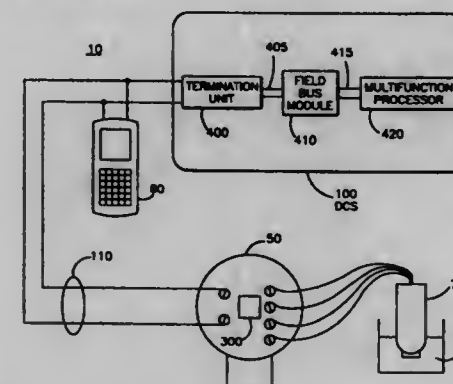
Jeffrey S. Mills, Carson City, and Donald R. Spriggs, Reno, both of Nev., assignors to Eltag International N.V., Amsterdam, Netherlands

Continuation of Ser. No. 440,385, May 10, 1995. This application Jan. 10, 1997, Ser. No. 782,528

Int. Cl.⁶ G08C 15/08

U.S. Cl. 371-57.2

22 Claims



1. An instrument comprising:

- (a) means for generating an analog signal having an amplitude representative of the value of a variable, said analog signal amplitude having a predetermined range defined by a lower limit and an upper limit;
- (b) means for detecting a fault condition in said instrument; and
- (c) means for periodically changing said analog signal amplitude by a predetermined amplitude for as long as said fault condition exists, said predetermined amplitude such that said periodically changed analog signal amplitude lies within said predetermined range.

5,673,280

ARTICLE COMPRISING LOW NOISE OPTICAL FIBER RAMAN AMPLIFIER

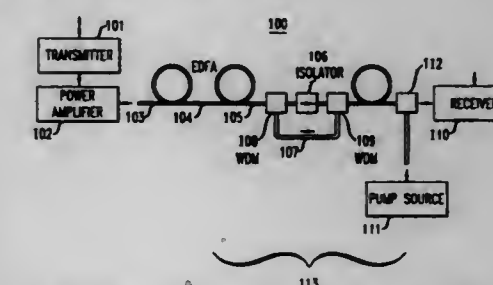
Stephen Gregory Grubb, Warren; Andrew John Stentz, Scotch Plains, and Kenneth Lee Walker, New Providence, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Feb. 12, 1996, Ser. No. 600,354

Int. Cl.⁶ H01S 3/30

U.S. Cl. 372-3

12 Claims



1. An article comprising an optical fiber Raman amplifier comprising

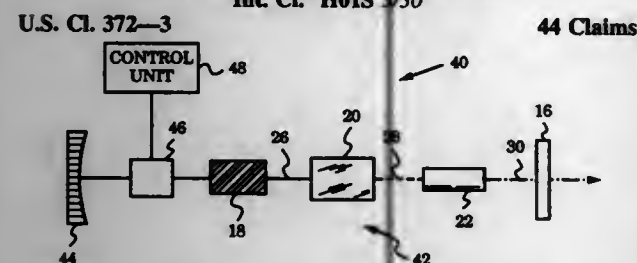
- a) an input port;
- b) an output port;
- c) an optical fiber path that signal-transmissively connects said input and output ports, said optical fiber path comprising silica-based amplifier fiber; and

d) means for coupling a pump radiation of wavelength λ_p , less than a signal wavelength λ_s , into said silica-based amplifier fiber such that the pump radiation propagates in said silica-based amplifier fiber in an upstream direction towards said input port;

CHARACTERIZED IN THAT

- e) said silica-based amplifier fiber comprises at least a first length L_1 of amplifier fiber and a second length L_2 of amplifier fiber, with the first length being upstream of the second length, and L_1+L_2 being more than 200 m;
- f) the optical fiber Raman amplifier comprises an optical isolator disposed between said first and second lengths of amplifier fiber such that passage of at least radiation of wavelength λ_s , from the second to the first length of amplifier fiber is substantially blocked.

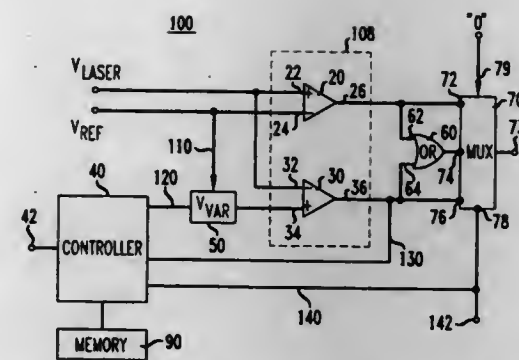
5,673,281
SOLID STATE SYSTEM FOR FREQUENCY CONVERSION USING RAMAN-ACTIVE MEDIA AND NON-LINEAR MEDIA
 Robert L. Byer, Stanford, Calif., assignor to Board of Trustees of the Leland Stanford Junior University, Palo Alto, Calif.
 Filed Apr. 20, 1996, Ser. No. 646,983
 Int. Cl.⁶ H01S 1/30



1. A solid state system for converting the frequency of a laser beam, said system comprising:
- a laser resonator;
 - a laser medium positioned inside said laser resonator for emitting said laser beam upon stimulation, such that said laser beam propagates within said laser resonator;
 - a solid Raman-active medium disposed inside said laser resonator for shifting the frequency of said laser beam by a characteristic frequency of said solid Raman-active medium to generate a Raman beam;
 - a solid non-linear medium disposed inside said laser resonator for shifting the frequency of said Raman beam to generate an output beam; and
 - an output coupling means for extracting said output beam from said laser resonator.

5,673,282
METHOD AND APPARATUS FOR MONITORING PERFORMANCE OF A LASER TRANSMITTER
 William C. Wurst, Amherst, N.H., assignor to Lucent Technologies Inc., Murray Hill, N.J.
 Filed Jul. 28, 1995, Ser. No. 510,949
 Int. Cl.⁶ H01S 3/00

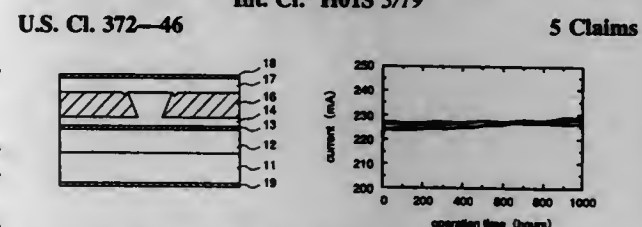
1. An apparatus for use in monitoring an output level of a laser comprising:
- a controllably variable voltage source having at least two operational states, during a first of the operational states the voltage source supplies as an output a first threshold voltage value and during a second of the operational states the voltage source supplies as an output a second threshold voltage value lower in value than the first threshold voltage value;
 - a window comparator supplied with the output of the voltage source and being adapted to be supplied with a signal representative of the output level of the laser and further being



adapted to generate as an output a first alarm signal when the laser output level is equal to or less than the first threshold voltage value; and

a controller being responsive to the first alarm signal to control switching the voltage source from the first operational state to the second operational state so that the second threshold voltage value is supplied as an output from the voltage source.

5,673,283
SEMICONDUCTOR DEVICE AND FABRICATING METHOD THEREOF
 Yasutomo Kajikawa, Motoharu Miyashita, Shoichi Karakida, and Akihiro Shima, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
 Filed Mar. 8, 1996, Ser. No. 613,237
 Claims priority, application Japan, Jun. 29, 1995, 7-164124
 Int. Cl.⁶ H01S 3/19



1. A semiconductor device comprising:
- a semiconductor substrate having a surface;
 - a strained multi-quantum well (MQW) structure on the surface of the semiconductor substrate, the MQW structure comprising, alternately laminated, a plurality of first barrier layers, each first barrier layer comprising a semiconductor crystal having a lattice constant approximately equal to that of the semiconductor substrate, and n well layers, each well layer comprising a semiconductor crystal having a lattice constant larger than that of and an energy band gap smaller than that of the semiconductor substrate and including second barrier layers as outermost layers of the MQW structure, the well layers having, respectively, a thickness t_w , and the first barrier layers having a thickness t_b , and wherein when strain of each well layer is f_w , distance between an interface between a second barrier layer and a well layer closest to the semiconductor substrate and an interface between a second barrier layer and a well layer most distant from the semiconductor substrate is

$$l_{total} = n t_w + (n-1) t_b,$$

average strain f_{av} of the well layers between these interfaces is

$$f_{av} = n t_w f_w / l_{total},$$

Poisson ratio in the well layer is ν , Burgers vector magnitude of closed loop dislocations in the well layers is b_0 , Burgers vector magnitude of open loop dislocations in the well layers is b_p , ratio of rigidity is μ , stacking fault energy per unit area is γ , half loop radius of the dislocations is r_c , resolved shear stress magnitude is τ , pairs of open loop dislocations are spaced by a distance d , then

$$b_0 = 3/4 b_p \text{ and}$$

$$r_c = \frac{1}{(\sqrt{3}/2)\pi\tau b_0} \left[\frac{\mu b_p^2 (1-\nu/2)}{2(1-\nu)} \left(1 + \ln \frac{4r_c}{b_0} \right) + \pi d (\gamma + \tau b_p/2) \right],$$

where τ is

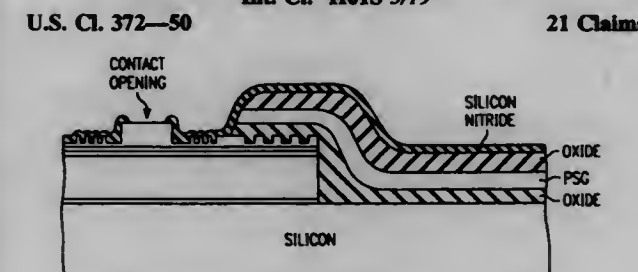
$$\tau = \left[\frac{2}{3} \sqrt{2} \mu (1+\nu)(1-\nu) \right] f_{av}, \text{ and}$$

$$d = [\mu b_p^2 (1-\nu/2) 4\pi (1-\nu)] [1/(\gamma + \tau b_p/2)],$$

a safety factor $K_{safety} = 3.9$ and

$$K_{safety} f_{av}^{total} < \frac{b_p (1-\nu/2)}{80 \sqrt{3} (1+\nu)} \left[-\frac{1}{2} + \ln \left(\frac{4r_c}{b_0} \right) \right]$$

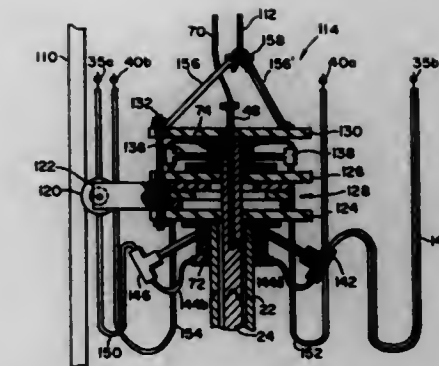
5,673,284
INTEGRATED LASER AND COUPLED WAVEGUIDE
 Philip A. Congdon, Richardson; Lily Y. Pang, McKinney, and Gary A. Evans, Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
 Continuation of Ser. No. 485,857, Jun. 7, 1995, abandoned, which is a division of Ser. No. 248,937, May 25, 1994. This application Aug. 21, 1996, Ser. No. 701,194
 Int. Cl.⁶ H01S 3/19



1. A microelectronic circuit, comprising:
- an integrated circuit, wherein said integrated circuit comprises:
 - (a) a semiconductor laser having an optical axis, wherein said semiconductor laser includes a semiconductor waveguide comprised of a first layer, a second layer, and a third layer, wherein said layers are parallel to said optical axis; and
 - (b) a dielectric waveguide comprised of a first dielectric cladding, a dielectric core, and a second dielectric cladding, wherein said dielectric waveguide has an optical axis that is located parallel to said laser's optical axis; and
 - (c) a coupling grating between said laser and said dielectric waveguide.

5,673,285
CONCENTRIC ELECTRODE DC ARC SYSTEMS AND THEIR USE IN PROCESSING WASTE MATERIALS
 J. Kenneth Wittle, Chester Springs; Richard A. Hamilton, Aston, and Charles S. Titus, Newtown Square, all of Pa., assignors to Electro-Pyrolysis, Inc., Wayne, Pa.
 Filed Jun. 27, 1994, Ser. No. 266,209
 Int. Cl.⁶ F27D 3/00

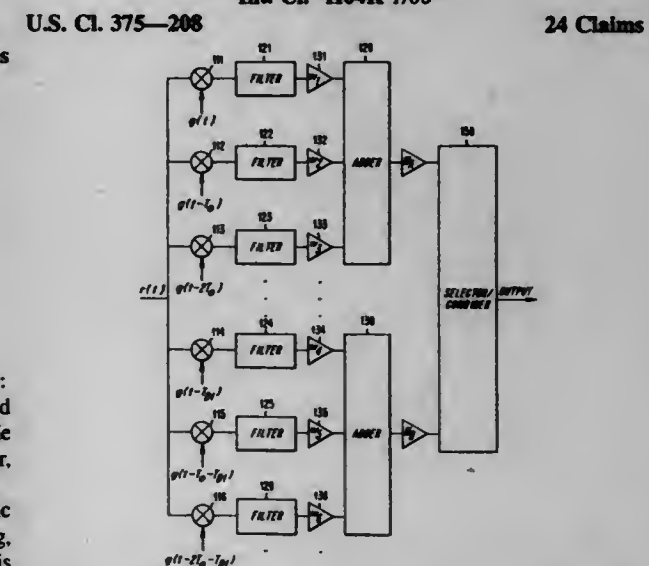
16. An electrode assembly, comprising:
- a first electrode comprising a hollow cylinder having an upper end and a lower end;
 - a second electrode comprising a cylinder having an upper end and a lower end and positioned coaxially within said first



electrode, said first and second electrodes having an annular cavity therebetween; and

said second electrode having a conduit formed therein for transporting conductive material into said annular cavity.

5,673,286
SPREAD SPECTRUM MULTIPATH PROCESSOR SYSTEM AND METHOD
 Gary R. Lomp, Centerport, N.Y., assignor to InterDigital Technology Corporation, Wilmington, Del.
 Division of Ser. No. 368,710, Jan. 4, 1995. This application Apr. 17, 1995, Ser. No. 423,513
 Int. Cl.⁶ H04K 1/00



1. A multipath processor for tracking a spread-spectrum signal within a plurality of groups of spread-spectrum signals, each group having a plurality of spread-spectrum signals, said multipath processor comprising:
- first means for despreading a first plurality of spread-spectrum signals within a first group, to generate, respectively, a first plurality of despread signals;
 - first means, coupled to said first despreading means, for combining the first plurality of despread signals as a first combined-despread signal;
 - second means for despreading a second plurality of spread-spectrum signals within a second group, to generate, respectively, a second plurality of despread signals;
 - second means, coupled to said second despreading means, for combining the second plurality of despread signals, as a second combined-despread signal; and
 - means, coupled to said first combining means and to said second combining means, for selecting one of the first combined-despread signal and the second combined-despread signal, as an output-despread signal.

5,673,293

METHOD AND APPARATUS FOR DEMODULATING QAM AND VSB SIGNALS

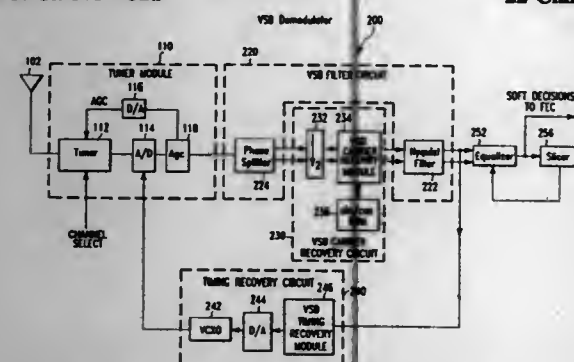
Carl G. Scarpa, Edison; Joshua L. Koslov, Hopewell, and Frank A. Lane, Medford Lakes, all of N.J., assignors to Hitachi America, Ltd., Tarrytown, N.Y.

Filed Sep. 8, 1994, Ser. No. 303,307

Int. Cl.⁶ H03C 1/52

U.S. Cl. 375—321

22 Claims



1. An apparatus for use in a VSB demodulator circuit, comprising:

- a surface acoustic wave filter for filtering an analog input signal to isolate an analog VSB signal;
- an analog to digital converter coupled to the surface acoustic wave filter for converting the analog VSB signal into a digital VSB signal;
- a fully digital VSB carrier recovery circuit coupled to the analog to digital converter for performing a digital carrier recovery operation, including a decimation operation, on the digital VSB signal to generate a baseband VSB signal therefrom; and
- a complex digital Nyquist filter coupled to the output of the VSB carrier recovery circuit.

5,673,294

ADAPTIVE MAXIMUM LIKELIHOOD SEQUENCE ESTIMATION APPARATUS AND ADAPTIVE MAXIMUM LIKELIHOOD SEQUENCE ESTIMATION METHOD

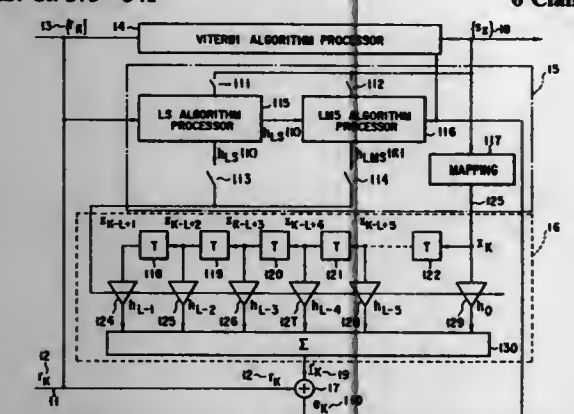
Minoru Namekata, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 557,930, Nov. 14, 1995, Pat. No. 5,579,344, which is a continuation of Ser. No. 308,423, Sep. 19, 1994, abandoned. This application Aug. 9, 1996, Ser. No. 694,762

Claims priority, application Japan, Sep. 20, 1993, 5-232878 Int. Cl.⁶ H01L 27/06

U.S. Cl. 375—341

6 Claims



1. An adaptive maximum likelihood sequence estimation apparatus comprising:

- first estimation means for estimating a transmission signal sequence from received signals on the basis of an estimated transmission path impulse response;

second estimation means for estimating an estimated received signal at time k on the basis of the transmission signal sequence estimated by said first estimation means and a transmission path impulse response estimated at time k-1;

error signal generation means for generating an error signal on the basis of a received signal at time k and the estimated received signal at time k from said second estimation means; and

third estimation means for estimating a transmission path impulse response at time k using a predetermined adaptive algorithm on the basis of the error signal generated by said error signal generation means;

wherein said third estimation means comprises means for estimating a transmission path impulse response by a non-recursive calculation on the basis of all candidate sequences which are transmitted during a given finite period and a received signal received during the finite period, and received signal estimation and estimation by said first estimation means are performed using the estimated transmission path impulse response.

5,673,295

METHOD AND APPARATUS FOR GENERATING AND SYNCHRONIZING A PLURALITY OF DIGITAL SIGNALS

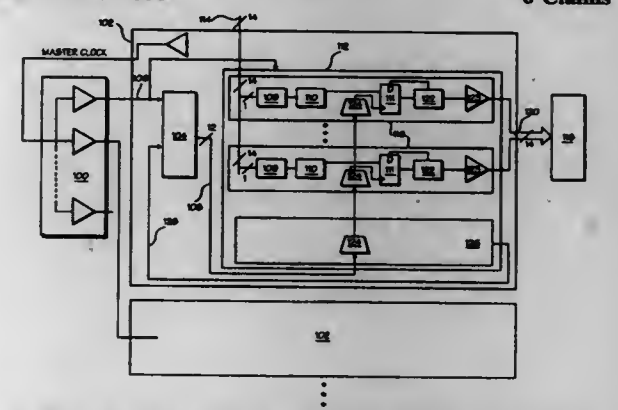
Andrew J. Read, Sunnyvale; Sani El-Fishawy, Santa Clara; Robert Mardjuki, Danville, and Michael Lee, Mountain View, all of Calif., assignors to Synopsis, Incorporated, Mountain View, Calif.

Filed Apr. 13, 1995, Ser. No. 421,062

Int. Cl.⁶ H04L 7/00

U.S. Cl. 375—356

6 Claims



1. An apparatus for generating and synchronizing a plurality of precisely timed digital signals, the apparatus coupled to receive a plurality of data bits and timing information for each of the data bits, the apparatus for providing each one of the data bits to a Hardware Modeling Element (HME) at a predetermined time specified by the timing information, the apparatus comprising:

- a. a clock generating circuit comprising:
 - (1) an input for receiving a master clock signal having a predetermined range of frequencies;
 - (2) a divider circuit coupled to the input for receiving the master clock signal and for generating therefrom a plurality of evenly timed internal clock signals; and
 - (3) a phase adjusting circuit for receiving a feedback control signal and for adjusting a phase delay within the plurality of internal clock signals in accordance with a sensed throughput delay; and
- b. a timing multiplexer, coupled to receive the internal clock signals from the clock generating circuit, the timing multiplexer comprising:
 - (1) a plurality of data channels, each having an approximately same throughput delay within each data channel, each data channel comprising:
 - (a) a data channel input for receiving a predetermined one of the data bits;

5,673,296

FRAME SYNCHRONIZATION CIRCUIT FOR DIGITAL COMMUNICATION SYSTEM

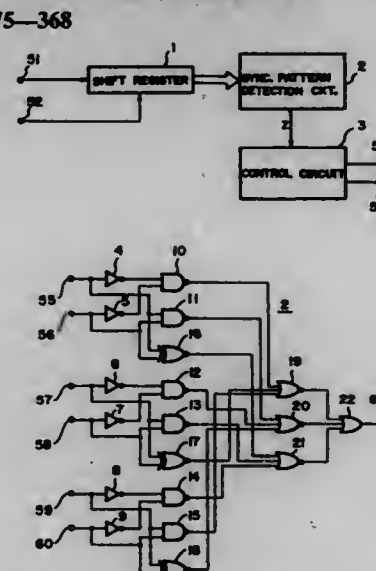
Shoji Ohgane, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 239,840, May 9, 1994, abandoned, which is a continuation of Ser. No. 41,966, Apr. 2, 1993, abandoned. This application Aug. 26, 1996, Ser. No. 701,532

Claims priority, application Japan, Apr. 2, 1992, 4-080205 Int. Cl.⁶ H04L 7/00

U.S. Cl. 375—368

4 Claims



1. A frame synchronization circuit for use in an ISDN (Integrated Services Digital Network) primary rate interface, for detecting frame synchronization bits allotted in particular positions within a receiving data string, said frame synchronization circuit comprising:

- a shift register which receives and stores said receiving data string, and then outputs a parallel data string of 6 bits disposed in a 772 bit cycle within the receiving data string; and
 - a synchronization pattern detection circuit which receives said parallel data string output from said shift register in synchronization with a clock signal and makes decisions simultaneously or at one time on matching/non-matching between said parallel data string of 6 bits and any one of 6 kinds of predetermined synchronization patterns of 6 bits, said 6 kinds of predetermined synchronization patterns having been established in advance in said synchronization pattern detection circuit;
- said synchronization pattern detection circuit comprising:
- a plurality of inverters, each of which is coupled to receive one bit of said parallel data string of 6 bits;
 - a plurality of NAND gates, each of which having a plurality of inputs, one of said inputs being coupled to an output of one of said inverters or to receive one bit of said parallel data string of 6 bits, and another of said inputs being coupled to an output of one of the inverters or to receive one bit of said parallel data string of 6 bits;

a plurality of Exclusive NOR gates, each having two inputs, each of said inputs being coupled to receive one bit of said parallel data string of 6 bits;

a plurality of NOR gates, each of which having a plurality of inputs, each of said inputs receiving an output of one of said NAND gates or an output of one of said Exclusive NOR gates; and

an OR gate having a plurality of inputs, each for receiving an output of said NOR gates, and having an output for outputting an output indicating matching or non-matching between said parallel data string of 6 bits and said any one of six kinds of predetermined synchronization patterns of 6 bits.

5,673,297

METHOD OF MITIGATING STRESS CORROSION CRACKING OF METALS IN HIGH-TEMPERATURE WATER BY CONTROL OF CRACK TIP PH

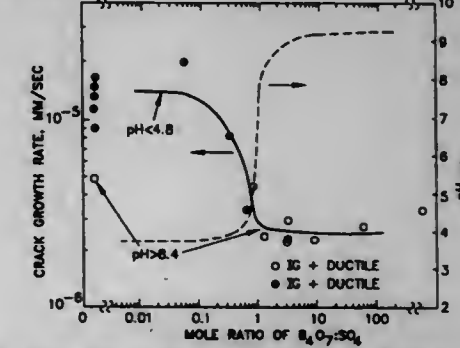
Peter Louis Andresen, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 224,896, Apr. 8, 1994, abandoned. This application Jul. 31, 1995, Ser. No. 509,280

Int. Cl.⁶ G21C 9/00

U.S. Cl. 376—306

8 Claims



1. A method for mitigating propagation of a surface-connected crack in a metal component submerged in the high-temperature bulk water of a boiling water reactor, said method comprising the step of injecting a solution of a compound selected from the group consisting of boric acid and silicon hydroxide into the bulk water, said compound having the property of changing the pH of high-temperature water inside the crack from a value outside a predetermined pH range to a value within said predetermined pH range, wherein the growth rate of the crack when the crack pH is outside said predetermined pH range is greater than the growth rate of the crack when the crack pH is within said predetermined range.

5,673,298

DEVICE AND METHOD FOR ANALYSIS OF BONE MORPHOLOGY

Richard B. Mazess, Madison, Wis., assignor to Lunar Corporation, Madison, Wis.

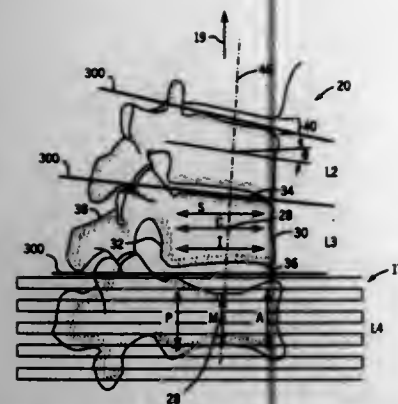
Continuation of Ser. No. 477,053, Jun. 7, 1995, Pat. No. 5,577,089, which is a continuation-in-part of Ser. No. 344,328, Nov. 23, 1994, abandoned, and Ser. No. 241,270, May 10, 1994, Pat. No. 5,509,042, which is a continuation-in-part of Ser. No. 67,651, May 26, 1993, Pat. No. 5,291,537, which is a division of Ser. No. 944,626, Sep. 14, 1992, Pat. No. 5,228,068, and a continuation-in-part of Ser. No. 73,264, Jun. 7, 1993, Pat. No. 5,306,306, which is a continuation of Ser. No. 862,096, Apr. 2, 1992, abandoned, which is a continuation of Ser. No. 655,011, Feb. 13, 1991, abandoned. This application Aug. 15, 1996, Ser. No. 689,863

Int. Cl.⁶ G01B 15/04; G01N 23/06

U.S. Cl. 378—54

6 Claims

1. A method of evaluating the integrity against fracture of a vertebra in an animal or human, the vertebra having a superior and inferior margin and anterior and posterior margin, comprising the steps of:



- scanning the vertebra with a beam of radiation to acquire a matrix of discrete data elements each having a value wherein each said data element corresponds to a defined location in the area of said vertebra, and wherein the value of each data element is related to a physical property of the material of the vertebra or its surrounding tissue;
- reviewing the values of the data elements and their defined locations to identify at the edge of the vertebra one or more pairs of fiducial points and measuring the distance between the points to produce a morphometric measure;
- measuring the absorption of the beam of radiation through the vertebra to produce a value related to the bone mass of the vertebra; and
- displaying the morphometric measure and the value related to the bone mass of the vertebra so as to indicate the likelihood of future vertebral fractures in the vertebra.

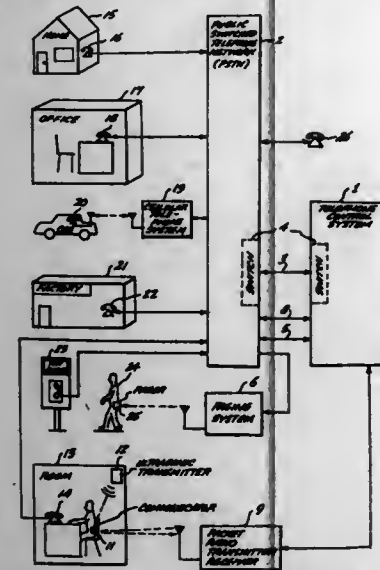
5,673,299

ADJUNCT CONTROLLER FOR A TELEPHONE SYSTEM
Robert M. Fuller, Redmond; Frederick A. Epler, Issaquah, and Maxwell E. Manowski, Enumclaw, all of Wash., assignors to Accessline Technologies, Inc., Bellevue, Wash.

Division of Ser. No. 480,242, Feb. 15, 1990, Pat. No. 5,375,161, which is a continuation-in-part of Ser. No. 439,601, Nov. 21, 1989, abandoned, which is a continuation-in-part of Ser. No. 841,931, Mar. 20, 1986, Pat. No. 4,893,335, which is a continuation-in-part of Ser. No. 650,821, Sep. 14, 1984, abandoned. This application May 26, 1994, Ser. No. 249,453
Int. Cl.⁶ H04M 1/00

U.S. Cl. 379-57

91 Claims



1. An adjunct control system for connection to a telephone network, said network including at least one switch which is capable of changing communication paths of a plurality of intelligent streams to and from a plurality of communication ports, the adjunct control system comprising:

(a) communications means for communicating via said ports to receive a telephone call directed to a telephone number associated with a subscriber, said telephone number being any number normally accessible via a Public Switched Telephone Network (PSTN), said telephone call being received without the need for a calling party to provide a special access code, said telephone call being received via said at least one switch;

- switch control means for transmitting switching commands to said at least one switch to change at least one of said paths to redirect said telephone call to at least another one of said communication ports; and
- processing means for determining changes to one or more of said communication paths and for effecting said changes by sending switch control commands to said switch.

59. A method of receiving and processing incoming telephone calls directed to a telephone network address, said method comprising the steps of:

- storing in a memory electronic signals including signals representative of telephone network addresses; and
- processing an incoming telephone call from a caller directed to said network address, including answering the call and communicating information to said caller indicating that said incoming call can be branch routed to any one of at least two telephone network addresses, said incoming telephone call being directed to a network address associated with a subscriber, said network address being a number normally accessible via the Public Switched Telephone Network (PSTN), said telephone call being received without the need for the caller to provide a special access code, sensing transmission by the caller of a command corresponding to a desired telephone network address and, responsive thereto, transmitting a command from an adjunct control system to said telephone network to route said incoming call (i) via the network, without the need for said network to recognize that branch routing is provided by said adjunct controller, and (ii) externally of said adjunct control system to the telephone network address corresponding to the command transmitted by said caller a user not being available except for predetermined calls and, upon recalling said screening mode signal in processing said incoming call, transmitting a prompt to said caller indicating that the caller should transmit a specific command and, responsive to said caller transmitting said specific command, causing said control means to route said incoming call to a telephone network address represented in said memory means.

5,673,300

METHOD OF REGISTERING A RADIATION TREATMENT PLAN TO A PATIENT

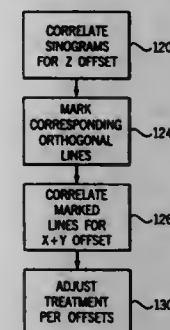
Paul J. Reckwerdt, and Thomas R. Mackie, both of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jun. 11, 1996, Ser. No. 661,538

Int. Cl.⁶ A61N 5/10

U.S. Cl. 378-65

12 Claims



1. A method of operating a radiation therapy machine producing at least one radiation beam having a controllable orientation with respect to a patient, comprising the steps of:

- obtaining a planning tomographic projection set of a treatment volume within the patient, the patient having a first position, the tomographic projection set including a first plurality of radiographic projections through the patient;
- using an electronic computer receiving the planning tomographic projection set and operating according to a stored program to produce a radiation treatment plan describing at least one orientation of the radiation beam with respect to the first patient position based on the first planning tomographic projection set and providing a desired treatment of the patient;
- obtaining a later confirmation projection set of the treatment volume within the patient, the patient having a second position; the confirmation projection set including a second plurality of radiographic projections through the patient;
- using the electronic computer receiving the planning tomographic projection set and the confirmation projection set and operating according to a stored program to compare the second plurality of radiographic projections with corresponding projections of the first radiographic projection set to determine a movement of the patient between the first position and the second position; and
- changing the treatment of the patient according to the movement determined by the electronic computer.

12. A method of aligning multiple tomographic projection images of a patient comprising the steps of:

- inputting to an electronic computer a first tomographic projection image of a volume within the patient, the patient having a first position, the tomographic projection set including a first plurality of radiographic projections through the patient;
- inputting to the electronic computer a confirmation projection set of the volume within the patient, the patient having a second position; the confirmation projection set including a second plurality of radiographic projections through the patient;
- operating the electronic computer to compare the second plurality of radiographic projections with corresponding projections of the first radiographic projection set to determine a movement of the patient between the first position and the second position; and
- shifting tomographic images reconstructed from the first and second plurality of radiographic projections into alignment according to the movement determined by the electronic computer.

5,673,302

ADJUSTABLE X-RAY CASSETTE HOLDER AND LEAD BLOCKER DEVICE COMBINATION

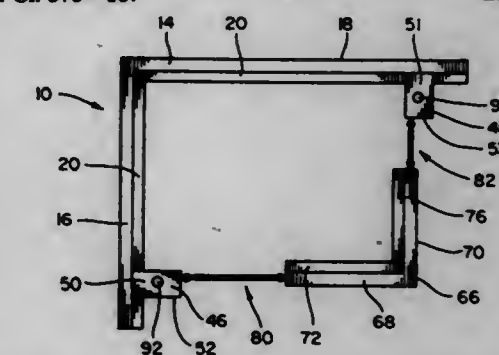
Doretta L. Krieche, and James F. Krieche, Jr., both of 7N319 Falcons Trail, St. Charles, Ill. 60175

Filed Feb. 16, 1996, Ser. No. 601,281

Int. Cl.⁶ G03B 42/02

U.S. Cl. 378-167

20 Claims



1. An adjustable X-ray cassette holder device for securely positioning X-ray cassettes of different sizes, comprising:

- an L-shaped frame having a first frame member disposed perpendicular to a second frame member, the first frame member and second frame member each having a ledge for supporting first and second cassette edges of the X-ray cassette;
- a first frame adjuster slidably connected to the first frame member;
- a second frame adjuster slidably connected to the second frame member;
- an L-shaped movable frame having a first portion disposed perpendicular to a second portion, the first portion being disposed parallel to the second frame member and having a first ledge portion for supporting a third cassette edge of the X-ray cassette, the second portion being disposed parallel to the first frame member and having a second ledge portion for supporting a fourth cassette edge of the X-ray cassette;
- first tension means interconnected between the first frame adjuster and the L-shaped movable frame for producing tension between the first frame adjuster and the L-shaped movable frame when the first frame adjuster and the L-shaped movable frame are moved in opposite directions; and
- second tension means interconnected between the second frame adjuster and the L-shaped movable frame for producing tension between the second frame adjuster and the L-shaped movable frame when the second frame adjuster and the L-shaped movable frame are moved in opposite directions.

5,673,301

COOLING FOR X-RAY SYSTEMS

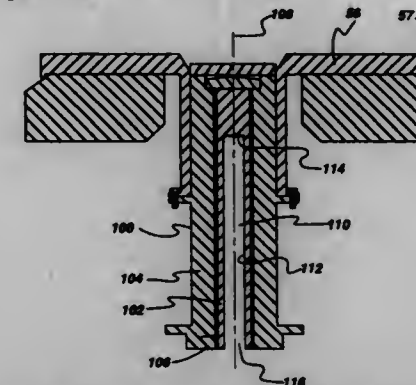
Prabhat Kumar Tekriwal, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Apr. 3, 1996, Ser. No. 627,205

Int. Cl.⁶ H01J 5/18

U.S. Cl. 378-130

10 Claims



1. A cooling stem having dimensions adapted to be disposed within an axial bore of an X-ray bearing assembly, said axial bore having an inner surface, said cooling stem comprising: a hollow, tubular housing having an inner surface, an outer surface, a target end and a distal end;

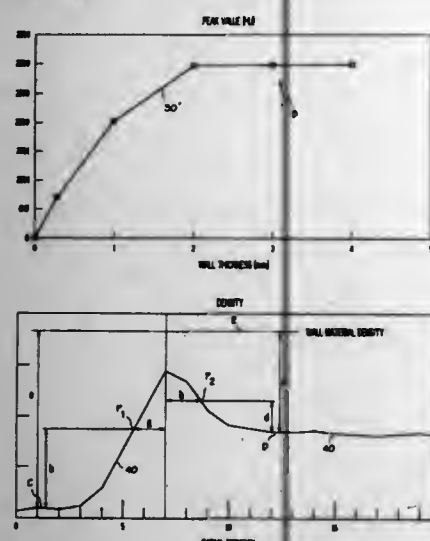
5,673,303
METHOD AND APPARATUS FOR THE EVALUATION OF
STRUCTURAL WIDTH AND DENSITY BY COMPUTED
TOMOGRAPHY

Thomas Niklaus Hangartner, Xenia, Ohio, assignor to Wright State University, Dayton, Ohio
 Continuation-in-part of Ser. No. 424,841, Apr. 19, 1995, Pat. No. 5,594,775. This application Nov. 19, 1996, Ser. No. 752,023

Int. Cl.⁶ G01D 18/00

U.S. Cl. 378—207

16 Claims



1. A method of measuring the density of a structure comprising the steps of:
 obtaining X-ray image data of a structure with a computed tomography scanner;
 establishing a radial density profile of said structure based upon the obtained X-ray image data;
 identifying a peak density value D_1 along said density profile;
 identifying a structural width w_1 of said structure;
 interpolating a first curve of density versus width from a point defined by coordinates w_1 and D_1 ; and
 identifying a maximum density value of said first curve to establish a structural density value D_2 .

5,673,304
PROGRAMMABLE EMERGENCY COMMUNICATION
SYSTEM INCLUDING AUTOMATIC DIALER

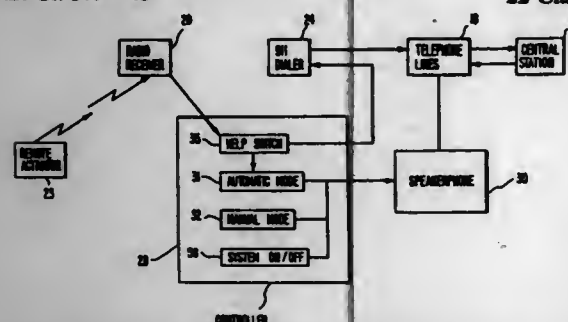
Larry W. Connor, Greensboro, N.C.; Tracy McKeithan, Athens, Ga.; David Labin, Croton-On-Hudson, N.Y., and Thomas Seuberling, Kernersville, Ky., assignors to AC Corporation, Greensboro, N.C.

Continuation-in-part of Ser. No. 763,493, Sep. 23, 1991, abandoned. This application Jul. 21, 1993, Ser. No. 94,446

Int. Cl.⁶ H04M 11/04

U.S. Cl. 379—45

22 Claims



1. A programmable emergency communication system for communicating between a home system and another party, comprising:

an automatic dialer programmed to dial at least one telephone number upon command;
 means for transmitting a first control signal in response to an external condition;
 a speakerphone coupled with a telephone line for enabling hands free reception and transmission of voice-to-voice communications when interconnected with said telephone line; and
 a reprogrammable central controller, connected to said speakerphone and to said automatic dialer, for controlling the operations of said home system in accordance with a selected set of reprogrammable options;
 wherein said central controller, upon receipt of said first control signal, connects said automatic dialer to a telephone line and generates said command to cause said automatic dialer to dial said at least one telephone number, and
 wherein said central controller, upon receipt of an interrogation from a central station, transmits information indicating said selected set of reprogrammable options to said central station.

5,673,305
APPARATUS AND METHOD FOR TRACKING AND
REPORTING THE LOCATION OF A MOTOR VEHICLE

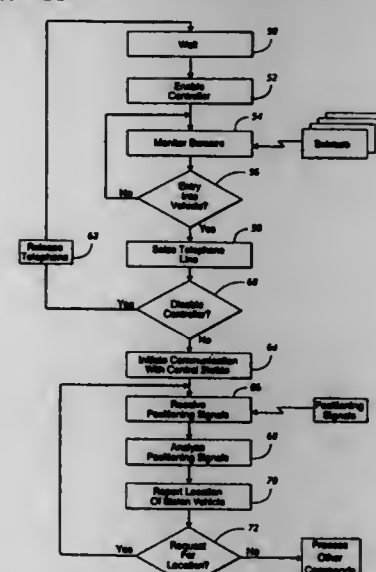
John S. Ross, Marietta, Ga., assignor to Worldwide Notification Systems, Inc., Atlanta, Ga.
 Continuation of Ser. No. 229,105, Apr. 8, 1994, abandoned, Ser. No. 62,406, May 14, 1993, Pat. No. 5,351,194, and Ser. No. 62,405, May 14, 1993, abandoned, said Ser. No. 229,105 is a continuation of Ser. No. 62,408, May 14, 1993, abandoned.

This application Jun. 15, 1994, Ser. No. 260,914

Int. Cl.⁶ H04Q 7/20

U.S. Cl. 379—58

10 Claims



1. A method of monitoring a mobile vehicle comprising the steps of:
 (a) storing at a station information describing the vehicle and a predetermined reply code allowing vehicle operator to cancel a reported unauthorized use or entry of the vehicle;
 (b) receiving at the vehicle a positioning signal from each of a plurality of satellites;
 (c) determining at the vehicle the location of the vehicle based upon the received positioning signals;
 (d) enabling a vehicle alarm system, said alarm system comprising a plurality of sensors, at least one of said sensors detecting a use of or entry into the vehicle;
 (e) detecting at the vehicle the use of or entry into the vehicle in response to said step (d);
 (f) establishing a first communications link from the vehicle to the station to report the unauthorized use of or entry into the vehicle and the location of the vehicle in response to said step (e);

(g) receiving the report of the unauthorized use or entry of the vehicle at the station via said first communications link, and subsequently disconnecting said first communications link;
 (h) establishing a second communications link from the station to the vehicle, in response to said step (g), to request an occupant of the vehicle to input into a vehicle input device a reply code to cancel the reported unauthorized use or entry, said vehicle communicating any inputted codes to the station;
 (i) determining at the station whether the station receives a communication from the vehicle including the predetermined reply code in response to said step (h); and
 (j) communicating a control signal from the station to the vehicle if the station does not receive the predetermined reply code from the vehicle, said control signal causing the vehicle to activate one or more vehicle output devices.

5,673,306
CELLULAR RENTAL PHONE SYSTEM AND METHOD
HAVING REALTIME DATA COLLECTION AND BILLING

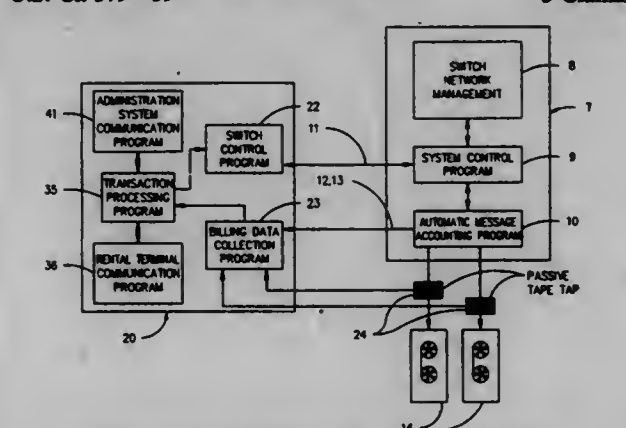
Charles Gregory Amador, Seattle, Wash.; Rick F. Combast, Florence, Oreg.; David M. Stanhope, Tacoma, and Cameron Scott Elliott, Seattle, both of Wash., assignors to Cellular Technical Services Company, Inc., Seattle, Wash.
 Continuation of Ser. No. 527,136, May 22, 1996, abandoned.

This application Nov. 20, 1992, Ser. No. 979,547
 The portion of the term of this patent subsequent to Apr. 5, 2011, has been disclaimed.

Int. Cl.⁶ H04Q 7/22

U.S. Cl. 379—59

5 Claims



1. A cellular mobile communication system comprising:
 a plurality of mobile subscriber stations, each station including radio means for communicating with a cellular mobile radio system;
 a cellular mobile radio system having at least one cellular base station for serving said cellular mobile radio subscriber stations for the origination and termination of calls;
 a cellular communications switching system comprising: a plurality of trunk circuits to a public switched telephone network; means for selectively interconnecting said mobile subscriber stations and said public switched telephone network through said trunk circuits; system control means for enabling and disabling of service to said subscriber stations; and means for monitoring call activity and transmitting automatic message accounting data in real time over one or more of said trunk circuits;
 a cellular mobile radio rental system or cellular mobile radio credit transaction system comprising: means for entering and collecting customer transaction and credit card information; means for obtaining credit approval from a credit card clearinghouse; and means for communicating transaction and credit card data over said trunk circuits to and from said public switched telephone network to a collector system for the purpose of initiating and terminating customer transactions; and

5,673,307
HANDOFF METHOD FOR INDOOR CELLULAR PHONE
SYSTEM

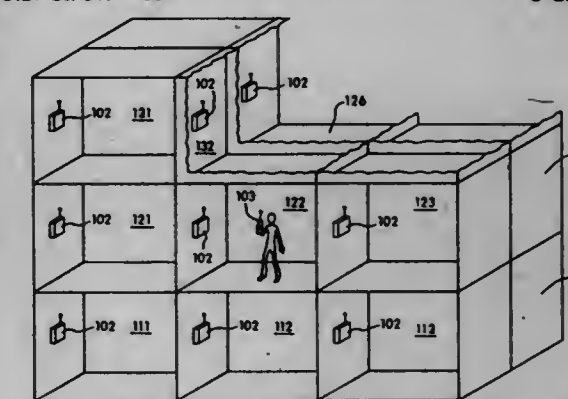
Bruce M. Holland, Boulder; Gary L. Bliss, Westminster, and Bryan Edwards, Boulder, all of Colo., assignors to SpectraLink Corporation, Boulder, Colo.

Filed Feb. 17, 1994, Ser. No. 198,943

Int. Cl.⁶ H04Q 7/22; 7/38

U.S. Cl. 379—60

8 Claims

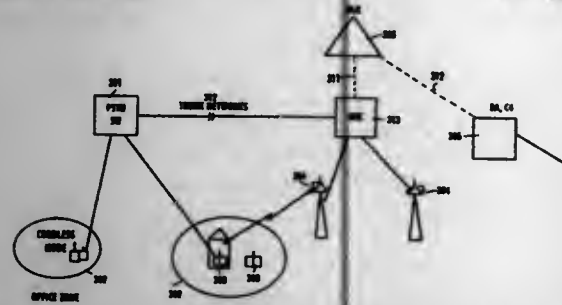


1. In a cellular phone system having a plurality of cell units, a method for handing off a communication link with a mobile phone from a first cell unit to a second cell unit, the method comprising the steps of:

creating a neighbors list comprising cell units that have recently supported a communication link with the mobile phone;
 creating a candidates list comprising cell units which are capable of supporting a communication link with the mobile phone;
 measuring a first signal strength between the first cell unit and the mobile phone;
 measuring bit error rate between the first cell unit and the mobile phone;
 measuring a second signal strength between each of the cell units on the candidates list and the mobile phone;
 determining a handoff threshold value for each of the cell units on the candidates list based upon contents of the candidates list, contents neighbors list, and the bit error rate measurement;
 determining a signal strength improvement between the first signal strength and each second signal strength;
 in the event that none of the cell units on the candidates list has a signal strength improvement greater than the handoff threshold associated with that cell unit, returning to the step of creating a candidates list without generating a handoff command;
 in the event that one of the cell units on the candidates list has a signal strength difference greater than the handoff threshold associated with that cell unit:
 identifying that cell unit as the second cell unit;
 generating a handoff command to handoff the communication link from the first cell unit to the second cell unit;
 removing the second cell unit from the candidates list;
 removing the second cell unit from the neighbors list; and
 placing the first cell unit in the neighbors list.

6. The method of claim 1 wherein the step of creating a neighbors list comprises creating a list of at least four cell units which have recently supported a communication link with the mobile phone.

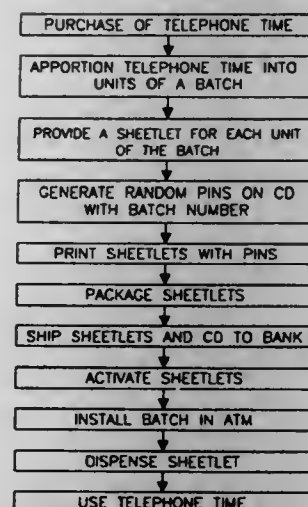
5,673,308
PERSONAL PHONE NUMBER SYSTEM
 Hamid Akhavan, Freehold, N.J., assignor to Bell Atlantic Network Services, Inc., Arlington, Va.
 Filed Oct. 12, 1994, Ser. No. 321,675
 Int. Cl.⁶ H04Q 7/38
 U.S. Cl. 379-61 43 Claims



1. A Personal Communication System (PCS) comprising:
 a cellular telephone network having cellular call forwarding capabilities to a landline telephone communication network;
 a base station connected to the landline telephone communication network, said base station including:
 a transceiver for communicating with a portable subscriber station over cordless telephone frequencies,
 a means for detecting when a selected portable station is within range of said transceiver, and
 a means for requesting activation of the cellular call forwarding by the cellular telephone network when the selected portable station comes within range of said transceiver;
 at least one portable subscriber station having a personal phone number (PPN), said portable subscriber station including:
 a first transceiver for communicating with said base station over cordless telephone frequencies, and
 a second transceiver for communicating with said cellular telephone network;
 wherein, when the subscriber station comes within range of the base station transceiver operating at cordless frequencies, the base station initiates a wireless transmission causing a cellular call forwarding message to be transmitted over a cellular signaling channel to activate call forwarding of incoming calls for the PPN via a landline to the base station.

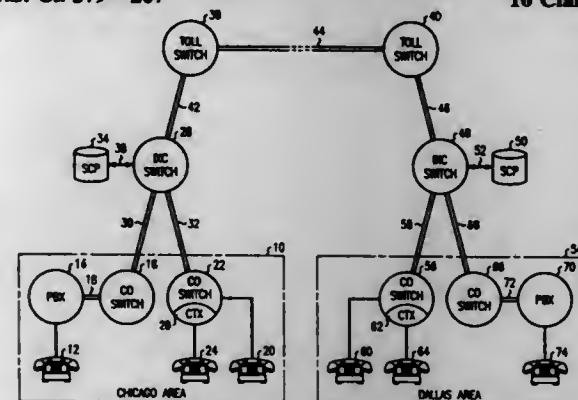
5,673,309
ATM PHONE CARD SYSTEM
 Eugene A. Woynoski, Pasadena, Calif.; Carol A. Caldwell, Kirtland Hills, Ohio; Wayne A. Beeder, Arlington, and George W. Jensen, Grand Prairie, both of Tex., assignors to Avery Dennison Corporation, Pasadena, Calif.; GWJ Company, and WABK Corporation, both of Grand Prairie, Tex.
 Filed Aug. 1, 1996, Ser. No. 690,932
 Int. Cl.⁶ H04M 15/00; G06F 7/08; G06G 7/48; G07F 7/08
 U.S. Cl. 379-144 12 Claims

1. A method of providing telephone time from automatic teller machines, which comprises in combination:
 (a) ordering a predetermined amount of phone time for a telephone service;
 (b) apportioning the ordered phone time into a designated number of currency sized automatic teller machines dispensable sheetlets forming a group;
 (c) printing on each sheetlet of the group a random generated personal identification numbers correlated with a predetermined amount of telephone time;



(d) assigning a batch number to the group;
 (e) packaging the PIN containing sheetlets of the group of sheetlets for installation in an automatic teller machine;
 (f) supplying the group of sheetlets and listed PINS of sheetlets and batch number for such sheetlets to an installer of sheetlets in the automatic teller machine and supplier of telephone services;
 (g) activating and installing the sheetlets in an automatic teller machine (ATM),
 (h) dispensing a sheetlet from the ATM upon entry of machine acceptable command of a sheetlet purchaser;
 (i) initiating the consumption of purchased telephone time with identity of the PIN to the supplier of telephone service; and
 (j) terminating the use of the dispense card with the consumption of the purchased telephone time.

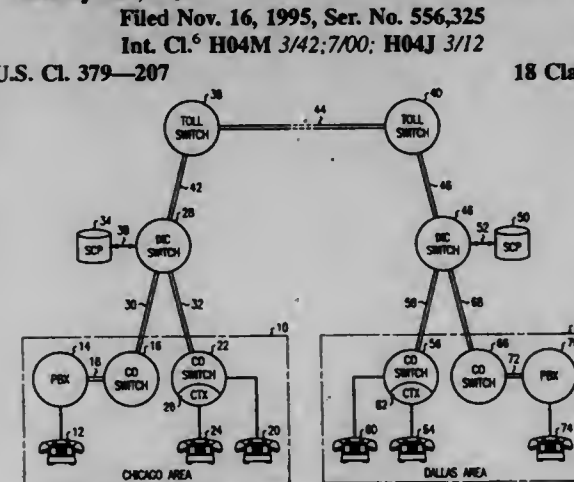
5,673,310
HIERARCHICAL SWITCH SUPPORT OF SERVICES FOR SUBSCRIBERS OF SEPARATE CENTREX EXCHANGES
 Donald Lee Andruska, Glen Ellyn, and Liane Toy Tsai, Wheaton, both of Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.
 Filed Nov. 16, 1995, Ser. No. 556,324
 Int. Cl.⁶ H04M 3/42; 7/00; H04J 3/12
 U.S. Cl. 379-207 16 Claims



1. In a telecommunication network having a first independent Centrex exchange (CTX) supported by a first telecommunication switch, first subscribers are connected to the first CTX, a method for handling call requests made by first subscribers comprising the steps of:
 receiving a first signal from the first switch at a second telecommunication switch disposed at a hierarchical level above the first switch, the first signal indicating to the second switch that call origination services are to be provided directly by the second switch for one of the first subscribers;

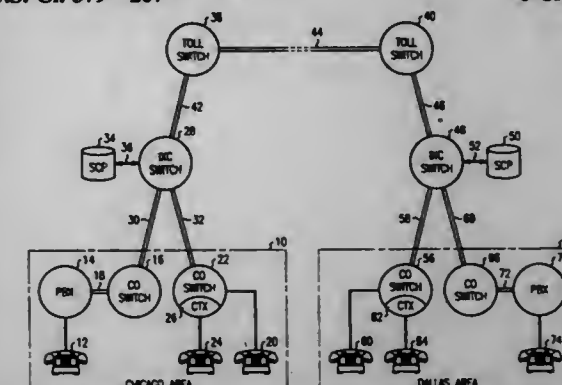
receiving a second signal at the second switch from the first CTX indicative of the identification of the one first subscriber; locating a record in a database coupled to the second switch in response to receiving the second signal, the location of the record being based on the identification of the one first subscriber as defined by the second signal;
 identifying a group affiliation parameter stored in said record, the group affiliation parameter defining one organization of which the one first subscriber is a member;
 receiving third signals at the second switch generated by the one first subscriber, the third signals conveying a call destination number of a second subscriber not served by the first CTX; the second switch transmitting a call setup message to a third switch associated with the second subscriber, the call setup message based on the group affiliation parameter so that the first subscriber's membership in the one organization can be used in further call processing.

5,673,311
HIERARCHICAL SWITCH SUPPORT OF SERVICES FOR SUBSCRIBERS DIRECTLY SERVED BY LOCAL EXCHANGE CARRIERS
 Donald Lee Andruska, Glen Ellyn, and Liane Toy Tsai, Wheaton, both of Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.
 Filed Nov. 16, 1995, Ser. No. 556,325
 Int. Cl.⁶ H04M 3/42; 7/00; H04J 3/12
 U.S. Cl. 379-207 18 Claims



1. In a telecommunication network having a first local exchange carrier (LEC) switch that provides service to first subscribers, a method for providing features for first subscribers making calls to second subscribers, the method comprising the steps of:
 receiving a first signal from the first switch at a second telecommunication switch disposed at a hierarchical level above the first switch, the first signal indicating to the second switch that call origination services are to be provided directly by the second switch for one of the first subscribers;
 receiving a second signal at the second switch via the first switch indicative of the identification of the one first subscriber;
 locating a record in a database coupled to the second switch in response to receiving the second signal, the location of the record being based on the identification of the one first subscriber as defined by the second signal;
 identifying a group affiliation parameter stored in said record, the group affiliation parameter defining one organization of which the one first subscriber is a member;
 receiving third signals at the second switch generated by the one first subscriber, the third signals conveying a call destination number of a second subscriber;
 the second switch transmitting a call setup message to a third switch associated with the second subscriber, the call setup message based on the group affiliation parameter so that the first subscriber's membership in the one organization can be used in further call processing.

5,673,312
CONTROL OF CALL FEATURES PROVIDED TO A SUBSCRIBER BY A HIERARCHICAL TELECOMMUNICATION SWITCH
 Donald Lee Andruska, Glen Ellyn, and Liane Toy Tsai, Wheaton, both of Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.
 Continuation of Ser. No. 556,323, Nov. 16, 1995, Pat. No. 5,574,780. This application Jul. 26, 1996, Ser. No. 686,893
 Int. Cl.⁶ H04M 3/42; 15/00; 7/00
 U.S. Cl. 379-207 8 Claims



1. In a telecommunication network that supports subscribers, a method for controlling features made available to a subscriber comprising the steps of:
 recognizing a request for call origination by a calling party on an associated communication line;
 locating a first record in a database based on the identification of the calling party's line;
 determining a first set of predetermined call features based on information contained in the first record;
 receiving a personal identification number (PIN) entered by the calling party via said associated communication line;
 locating a second record based on the PIN in the database, said second record independent of said first record;
 determining a second set of predetermined call features based on information contained in the second record;
 determining a third set of call features that is made available to the calling party based on call features contained in said first and second sets of features, whereby call features associated with a particular line can be supplemented by other call features associated with the PIN of a particular subscriber.

5,673,313
TELEPHONE SET OF DISTINCTIVE RINGING TYPE WHEREIN PATTERN OF TELEPHONE NUMBER CALL SIGNAL IS REGISTERED FOR DETERMINATION OF TELEPHONE NUMBER BEING CALLED
 Tokunori Kato, Ichinomiya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
 Filed Nov. 28, 1994, Ser. No. 348,965
 Claims priority, application Japan, Dec. 7, 1993, 5-306901; Dec. 7, 1993, 5-306903
 Int. Cl.⁶ H04M 1/00 13 Claims

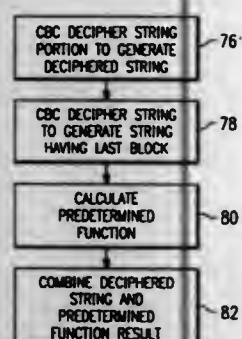
1. A telephone set of distinctive ringing type of a called party capable of effecting telephone communication with a remote calling party calling one of a plurality of telephone numbers of said telephone set, said plurality of telephone numbers being called by respective call signals having respective different patterns, said telephone set comprising:
 a first pattern data memory for storing pattern data representative of the patterns of said call signals which call said plurality of telephone numbers;
 a second pattern data memory for storing the pattern data representative of the pattern of each of at least one of said call signals, which pattern data are used to determine the telephone number being called by a currently received call signal;

5,673,319
BLOCK CIPHER MODE OF OPERATION FOR SECURE, LENGTH-PRESERVING ENCRYPTION
 Mihir Bellare, New York, N.Y., and Phillip W. Rogaway, Davis, Calif., assignors to International Business Machines Corporation, Austin, Tex.

Filed Feb. 6, 1995, Ser. No. 384,152
 Int. Cl.⁶ H04L 9/08

U.S. Cl. 380—25

20 Claims



15. A method, using first and second keys and a block cipher, to decrypt a ciphertext string into a plaintext string, the ciphertext string comprising a CBC message authentication code and an enciphered string, comprising the steps of:

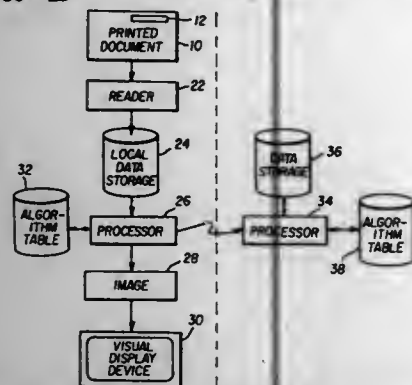
- decrypting by cipher block chaining the enciphered string using the second key and the CBC message authentication code as an initialization vector to generate a deciphered string;
- cipher block chaining the deciphered string using the first key and a null initialization vector to generate a string having a last block;
- calculating a predetermined function of the last block and an inverse of the block cipher under the first key at the CBC message authentication code; and
- combining the deciphered string and a result of the predetermined function to generate the plaintext string.

5,673,320
METHOD AND APPARATUS FOR IMAGE-BASED VALIDATIONS OF PRINTED DOCUMENTS
 Lawrence A. Ray, and Richard N. Elson, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 23, 1995, Ser. No. 392,713
 Int. Cl.⁶ H04L 9/00

U.S. Cl. 380—25

18 Claims



- Printed document validation system comprising: a plurality of printed documents each having data recorded thereon; in a first section, image data representing the image of at least one authorized user, and in a second section, document identification data; a reader means for reading the data recorded from a selected one of the plurality of printed documents; means for displaying the image of at least one authorized user; encryption algorithm means for encrypting portions of the image data read from the selected document by said reader means;

a first processor means for encrypting the portions of the image data read from the selected document by said reader means using said encryption algorithm means; a storage means having stored therein data corresponding to the data recorded on said plurality of printed documents; and a second processor means for receiving the second section, document identification data, and at least a portion of the encrypted image data from said first processor, and accessing the image data associated with said selected printed document from said storage means, and for processing said associated image data to form second processor encrypted data, and associated image data and portions of received data to form for comparing portion of the received encrypted data with said second processor encryption data to provide a validation signal when a correspondence is detected.

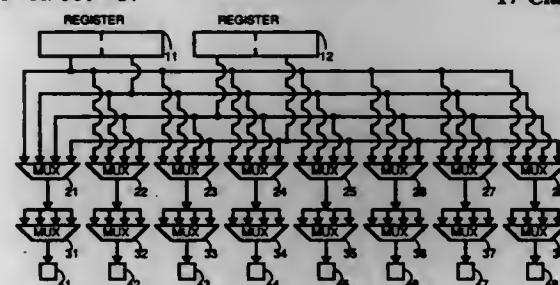
5,673,321
EFFICIENT SELECTION AND MIXING OF MULTIPLE SUB-WORD ITEMS PACKED INTO TWO OR MORE COMPUTER WORDS

Ruby Bei-Loh Lee, Los Altos Hills, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 29, 1995, Ser. No. 496,487
 Int. Cl.⁶ G06F 9/315

U.S. Cl. 380—37

17 Claims



- A computing system comprising: a first doubleword register; a second doubleword register; a third doubleword register; mix circuitry, coupled to the first doubleword register, the second doubleword register and the third doubleword register, for, in response to a mix half-word left instruction, concatenating a first half-word of the first doubleword register, a first half-word of the second doubleword register, a third half-word of the first doubleword register and a third half-word of the second doubleword register and placing a result in the third doubleword register.

5,673,322
SYSTEM AND METHOD FOR PROVIDING PROTOCOL TRANSLATION AND FILTERING TO ACCESS THE WORLD WIDE WEB FROM WIRELESS OR LOW-BANDWIDTH NETWORKS

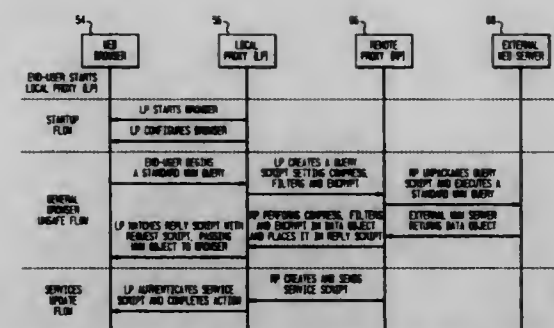
David Mathew Pepe, Middletown; Lisa B. Blitzer, Manalapan; James Joseph Brockman, Perrineville; William Cruz, Eatontown; Dwight Omar Hakim, Matawan; Richard Reid Hovey, Somerville, all of N.J.; Michael Kramer, Bronx, N.Y.; Dawn Diane Petr, Green Brook, N.J.; Josefa Ramarosan, Freehold, N.J.; Gerardo Ramirez, Bridgewater, N.J.; Yang-Wei Wang, Howell, N.J., and Robert G. White, Morristown, N.J., assignors to Bell Communications Research, Inc., Morristown, N.J.

Filed Mar. 22, 1996, Ser. No. 614,612
 Int. Cl.⁶ H04L 9/00

U.S. Cl. 380—49

29 Claims

- A method for communicating between a host computer with a client application in a first location and a server application in a second location over a communication path, said method comprising: placing a local proxy at said first location;



placing a remote proxy at said second location in communication with said local proxy through said communication path; initiating a query on said client application and sending said query to said local proxy using an application layer protocol; converting said application layer protocol of said query into a transport protocol; transmitting said query in said transport protocol over said communication path from said local proxy to said remote proxy; and converting said transport protocol of the transmitted query into an application layer protocol for execution of said query on said server application.

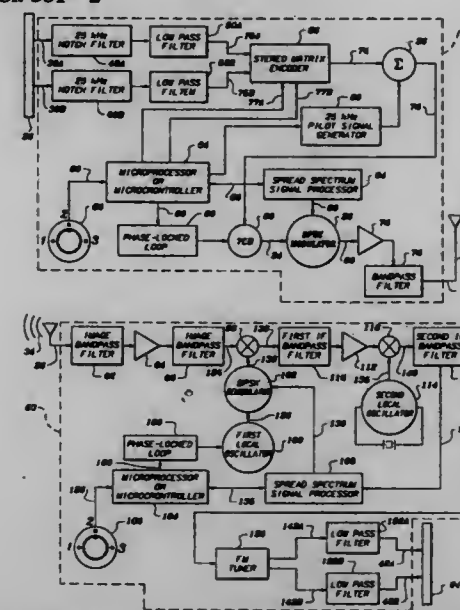
5,673,323
ANALOG SPREAD SPECTRUM WIRELESS SPEAKER SYSTEM

Larry Schotz, Mequon; William R. Steinike, Grafton, and Mark R. Wolski, Glendale, all of Wis., assignors to L. S. Research, Inc., Cedarburg, Wis.

Filed Apr. 12, 1995, Ser. No. 421,347
 Int. Cl.⁶ H04H 5/00

U.S. Cl. 381—2

1 Claim



- A high fidelity, wireless transmission, audio system for use with an audio source, the source providing a first electrical input signal and a second electrical input signal, said audio system arranged for wirelessly transmitting over the air an electrical signal representing said audio input signals, said audio system comprising: a transmitter arranged to be coupled to an audio source and comprising: multiplexing means for converting said first and second electrical input signals into a first composite electrical signal; carrier signal producing means for producing a carrier signal of a predetermined frequency of at least 2.4 GHz;

spread spectrum modulation means for modulating said carrier signal with said first composite electrical signal to produce a modulated carrier signal;

first antenna means for emitting over the air said modulated carrier signal at a power level not exceeding approximately 1 watt; and

a receiver located within a range of approximately 10 to 300 feet (3 to 90 meters) of said transmitter and being coupled to an audio transducing device, said receiver receiving and demodulating said modulated carrier signal into a second composite signal, said receiver comprising:

second antenna means for receiving said modulated carrier signal radiated from said first antenna;

first local oscillator means for generating a first local oscillator signal to be mixed with said modulated carrier signal;

spread spectrum demodulation means for demodulating said modulated carrier signal by mixing said first local oscillator signal with said modulated carrier signal to produce said second composite signal;

demultiplexing means for converting said second composite signal into a first electrical output signal and a second electrical output signal;

said spread spectrum demodulation means further comprising a first mixer for mixing said first local oscillator signal with said modulated carrier signal to generate said first intermediate frequency signal; said spread spectrum demodulation means further comprising:

a second local oscillator of a constant frequency which produces a second local oscillator signal; and

a second mixer for mixing said second local oscillator signal with said first intermediate frequency signal to generate a second intermediate frequency signal.

5,673,324
RADIO RECEIVER CIRCUIT FOR DERIVING AT LEAST ONE RECEPTION QUALITY SIGNAL

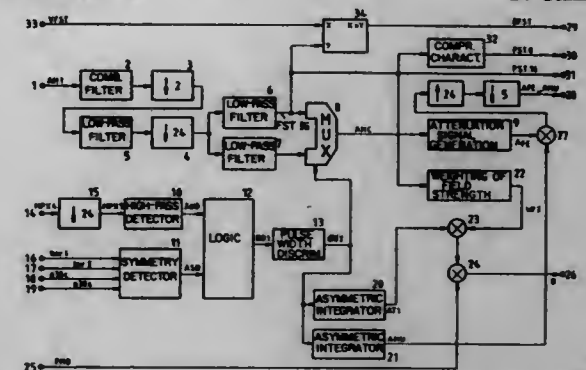
Jürgen Kässer, Dieckholzen, and Matthias Herrmann, Hildesheim, both of Germany, assignors to Blanpunkt-Werke GmbH, Hildesheim, Germany

Filed Mar. 21, 1994, Ser. No. 215,186
 Claims priority, application Germany, Mar. 24, 1993, 43 09 518.6

Int. Cl.⁶ H04H 5/00

U.S. Cl. 381—4

14 Claims



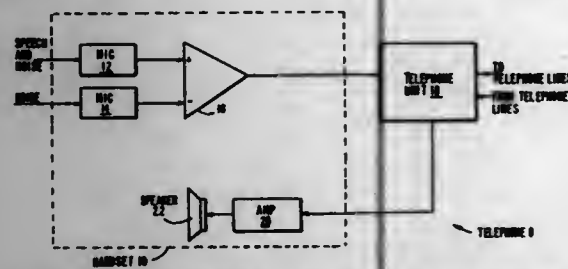
- A radio receiver circuit for obtaining at least one quality signal which is dependent on the quality of a received signal, in which receiver circuit the received signal is demodulated and provides a demodulated signal, comprising: means for deriving a first auxiliary signal (FTS16), which is dependent on the field strength of the received signal; means for deriving a second auxiliary signal from the demodulated signal, and means for combining the first and second auxiliary signals to generate the quality signal; and wherein the first auxiliary signal (FTS16), to generate a third auxiliary signal which is dependent on the field strength, is weighted according to a weighting curve whose slope is

steeper for small values of the first auxiliary signal (FTS16) than for larger values.

5,673,325
NOISE CANCELLATION APPARATUS
 Douglas Andrea, Old Brookville, and Martin Topf, Brooklyn, both of N.Y., assignors to Andrea Electronics Corporation, Long Island City, N.Y.
 Continuation-in-part of Ser. No. 968,180, Oct. 29, 1992, Pat. No. 5,381,473. This application Nov. 14, 1994, Ser. No. 339,126

The portion of the term of this patent subsequent to Oct. 29, 2012, has been disclaimed.
 Int. Cl.⁶ H04R 3/00

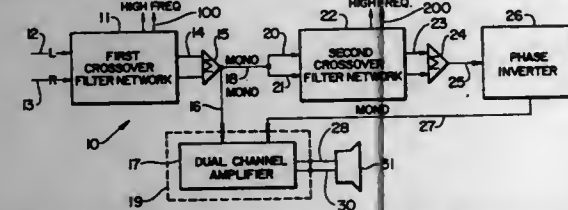
U.S. Cl. 381—92 13 Claims



1. Noise reduction apparatus comprising: a housing having first omnidirectional microphone means for receiving a first acoustic sound composed of speech originating from an operator operating said apparatus and background noise, and for converting said first acoustic sound to a first signal, and second omnidirectional microphone means arranged in close proximity up to about 0.5 inches to thereby act as a dipole at a predetermined angle ϕ with respect to said first omnidirectional microphone means for receiving a second acoustic sound composed of substantially said background noise and for converting said second acoustic sound to a second signal whereas the first omnidirectional microphone means and the second omnidirectional microphone means are directly connected without any intermediate circuitry to a means for subtracting; and the means for subtracting said second signal from said first signal so as to obtain a signal representing substantially said speech.

5,673,326
AUDIO BASS SPEAKER DRIVER CIRCUIT
 Barry S. Goldfarb, Deland, Fla., assignor to BSG Laboratories, Deland, Fla.
 Continuation-in-part of Ser. No. 875,399, Apr. 29, 1992, abandoned. This application Mar. 27, 1995, Ser. No. 410,677.
 Int. Cl.⁶ H03G 5/00

U.S. Cl. 381—99 24 Claims



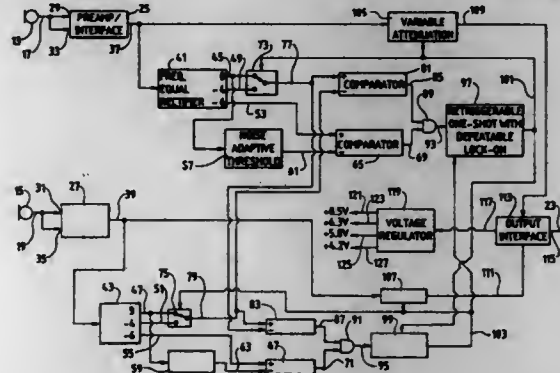
1. An audio loudspeaker driver circuit for bass frequencies, said circuit comprising:
 a first filter network having a first input for receiving a first audio signal, and having a first output at which a first output signal is produced, wherein said first filter network produces the first output signal by attenuating frequencies in the first input signal that are above a first cutoff frequency;
 a second filter network having a second input for receiving a second audio signal, and having a second output at which a second output signal is produced, wherein said second filter

network produces the second output signal by attenuating frequencies in the second input signal that are above a second cutoff frequency which is lower than the first cutoff frequency;

an audio output stage having a first input terminal coupled to the first output of said first filter network, a second input terminal, and an output terminal for connection to a loudspeaker, said audio output stage including an amplifier coupled between the first and second input terminals and the output terminal; and a signal phase inverter connected in series with said second filter between the first output of first filter network and the second input terminal of said audio output stage.

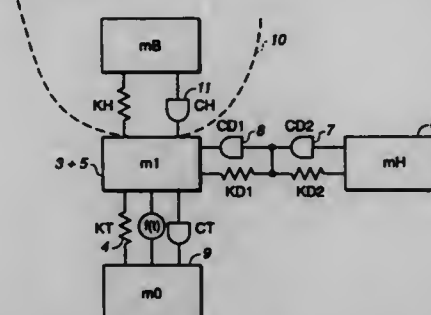
5,673,327
MICROPHONE MIXER
 Stephen D. Julstrom, 6608 N. Damen Ave., Chicago, Ill. 60645-5102
 Filed Mar. 4, 1996, Ser. No. 610,440
 Int. Cl.⁶ H04B 1/00

U.S. Cl. 381—119 15 Claims



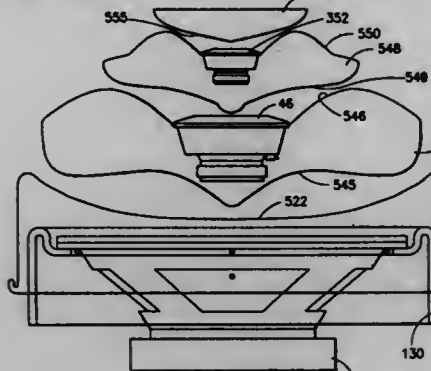
1. A microphone system comprising:
 a plurality of microphones, each of said microphones generating an electrical microphone signal carrying speech information;
 gating means receiving each said microphone signal and gating each said microphone signal to gate ON its associated microphone in response to gating signals, said gating means including:
 rectifier means for monitoring said microphone signals and producing microphone signal level representations of each of said microphone signals;
 scaling means for monitoring said microphone signal level representations and producing scaled microphone signal level representations at one scaled level for microphone signals associated with gated ON microphones and at a different scaled level for microphone signals associated with gated OFF microphones;
 comparison means for directly comparing said scaled microphone signal level representations and producing trigger signals associated with said microphones;
 gating signal generation means responsive to said trigger signals for generating gating signals of a predetermined, non-zero time duration;
 gate means, responsive to said gating signals, for gating ON said microphones associated with said trigger signals.

5,673,328
BONE CONDUCTING HEARING AID
 Rudolf Wandl, Vienna, and Kurt Schermann, Oberwart, both of Austria, assignors to Viennatone GmbH, Vienna, Austria
 Continuation of Ser. No. 127,823, Sep. 27, 1993, abandoned.
 This application May 2, 1995, Ser. No. 432,762
 Claims priority, application Austria, Oct. 7, 1992, 1977/92
 Int. Cl.⁶ H04R 25/00
 U.S. Cl. 381—151 5 Claims



1. A bone conducting hearing aid incorporated in an eyeglass frame, comprising:
 (a) a housing adapted to be pressed against a head of a user,
 (b) a magnetic system held in the hearing aid housing, the magnetic system including
 (1) a permanent magnet,
 (2) a coil,
 (3) an armature of a soft magnetic material and
 (4) a spring holding the armature,
 (c) a conductor button arranged to move with the armature, the conductor button being shaped to be brought into contact with the mastoid bone of the user's head,
 (d) a support made of an elastically deformable material, having a predetermined elastic constant and
 (e) a support spring for the conductor button, said elastically deformable support positioned between the housing and the support spring; said support holding the support spring on the hearing aid housing and the support spring having an elastic constant not exceeding 0.4 N/cm.

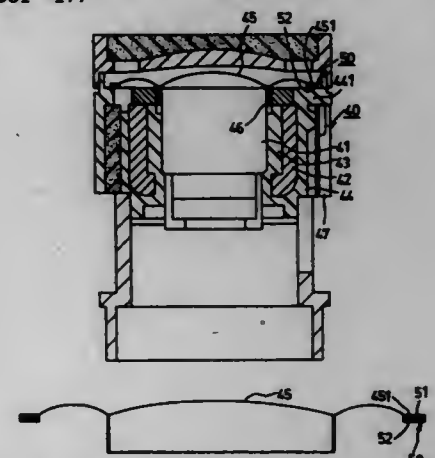
5,673,329
OMNI-DIRECTIONAL LOUDSPEAKER SYSTEM
 David Wiener, 10 Iron Canyon Ct., Park City, Utah 84060
 Filed Mar. 23, 1995, Ser. No. 410,142
 Int. Cl.⁶ H04R 25/00
 U.S. Cl. 381—160 31 Claims



23. A loudspeaker system comprising:
 a) a first flexible compressible tube having a first and second end;
 b) a first loudspeaker mounted on said first end of said tube such that the cone of said first loudspeaker faces away from said tube;

c) a first sound dispersion element having a first continuous surface which is partially convex on an outer portion thereof and partially concave on an inner portion thereof, said first sound dispersion element being coupled to said first end of said tube such that said first surface faces said cone of said first loudspeaker; and
 d) at least one tweeter coupled to said first sound dispersion element such that the cone of said tweeter faces away from said tube.

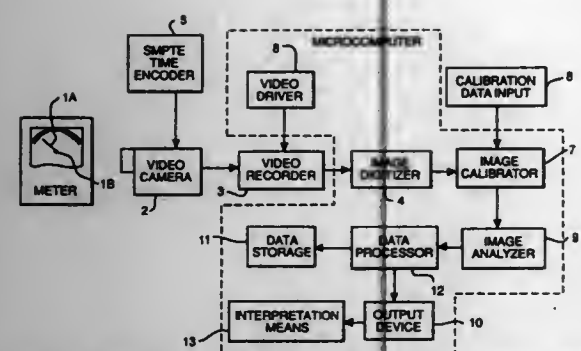
5,673,330
MICROPHONE TRANSDUCER WITH NOISE REDUCING MEMBER
 Ching-Lu Chang, No. 39, Lane 29, Shih-Chia Rd., Tung Dist., Taichung City, Taiwan
 Filed Nov. 8, 1995, Ser. No. 555,169
 Int. Cl.⁶ H04R 25/00
 U.S. Cl. 381—177 5 Claims



1. A handheld dynamic microphone including a housing, a microphone transducer disposed within said housing and including a magnet, a yoke disposed around the magnet, an inner insulator provided between the magnet and the yoke, an outer insulator provided around the yoke, a voice coil provided around an upper portion of the magnet, and a diaphragm having a central convex portion and an annular convex portion which encircles the central convex portion, the central convex portion having a periphery which is attached to the voice coil, the annular convex portion having a periphery which is attached to the outer insulator, wherein the improvement comprises:
 a noise reducing member for reducing noise signals generated by friction between the hand of a user of said microphone and said housing of said microphone, said noise reducing member including a rigid annular mounting plate having first and second sides, said first side being attached to the periphery of the annular convex portion of the diaphragm, and a first flexible cushioning ring having a top side attached to said second side of said mounting plate and a bottom side attached to the outer insulator.

5,673,331
METHOD AND APPARATUS FOR READING METERS FROM A VIDEO IMAGE
 Trevor J. Lewis, Irwin, and Jeffrey J. Ferguson, North Huntingdon, both of Pa., assignors to United States Department of Energy, Washington, D.C.
 Filed Jun. 3, 1995, Ser. No. 462,339
 Int. Cl.⁶ G06K 9/00

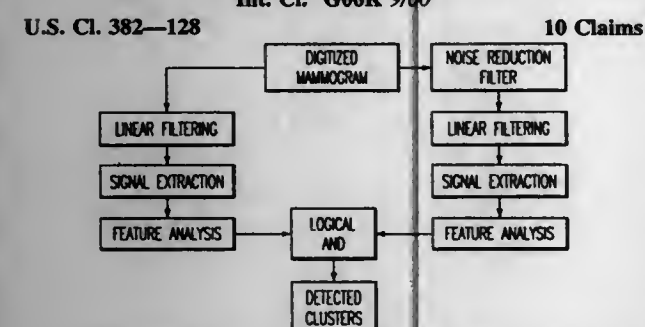
U.S. Cl. 382—100 14 Claims
 1. A system for acquiring data about an environment from at least one meter which employs an indicator that changes in



response to fluctuations of at least one measurable parameter of the environment, said system comprising:

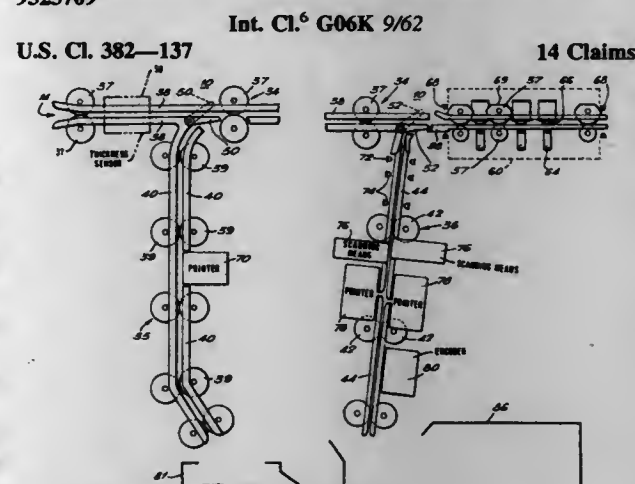
- a camera means positioned relative to at least one meter including at least one indicator, for generating a video signal of said at least one meter;
- means for associating a time reference signal with said video signal;
- a data interface means for digitizing the video signal generated by said camera means;
- calibration means for calibrating each region of the digitized video signal which corresponds to the indicator of the at least one meter;
- analysis means for determining the value indicated by said indicator; and
- output means for generating a meter reading from the value indicated by said meter indicator as determined by said analysis means.

5,673,332
COMPUTER-AIDED METHOD FOR IMAGE FEATURE ANALYSIS AND DIAGNOSIS IN MAMMOGRAPHY
 Robert M. Nishikawa, Chicago; Takehiro Ema; Hiroyuki Yoshida, both of Westmont, and Kunio Doi, Willowbrook, all of Ill., assignors to Arch Development Corporation, Chicago, Ill.
 Continuation of Ser. No. 235,530, Apr. 29, 1994, abandoned.
 This application Aug. 8, 1996, Ser. No. 693,502
 Int. Cl.⁶ G06K 9/00



1. A method for automated detection of an abnormal anatomic region, comprising:
 - obtaining a digital image of an object including said anatomic region;
 - subjecting said digital image to noise reduction filtering, comprising;
 - subjecting said digital image to wavelet transformation including decomposing said digital image to the wavelet domain and reconstructing said digital image based on second and third level components in the decomposed digital image; and
 - performing predetermined signal extraction and feature analysis routines on the reconstructed digital image to identify locations of candidate abnormal regions.

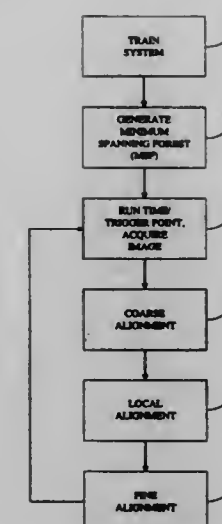
5,673,333
DEPOSITORY APPARATUS FOR ENVELOPES AND SINGLE SHEETS
 Adam J. L. Johnston, Dundee, Scotland, assignor to NCR Corporation, Dayton, Ohio
 Filed Sep. 23, 1994, Ser. No. 311,244
 Claims priority, application United Kingdom, Nov. 15, 1993, 9323709



1. A depository apparatus comprising:
 - a user interface having a common entry slot therein for receiving deposit items comprising envelopes and single sheet financial documents;
 - thickness sensing means for providing an output indicative of whether a deposit item has at least a predetermined thickness;
 - a common transport path for receiving deposit items comprising envelopes and single sheet financial documents;
 - an envelope path for receiving deposit items which have been determined by the thickness sensing means to have thickness at least the predetermined thickness;
 - a document path for receiving deposit items which have been determined by the thickness sensing means to have thickness less than the predetermined thickness;
 - transport means and diverter means for (i) transporting a deposit item along the common transport path and thereafter routing the deposit item into the envelope path for further processing as an envelope if the deposit item has at least the predetermined thickness, or for (ii) transporting the deposit item into the document path for further processing as a financial document if the deposit item has less than the predetermined thickness;
 - imaging means located along the document path for generating a digital image of a deposit item routed into the document path; and
 - processing means for processing the digital image to determine whether the deposit item is a financial document of a predetermined type, the deposit item being returned from the document path to the common path if the processing means fails to determine that the deposit item is a document of the predetermined type.

5,673,334
METHOD AND APPARATUS FOR INSPECTION OF CHARACTERISTICS ON NON-RIGID PACKAGES
 Sanjay Nichani, Newton, and David Li, West Roxbury, both of Mass., assignors to Cognex Corporation, Natick, Mass.
 Filed Nov. 30, 1995, Ser. No. 565,500
 Int. Cl.⁶ G06K 9/00

1. A method of implementing a machine vision system to locate and inspect at least one alignment feature and at least two characteristics of interest on a surface of an object, said method comprising the steps of:



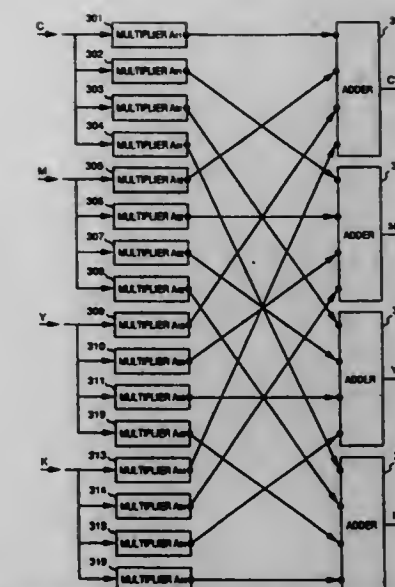
storing information related to a model of said object, said at least one alignment feature, and each of said at least two characteristics of interest in memory accessible to said vision system, said information related to said model of said object including an image of said object, said information related to said at least one alignment feature including ideal position information of said at least one alignment feature on said model of said object, and said information related to said at least two characteristics of interest including an ideal position of each of said at least two characteristics of interest on said model of said object;

inter-relating in said memory said at least one alignment feature and each of said at least two characteristics of interest to effect an order of locating and inspecting each of said at least two characteristics of interest by reference to a respective nearest one of said at least two characteristics of interest, said order requiring that a first one of said at least two characteristics of interest located nearest said at least one alignment point is located first in said order and a second one of said at least two characteristics of interest located nearest said first one is located second in said order; and

sequentially locating with said machine vision system each of said at least two characteristics of interest on said surface of said object by determining an actual location of said at least one alignment feature, and determining an actual location of said first one of said at least two characteristics of interest as a function of said ideal position information of said at least one alignment feature and said actual location of said at least one alignment feature, and determining an actual location of said second one of said at least two characteristics of interest as a function of said ideal position of said first one of said at least two characteristics of interest and said actual location of said first one of said at least two characteristics of interest.

5,673,335
COLOR IMAGE PROCESSING METHOD AND APPARATUS THEREFOR
 Ken-ichi Ohta, Kawasaki, and Akihiro Usami, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Continuation of Ser. No. 111,403, Aug. 25, 1993, abandoned.
 This application Oct. 30, 1995, Ser. No. 550,520
 Claims priority, application Japan, Aug. 26, 1992, 4-226856; Jan. 8, 1993, 5-001688

1. A color image processing apparatus in which first color-separated image signals, which represent a color, are converted to

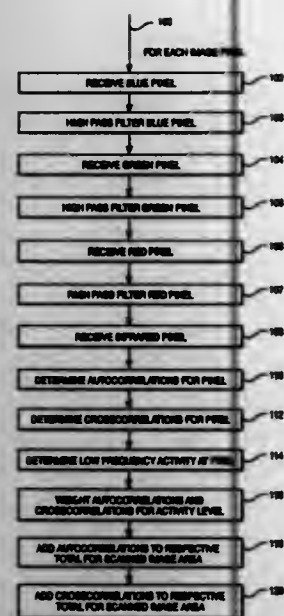


second color-separated image signals and a black signal, which together represent the same color, said color image processing apparatus comprising:

- input means for inputting first color-separated image signals and a minimum-value signal extracted from the first color-separated image signals;
 - calculating means for (i) performing a matrix calculation on both the first color-separated image signals and the minimum-value signal, the matrix calculation using prescribed correction coefficients, and (ii) obtaining second color-separated image signals and a black signal; and
 - output means for outputting the second color-separated image signals and the black signal obtained by said calculating means,
- wherein the prescribed correction coefficients are set so that the second color-separated image signals obtained by said calculating means are substantially 0 when the color represented by the first color-separated image signals is an achromatic color.

5,673,336
AUTOMATIC CROSS COLOR ELIMINATION
 Albert Durr Edgar, Austin, Tex., and James Matthews Kasson, Menlo Park, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
 Continuation of Ser. No. 173,798, Dec. 23, 1993, Pat. No. 5,509,086. This application Jan. 11, 1996, Ser. No. 584,870
 Int. Cl.⁶ G06K 9/00

1. A computer program product in a computer readable medium for correcting for the effects of crosscolor crosstalk between colors of a color image stored in an image storage medium and an imaging device used to scan the color image into a plurality of scanned images each corresponding to a color of the color image, comprising:
 - means for identifying noise patterns in the plurality of scanned images;
 - means for calculating crosscolor correlations between the identified noise patterns in the plurality of scanned images; and



means for correcting for color crosstalk in each of the scanned images according to the crosscolor correlations.

5,673,337
CHARACTER RECOGNITION
 Girolamo Gallo, Santa Rufina; Cristina Lattaro, Rieti, and Giuseppe Savarese, Napoli, all of Italy, assignors to Texas Instruments Incorporated, Dallas, Tex.
 Filed May 30, 1995, Ser. No. 454,450
 Claims priority, application Italy, May 30, 1994, RM94A0338

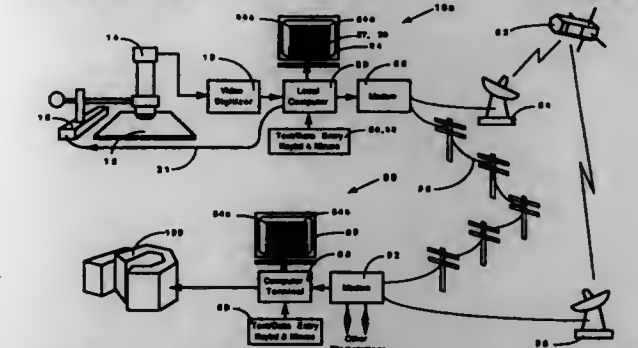
Int. Cl.⁶ G06K 9/00
 U.S. Cl. 382—187 21 Claims



1. A method for recognizing a script written character comprising the steps of entering the character using character entering means;
 digitizing the character;
 storing the digitized character;
 extracting topological features and vector features of said character;
 extracting microfeatures of the character;
 determining dimension of the character;
 comparing the topological and vector features, microfeatures and dimensions of the character with a set of reference features equivalent thereto and stored in a memory, each of the set corresponding to a specific character; and
 performing a logic process to determine which of the set of reference features most closely corresponds to the topological features, the vector features, the microfeatures and the dimensions of the digitized character, thereby recognizing the script written character.

5,673,338
SYSTEM FOR VERIFICATION OF UNIQUE ITEMS
 Stuart Denenberg, San Francisco; Robert Petersen, Dublin; John Densberger, Livermore, and John J. Christensen, Manteca, all of Calif., assignors to Verification Technologies, Inc., San Francisco, Calif.
 Continuation of Ser. No. 75,149, Jun. 10, 1993, Pat. No. 5,521,984. This application Dec. 22, 1995, Ser. No. 577,200
 Int. Cl.⁶ G06K 9/00

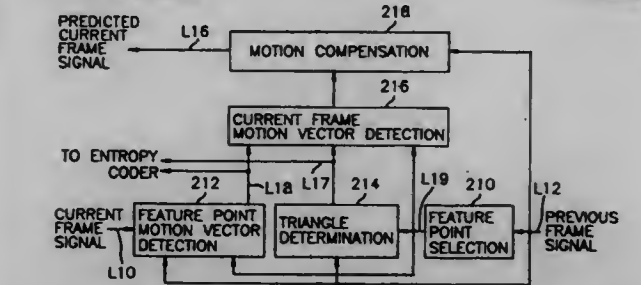
U.S. Cl. 382—209 11 Claims



1. A method for registration and verification of items, to confirm whether an item is a particular unique item previously registered, comprising:
 providing a central data storage location and a plurality of local stations,
 providing a data communication link between one of said local stations and the central data storage location,
 initially performing a registration procedure on a particular unique item at said one local station by
 (1) placing the item on optical equipment enabling microscopic viewing at the local station and capable of recording microscopic images from the item,
 (2) selecting a microsite for imaging on the item by microscopically viewing the item and selecting the microsite,
 (3) recording at a microscopic level of magnification an image of a unique pattern of features at the selected microsite of the item, said unique pattern of features being intrinsic to the item itself without any addition to the item, and
 (4) in conjunction with the recording step, producing and electronically storing, using a computer, data representing the microsite image and containing the unique pattern of features, in a form capable of use in reproducing the microsite image, along with data representing the location of the selected microsite, and along with data identifying the item being registered,
 providing security to prevent unauthorized duplication, alteration or use of the stored data,
 communicating said data to a computer at said central data storage location and storing said data at the central data storage location,
 at a time subsequent to the storing of the data at the central data storage location, performing a verification procedure by
 (a) recalling over a communication link the stored data from the central data storage location to a selected one of said local stations,
 (b) examining at said selected local station at a microscopic level of magnification a subject item purporting to be said particular unique item, at a site on the item corresponding in location to said selected microsite in accordance with the recalled data,
 (c) comparing the image of the microsite generated by local examination to the microsite image recalled from the central data storage location to determine whether the two microsite images match to a preselected degree, thereby determining whether the subject item is the same unique item, and
 (d) controlling the verification procedure from the central data storage location, at least to the extent of verifying said selected local station for access to the stored data before the stored data are recalled to the selected local station.

5,673,339
METHOD FOR ENCODING A VIDEO SIGNAL USING FEATURE POINT BASED MOTION ESTIMATION
 Min-Sup Lee, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea
 Filed Jul. 31, 1995, Ser. No. 509,313
 Claims priority, application Rep. of Korea, Mar. 20, 1995, 95-5858

Int. Cl.⁶ G06K 9/36; H04N 1/41
 U.S. Cl. 382—236 1 Claim

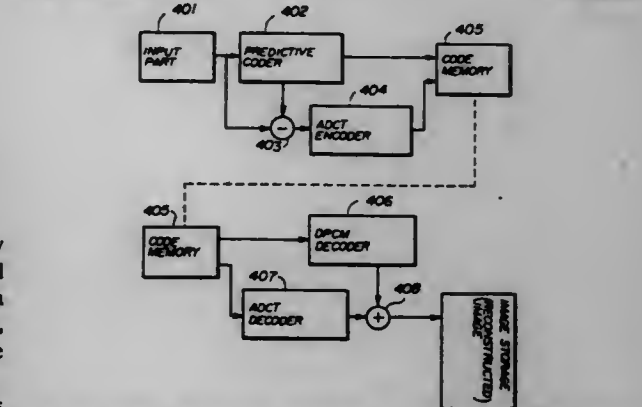


1. A method, for use in a video signal encoder, for effectively encoding a digital video signal based on a feature point-based motion estimation technique, said digital video signal having a plurality of frames including a current frame and a previous frame, by providing an accurately predicted current frame, comprising the steps of:
 (a) selecting a multiplicity of pixels in the previous frame as feature points and detecting a first set of motion vectors for the feature points between the current frame and the previous frame, said feature points representing motions of objects in the digital video signal;
 (b) defining non-overlapping quadrangles by line segments connecting the feature points;
 (c) defining horizontally split triangles by splitting each of the quadrangles in a horizontal direction and calculating a variance value of the pixel values for each of the horizontally split triangles and comparing the variance values for all the horizontally split triangles to select, as a first variance value, the smallest variance value;
 (d) defining vertically split triangles by splitting each of the quadrangles in a vertical direction and calculating the variance value of the pixel values for each of the vertically split triangles and comparing the variance values for all the vertically split triangles to select, as a second variance value, the smallest variance value;
 (e) comparing the first and the second variance values and selecting, as a third variance value, the smaller variance value and providing triangle information representing the split direction for the triangle having the third variance value;
 (f) determining a multiplicity of quasi-feature points on the current frame and a second set of motion vectors for the quasi-feature points based on the feature points and the motion vectors thereof;
 (g) defining non-overlapping quadrangles formed by line segments connecting the quasi-feature points, wherein four of the quasi-feature points corresponding to four feature points forming one quadrangle in the previous frame form one quadrangle in the current frame, and splitting, in response to the triangle information, each of the quadrangles into two triangles;
 (h) determining a predicted position on the previous frame for each pixel contained in each triangle of the current frame based on positional relationships between the quasi-feature points forming said each triangle and their corresponding feature points;
 (i) determining a third set of motion vectors for the pixels contained in each triangle of the current frame based on the displacement between a pixel position and its predicted position; and
 (j) providing a value of each of the pixels to be contained in the predicted current frame by using each of the second and the third sets of motion vectors.

5,673,340
IMAGE PROCESSING APPARATUS FOR PREVENTING OCCURRENCE OF MOIRE IN A RECONSTRUCTED IMAGE

Yoshimichi Kanda, Kawasaki, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan
 Continuation of Ser. No. 236,024, May 2, 1994, abandoned, which is a division of Ser. No. 937,088, Aug. 31, 1992, Pat. No. 5,333,211. This application Jun. 5, 1995, Ser. No. 463,355
 Claims priority, application Japan, Sep. 2, 1991, 3-246415
 Int. Cl.⁶ G06T 5/00

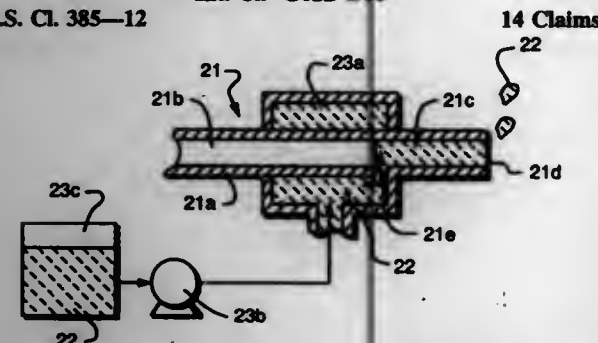
U.S. Cl. 382—250 9 Claims



8. An image processing apparatus for processing input image data including a plurality of blocks for image data compression and decompression, each block including respective data of a predetermined number of successive pixels, said successive pixels including a current pixel and a previous pixel, said image processing apparatus comprising:
 a) extraction means having:
 1) an input for inputting the input image data,
 2) a first output for outputting first image data from the input image data, said first image data including high-frequency components which are produced when the input image data is subjected to a discrete cosine transform, and
 3) a second output;
 b) first coding means, coupled to said first output of said extraction means, for coding said first image data output from said extraction means, so that encoded image data are produced from the first image data for each of the plurality of blocks of the input image data;
 c) subtraction means having:
 1) a first input for inputting the input image data,
 2) a second input coupled to said second output of said extraction means, and
 3) an output for outputting second image data for each of the plurality of blocks of the input image data, said second image data being produced by subtracting a sum of each of the first image data output from said first output of said extraction means and a previous value of the previous pixel output from said first output of said extraction means, from the input image data, said sum being output from said second output of said extraction means; and
 d) second coding means, coupled to said output of said subtraction means, and including:
 1) means for subjecting each block to a discrete cosine transform to convert the second image data output from said subtraction means into discrete cosine transform (DCT) coefficients, said DCT coefficients including no high-frequency components which are produced when the input image data is subjected to a discrete cosine transform; and
 2) means for quantizing the DCT coefficients by dividing the DCT coefficients by each of the quantization factors of a quantization table, so that quantized adaptive discrete cosine transform (ADCT) coefficients are output for each of the plurality of blocks of the input image data.

5,673,341
INTRA-LIQUID OPTICAL MEASURING SENSOR AND CONTAMINATION PREVENTING METHOD
 Hiroto Takesue, and Tsugio Shimono, both of Tokyo, Japan, assignors to NEC Corporation, Japan
 Filed Jan. 11, 1996, Ser. No. 584,777
 Claims priority, application Japan, Jan. 13, 1995, 7-003921; Aug. 25, 1995, 7-217331

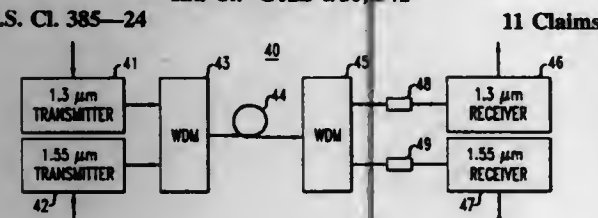
Int. Cl.⁶ G02B 6/00
 U.S. Cl. 385—12



1. An intra-liquid optical measuring sensor adapted for measuring a property of a liquid, said sensor comprising an optical fiber having a core and a cladding, said core including a liquid portion for directly contacting said liquid, said liquid portion being composed of a liquid substance having a light transmitting property and communicating with the liquid whose property is to be measured by said sensor.

5,673,342
COMMUNICATION SYSTEM COMPRISING A LOW COST OPTICAL FILTER
 Katherine Theresa Nelson, Gillette; William Alfred Reed, Summit; Kenneth Lee Walker, New Providence, all of N.J., and Ian Arthur White, Dunwoody, Ga., assignors to Lucent Technologies Inc., Murray Hill, N.J.
 Filed May 28, 1996, Ser. No. 654,499

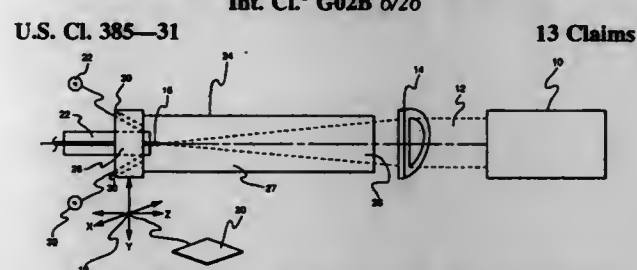
Int. Cl.⁶ G02B 6/26, 6/42
 U.S. Cl. 385—24



1. An optical fiber communication system comprising:
 a) a first source of electromagnetic radiation of a first wavelength λ_1 , first utilization means for electromagnetic radiation of the first wavelength, and a first optical fiber transmission path connecting said first source and said first utilization means;
 b) a second source of electromagnetic radiation of a second wavelength λ_2 , second utilization means for the electromagnetic radiation of the second wavelength, and a second optical fiber transmission path connecting said second source and said second utilization means, with at least a first portion of said first optical fiber transmission path being included in said second optical fiber transmission path;
 c) an optical filter for substantially excluding electromagnetic radiation of the second wavelength from a second portion of the first optical fiber transmission path, said filter being disposed in said first optical fiber transmission path;
 Characterized In That
 d) the optical filter comprises a length L of axially essentially uniform optical fiber selected to transmit electromagnetic radiation of the first wavelength substantially without loss, and to at least substantially attenuate electromagnetic radiation of the second wavelength.

5,673,343
INJECTION CHAMBER FOR HIGH POWER OPTICAL FIBER TRANSMISSION
 Angel Luis Ortiz, Jr., Saratoga Springs; Sandra Freedman Feldman, Schenectady, and Phillip Randall Staver, Hagaman, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.
 Division of Ser. No. 544,509, Oct. 18, 1995, Pat. No. 5,537,335.
 This application Aug. 26, 1996, Ser. No. 703,278

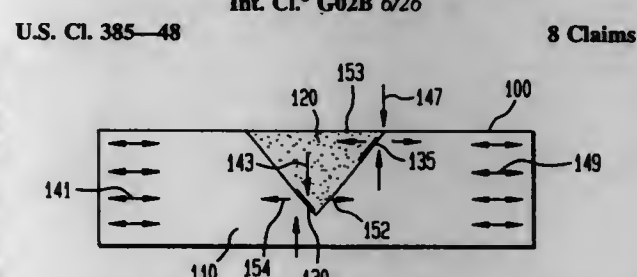
Int. Cl.⁶ G02B 6/26
 U.S. Cl. 385—31



1. An injection chamber for high power optical fiber transmission, comprising:
 a sealing end for receiving a fiber holder and optical fiber, forming an air tight seal there between;
 an entrance aperture for allowing an emitted laser beam to pass into said injection chamber;
 an elongated hollow body fluidly connecting said sealing end and said entrance aperture; and
 one or more gas ports which fluidly connect one or more gas sources to said injection chamber.

5,673,344
BI-DIRECTIONAL LIGHT PORT FOR INJECTING LIGHT INTO AND TAPPING LIGHT FROM A SIDE OF AN OPTICAL FIBER
 Yao Li, Monmouth Junction, and Ting Wang, Princeton, both of N.J., assignors to NEC Research Institute, Inc., Princeton, N.J.
 Filed Jun. 20, 1996, Ser. No. 667,164

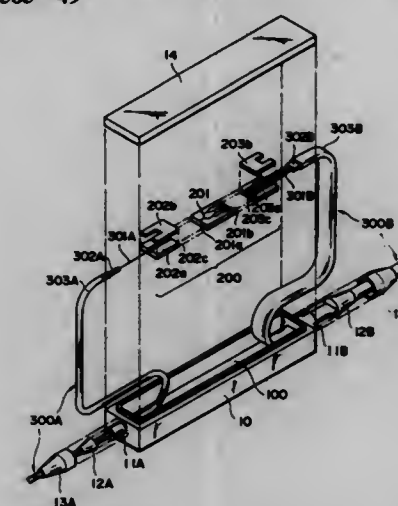
Int. Cl.⁶ G02B 6/26
 U.S. Cl. 385—48



1. A bi-directional light port, for tapping light from and injecting light into an optical fiber comprising:
 one or more mirrors, positioned within the optical fiber such that a desirable portion of light traversing the fiber is deflected out a side of the optical fiber and light striking the side of the fiber adjacent to the mirror is injected into the fiber and reflected by the mirror such that the injected light traverses the fiber and wherein said mirrors are constructed by cutting the fiber and removing a portion of the optical fiber so that a mirror region is created and said mirror region is subsequently refilled with a suitable material.

5,673,345
PACKAGE WITH OPTICAL WAVEGUIDE MODULE MOUNTED THEREIN
 Masahide Saito; Shigeru Semura; Shinji Ishikawa; Dai Yui, and Hiroo Kanamori, all of Yokohama, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
 Filed Apr. 18, 1996, Ser. No. 634,257
 Claims priority, application Japan, Apr. 18, 1995, 7-092502

Int. Cl.⁶ G02B 6/30
 U.S. Cl. 385—49

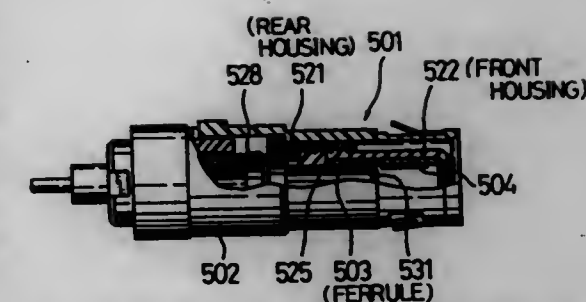


1. A package comprising:
 an optical waveguide module comprising a first support member for supporting a tip of a first optical fiber for propagating light of a predetermined wavelength, and a waveguide substrate in which a waveguide optically coupled with said first optical fiber is built;
 a metal housing comprising a cavity for housing the whole of said optical waveguide module, said metal housing comprising a first projecting portion extending along a direction perpendicular to an external wall of the housing and having a through hole for leading said first optical fiber from the cavity of the housing to the outside of the housing;
 a buffer protection material housed in the cavity of the housing as covering the whole of said optical waveguide module; and
 a first filler for filling a space in the through hole of said first projecting portion, said first filler having higher airtightness than said buffer protection material and having a tensile modulus lower than that of a metal material forming said housing.

5,673,346
OPTICAL JACK FOR PLUG-JACK OPTICAL CONNECTOR
 Shin'ichi Iwano; Ryo Nagase, both of Ibaraki-ken; Kazunori Kanayama, Tokyo; Etsuji Sugita, Tokyo, and Yasuhiro Ando, Tokyo, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan
 Continuation of Ser. No. 360,356, Dec. 21, 1994, abandoned, which is a continuation-in-part of Ser. No. 22,391, Feb. 24, 1993, Pat. No. 5,404,416, which is a continuation of Ser. No. 773,212, Oct. 9, 1991, abandoned, which is a division of Ser. No. 616,981, Nov. 21, 1990, Pat. No. 5,121,454. This application Aug. 27, 1996, Ser. No. 703,690

Claims priority, application Japan, Nov. 24, 1989, 1-303185; Dec. 1, 1989, 1-310680; Mar. 2, 1990, 2-49546; Apr. 16, 1990, 2-97774; Aug. 20, 1990, 2-86416 U; Aug. 20, 1990, 2-217166
 Int. Cl.⁶ G02B 6/38
 U.S. Cl. 385—60

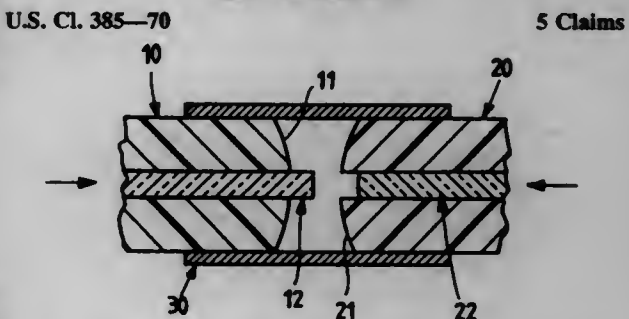
1. An optical jack connected with an optical plug in a plug-jack type optical connector, comprising:
 (a) a jack body;
 (b) a rear housing fitted into said jack body;



(c) a front housing inserted into and removably engaged with an inner portion of said rear housing from a front side of said jack body;
 (d) an alignment sleeve disposed in and fixedly fitted into said front housing from said front side of said jack body; and
 (e) a ferrule connected to an end of an optical fiber and fitted into said alignment sleeve, wherein a front end of said ferrule extends frontward to a point substantially centrally located along a length of and within said alignment sleeve disposed in said front housing, and wherein said ferrule is exposed for access when said front housing and said alignment sleeve are both removed together from said rear housing toward said front side of said jack body.

5,673,347
METHOD FOR BUTT-COUPLED OPTICAL FIBRE CONNECTORS COMPRISING A CYLINDRICAL FERRULE
 Stefano Pitassi, Udine, Italy, assignor to Sirti S.p.A., Milan, Italy
 Filed Apr. 3, 1996, Ser. No. 626,974

Claims priority, application Italy, May 9, 1995, MI95/A0921
 Int. Cl.⁶ G02B 6/38
 U.S. Cl. 385—70

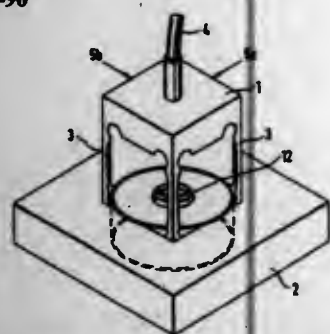


1. A method for butt-coupling optical fibre connectors comprising a cylindrical ferrule, consisting of the following steps:
 a) preparing the head of the optical fibre and cutting its end for insertion into the hole in the cylindrical ferrule;
 b) applying a thin layer of resin to the fibre, taking care not to soil the cut end of the fibre with said resin;
 c) inserting said fibre into the sized hole of the cylindrical ferrule, the end surface of which has been previously lapped in a convex manner;
 d) by means of an alignment bush, coupling said ferrule to a reference ferrule the end surface of which is convex, and in which a piece of fibre has been previously housed and fixed such that the end surface of said fibre lies inward of the end surface of the reference ferrule;
 e) crosslinking the resin by heating.

5,673,348
APPARATUS FOR ADJUSTMENT, ATTENUATING DEVICE, COUPLING DEVICE AND FILTERING DEVICE
 Jochen Ziegler, Königfeld, and Rolf Steiner, Rottenburg, both of Germany, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 10, 1995, Ser. No. 541,918
 Claims priority, application European Pat. Off., Oct. 21, 1994, 94116614

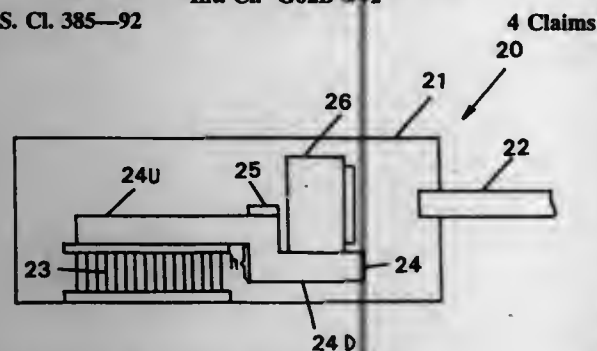
Int. Cl.⁶ G02B 6/16
 U.S. Cl. 385—90



1. Apparatus for adjustment of a first optical device relative to the position of a second optical device, comprising:
 - a first differential spindle with a first male screw thread and a second male screw thread,
 - a second differential spindle with a third male screw thread and a fourth male screw thread,
 - first means for fixing said first optical device and comprising (i) a first female screw thread for said first male screw thread and (ii) a second female screw thread extending orthogonally with regard to said first female screw thread for said third male screw thread,
 - a housing comprising (i) a first female screw thread for said second male screw thread and (ii) a second female screw thread extending orthogonally to said first female screw thread of said housing for said fourth male screw thread,
 - second means for fixing said second optical device, and
 - means for fastening said first and said second means so that major planes thereof are parallel to each other, said means for fastening including at least two spacing pieces arranged at equally spaced points with respect to said first and second optical devices.

5,673,349
SEMICONDUCTOR LASER MODULE
 Tomonari Kosugi, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Jul. 1, 1996, Ser. No. 674,246
 Claims priority, application Japan, Jul. 7, 1995, 7-171248
 Int. Cl.⁶ G02B 6/42
 U.S. Cl. 385—92



1. A semiconductor laser module comprising:
 - a module package of a prescribed shape;
 - a substrate of good heat conductivity composed of a step portion, an upper-level portion which is a flat plate arranged perpendicular to an upper portion of one side wall surface of

- said step portion, and a lower-level portion which is a flat plate arranged perpendicular to a lower portion of an opposite side wall surface of said step portion so that a lower surface of said lower-level portion being lower than a lower surface of said upper-level portion;
- a temperature regulation element for regulating temperature having its lower surface secured to an interior bottom surface of said module package and having its upper surface secured to the lower surface of said upper-level portion of said substrate;
- a semiconductor laser that emits a laser light and that is disposed in the vicinity of one end of said upper-level portion of said substrate;
- an optical fiber having one end secured at a level of a side-wall portion of said module package which is irradiated by said laser light; and
- a lens arranged on an upper surface of said lower-level portion of said substrate which optically couples said semiconductor laser and said optical fiber.

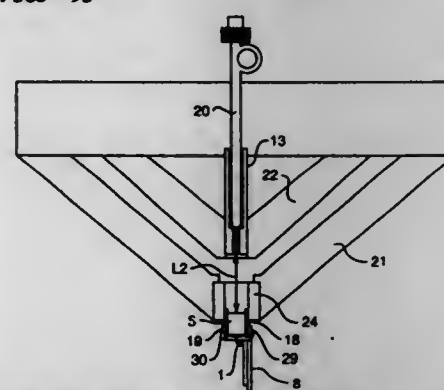
5,673,350
LASER MODULE WITH FOCUSING LENS AND FIXING METHOD OF THE FOCUSING LENS

Min-Kyu Song; Seung-Goo Kang; Hee-Tae Lee; Nam Hwang; Seong-Su Park, and Dong-Goo Kim, all of Daejeon, Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon-shi, Rep. of Korea

Filed Dec. 15, 1995, Ser. No. 573,553
 Claims priority, application Rep. of Korea, Nov. 17, 1995, 95-42064

Int. Cl.⁶ G02B 6/36
 U.S. Cl. 385—93

5 Claims

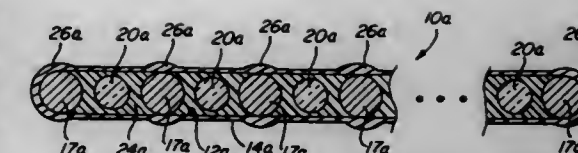


1. A laser module with a focusing lens and a laser diode for generating an output optical signal in response to an electrical signal, an optical fiber for transmitting the optical signal output to an external circuit, an optical focusing lens disposed between the laser diode and the optical fiber to focus the optical signal output on the optical fiber, and a lens fixture having a lens housing hole for fixing the optical focusing lens, the laser module further comprising:
 - a lens housing, having an outer surface and an inner bore in which the optical focusing lens is housed; and
 - a lens ring mounted on the outer surface of the lens housing for permitting the alignment along an optical axis of the laser diode, the optical focusing lens and the optical fiber before being welded into place and for fixedly mounting the lens housing, and thus mounting the optical focusing lens located therein, to the lens fixture.

4. A method for attaching a focusing lens in a laser module that is comprised of a laser diode which generates an output optical signal, an optical fiber for transmitting the optical signal output to an external circuit, an optical focusing lens that is disposed between the laser diode and the optical fiber, a lens fixture having a lens housing holder for fixing the optical focusing lens, a lens housing for housing the optical focusing lens therein and a lens ring which is mounted to the outer surface of the lens housing, the method comprising the steps of:
 - a lens housing, having an outer surface and an inner bore in which the optical focusing lens is housed; and
 - a lens ring mounted on the outer surface of the lens housing for permitting the alignment along an optical axis of the laser diode, the optical focusing lens and the optical fiber before being welded into place and for fixedly mounting the lens housing, and thus mounting the optical focusing lens located therein, to the lens fixture.

4. A method for attaching a focusing lens in a laser module that is comprised of a laser diode which generates an output optical signal, an optical fiber for transmitting the optical signal output to an external circuit, an optical focusing lens that is disposed between the laser diode and the optical fiber, a lens fixture having a lens housing holder for fixing the optical focusing lens, a lens housing for housing the optical focusing lens therein and a lens ring which is mounted to the outer surface of the lens housing, the method comprising the steps of:
 - a lens housing, having an outer surface and an inner bore in which the optical focusing lens is housed; and
 - a lens ring mounted on the outer surface of the lens housing for permitting the alignment along an optical axis of the laser diode, the optical focusing lens and the optical fiber before being welded into place and for fixedly mounting the lens housing, and thus mounting the optical focusing lens located therein, to the lens fixture.

- (a) aligning a mutual position between the laser diode and the optical focusing lens to a vertical and a horizontal direction in order to maximize the optical signal output to the optical fiber, after a distance between the optical focusing lens and the optical fiber is adjusted and fixed to obtain a maximum optical coupling efficiency between the laser diode and the optical fiber;
- (b) laser-welding the lens ring to the lens housing at the optimum alignment state, to fix the vertical position of the optical focusing lens;
- (c) realigning the mutual position between the laser diode and the optical focusing lens to a horizontal direction in order to maximize the magnitude of the optical signal output to the optical fiber, at the fixed state of the vertical position of the optical focusing lens; and
- (d) laser-welding the lens ring to the lens fixture to fix the horizontal position of the optical focusing lens.



- said optical fibers and said strength members longitudinally extending in a common plane and embedded in a buffer material; and
- a jacket surrounding said core, wherein all void spaces within said jacket are completely filled by said core including said optical fibers, said strength members and said buffer material, said jacket having a variable thickness such that said jacket is thicker in jacket areas adjacent to said strength members than in jacket areas adjacent to said optical fibers.

5,673,351
METHOD AND APPARATUS FOR INDUCING A TEMPORARY LOCALIZED TRANSMISSION LOSS IN A TELECOMMUNICATIONS CABLE

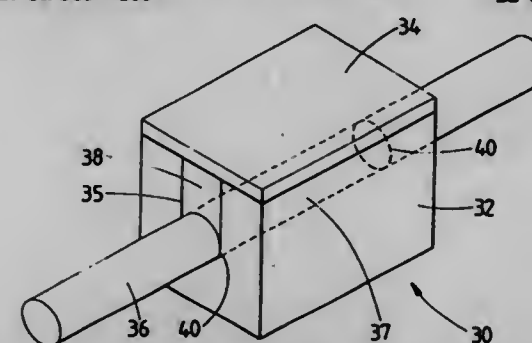
Kenneth Paul Clarke, Burwood; David Coulson, Beaconsfield Upper; Ernest Edward Gibbs, Endeavour Hills; Barry John Keon, Carnegie, and Alfred Willem Kruijschoop, Mount Waverly, all of Australia, assignors to Telstra Corporation Limited, Melbourne, Australia

PCT No. PCT/AU94/00133, § 371 Date Nov. 15, 1995, § 102(e) Date Nov. 15, 1995, PCT Pub. No. WO94/22241, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 18, 1994, Ser. No. 522,367
 Claims priority, application Australia, Mar. 18, 1993, PL7865/93

Int. Cl.⁶ G02B 6/44; H01B 7/00; G01N 21/00
 U.S. Cl. 385—100

22 Claims



1. A method for inducing a temporary localized transmission loss at a point along a telecommunications cable by temporarily cooling a portion of the telecommunications cable.

9. Apparatus for inducing a temporary localized optical transmission loss at a point along a telecommunications cable, comprising a cooling means for cooling a portion of the telecommunications cable.

5,673,352
FIBER OPTIC MICRO CABLE
 Fred Henry Bauer, Multnomah, Oreg.; Ted Alan Bookwalter, Clark, Wash., and Edmund James Stuber, Washington, Oreg., assignors to Alcatel Submarine Networks, Inc., Portland, Oreg.

Filed Jan. 12, 1996, Ser. No. 585,085
 Int. Cl.⁶ G02B 6/44

U.S. Cl. 385—114

14 Claims

1. A fiber optic micro cable, comprising:
 - a core including:
 - at least one optical fiber;
 - at least two strength members;

5,673,353
FIBER AND LENS PREFORM WITH DEEP RADIAL GRADIENT LAYER AND METHOD OF MANUFACTURING SAME

Robert M. Ward, 905 W. Middlefield, Unit 917, Mountain View, Calif. 94043, and David N. Pulsifer, 128 W. 37th Ave., San Mateo, Calif. 94403

Division of Ser. No. 25,079, Mar. 2, 1993, Pat. No. 5,522,003.
 This application Jun. 7, 1995, Ser. No. 481,820

Int. Cl.⁶ G02B 6/02

U.S. Cl. 385—124

10 Claims



1. A fiber preform of fixed length, suitable for use in the production of a glass fiber or lens, having an annular region extending along a cylindrical axis of said fiber preform that is characterized by a continuous radial gradient, said fiber preform being formed by a process comprising the steps of:
 - a) providing a glass tube having a first predetermined fixed length on a glass core having a second predetermined fixed length to form an initial preform structure having a third predetermined fixed length;
 - b) supporting said initial preform structure in a heat resistant case to substantially maintain the uniform radial shape of said initial preform structure;
 - c) heating said initial preform structure to form a deeply placed radial bonded layer at the interface between said glass tube and said glass core; and
 - d) rotating said initial preform structure about a predetermined axis during said step of heating, whereby said initial preform structure becomes said fiber preform of fixed length.

5,673,354
DISPERSION COMPENSATING OPTICAL FIBER
 Youichi Akasaka; Ryuichi Sugizaki, and Kunio Kokura, all of Ichihara, Japan, assignors to The Furukawa Electric Co. Ltd., Tokyo, Japan

Filed Mar. 5, 1996, Ser. No. 610,964
 Claims priority, application Japan, Mar. 10, 1995, 7-079719

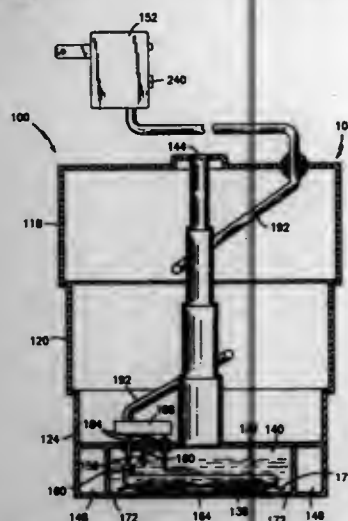
Int. Cl.⁶ G02B 6/02

U.S. Cl. 385—127

4 Claims

1. A single mode optical waveguide type dispersion compensating optical fiber having a W shaped three layer refractive index profile, comprising:
 - a core including:
 - at least one optical fiber;
 - at least two strength members;

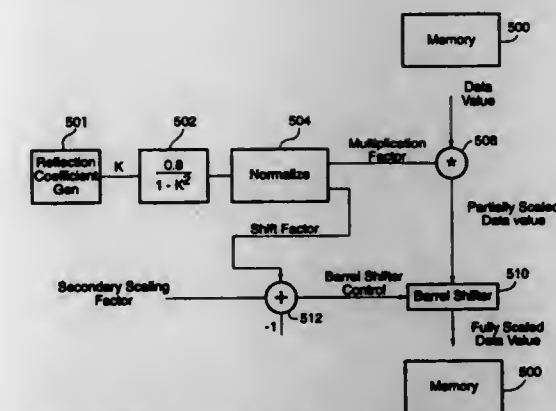
5,673,360
TRAVEL HUMIDIFIER
 J. Sebastian Scripps, P.O. Box 204, Thompson, Conn. 06277
 Filed Sep. 11, 1995, Ser. No. 526,678
 Int. Cl.⁶ F24F 6/00; A61H 33/12; B65D 6/12
 U.S. Cl. 392—405 18 Claims



1. A portable humidifier for vaporizing water held in a water reservoir apart from the humidifier, the humidifier comprising:
 - a. a vaporizing chamber having at least one inlet for passing water therethrough and into the vaporizing chamber, and having at least one outlet for passing water vapor there-through and out of the vaporizing chamber and into a surrounding environment, the vaporizing chamber having floating means associated therewith for floating the vaporizing chamber in the water reservoir;
 - b. vaporizing means, disposed in the vaporizing chamber, for vaporizing water within the vaporizing chamber to create the water vapor that passes through the outlet into the surrounding environment;
 - c. high water means for sensing when a level of the water in the vaporizing chamber has exceeded a first predetermined height, and for preventing the vaporizing means from vaporizing water within the vaporizing chamber when the level of water in the vaporizing chamber has exceeded the first predetermined height; and
 - d. a telescoping outer enclosure comprising a plurality of enclosure sections connected together, a lowermost enclosure section enclosing the vaporizing chamber and the vaporizing means, an uppermost enclosure section connected with a housing of the water reservoir, as the level of water in the water reservoir decreases over time as the water is vaporized, the enclosure sections slide with respect to each other such that the uppermost enclosure section is fixed with respect to the water reservoir housing and the lowermost enclosure section contacts the water in the water reservoir.

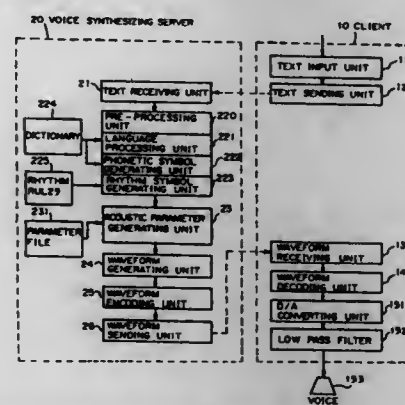
5,673,361
SYSTEM AND METHOD FOR PERFORMING PREDICTIVE SCALING IN COMPUTING LPC SPEECH CODING COEFFICIENTS
 Mark A. Ireton, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.
 Filed Nov. 13, 1995, Ser. No. 556,262
 Int. Cl.⁶ G10L 9/14 17 Claims

1. A method for generating linear predictive coding filter coefficients in response to a received voice signal waveform, comprising:
 - receiving a voice signal waveform;
 - generating one or more matrices comprising a plurality of terms, wherein said matrix terms comprise correlation coefficients,



- wherein said one or more matrices are generated in response to said received voice signal waveform;
- computing a reflection coefficient based on said received voice signal waveform;
- performing an iteration on said terms in said one or more matrices using the reflection coefficient, wherein said iteration operates to reduce values of a plurality of said correlation coefficients in said one or more matrices;
- scaling said plurality of terms in said one or more matrices, wherein said scaling operates to increase the values of said plurality of terms in said one or more matrices to at least partially offset said reduction in values that occurs in said performing an iteration;
- storing said plurality of matrix terms in a memory using a fixed number of data bits after said performing an iteration and after said scaling;
- repeating said steps of computing a reflection coefficient, performing an iteration, scaling said plurality of terms, and storing said plurality of matrix terms for a plurality of times to generate said linear predictive coding filter coefficients; and
- generating a parametric representation of said voice signal waveform, wherein said parametric representation of said voice signal waveform includes said linear predictive coding filter coefficients.

5,673,362
SPEECH SYNTHESIS SYSTEM IN WHICH A PLURALITY OF CLIENTS AND AT LEAST ONE VOICE SYNTHESIZING SERVER ARE CONNECTED TO A LOCAL AREA NETWORK
 Tatsuro Matsumoto, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
 Filed Nov. 12, 1992, Ser. No. 975,466
 Claims priority, application Japan, Nov. 12, 1991, 3-295621
 Int. Cl.⁶ G01L 5/02 7 Claims

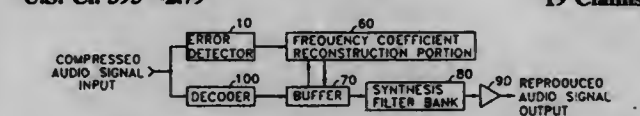


1. A speech synthesis system comprising:
 - a plurality of clients for issuing a request for synthesized voice,
 - at least one of said clients comprising:

text input means for inputting text data to be outputted vocally,
 pronunciation symbol generating means for generating pronunciation symbols according to text data inputted to said text input means,
 data sending means for sending data to be processed to synthesize voice,
 data receiving means for receiving data, and
 voice output means for outputting synthesized voice according to said received data; and
 a voice synthesizing server for generating synthesized voice according to data sent from said clients, comprising:
 data receiving means for receiving data sent from said clients,
 pronunciation symbol generating means for generating pronunciation symbols according to text data received by said data receiving means,
 acoustic parameter generating means for generating acoustic parameters according to said pronunciation symbols,
 waveform generating means for generating voice waveforms according to said acoustic parameters,
 data control means for controlling such that on receiving text data said data receiving means outputs the data to said phonetic symbol generating means, and on receiving pronunciation symbols it outputs the symbols to said acoustic parameter generating means, and
 data sending means for sending to said clients voice waveforms generated by said waveform generating means, said clients and said voice synthesizing server being connected to a local area network (LAN).

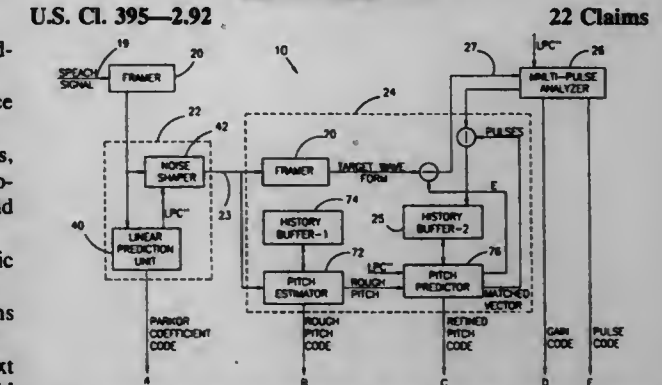
5,673,363
ERROR CONCEALMENT METHOD AND APPARATUS OF AUDIO SIGNALS
 Byungwoo Jeon, Sungnam, and Jechang Jeong, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea
 Filed Dec. 20, 1995, Ser. No. 575,522
 Claims priority, application Rep. of Korea, Dec. 21, 1994, 94-35702

Int. Cl.⁶ G10L 5/02; 3/00 19 Claims



1. A method for concealing one or more error frames where errors have occurred in a digital audio signal, wherein the digital audio signal is subband coded and transform coded in units of error-correctable frames, said method comprising the steps of:
 - (a) receiving input frequency coefficients representing the encoded digital audio signal;
 - (b) detecting whether an error has occurred for each frame with respect to the input frequency coefficients, to produce an error detection result with respect to each frame;
 - (c) decoding the frequency coefficients by respective subbands forming a frequency domain of the whole audio signal within each frame with respect to the input frequency coefficients;
 - (d) storing the frequency coefficients decoded in step (c);
 - (e) reconstructing the frequency coefficients of one or more error frames where errors have occurred using predetermined weight values and frequency coefficients of subbands adjacent to the error frame(s) among the frequency coefficients belonging to a frame adjacent to the error frame(s), in response to the error detection result in (b);
 - (f) updating the frequency coefficients of the error frame(s) stored in the step (d) with the reconstructed frequency coefficients reconstructed in step (e); and
 - (g) converting the frequency coefficients resulting from step (f) into an audio signal of a time domain, in a same sequence as that of the decoding in step (c).

5,673,364
SYSTEM AND METHOD FOR COMPRESSION AND DECOMPRESSION OF AUDIO SIGNALS
 Leon Bialik, Rishon LeZion, Israel, assignor to The DSP Group Ltd., Santa Clara, Calif.
 Filed Dec. 1, 1993, Ser. No. 160,530
 Int. Cl.⁶ G10L 3/02 22 Claims



membership functions each having a center corresponding to said average value signal;
 second means for determining a change in said acceleration sensor signal on the basis of a second relationship between said acceleration sensor signal and a second group of membership functions;
 third means for determining a deviation in said acceleration sensor signal from said average value signal on the basis of a third relationship between said acceleration sensor signal and a third group of membership functions each having a center corresponding to said average value signal;
 fourth means for outputting an accumulated energy signal generated on the basis of a winning rule from a set of rules, each of said rules having rule terms corresponding to at least one of said membership functions of said first, second and third membership functions, said fourth means comprising means for determining said winning rule on the basis of said second and third relationships; and
 fifth means for outputting a crash detection signal on the basis of a comparison between said accumulated energy signal and said average value signal.

5,673,366

SYSTEM AND METHOD FOR GEOMAGNETIC AND IONOSPHERIC FORECASTING

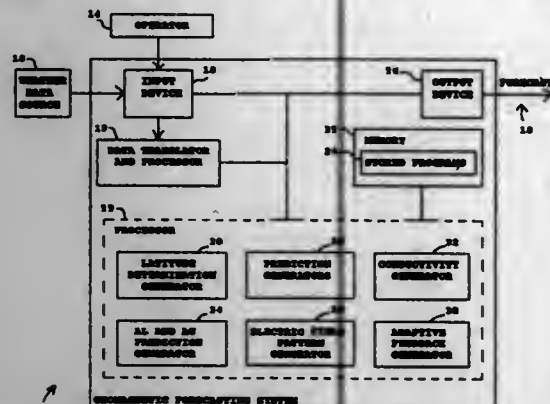
Nelson C. Maynard, 33 Sandhill Dr., Merrimack, N.H. 03054; Daniel N. Baker, 5277 Deercreek Ct., Boulder, Colo. 80301; John W. Freeman, Jr., 9206 Mullins Dr., Houston, Tex. 77096; George L. Siscoe, 68 Dutton Rd., Sudbury, Mass. 01776, and Dimitris V. Vassiliadis, 6100 Westchester Park Dr., Apt. 405, College Park, Md. 20740

Filed Jan. 5, 1996, Ser. No. 583,428

Int. Cl. G06F 15/18

U.S. Cl. 395-20

19 Claims



1. A system for forecasting geomagnetic events and resulting ionospheric currents from ground and space weather data, including solar wind velocity data and interplanetary magnetic field data, the system comprising:

a processor including:

- a first prediction generator for predicting a midnight equatorial boundary (MEB) value from the ground and space weather data;
- a second prediction generator for predicting a polar cap potential (PCP) value from the ground and space weather data;
- an AL and AU prediction generator for predicting AL and AU values from the ground and space weather data;
- means for generating a pseudo Kp value from the MEB value;
- an electric field pattern generator for determining electric field patterns from the pseudo Kp value, the PCP value, and the ground and space weather data;
- a conductivity generator for determining conductivity values from the ground and space weather data and the pseudo Kp value; and
- an adaptive feedback generator for adaptively generating geomagnetic parameters from the conductivity values, the electric

field patterns, and the predicted AL and AU values using feedback, the geomagnetic parameters indicating the forecasted geomagnetic events and resulting ionospheric currents.

5,673,367

METHOD FOR NEURAL NETWORK CONTROL OF MOTION USING REAL-TIME ENVIRONMENTAL FEEDBACK

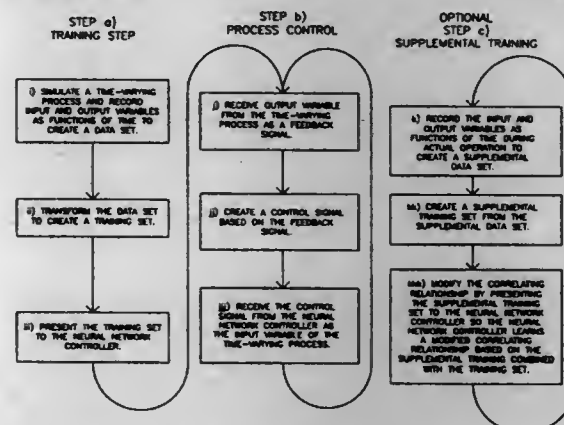
Theresa M. Buckley, 424 Homer Ave., Palo Alto, Calif. 94301

Continuation-in-part of Ser. No. 955,107, Oct. 1, 1992, abandoned. This application Sep. 15, 1994, Ser. No. 307,388

Int. Cl. G06F 15/18

U.S. Cl. 395-21

17 Claims



1. A method for neural network control of a time-varying process, said time-varying process having an input variable capable of affecting an operating state of said time-varying process and an output variable indicative of said operating state of said time-varying process, said method comprising the steps of:

a) training a neural network controller by the steps of:

- i) simulating said time-varying process and recording said input variable as a function of time and recording said output variable as a function of time to create a data set, said data set including input variable data and output variable data as a function of time;
- ii) creating a training set from said data set by dividing said data set into increments of time and shifting the output variable data out of phase with the input variable data so that the output variable data lag at least one time increment behind the input variable data; and
- iii) presenting said training set to said neural network controller so that said neural network controller learns a correlating relationship between said output variable and said input variable based on said training set;

b) subsequently controlling said time-varying process by the steps of:

- j) receiving said output variable from said time-varying process as a feedback signal in said neural network controller;
- jj) creating a control signal based on said feedback signal in accordance with said correlating relationship learned by said neural network controller from said training set; and
- jjj) receiving said control signal from said neural network controller as the input variable of said time-varying process.

5,673,368

METHOD AND DEVICE FOR CONDUCTING A PROCESS IN A CONTROLLED SYSTEM WITH AT LEAST ONE PRECOMPUTED PROCESS PARAMETER DETERMINED USING A MATHEMATICAL MODEL HAVING VARIABLE MODEL PARAMETERS ADJUSTED BASED ON A NETWORK RESPONSE OF A NEURAL NETWORK

Einar Broese; Otto Gramkow, both of Erlangen; Thomas Martinetz, Munich, and Guenter Soergel, Nuremberg, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

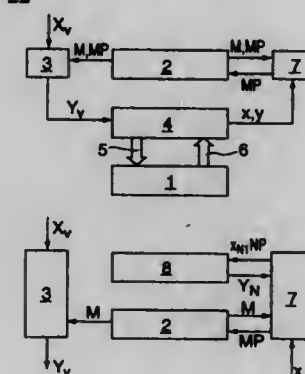
Filed Nov. 10, 1994, Ser. No. 336,952

Claims priority, application Germany, Nov. 11, 1993, 43 38 608.3

Int. Cl. G05B 13/02

U.S. Cl. 395-22

9 Claims



1. A method for controlling a process with a controlling means and a computing means, the computing means having a mathematical model of the process, the mathematical model having at least one variable process model parameter, and with a neural network having variable network parameters, the method comprising steps of:

- a) supplying input variables to the computing means;
- b) precomputing, before each process run, at least one selected process parameter based on the input variables supplied to the computing means;
- c) presetting the at least one process parameter;
- d) measuring input values and process parameters during a process run, wherein the process run is controlled by the controlling means;
- e) supplying the measured input values and process parameters to the mathematical model;
- f) adaptively improving the precomputed process parameters based on the measured input values and process parameters, the step of adaptively improving the precomputed process parameters including sub-steps of:
 - i) supplying input values that influence the at least one variable process model parameter to the neural network after the process run,
 - ii) providing a value for the at least one variable process model parameter as a network response with the neural network,
 - iii) comparing the precomputed at least one process parameter with the measured process parameters to form a deviation, and
 - iv) adapting the network parameters of the neural network such that the deviation is reduced.

5,673,369

AUTHORING KNOWLEDGE-BASED SYSTEMS USING INTERACTIVE DIRECTED GRAPHS

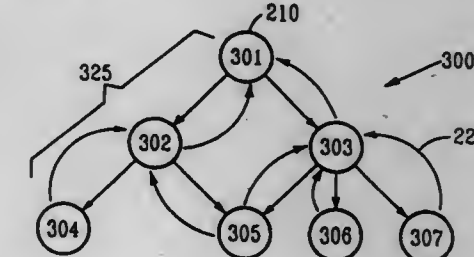
Michelle Yoonkyung Kim, Scarsdale, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 2, 1995, Ser. No. 396,823

Int. Cl. G06F 17/00

U.S. Cl. 395-75

22 Claims



1. A system for authoring a knowledge based computing system comprising:

- a computer with memory storage and a graphical interface;
- a knowledge base application installed on the computing system;
- a question data structure and an answer data structure stored in the memory storage; and
- a QA directed graph generated at an authoring time on the graphical interface by said knowledge base application, the directed graph having a plurality of question nodes and a plurality of answer nodes, the question nodes being represented by question templates and the answer nodes being represented by answer templates on the graphical interface, the knowledge base application generating a knowledge data base for the knowledge based computing system using the question data structure and the answer data structure as an author inputs information in the question and answer templates, respectively, the question and answer nodes being connected to one another by the knowledge base application on one or more paths by a link between each one of the question nodes and each of one of the answer nodes so that question nodes and answer nodes alternate as the path is traversed in a path direction, an author accessing one or more of the question nodes and one or more of the answer nodes to provide information to the one or more of the question data structures and answer data structures, respectively, in order to build an application in the knowledge data base to be presented to a service user at a run time.

5,673,370

DIGITAL VIDEO DATA COMPRESSION TECHNIQUE

Stuart T. Laney, Seattle, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 11,317, Jan. 29, 1993, Pat. No. 5,544,286. This application May 9, 1996, Ser. No. 646,714

Int. Cl. G06K 15/00; H04N 1/46

U.S. Cl. 395-109

4 Claims

1. In a data processing system, a method of decompressing compressed color data, including a bitmap and encodings of colors, for pixels of a cell, comprising the steps of:

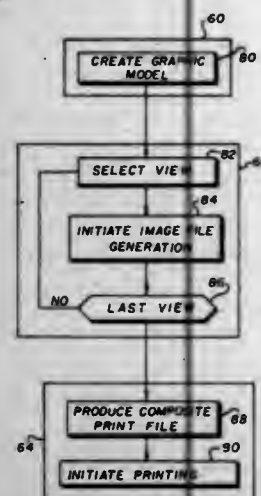
- a) determining whether the color data for the cell is compressed as a solid-color cell;
- b) if the color data for cell is compressed as a solid-color cell, decompressing the color data for the cell by assigning each pixel in the cell a color that is encoded in the compressed color data;
- c) determining whether the color data for the cell is compressed as a two-color cell;
- d) if the color data for the cell is compressed as a two-color cell, decompressing the color data of the cell by assigning each pixel one of two colors encoded by the encodings in the

e) displaying each of said subdivided regions at said calculated brightness, whereby said figure is three-dimensionally represented.

5,673,376
METHOD AND APPARATUS FOR GRAPHICALLY GENERATING IMAGES OF ARBITRARY SIZE
 Lawrence A. Ray; Richard N. Ellison, both of Rochester, and David J. Kroth, N. Chili, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
 Filed May 19, 1992, Ser. No. 885,706
 Int. Cl. G06T 15/10

U.S. Cl. 395—127

12 Claims



1. A method of rendering a graphic image model at a first resolution higher than a second resolution of an image produced by a graphics process capable of rendering at the second resolution, comprising the steps of:

- offset rendering, from a viewpoint, the graphic image model at the second resolution for each second resolution image using different pixel offset rendering points to produce second resolution images each having the viewpoint;
- interlacing the second resolution images producing a combined graphic image at the first resolution and with the viewpoint; and
- displaying the combined graphic image at the first resolution.

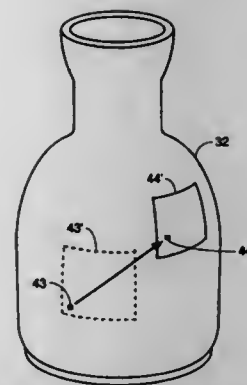
5,673,377
METHOD AND SYSTEM FOR DISPLAYING A REPRESENTATION OF A THREE-DIMENSIONAL OBJECT WITH SURFACE FEATURES THAT CONFORM TO THE SURFACE OF THE THREE-DIMENSIONAL OBJECT
 Pierre Berkaloff, Mountain View, Calif., assignor to Ray Dream, Inc., Mountain View, Calif.
 Filed Sep. 2, 1994, Ser. No. 300,449
 Int. Cl. G06T 11/40

U.S. Cl. 395—130

4 Claims

1. A method of displaying a representation of a three-dimensional object in real time on a two-dimensional computer screen, comprising the steps of:

- generating a two-dimensional set of data points defining a two-dimensional space, each data point in the two-dimensional space having a corresponding point on the surface of the three-dimensional object, and the two-dimensional space having information embedded within the two-dimensional space that characterizes the contour of the three-dimensional object;
- associating data with an area in said two-dimensional space corresponding to an area on the three-dimensional object at a selected location, said data being derived from user graphical commands which describe a figure at the selected location on



the three-dimensional object, the figure representing an area of predetermined surface characteristics of the surface of the three-dimensional object;

translating the data describing the figure and the contour information from two-dimensional space to corresponding areas on the surface of the three-dimensional object at the selected location; and

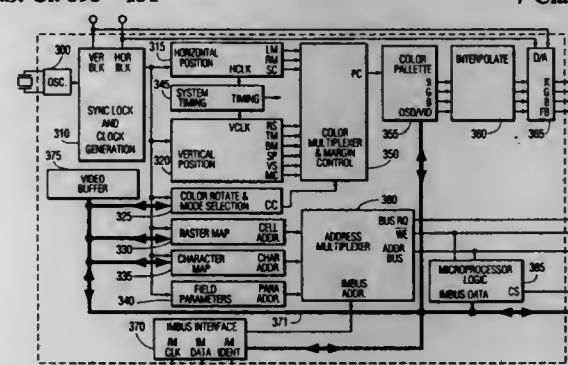
updating the representation of the three-dimensional object on the computer screen with the data describing the figure and the contour information to display the three-dimensional object with the figure at the selected location on the three-dimensional object, such that the representation of the figure displayed on the computer screen conforms to the surface of the three-dimensional object at the selected location.

5,673,378
COLOR CODING METHOD FOR EXPANDING PALETTE BY INCLUDING COLORS DERIVED BY AVERAGING NUMERIC CODES OF ACTUAL PALETTE COLORS
 John William Chaney, Indianapolis; Billy Wesley Beyers, Jr., Greenfield; Kevin Elliott Bridgewater, Indianapolis; James Edwin Hailey, Indianapolis; Juri Tufts, Indianapolis, and Harold Blatter, Indianapolis, all of Ind., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.
 Continuation of Ser. No. 961,189, Oct. 14, 1992, abandoned.
 This application Nov. 20, 1995, Ser. No. 561,207
 Claims priority, application United Kingdom, Oct. 30, 1991, 9123067

U.S. Cl. 395—131

Int. Cl. G06T 11/40

7 Claims



1. Apparatus for generating graphics, comprising:

- memory means for storing graphics data;
- control means for receiving graphics data comprising a plurality of digital words, each of said digital words comprising N binary bits relating to a color for a respective pixel;
- said control means reading a portion of said graphics data representative of color information for at least three pixels from said memory means; and determining therefrom respective first and second independent colors for a pair of said pixels and one of a plurality of predetermined dependent colors for each pixel associated with a predetermined interpo-

lation operator code, said independent color being one of 2^N-1 independent colors;

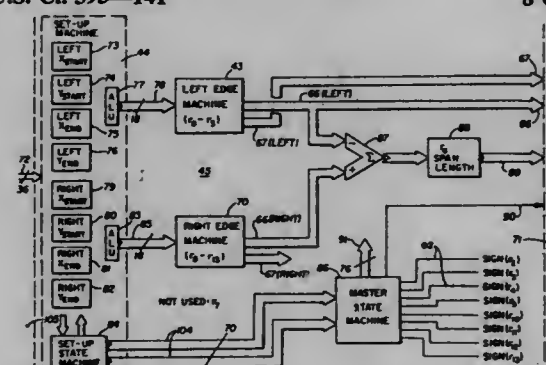
said control means being responsive to said portion of said graphics data for determining if said first and second independent colors associated with said pair of pixels represent an identical independent color, and if said graphics data associated with a third pixel is an operator code, and in response to said determination, producing a particular dependent color for each case when said first and second independent colors of said pair of pixels are identical, said particular dependent color being a color which is not the average of said first and second independent colors of said pair of pixels; and

said control means in response to said graphics data causing the generation of said first independent color, said particular dependent color, and said identical independent color, in that order.

5,673,379
SCAN LINE GENERATOR FOR AREA FILL OF EXTENSIBLE POLYGONS
 Michael R. Diehl, Fort Collins, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.
 Filed Mar. 20, 1995, Ser. No. 407,467
 Int. Cl. G06T 11/00

U.S. Cl. 395—141

8 Claims



4. Apparatus for describing pixel locations that represent a polygon edge as a sequence of STEPs and JUMPs upon a pixel grid whose pixel locations therein are indicated by integer Cartesian coordinates (X, Y), a STEP being a one pixel location change along a major axis accompanied by no change in the pixel location along a minor axis and a JUMP being a one pixel location change along the major axis that is accompanied by a one pixel location change along the minor axis, the polygon to be displayed by illuminating selected pixels belonging to the pixel grid, the apparatus comprising:

- first through fourth input registers that respectively receive pixel location coordinates X_{start} , Y_{start} , X_{end} , and Y_{end} ;
- a first circuit, coupled to the first through fourth input registers, that computes $dx = X_{end} - X_{start}$ and $dy = Y_{end} - Y_{start}$;
- a second circuit, coupled to the values of dy and dx , that produces a major axis signal indicating, according to whichever of dy and dx has the larger absolute value, which of the X or Y axes is the major axis;
- a third circuit, coupled to the values of dy and dx and to the axis signal, that computes an initial value of an iteration variable d_i , the initial value being $dy-dx$ if X is the major axis and being $dx-dy$ if Y is the major axis; and
- a fourth circuit, coupled to the major axis signal and to the values of dy and dx , that indicates STEPs and JUMPs and that computes successive values d_{i+1} of the iteration variable d_i according to the sign of d_i and according to which axis is the major axis;

if X is the major axis and $d_i > 0$ then $d_{i+1} = d_i + dy - dx$ and indicate a JUMP;

if X is the major axis and $d_i < 0$ then $d_{i+1} = d_i + dy$ and indicate a STEP;

if Y is the major axis and $d_i > 0$ then $d_{i+1} = d_i + dx - dy$ and indicate a JUMP; and

if Y is the major axis and $d_i < 0$ then $d_{i+1} = d_i + dx$ and indicate a STEP.

5,673,380
PARALLEL PROCESSING OF CALCULATION PROCESSOR AND DISPLAY PROCESSOR FOR FORMING MOVING COMPUTER GRAPHIC IMAGE IN A REAL-TIME MANNER

Kaori Suzuki, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 360,946, Dec. 21, 1994, abandoned.

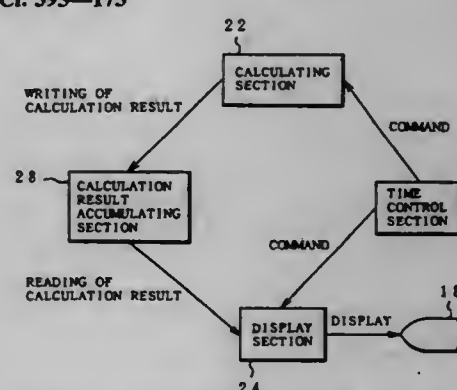
This application Sep. 3, 1996, Ser. No. 707,910

Claims priority, application Japan, Feb. 15, 1994, 6-018105

Int. Cl. G06T 13/00

U.S. Cl. 395—173

13 Claims



1. A method of forming and displaying a moving image in a real-time manner on a display, comprising:

- a calculation step of continuously calculating and forming moving image data in real time and in 3-dimensional virtual space for a plurality of points in time ending at successive predetermined time intervals (T_d), by a first processor;
- a calculation result accumulation step of accumulating the 3-dimensional moving image data formed by said calculation step into a memory apparatus in real time;
- a display conversion step of sequentially reading the 3-dimensional moving image data at said successive predetermined time intervals (T_d) from said memory apparatus in real time by a second processor and in parallel with the calculation step and converting said 3-dimensional moving image data into 2-dimensional moving image data to realize a predetermined viewpoint, wherein a current 2-dimensional moving image data of said successively displayed 2-dimensional moving image data is continuously displayed until calculation of a next 3-dimensional moving image data is finished in said calculation step, and conversion of a current 3-dimensional moving image data into a next 2-dimensional moving image data is initiated; and
- a pixel forming step of sequentially converting the 2-dimensional moving image data produced in said display conversion step into pixel data for real time display on the display.

5,673,386

METHOD AND SYSTEM FOR IDENTIFICATION OF SOFTWARE APPLICATION FAULTS

Jatinder Pal Singh Batra, Westminster, Colo., assignor to U S West Technologies, Inc., Boulder, Colo.

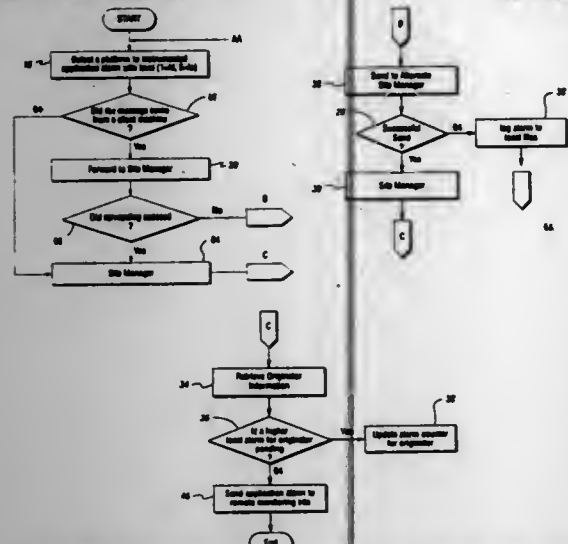
Continuation of Ser. No. 268,132, Jan. 29, 1994, abandoned.

This application Jan. 11, 1996, Ser. No. 585,148

Int. Cl. C06F 11/00

U.S. Cl. 395—183.14

16 Claims



1. A method for identification of a fault in a software application associated with a hardware platform at a site, the software application including a plurality of processes, the method comprising: detecting the fault; determining a severity level of the fault; identifying a source of the fault, the source associated with one of the plurality of processes of the software application; generating an alarm message signal based upon the detected fault, the severity level determined and the identified source; transmitting the alarm message signal to a remote monitoring station, the transmitting including routing the alarm message signal to a site manager; storing a pending alarm message signal having a severity level associated therewith; comparing the severity level associated with the alarm message signal to the severity level associated with the pending alarm message signal, the alarm message signal and the pending alarm message signal each having the same source associated therewith; and routing the alarm message signal from the site manager to the remote monitoring station if the severity level associated with the alarm message signal exceeds the severity level associated with the pending alarm message signal; and deactivating the one of the plurality of processes of the software application associated with the source of the fault for repair while a remainder of the plurality of processes of the software application continue to operate.

5,673,387

SYSTEM AND METHOD FOR SELECTING TEST UNITS TO BE RE-RUN IN SOFTWARE REGRESSION TESTING

Yih-Fann Robin Chen, Bridgewater; David Samuel Rosenblum, Maplewood, and Kiem-Phong Vo, Berkeley Heights, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 243,664, May 16, 1994, abandoned.

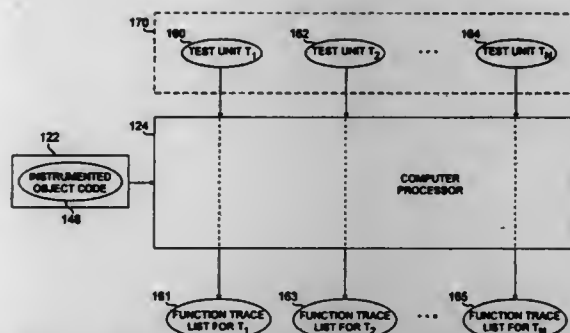
This application Aug. 12, 1996, Ser. No. 698,164

Int. Cl. G06F 9/00; 13/00

U.S. Cl. 395—183.14

43 Claims

1. A system for selective regression testing of a software system for determining which test units must be re-run as a result of a



revision of the software system from a first software version to a second software version, the system comprising: means for generating a first program database comprising entities in the first software version and relationships between said entities in the first software version; means for generating a second program database comprising entities in the second software version and relationships between said entities in the second software version; means for comparing said first program database with said second program database to generate an entity difference list comprising entities which were changed by said revision of the software system; means for generating an entity trace list for each test unit, each entity trace list comprising the entities of the software system which have a dependent relationship with functions executed during execution of said test units; means for comparing said entity difference list with each of said entity trace lists; and means for determining which of said test units must be re-run as a result of said comparison of said entity difference list with each of said entity trace lists.

5,673,388

MEMORY TESTING IN A MULTIPLE PROCESSOR COMPUTER SYSTEM

Raghu Murthi, and Scott Tetrick, both of Portland, Oreg., assignors to Intel Corporation, Santa Clara, Calif.

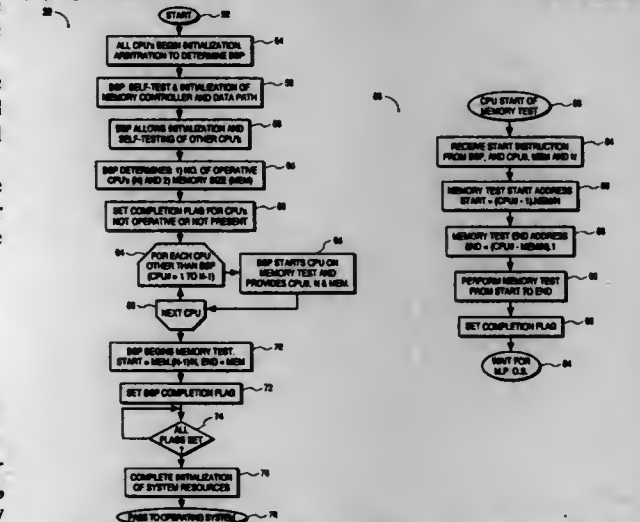
Continuation of Ser. No. 414,367, Mar. 31, 1995, abandoned.

This application Jul. 12, 1996, Ser. No. 679,186

Int. Cl. G06F 11/34

U.S. Cl. 395—183.18

18 Claims



1. In a multiple processor computer system, an initialization method comprising the steps of: allocating respective portions of shared memory to each of a plurality of processors; and testing said respective portions of shared memory in each of said plurality of processors by time division multiplexed access to said shared memory.

5,673,389

METHODS AND APPARATUS FOR RESETTNG A MONITORED SYSTEM USING A GRAY CODE WITH ALTERNATING CHECK BITS

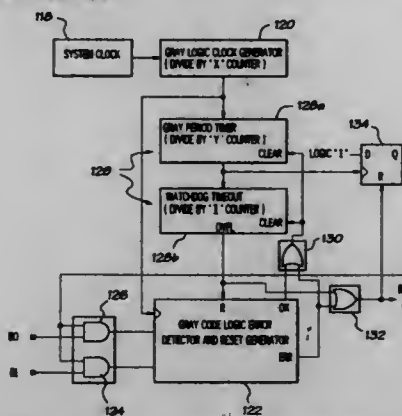
Charles Francis Weber, South Lyon, and Viral Ashokkumar Amin, Riverview, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 31, 1995, Ser. No. 522,476

Int. Cl. G06F 11/00; 11/30

U.S. Cl. 395—185.08

11 Claims



1. A timer for resetting a monitored system, said timer comprising: output logic for generating a reset signal for said monitored system; a counter for counting pulses from a source of periodic pulses, said counter having a clear input and an overflow output connected to said output logic; and a monitored system error detector for periodically sampling at least two check bits from said monitored system which normally operates to generate said at least two check bits in a series of states with successive states differing from one another by only one bit, said error detector generating a pass signal on a first output coupled to said clear input of said counter for each sample of said at least two check bits wherein only one of said at least two check bits changes state from the succeeding sample and generating an error signal on a second output connected to said output logic for each sample of said at least two check bits wherein more than one of said at least two check bits has changed state from the succeeding sample, said output logic generating a reset signal for said monitored system in response to an overflow of said counter or said error signal from said monitored system error detector.

5,673,390

METHOD AND SYSTEM FOR DISPLAYING ERROR MESSAGES

Steven Holt Mueller, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

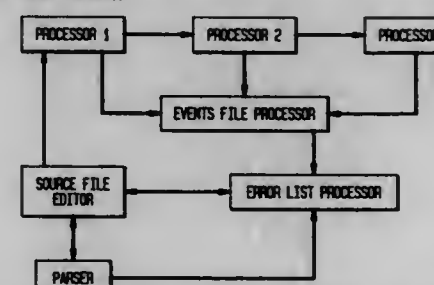
Division of Ser. No. 939,819, Sep. 3, 1992, abandoned. This

application Aug. 8, 1994, Ser. No. 287,640

Int. Cl. G06F 11/00

U.S. Cl. 395—185.1

5 Claims



1. A computer program product comprising a computer usable medium having computer readable program code means embodied

in said medium for use in a computer system to display error messages associated with a user's source code, the system having a processor, a memory, means for receiving user input and a source code editor, said computer program product comprising:

first program code means for causing the storing of an error message data entry in an error list in the memory of the computer designating an error type and specifying the location of the error in the source code, the error having been detected by second program code means when a unit of source code has been processed responsive to said means for receiving user input;

third program code means for causing the displaying of displayed data, in human understandable form, indicative of at least one selected error, responsive from said means for receiving user input, from the error list and dynamically locating, in response to said selected error, a portion of the source code containing the error, and causing the displaying, concurrently with but separately from said displayed data, said portion of the source code containing the error;

fourth program code means for causing the altering of the error list to indicate when the specified location in the source code has been modified or deleted by a source code editor responsive to said means for receiving user input; and

fifth program code means for causing the repeating of the displaying and altering steps until input, received from said means for receiving user input, indicative of a command to halt is received.

5,673,391

HARDWARE RETRY TRAP FOR MILLICODED PROCESSOR

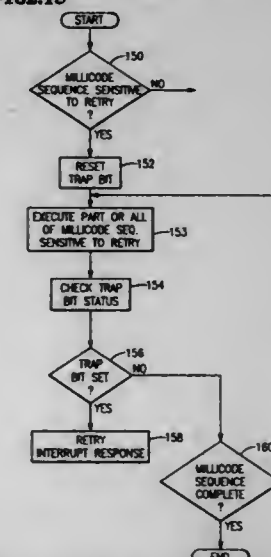
Charles Franklin Webb, Poughkeepsie; Mark Steven Farrell, Pleasant Valley, and Scott Barnett Swaney, Catskill, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 31, 1995, Ser. No. 414,977

Int. Cl. G06F 11/34

U.S. Cl. 395—182.18

12 Claims



1. In a pipelined computer processor, which executes a relatively simple instruction set in a hardware controlled execution unit and executes a relatively complex instruction set in a milli-mode architected state with a millicode sequence of simple instructions in said processor hardware controlled execution unit, a method for responding to a processor hardware retry operation occurring during processor execution of a millicode instruction sequence, including the steps of:

setting, when a retry operation is performed by the processor, a retry register latch in a register that can be written to and read by millicode instructions;

resetting the retry register latch with a millicode instruction sequence at the beginning of said millicode instruction sequence if said millicode instruction sequence is sensitive to a hardware retry operation during said millicode instruction sequence;

testing the state of said retry register latch during execution of said millicode instruction sequence to determine if said retry register latch has been set during execution of said millicode instruction sequence; and

initiating an action response if the testing step indicates the retry register latch has been set.

5,673,392 METHOD OF EXECUTING COMMUNICATION PROGRAM IN MODEM APPARATUS

Tatsuya Nakashima, Yokosuka, and Tomoyasu Shimizu, Sagami-hara, both of Japan, assignors to Murata Mfg. Co., Ltd., Kyoto, Japan

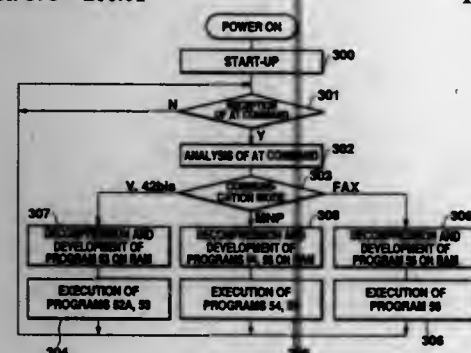
Filed Apr. 26, 1995, Ser. No. 429,145

Claims priority, application Japan, Apr. 26, 1994, 6-088661; Mar. 16, 1995, 7-056877

Int. Cl. G06F 13/00

U.S. Cl. 395—200.01

14 Claims



1. A method of executing program in a modem apparatus that includes a random access memory work area and a first processor configured to respond to commands from a data terminal equipment containing a second processor, the method comprising:

- a first step of storing in the first processor: (a) a program decompression program executable immediately by the first processor and representing a data decompression algorithm and (b) a first program defining the operation of the first processor and compressed previously according to a data compression algorithm reciprocal to said data decompression algorithm;
- a second step of decompressing the first program by executing said program decompression program with said first processor of said modem apparatus to convert said first program into a form immediately executable by the first processor;
- a third step of storing said first program in the random access memory work area of the first processor after the second step has been executed; and
- a fourth step of executing the first program stored in the random access memory work area with said first processor of said modem apparatus.

5,673,393 MANAGING BANDWIDTH OVER A COMPUTER NETWORK HAVING A MANAGEMENT COMPUTER THAT ALLOCATES BANDWIDTH TO CLIENT COMPUTERS UPON REQUEST

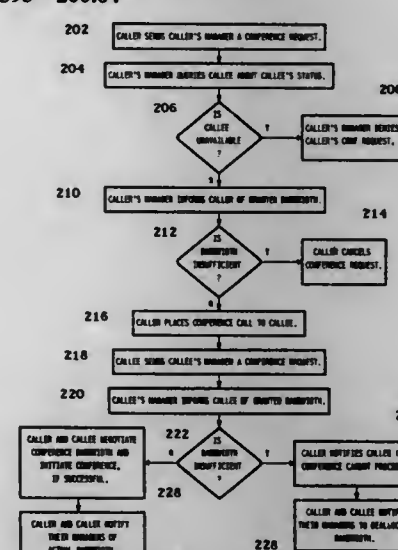
Robert Alexander Marshall, Portland; Philip R. Lantz, Cornelius, and David B. Johnson, Portland, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 342,076, Nov. 16, 1994, which is a continuation-in-part of Ser. No. 340,172, Nov. 15, 1994, which is a continuation-in-part of Ser. No. 157,694, Nov. 24, 1993, Pat. No. 5,506,954. This application Feb. 6, 1996, Ser. No. 597,320

Int. Cl. H04Q 11/04

U.S. Cl. 395—200.04

21 Claims



1. A computer system, comprising:

- a management computer; and
- two or more client computers, wherein:

- the management computer and the client computers are electrically interconnected over a packet-switched computer network;
- a first client computer requests an allocation of a specific amount of transmission bandwidth from the management computer for transmissions over the network with a second client computer;
- the management computer determines whether to grant permission to the first client computer and if so the management computer allocates transmission bandwidth for the first client computer, wherein the allocated transmission bandwidth is less than the requested transmission bandwidth;
- the management computer informs the first client computer of the allocated transmission bandwidth; and
- the first client computer initiates transmissions over the network with the second client computer based on the allocated transmission bandwidth.

5,673,394 METHOD OF SHARING MEMORY BETWEEN AN OPERATING SYSTEM AND AN APPLICATION PROGRAM

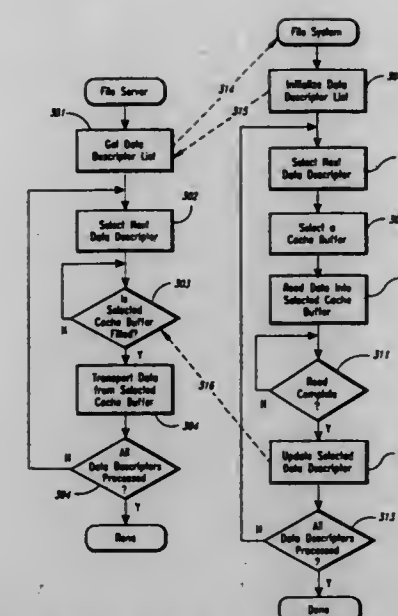
Thomas Fenwick, and Darryl E. Rubin, both of Redmond, Wash., assignors to Microsoft Corporation, Redmond, Wash. Continuation of Ser. No. 608,154, Oct. 31, 1990, abandoned. This application Aug. 30, 1993, Ser. No. 113,798

Int. Cl. H01J 13/00

U.S. Cl. 395—200.08

11 Claims

1. A method in a computer system for concurrent access of a plurality of portions of external data loaded by an operating system



for an application program, the computer having computer memory, the method comprising:

- the following steps performed by an operating system:
 - receiving a request of an application program for access to a plurality of portions of external data;
 - initializing a list of pointers with a predefined value, the pointers for pointing to buffers within the computer memory and being accessible by the application program; and
 - for each of the plurality of portions of the external data, retrieving the portion of the external data; storing the retrieved portion in a buffer; and updating a pointer in the list of pointers to point to the buffer containing the retrieved portion; and
- the following steps performed by an application program:
 - for each pointer in the list of pointers,
 - when the pointer has been updated to point to a buffer containing the retrieved portion, accessing the portion of the external data stored in the buffer pointed to by the updated pointer before the operating system has completed storing all of the portions of the external data in the buffers.

5,673,395 PROCESS FOR CONSTRUCTING COMPUTER NETWORK SYSTEM OF TENANT INTELLIGENT BUILDING

Jun Kawakita, 14-4, Shinohara-nishicho, Kohoku-ku, Yokohama-shi, Kanagawa-ken, Japan

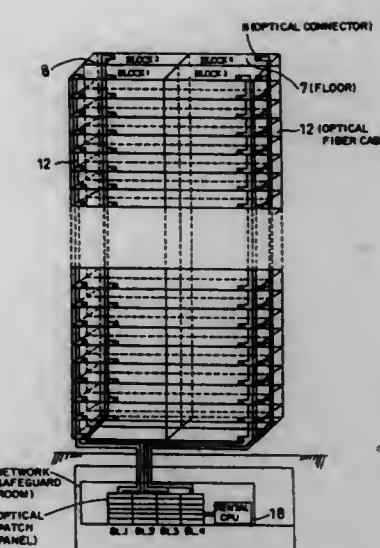
Filed Apr. 19, 1993, Ser. No. 49,518

Int. Cl. G06F 13/40

U.S. Cl. 395—200.21

7 Claims

1. A computer network power distribution system for supplying a plurality of distinct computer networks, the system comprising:
 - a structure having at least ten distinct levels, each of said levels divided into at least four blocks;
 - a plurality of optical connectors, at least one optical connector of the plurality associated with each of the blocks;
 - a plurality of optical fiber cables having at least four cores, respective ones of the plurality of optical fiber cables connected to each of the optical connectors;
 - a plurality of drop cables for connecting bundles of the optical fiber cables on a same level with bundles of the optical fiber cables on other levels of the structure; and
 - a central optical patch panel providing connections for each of the plurality of optical fiber cables, the optical patch panel constructed for the optical fiber cables to be reconfigurably



interconnected to one another to supply the plurality of distinct computer networks.

5,673,396 ADJUSTABLE DEPTH/WIDTH FIFO BUFFER FOR VARIABLE WIDTH DATA TRANSFERS

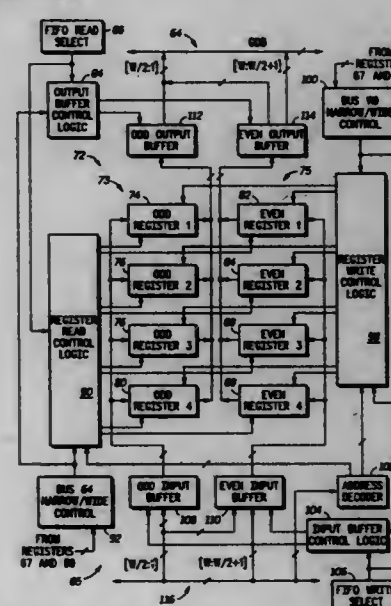
Leonid Smolansky, orot; Shai Kowal, ramat-gan; Avner Goren, givat-tal, and David Galanti, natania, all of Israel, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 16, 1994, Ser. No. 357,909

Int. Cl. G06F 13/00

U.S. Cl. 395—250

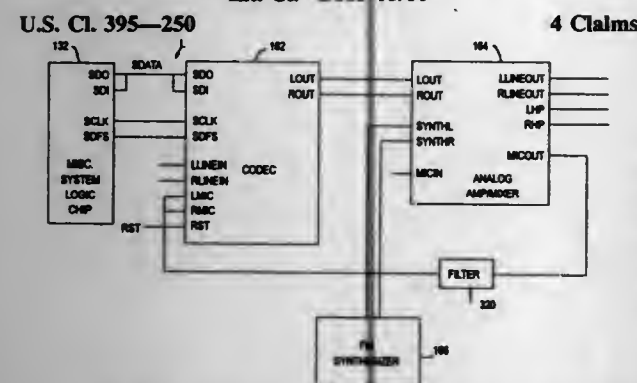
10 Claims



1. A data processing system having a first-in, first-out buffer, the first-in, first-out buffer comprising:
 - a plurality of storage elements, the plurality of storage elements organized as a first section and a second section, each storage element of the plurality of storage elements having a plurality of input terminals coupled to a first bus, and a plurality of output terminals coupled to a second bus; and
 - a control logic circuit, coupled to the plurality of storage elements, for controlling access to the first section and to the second section;
- wherein the plurality of storage elements have a first width and a first depth in response to the control logic circuit independently accessing the first and second sections, and the plural-

ity of storage elements have a second width and a second depth in response to the control logic circuit accessing the first and second sections together, and wherein one of either the first depth and the second depth is provided depending which of the first width or second width is used.

5,673,397
FIFO QUEUE HAVING REPLACEABLE ENTRIES
 Patrick L. Ferguson, Houston, and David J. Maguire, Spring, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.
 Continuation of Ser. No. 196,586, Feb. 14, 1994, Pat. No. 5,596,725. This application Jul. 29, 1996, Ser. No. 681,833
 Int. Cl.⁶ G06F 13/00

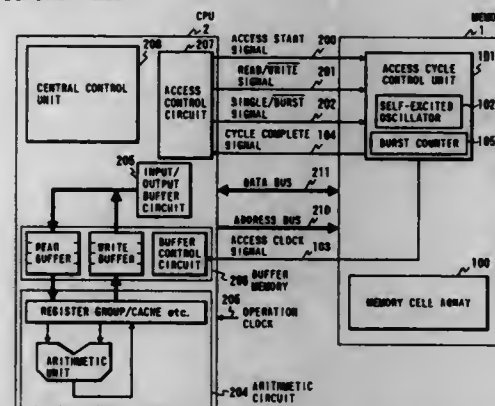


1. A circuit for transferring data from a first device to a second device, wherein the first device performs a write operation to transfer data to the second device by a serial link, the circuit comprising:

- a plurality of registers addressable by the first device for storing data to be transferred from the first device to the second device;
- a write operation detection circuit wherein said write operation detection circuit detects a write operation to one of said plurality of registers;
- a storage response circuit operable in response to said write operation circuit and storing the data of a detected write operation to said one of said plurality of registers;
- a FIFO queue for storing addresses of said plurality of registers;
- an address determination circuit coupled to said FIFO queue for determining if the address of one of said plurality of registers is stored in said FIFO queue;
- an address addition circuit responsive to said address determination circuit and said write operation detection circuit, said address addition circuit adding the address of said one of said plurality of registers to said FIFO queue if said address is not stored in said FIFO queue when said write operation is detected, and not adding the address of said one of said plurality of registers to said FIFO queue if said address is stored in said FIFO queue when said write operation is detected; and
- a data provision circuit coupled to said plurality of registers and said FIFO queue, said data provision circuit performing a parallel to serial conversion of the data, and further providing the data from the register of said plurality of registers indicated by the address at the top of said FIFO queue to the second device and for shifting said addresses stored in said FIFO queue when said data is provided.

5,673,398
DATA TRANSFER CONTROL METHOD, AND PERIPHERAL CIRCUIT, DATA PROCESSOR AND DATA PROCESSING SYSTEM FOR THE METHOD
 Hiroshi Takeda, Higashiyamato, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
 Filed Jan. 6, 1995, Ser. No. 369,722
 Claims priority, application Japan, Jan. 21, 1994, 6-021969
 Int. Cl.⁶ G06F 13/36

U.S. Cl. 395-285 6 Claims

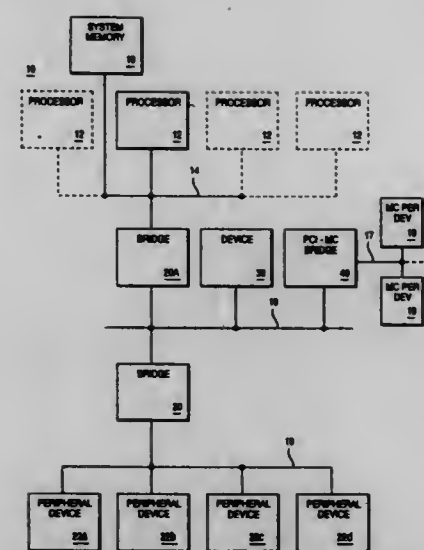


1. A method of controlling a data transfer between a data processor operating in synchronism with first clock signals, the data processor having a buffer memory and an arithmetic circuit, and a memory operating in synchronism with second clock signals outputted from a self-excited oscillator incorporated therein, the first clock signals being asynchronous with the second clock signals, the method comprising the steps of: sending an access request from the data processor to the memory, the access request including address signals; performing an internal operation in the memory in accordance with the access request in synchronism with the second clock signals; sending the second clock signals from the memory to the data processor; transferring data from the memory to the data processor in synchronism with the second clock signals; writing the transferred data in the buffer memory of the data processor in synchronism with the second clock signals; and, outputting the data from the buffer memory to the arithmetic circuit in the data processor in synchronism with the first clock signals.

5,673,399
SYSTEM AND METHOD FOR ENHANCEMENT OF SYSTEM BUS TO MEZZANINE BUS TRANSACTIONS
 Guy Lynn Guthrie, Austin; Danny Marvin Neal, Round Rock; Edward John Silha, and Steven Mark Thurber, both of Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Nov. 2, 1995, Ser. No. 552,034
 Int. Cl.⁶ G06F 13/00

U.S. Cl. 395-308 14 Claims

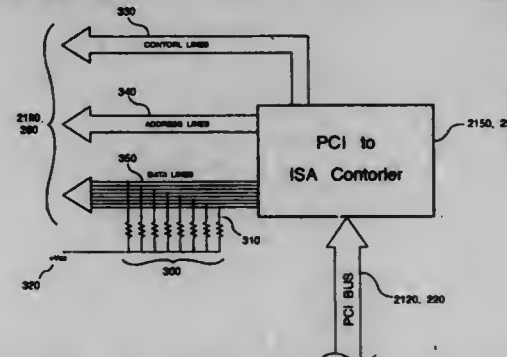
1. A data processing system, comprising: a system bus connecting at least one processor with a memory; an I/O bus, having a protocol different from said system bus; at least one peripheral device, connected to said I/O bus, that shares data with said memory and said at least one processor; and a bridge, for interconnecting said I/O bus to said system bus and controlling a sequence of transactions to prevent a deadlock condition by causing a first data transfer between said at least one peripheral device and said memory to be completed before a second data transfer between said at least one processor and said at least one peripheral device is completed; wherein said at least one peripheral device suspends processing activity until said first data transfer is completed; and



wherein said bridge includes a first buffer for storing a request from said at least one peripheral device to said memory corresponding to said first data transfer; a second buffer for storing a request from said at least one processor to said at least one peripheral device corresponding to said second data transfer; a third buffer, parallel to said second buffer, for storing a reply from said memory including data corresponding to said first data transfer; and means for causing said reply from said memory to bypass said request from said at least one processor, such that said at least one peripheral device can continue processing activity.

5,673,400
METHOD AND APPARATUS FOR IDENTIFYING AND CONTROLLING A TARGET PERIPHERAL DEVICE IN A MULTIPLE BUS SYSTEM
 John D. Kenny, Sunnyvale, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.
 Continuation-in-part of Ser. No. 466,627, Jun. 6, 1995. This application Jun. 7, 1995, Ser. No. 478,579
 Int. Cl.⁶ G06F 9/46; 13/38

U.S. Cl. 395-309 18 Claims



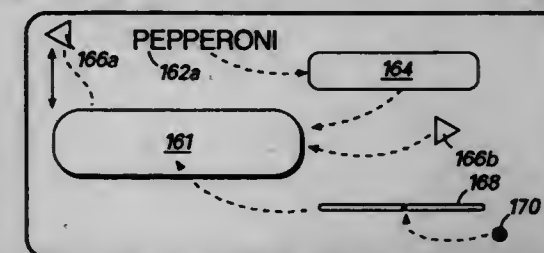
1. A multiple bus computer system, comprising: a first bus system of a first type for interfacing with a central processing unit; a second bus system of a second type for transmitting data and control signals to and from at least one device; a primary bus controller, coupled to said first bus system and said second bus system, for controlling the second bus system; at least one third bus system of the second type, for transmitting data and control signals to and from at least one other device; and at least one secondary bus controller, coupled to said first bus system and said third bus system, for controlling the at least a third bus system,

wherein said at least one secondary bus controller receives interrupt requests from said at least one third bus system over said first bus system and outputs an interrupt signal on said first bus system to said primary bus controller indicative of interrupt requests generated on said at least one third bus system.

5,673,401
SYSTEMS AND METHODS FOR A CUSTOMIZABLE SPRITE-BASED GRAPHICAL USER INTERFACE
 Patrick Michael Volk, Kirkland; Michael Breed Robin, Redmond; Edwin Thorne, III, Seattle, and JoGene Kapell, Bellevue, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Jul. 31, 1995, Ser. No. 509,083
 Int. Cl.⁶ G06F 3/00

U.S. Cl. 395-327 28 Claims



1. In a computer system for running program modules, a method of displaying a control item on a display screen and for graphically manipulating user controls imparted to the control item via a user input device, comprising the steps of: providing a plurality of control objects, each of the plurality of control objects having at least one control item associated therewith; arranging the plurality of control objects in a hierarchy with at least one parent control object and at least one child control object associated with the parent control object; displaying a parent control item associated with the parent control object on the display screen; displaying a child control item associated with the child control object on the display screen; in response to a predetermined first condition, manipulating the parent control item and the child control item to cause a first predetermined user interface effect; and in response to the relocation under program control of the child control item from a first predetermined location to a second predetermined location in a series of successive display frames, manipulating the child control item relative to the parent control item to cause the relocation of the child control item independently of the parent control item.

5,673,402
COMPUTER SYSTEM FOR PRODUCING AN ILLUSTRATION OF AN INVESTMENT REPAYING A MORTGAGE
 Ronald D. Ryan, Wilton, Conn.; Ronald G. Marquart, Towson, Md., and Timothy S. Millwood, Atlanta, Ga., assignors to The Homeowner's Endorsement Plan Incorporated, Stamford, Conn.

Filed Aug. 17, 1992, Ser. No. 912,978
 Int. Cl.⁶ G06F 15/00

U.S. Cl. 395-238 309 Claims

307. A method for using a machine for producing an illustration of an investment for repaying an amount of a mortgage, the method comprising: entering an amount for a mortgage at a terminal to be electronically conveyed to a digital electrical computer programmed to compute, in response to receipt of the entered amount for the mortgage and a selection of an investment made at the termi-

sending a first signal by a second device during the designated coherency response interval indicating that the coherency information will be returned during a second interval; and sending a second signal to provide the coherency information to the first device during the second interval.

5,673,414
SNOOPING OF I/O BUS AND INVALIDATION OF PROCESSOR CACHE FOR MEMORY DATA TRANSFERS BETWEEN ONE I/O DEVICE AND CACHEABLE MEMORY IN ANOTHER I/O DEVICE

Nader Amini; Bechara Fouad Boury; Sherwood Brannon, all of Boca Raton, and Richard Louis Horne, Boynton Beach, all of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

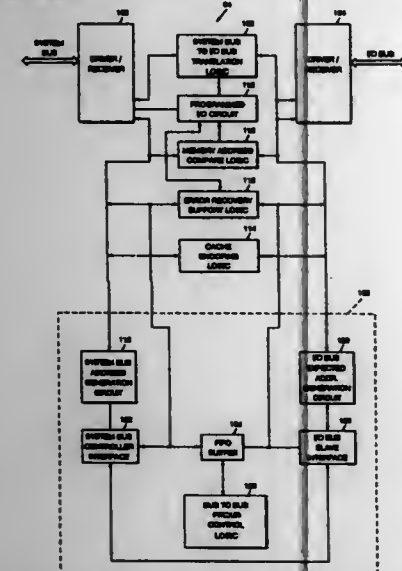
Continuation of Ser. No. 816,204, Jan. 2, 1992, abandoned.

This application Oct. 21, 1994, Ser. No. 327,136

Int. Cl.⁶ G06F 13/00; 13/36; 13/40

U.S. Cl. 395-473

17 Claims



1. A computer system containing: a CPU (central processing unit), a cache coupled to said CPU, and system memory coupled to said CPU; said computer system further comprising:

an I/O bus for connecting said computer system to I/O devices; said I/O bus supporting memory data transfers between said I/O devices and said cache, and I/O and memory data transfers between pairs of said I/O devices, said memory data transfers between said I/O devices and said cache including data transfers between cacheable memory locations contained in said I/O devices and memory locations contained in said cache, and said memory data transfers between said pairs of I/O devices including data transfers between one I/O device controlling said I/O bus and cacheable memory locations contained in another I/O device; and

a bus interface unit coupled between said I/O bus and said cache; said bus interface unit comprising:

means to identify said cacheable memory locations contained in said I/O devices; bus snooping logic, coupled to said I/O bus and said means to identify said cacheable memory locations, for monitoring said memory data transfers on said I/O bus between said pairs of I/O devices, and detecting when data is being written by said one I/O device controlling said I/O bus to a cacheable memory location contained in said another I/O device; and

invalidation signalling logic means responsive to detection by said bus snooping logic that data is being written by said one I/O device to a cacheable memory location contained in said another I/O device for directing an invalidation signal to said cache; said invalidation signal including the

address of the cacheable memory location in said another I/O device to which data is being written and serving to cause invalidation of a location in said cache corresponding to said address if said cache currently contains a location corresponding to said address.

5,673,415
HIGH SPEED TWO-PORT INTERFACE UNIT WHERE READ COMMANDS SUSPEND PARTIALLY EXECUTED WRITE COMMANDS

Kha Nguyen, Anaheim; Theodore Curt White, Tustin, and Bruce Edward Moolenaar, Laguna Niguel, all of Calif., assignors to Unisys Corporation, Blue Bell, Pa.

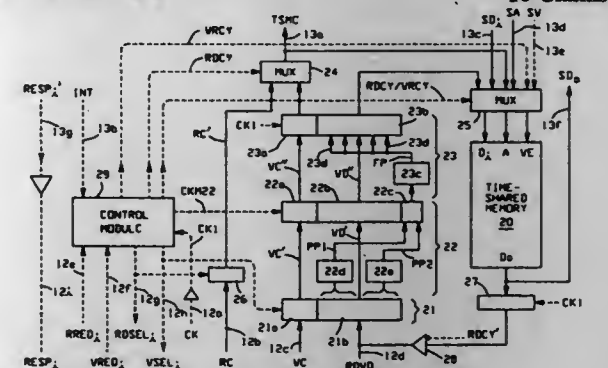
Continuation of Ser. No. 161,963, Dec. 3, 1993, abandoned.

This application Aug. 14, 1996, Ser. No. 698,212

Int. Cl.⁶ G06F 12/00; 13/00

U.S. Cl. 395-476

10 Claims



1. A storage interface unit which is comprised of:

a primary I/O port that includes a clock line which carries a cyclic clock signal, a time-shared data bus, write command lines, and read command lines;

a write input circuit which receives write commands from said write command lines and simultaneously receives accompanying write data words from said time-shared data bus, at a rate of one write command and one data word per clock cycle; several write execution modules which are serially intercoupled from said write input circuit to a time-shared memory and which execute said received write commands by passing each such command and accompanying write data word through said write execution modules in a pipelined fashion to said time-shared memory;

a read input circuit which in a single clock cycle, receives a read command while said write commands are being executed;

a control circuit having control lines coupled to said write input circuit and write execution modules and time-shared memory and read input circuit, which in response to the received read command

a) temporarily suspends the execution of said received write commands after their passage through said execution modules has begun;

b) read data from said time-shared memory in a first clock cycle immediately after said read command is received by bypassing said serially intercoupled write execution modules; and

c) sends data from said memory on said time-shared data bus in a second clock cycle immediately after said first clock cycle; and

a second I/O port that includes an interrupt input line for carrying an interrupt signal; and wherein said control circuit includes interrupt response logic which, while said interrupt signal is present, a) inhibits said write input circuit and read input circuit from receiving any commands, b) inhibits said serially intercoupled write execution modules from passing write commands to said time-shared memory, and c) enables said time-shared memory to be read and written from said secondary I/O port.

5,673,416
MEMORY REQUEST AND CONTROL UNIT INCLUDING A MECHANISM FOR ISSUING AND REMOVING REQUESTS FOR MEMORY ACCESS

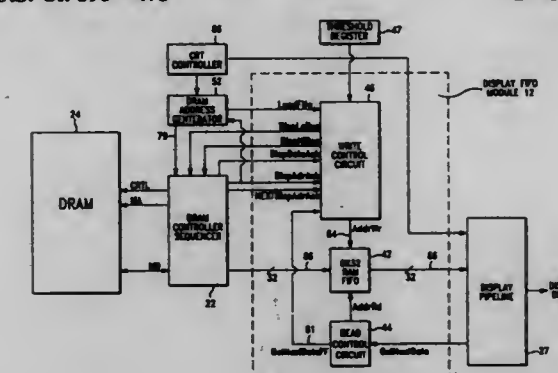
Lawrence Chee, and David Tucker, both of Vancouver, Canada, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 485,876

Int. Cl.⁶ G06F 13/14

U.S. Cl. 395-478

27 Claims



1. In an information processor having a CPU in communication with memory, a memory request generation and control unit, comprising:

a memory request generator for issuing prioritized requests comprising first and second requests for data for loading into a first-in-first-out device (FIFO), comprising:

determining means for determining a FIFO data level of the FIFO;

first comparator means, responsive to said determining means, for comparing the FIFO data level against a predetermined first value;

second comparator means, responsive to said determining means, for comparing the FIFO data level against a predetermined second value lower than the first value, the second value representing a FIFO underrun threshold;

counter means for counting the number of data elements to be loaded into the FIFO and providing an output whenever a predetermined number has been counted;

first generator means, responsive to said first comparator means and said counter means, for issuing the first request for data when the FIFO data level falls below or is equal to the first value and for removing an issued first request for data when said counter means provides the output and the FIFO data level determined by said determining means is greater than the first value; and

second generator means, responsive to said second comparator means and said counter means, for issuing the second request for data when the FIFO data level falls below or is equal to the second value and for removing an issued second request for data when said counter means provides the output and the FIFO data level determined by said determining means is greater than the second value; and

a memory controller in communication with said memory request generator, the CPU, and memory for receiving and arbitrating among the first, second and a third request for data issued by the CPU according to a predetermined priority scheme.

5,673,417
ELECTRONIC ORGANIZER WITH A FLASH MEMORY AND ASSOCIATED DATA ARCHIVING

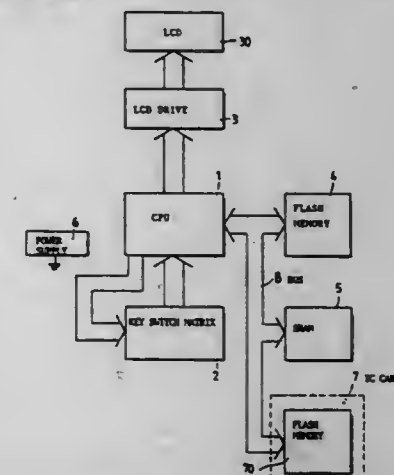
Thomas Liao, Taipei, Taiwan, assignor to Inventec Corporation, Taipei, Taiwan

Filed Jul. 20, 1995, Ser. No. 504,659

Int. Cl.⁶ G06F 12/16

U.S. Cl. 395-488

4 Claims



1. An electronic organizer comprising: a CPU (central processing unit) for controlling the operation of the organizer, a key switch means for inputting instructions and data into said CPU by an user, a display means driven to display data from said CPU, a display means drive controlled by said CPU to drive said display means in displaying data from said CPU, and a power supply for providing the organizer with the necessary working voltage, wherein a flash memory and a SRAM (static random access memory) are installed and connected to said CPU by a bus, said flash memory comprising a program storage zone for storing the system control program, and a personal data storage zone for storing personal data, said personal data storage zone being divided into a plurality of sub-data storage zones for storing different personal data, said SRAM comprising a system parameter storage zone for storing a plurality of system parameters, and a personal data working zone for registering data from said personal data storage zone of said flash memory.

wherein when the system control program of said flash memory is executed, said CPU is at the stand-by mode to wait for input instructions and data from said key switch means; when the user selects the desired personal data from said flash memory through said key switch means, said CPU is driven to fetch the respective data from said flash memory and register the data in the personal data working zone of said SRAM for permitting the user to search or edit the data in the personal data working zone of said SRAM by means of the parameters in the system parameter storage zone of said SRAM; the registered data will not be sent from the personal data working zone of said SRAM back to said flash memory when the search is done and will be sent from the personal data working zone of said SRAM back to said flash memory after when the data is edited.

5,673,418
METHOD AND APPARATUS FOR EMULATING THE OPERATIONS OF AN EMULATED SYSTEM TERMINAL DRIVER ON A HOST SYSTEM

James W. Stonier, Tewksbury, and Michael E. Tessier, Tyngsboro, both of Mass., assignors to Bull HN Information Systems Inc., Billerica, Mass.

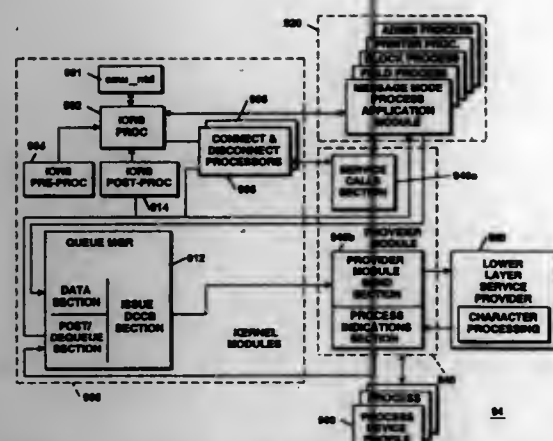
Filed Oct. 7, 1994, Ser. No. 319,848

Int. Cl.⁶ G06F 3/00; 13/00

U.S. Cl. 395-500

19 Claims

13. A first driver (NTD) component having a number of different operational modes for use in a host system having a memory and a hardware platform including a number of terminals used to enter



commands for running user applications and for viewing results generated during running user applications, a host input/output services component operatively connected to different ones of the number of terminals for executing host system instructions of user applications wherein at least one user application designed to use a second terminal driver (ATD) component, the second driver component having a family of operational modes defined by device specific information included in an input/output request block (IORB) associated with each request issued by a user application, the NTD component being operatively coupled to the input/output services component, the host system further including operating system facilities for providing services for host programs and for initially configuring each of number of terminals which is to utilize the family of second driver operational modes and the NTD component, the NTD component comprising:

an input section in response to a monitor call received from a user application for determining which driver software is servicing one of the number of terminals being used to run the user application, generating a response indicating that the second driver component is servicing the terminal when the terminal has been previously configured by a user to use the family of second driver operational modes;

a preprocessor operatively coupled to the input section for receiving each request issued by the user application being run by the configured terminal, the preprocessor including a mechanism for translating second driver device specific information in the request IORB into NTD device specific information defining equivalent ones of the different operational modes to be used for executing the request by the NTD component operating in an second driver mode of operation which determines if the request is executable by the NTD component; and,

a post processor operatively coupled to the input/output services component for receiving status information resulting from each executed request, the post processor mapping the status information into the same format as status which would have been returned by the second driver component enabling the application to run unmodified in the host system.

5,673,419 PARITY BIT EMULATOR WITH WRITE PARITY BIT CHECKING

Ashraf Nisar, Anaheim, Calif., assignor to Simple Technology, Incorporated, Santa Ana, Calif.

Filed May 19, 1995, Ser. No. 444,963

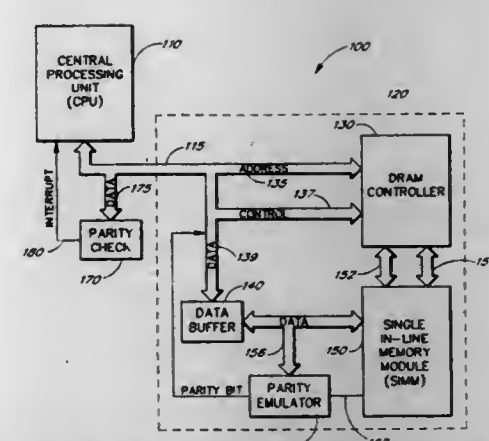
Int. Cl. G06F 11/10

U.S. Cl. 395—500

19 Claims

1. A parity bit emulator for operation within a computer system having a central processing unit (CPU) and a memory, and wherein transfer of data to said memory constitutes a data write while transfer of data from said memory constitutes a data read, said emulator comprising:

circuitry in communication with said CPU and said memory via a bus wherein said circuitry emulates a parity bit of a first system parity type to be associated with first data transferred along said bus during read cycles and checks parity associated



with second data transferred along said bus during write cycles, said circuitry comprising:

a plurality of data inputs which are configured to receive data bits provided by said computer system;

parity bit generation circuitry having inputs which connect to said data inputs and an output which provides an emulated parity bit of said first system parity type in response to the application of said data to said data inputs during a read cycle;

a parity bit input which receives a parity bit associated with said input data bits during a write cycle; and

a parity error determination circuit which (a) receives (i) said parity bit and (ii) an output of said parity bit generation circuit during a write cycle and (b) compares said input parity bit and said output of said parity bit generation circuitry to provide an error signal without changing said first system parity type if said input parity bit is different than said output of said parity bit generation circuitry.

5,673,420 METHOD OF GENERATING POWER VECTORS FOR CELL POWER DISSIPATION SIMULATION

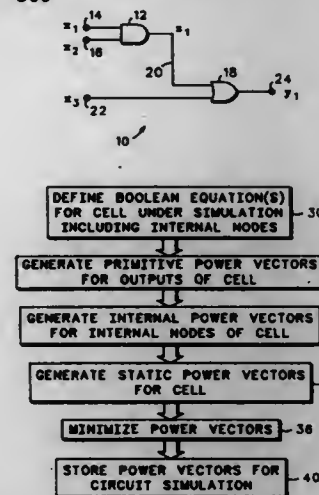
Alberto J. Reyes, Phoenix; Gary K. Yeap, Gilbert, and James P. Garvey, Chandler, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 254,831, Jun. 6, 1994, abandoned. This application Aug. 26, 1996, Ser. No. 702,852

Int. Cl. G06F 17/50

U.S. Cl. 395—500

14 Claims



1. A method of generating power vectors for power dissipation simulation of a cell, comprising the steps of:

generating primitive power vectors that cause an output of the cell to transition by,

(a) defining a Boolean function describing logical operation of the cell,

(b) generating a Boolean difference function for each combination of output y and x_i of the cell,

(c) expressing said Boolean difference function in sum-of-products notation to isolate product terms,

(d) generating first and second power vectors for each of said product terms based on said Boolean difference function,

(e) incrementing a variable x_i through inputs x_i ,

(f) assigning said variable x_i of said first vector as rising when $x_i = x_i$,

(g) assigning said variable x_i of said second vector as rising when $x_i = x_i$,

(h) assigning said variable x_i of said first and second vectors as logic one when $x_i \neq x_i$, and said product term is uncomplemented,

(i) assigning said variable x_i of said first and second vectors as logic zero when $x_i \neq x_i$, and said product term is complemented, and

(j) assigning said variable x_i of said first and second vectors as don't care when $x_i \neq x_i$, of said product term is absent,

generating internal power vectors that cause an internal node to transition without transitioning said output of the cell;

generating static power vectors for the cell;

providing a minimal set of power vectors from said primitive power vectors and said internal power vectors and said static power vectors;

storing the minimal set of power vectors from said primitive power vectors, said internal power vectors, and said static power vectors in a computer-readable medium;

performing a circuit simulation with said minimal set of power vectors to determine power dissipation for the cell;

implementing a layout of a circuit in accordance with the circuit simulation; and

generating a set of photomasks in accordance with the layout of the circuit.

5,673,421 DRAWING ARRANGING SYSTEM

Takahisa Shirakawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

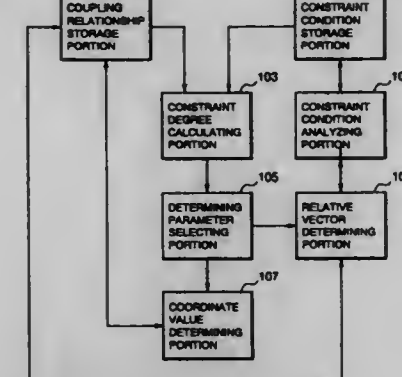
Filed Dec. 26, 1995, Ser. No. 578,498

Claims priority, application Japan, Dec. 26, 1994, 6-322635

Int. Cl. G06T 1/60

U.S. Cl. 395—508

12 Claims



1. A drawing arranging system comprising:

a first storage means for storing a coupling relationship between an aggregate of characteristic points representing a drawing, and for storing an aggregate of relative vectors connecting the characteristic points, wherein each of said relative vectors comprises a length and a direction;

a second storage means for storing relational expressions as constraint conditions, wherein the relational expressions relate the length and the direction of each of said relative vectors;

a parameter selecting means for selecting non-determined parameters from a plurality of parameters according to a predetermined rule; and

a drawing arranging means for sequentially assigning values to the non-determined parameters selected by said parameter selecting means, and for performing re-arrangement of said drawing by updating an attribute of said drawing.

5,673,422 SEMICONDUCTOR INTEGRATED CIRCUIT FOR PROCESSING IMAGE DATA

Hiroyuki Kawai, Yoshitsugu Inoue, and Hisashi Nakamura, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

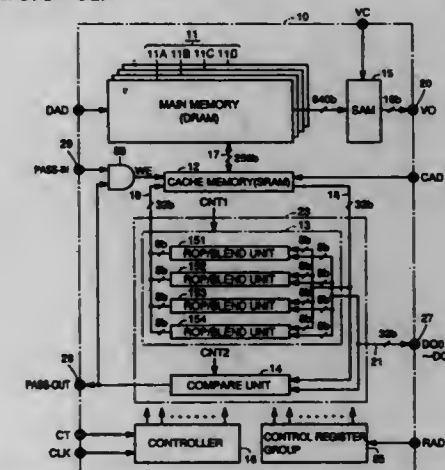
Filed Jan. 23, 1995, Ser. No. 376,618

Claims priority, application Japan, Jan. 21, 1994, 6-005275; Jul. 22, 1994, 6-171047

Int. Cl. G06F 15/76

U.S. Cl. 395—519

40 Claims



2. A semiconductor integrated circuit device comprising:

a semiconductor substrate,

a data input/output terminal for receiving externally applied image data,

first memory means formed at said semiconductor substrate for storing a plurality of image data,

second memory means formed at said semiconductor substrate for storing a plurality of image data, said second memory means having at least three ports for receiving and/or transferring image data,

first transfer means formed at said semiconductor substrate for transferring image data from/to said first memory means to/from a first port of said second memory means,

image processing means formed at said semiconductor substrate for carrying out a predetermined process according to first and second image data,

second transfer means formed at said semiconductor substrate for transferring said first image data from a second port of said second memory means to said image processing means,

third transfer means formed at said semiconductor substrate for transferring said second image data from said data input/output terminal to said image processing means, and

fourth transfer means formed at said semiconductor substrate for transferring resultant data from said image processing means to a third port of said second memory means, wherein

a larger amount of image data is transferable via said first transfer means than via said second and fourth transfer means.

5,673,423 METHOD AND APPARATUS FOR ALIGNING THE OPERATION OF A PLURALITY OF PROCESSORS

W. Daniel Hillis, Brookline, Mass., assignor to TM Patents, L.P., Boston, Mass.

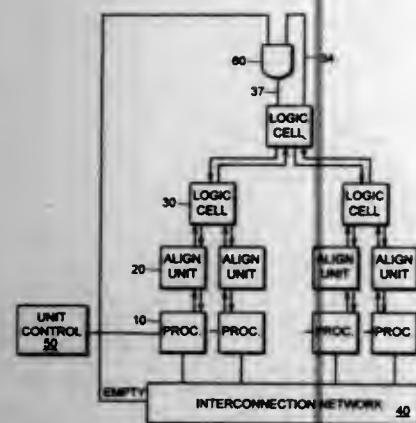
Division of Ser. No. 53,979, Apr. 26, 1993, Pat. No. 5,388,262, which is a division of Ser. No. 530,484, May 29, 1990, Pat. No. 5,222,237, which is a continuation of Ser. No. 151,386, Feb. 2, 1988, abandoned. This application Nov. 23, 1994, Ser. No. 344,260

Int. Cl. G06F 15/16; 15/173

U.S. Cl. 395—553

1 Claim

1. A method of controlling a computer system comprising a plurality of processors, each processor processing a separate instruction stream, each instruction stream comprising instructions of a plurality of instruction types including an alignment request



type, an alignment test type, and at least one other instruction type, and each instruction stream including at least one instruction of the alignment request type situated in the instruction stream to be executed at one point in time, at least one instruction of the alignment test type situated in the instruction stream to be executed at a later point in time than the instruction of the alignment request type, and at least some instruction streams having an instruction of another instruction type situated for execution at a point in time between execution of the instruction of the alignment request type and the instruction of the alignment test type, the method to bring said processors into alignment comprising the steps of:

- each of said processors upon execution of an instruction from its respective instruction stream of said alignment request type generating a request indication and thereafter continuing execution of instructions, from its respective instruction stream,
- each of said processors, upon execution of an instruction from its respective instruction stream of said alignment test type, being disabled from processing subsequent instructions in its instruction stream in the absence of an alignment indication; and
- generating said alignment indication when all of said processors have generated said request indication, thereby to enable said processors to execute instructions from their respective instruction streams following the instruction of said alignment test type.

5,673,424 CIRCUIT WHICH SUPPLIES A CLOCK PULSE TO A MICROCOMPUTER

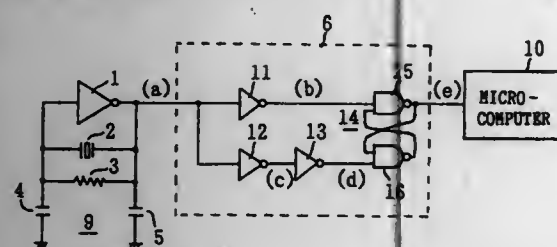
Yo Sawamura, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Continuation of Ser. No. 284,242, Aug. 2, 1994, abandoned.
This application Nov. 14, 1996, Ser. No. 748,795

Claims priority, application Japan, Aug. 6, 1993, 5-195687
Int. Cl.⁶ G06F 1/04

U.S. Cl. 395—555

1 Claim



- A microcomputer system comprising: a microcomputer; a sinusoidal wave oscillation circuit; and a sinusoidal wave/pulse converting circuit which converts an oscillation output of the sinusoidal wave oscillation circuit into a clock pulse when the oscillation output exceeds a predetermined value, said sinusoidal wave/pulse converting

circuit supplying the clock pulse to the microcomputer, wherein said sinusoidal wave/pulse converting circuit comprises:

- a first inverter, connected to said sinusoidal wave oscillation circuit, said first inverter having a threshold value on a high voltage side of a central level of an amplitude of the oscillation output;
- a second inverter, connected to said sinusoidal wave oscillation circuit, said second inverter having a threshold value on a low voltage side of the central level of the amplitude of the oscillation output;
- a third inverter, connected to an output of said second inverter, said third inverter inverts an output pulse of the second inverter; and
- a reset-set flip flop, connected to said first inverter, said third inverter, and said microcomputer, said reset flip-flop generates a clock pulse whose level changes alternately by an output of the first inverter and an output of the third inverter.

5,675,425 SYSTEM FOR AUTOMATIC GENERATING INSTRUCTION STRING TO VERIFY PIPELINE OPERATIONS OF A PROCESSOR BY INPUTTING SPECIFICATION INFORMATION HAVING TIME FOR THE PROCESSOR TO ACCESS HARDWARE RESOURCES

Hiroaki Iwashita, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

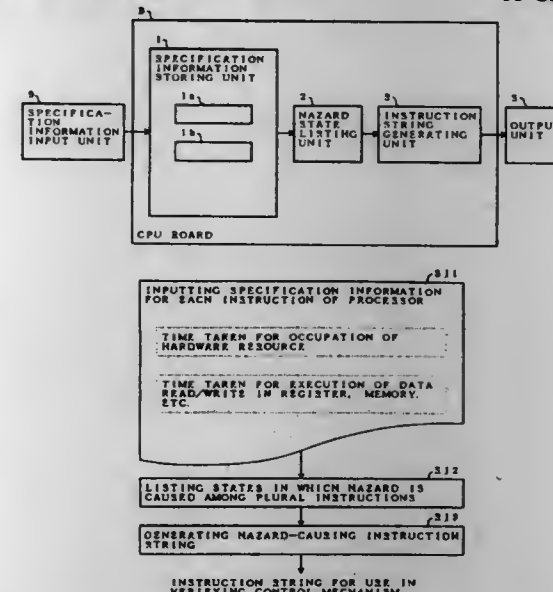
Continuation of Ser. No. 299,296, Sep. 1, 1994, abandoned.

This application Aug. 16, 1996, Ser. No. 698,755

Claims priority, application Japan, Sep. 1, 1993, 5-217813
Int. Cl.⁶ G06F 11/263

U.S. Cl. 395—568

35 Claims



- An automatic instruction string generating method for verifying operations of a pipeline control mechanism of a processor, comprising the steps of:

- inputting specification information about a pipeline process of an instruction to be executed by the processor, the specification information including time for the processor to access hardware resources for the instruction;
- listing, according to the specification information, states in which hazards are caused among a plurality of instructions in time order; and
- generating an instruction string corresponding to each of the states listed by said listing step.

5,673,426 PROCESSOR STRUCTURE AND METHOD FOR TRACKING FLOATING-POINT EXCEPTIONS

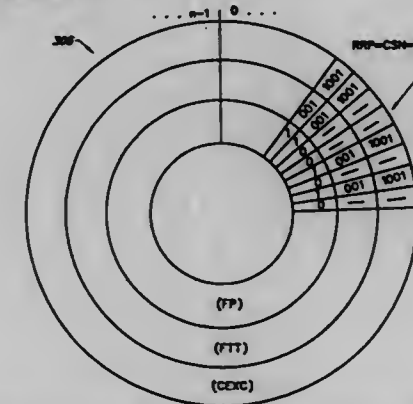
Gene W. Shen, Mountain View; John Szeto, Oakland, both of Calif., and Michael C. Shebanow, Plano, Tex., assignors to HaL Computer Systems, Inc., Campbell, Calif.

Continuation of Ser. No. 398,299, Mar. 3, 1995, abandoned, which is a continuation of Ser. No. 390,885, Feb. 14, 1995, abandoned. This application Jun. 7, 1995, Ser. No. 484,795

Int. Cl.⁶ G06F 7/46

U.S. Cl. 395—591

8 Claims



- An out of program control order execution data processor comprising:

- an issue unit to issue instructions in program control order for execution, the issued instructions including floating point instructions and non-floating point instructions;
- execution means to execute the issued instructions wherein at least the floating point instructions may be executed out of program control order by the execution means;
- a floating point exception unit including:
 - a data storage structure including storage elements, each issued instruction corresponding to one of the storage elements, each storage element having a floating point instruction identifying field and a floating point trap type field;
 - first logic to write, for each issued instruction, data in the floating point instruction identifying field of the corresponding storage element which indicates whether or not the corresponding issued instruction is a floating point instruction;
 - second logic to write, for each issued floating point instruction which causes during execution one or more floating point execution exceptions that will result in a corresponding one of a plurality of predefined types of floating point execution traps, data in the floating point trap type field of the corresponding storage element which identifies the one of the predefined types of floating point execution traps that will result;

precise state means to retire each issued instruction which does not cause an execution exception during execution and for which all issued instructions preceding it in program control order have been retired;

- when a first one of the predefined execution exceptions is caused by an issued instruction, the execution means continuing execution of issued instructions and the precise state means engaging in execution trap sequencing by continuing to retire issued instructions until it encounters an issued instruction that cannot be retired, the issued instruction that cannot be retired being one of (a) the issued instruction that caused the first execution exception, and (b) an issued instruction that was issued earlier than the issued instruction that caused the first execution exception but which caused a second execution exception occurring later than the first execution exception;
- a floating point status register having a floating point trap type field; and
- writing means to write data to the floating point trap type field of the floating point status register which identifies the type of floating point execution trap identified by the data in the floating point trap type field of the storage element corresponding to the instruction that cannot be retired when the data in the floating point identifying field of the storage

element corresponding to the instruction that cannot be retired indicates that the instruction that cannot be retired is a floating point instruction.

5,673,427 PACKING VALID MICRO OPERATIONS RECEIVED FROM A PARALLEL DECODER INTO ADJACENT LOCATIONS OF AN OUTPUT QUEUE

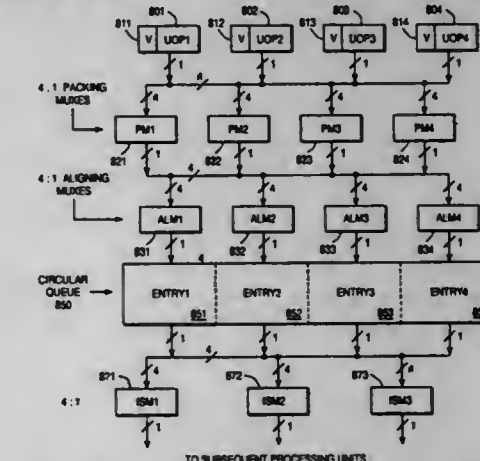
Gary L. Brown, Aloha; Adrian L. Carbine, Hillsboro, and Donald D. Parker, Portland, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 204,597, Mar. 1, 1994, abandoned.
This application Jul. 3, 1996, Ser. No. 675,419

Int. Cl.⁶ G06F 9/22

U.S. Cl. 395—595

13 Claims



- A system for queuing micro-operations supplied from a macroinstruction decoder in a processor, each micro-operation having a valid bit associated therewith, the state of the valid bit indicating whether the respective micro-operation is valid or invalid, the system comprising:

- packing circuitry coupled to receive a plurality of micro-operations from the decoder, and configured to identify a set of valid micro-operations, indicated to be valid by the states of the respective valid bits, and to output the set of valid micro-operations as a set of adjacent outputs, so as to pack the set of valid micro-operations; and
- a memory circuit comprising a plurality of entries in which to maintain a queue of micro-operations, the memory circuit being coupled to receive the set of valid micro-operations from the packing circuitry into adjacent entries of the memory circuit.

5,673,428 INFORMATION COLLECTION SYSTEM CONNECTED TO A COMMUNICATION NETWORK

Hideki Hirakawa, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 19, 1991, Ser. No. 762,373

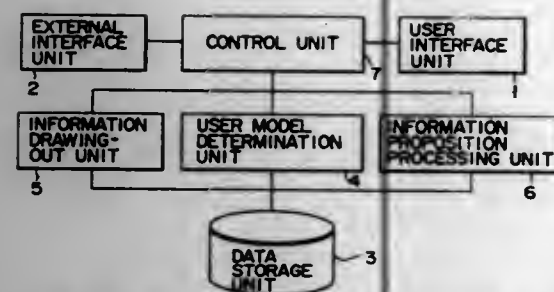
Claims priority, application Japan, Sep. 19, 1990, 2-247448
Int. Cl.⁶ G06F 17/30

U.S. Cl. 395—605

16 Claims

- An information collection system connected to a communication network for receiving a plurality of information and for collecting desired information from said communication network, comprising:

- user interface means for executing input/output information with respect to a user;
- external interface means for exchanging various types of information with a plurality of external units connected to said communication network;
- user model determination means for preparing first user-information for discriminating and modifying information



required by said user, and second user-information for defining an information proposition method in a form of user-desired format;

information drawing-out means for drawing out information input from said external interface means in accordance with said first user-information;

information modify means for modifying the drawn out information into a user-desired information by performing desired processing in accordance with the first user-information;

information proposition processing means for converting information modified by said information modify means into a proposition form for said user in accordance with said second information;

output means for outputting information converted by said information proposition processing means; and

control means for receiving information from said individual means mentioned above, and executing control of said individual means and information exchange therewith in accordance with said received information, wherein

said information modify means includes

information ranking means for ranking the drawn out information in accordance with the first user-information;

information reduction means for reducing the drawn out information into a limited amount of information in accordance with the first user-information, if the drawn out information is ranked and a drawn out information amount exceeds a predetermined information amount; and

information summarizing means for summarizing the drawn out information in accordance with the first user-information, if the drawn out information amount exceeds a determined information amount.

5,673,429

DATABASE DISPLAY SYSTEM USING LIST MANAGEMENT OF DISPLAY FORMATS

Masamitsu Minatogawa, Yatsumachi; Maki Sakuta, Kawasaki, and Masayuki Shibano, Yatsumachi, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

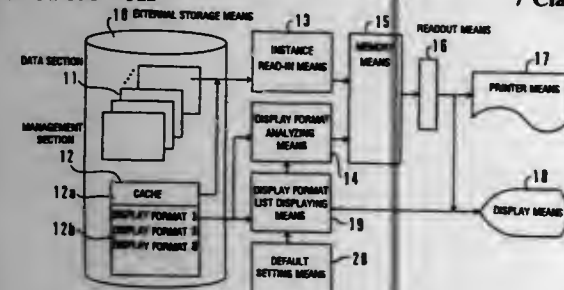
Filed Jul. 31, 1995, Ser. No. 309,012

Claims priority, application Japan, Feb. 12, 1994, 6-299426

Int. Cl. G06F 17/30

U.S. Cl. 395-611

7 Claims



1. A database display system comprising:

storage means for holding a database which includes a data section for storing groups of instances and a management section for storing all of a plurality of display formats;

display format list displaying means for displaying all of the display formats stored in the management section in a list form, to permit a desired display format to be selected and specified;

display format analyzing means for retrieving the display format specified by said display format list displaying means from the management section, and analyzing display conditions of the retrieved display format;

instance read-in means for reading instances required by the specified display format from the data section;

memory means for generating a list of the read instances edited according to the specified display format; and

display means for displaying the list of the instances and a list of all of the display formats stored in the management section.

5,673,430

SYSTEM AND METHOD FOR OPTIMIZING SUBSCRIBER PROGRAMMING PREFERENCES

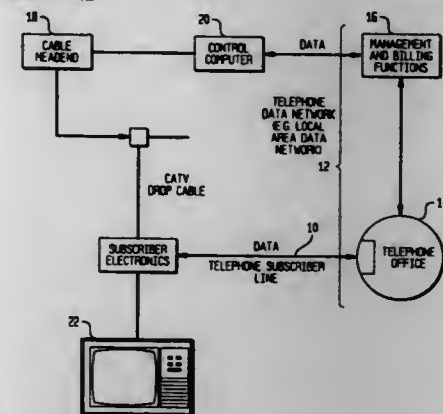
Guy A. Story, New York, N.Y., assignor to AT&T, Middletown, N.J.

Filed Oct. 13, 1995, Ser. No. 542,482

Int. Cl. H04N 7/173

U.S. Cl. 455-4.2

14 Claims



1. A method of providing programs to a plurality of subscriber locations, said method comprising:

receiving a plurality of sets of content requests originating from said subscriber locations, at least some of said sets of content requests including a plurality of programs preferred to be received at the associated subscriber location within a specified time period;

identifying sets of satisfying programs for a given time period from said received content requests, each set of satisfying programs being associated with one of said subscriber locations; and

delivering said identified sets of satisfying programs to associated ones of said subscriber locations by multicasting at least some of said satisfying programs within the sets to multiple subscriber locations.

DESIGN PATENTS

GRANTED September 30, 1997

ERRATA

For CLASS	See PATENT NO.
D012-423	D384,185
D019-078	D384,375

DESIGNS

SEPTEMBER 30, 1997

384,185

STORAGE BOX FOR VEHICLES

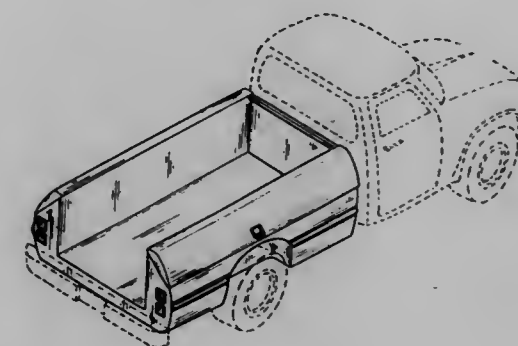
Daniel F. Oertwig, Rte. 4, Box 282, Kearney, Nebr. 68847

Filed Jan. 29, 1996, Ser. No. 49,559

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12-423



384,187

MALE GENITALIA SUPPORTER

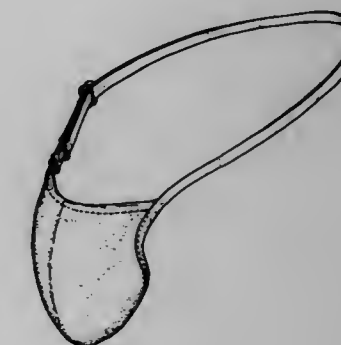
Samuel J. McRoberts, Palm Beach Gardens, and Lee Kvarnberg, Jupiter, both of Fla., assignors to Male Pouch, Inc., Tequesta, Fla.

Filed Mar. 5, 1996, Ser. No. 51,855

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D2-711



384,186

BUTTON FASTENER

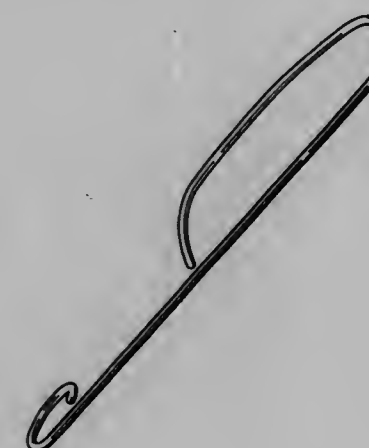
Edward J. Teaman, 320 Sharon Dr., Pittsburgh, Pa. 15221-4030

Filed May 31, 1996, Ser. No. 55,226

Term of patent 14 years

LOC (6) Cl. 07 - 99

U.S. Cl. D2-643



384,188

INFANT COVER-UP

Mary E. Imm, Cincinnati, Ohio, assignor to Noel Joanna, Inc., Rancho Santa Margarita, Calif.

Filed Jan. 19, 1996, Ser. No. 49,647

Term of patent 14 years

LOC (6) Cl. 02 - 01

U.S. Cl. D2-719



384,189

EXPEDITION JACKET

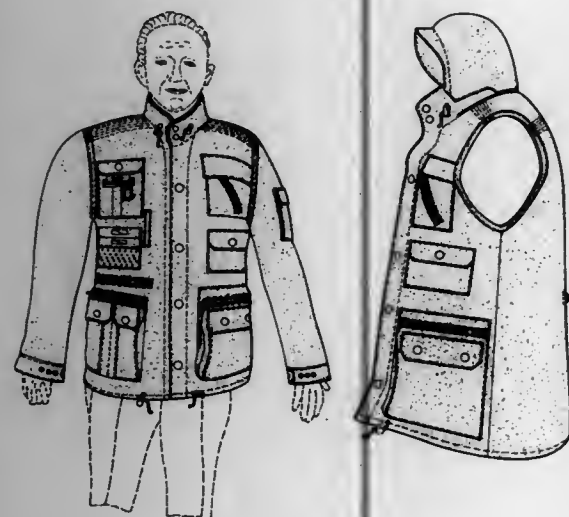
Charles S. Tobias, Main Street, Road Town, Tortola, Virgin Islands (Br.) Jan Santagate, P.O. Box 577, Hampstead, N.H. 03841

Filed Nov. 28, 1995, Ser. No. 47,184

Term of patent 14 years

LOC (6) Cl. 02 - 02

U.S. Cl. D2—828



384,191

HAT

Filed Aug. 7, 1996, Ser. No. 55,587

Term of patent 14 years

LOC (6) Cl. 02 - 03

U.S. Cl. D2—875



384,190

VENTED CAP

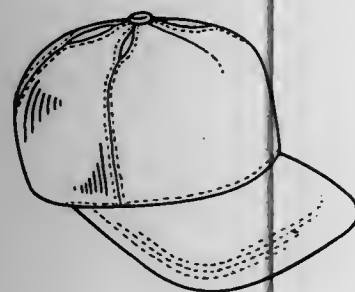
Gerald A. Kellogg, 10505 Allison Plaza, Apt. No. 9, Omaha, Nebr. 68134

Filed Dec. 14, 1995, Ser. No. 47,885

Term of patent 14 years

LOC (6) Cl. 02 - 03

U.S. Cl. D2—865



384,192

BOUNCING SHOE

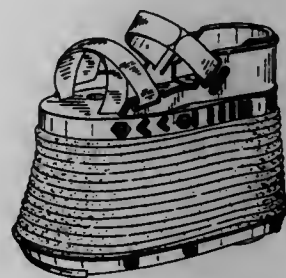
Frank Hsieh, 9th-1 Floor, Kuang Fu South Road, Taipei, Taiwan

Filed Dec. 15, 1995, Ser. No. 47,951

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—896



384,193

ELEMENT OF A SHOE SOLE

Eric P. Avar, Aloha, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Jun. 5, 1996, Ser. No. 55,415

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—947



384,195

SHOE UPPER

Mike Brooks, Nelsonville; Edgar H. Simpson, Lancaster; Theodore A. Kastner, Lancaster; and Diana A. Wurfbain, Athens, all of Ohio, assignors to Rocky Shoes and Boots, Inc., Nelsonville, Ohio

Filed May 21, 1996, Ser. No. 54,747

The portion of the term of this patent subsequent to Jul. 15, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—970



384,194

FOOTWEAR SOLE

Patricia Louise Rowland, Tarnbank House, England, assignor to C. & J. Clark International Limited, Street Somerset, United Kingdom

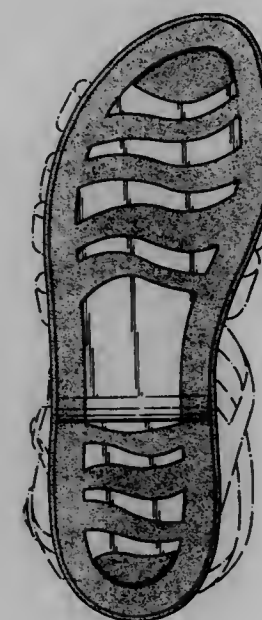
Filed Feb. 1, 1996, Ser. No. 49,946

Claims priority, application United Kingdom, Aug. 1, 1995, 2049185

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—953



384,196

SIDE ELEMENT OF A SHOE UPPER

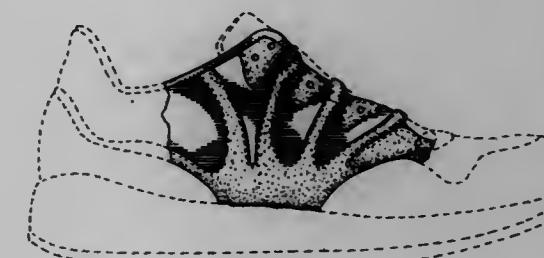
Tinker L. Hatfield, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Feb. 16, 1996, Ser. No. 50,389

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



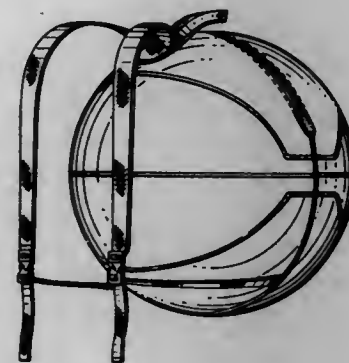
384,197
SHOE UPPER ELEMENT
 Kevin J. Crowley, Brentwood, N.H., assignor to Fila U.S.A., Inc., Hunt Valley, Md.
 Filed Apr. 30, 1996, Ser. No. 53,791
 Term of patent 14 years
 LOC (6) Cl. 02 - 04

U.S. Cl. D2—972



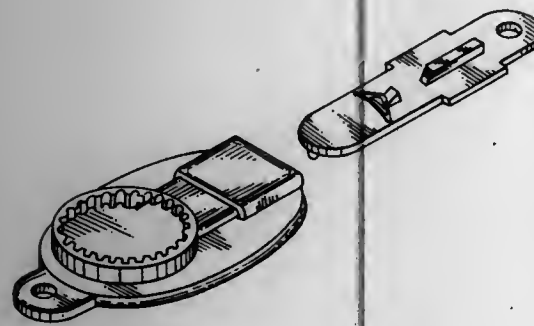
384,199
BACK PACK
 David B. Dixon, and Maria Do Carmo Nazareth, both of New York, N.Y., assignors to Mildex Pack, Inc., New York, N.Y.
 Filed Nov. 14, 1994, Ser. No. 30,937
 The portion of the term of this patent subsequent to Nov. 26, 2010, has been disclaimed.
 Term of patent 14 years
 LOC (6) Cl. 03 - 01

U.S. Cl. D3—217



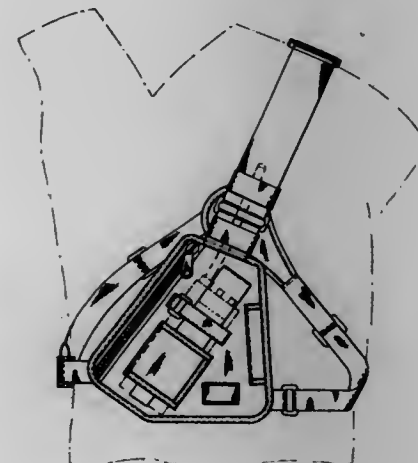
384,198
SEPARABLE KEY HOLDER
 William S. Fortune, 29866 Cuthbert Rd., Malibu, Calif. 90265
 Filed May 8, 1996, Ser. No. 54,204
 Term of patent 14 years
 LOC (6) Cl. 03 - 01

U.S. Cl. D3—207



384,200
HARNESS FOR A RADIO
 Gordon M. Caldwell, 6521 California Ave. SW #221, Seattle, Wash. 98136
 Filed Jun. 5, 1996, Ser. No. 55,835
 Term of patent 14 years
 LOC (6) Cl. 03 - 01

U.S. Cl. D3—218



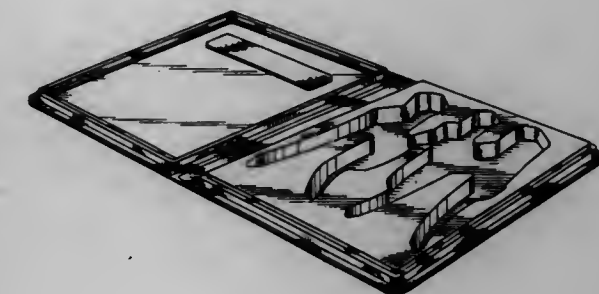
384,201
PURSE
 Ng Pak To Petto, 3/F Flat 3, Belle House, 31 Whitefield Road, North Point, Hong Kong
 Filed May 21, 1996, Ser. No. 54,762
 Term of patent 14 years
 LOC (6) Cl. 03 - 01

U.S. Cl. D3—238



384,203
TOOL CASE FOR A THREE PIECE PLIERS SET
 Arthur F. Jacobson, Waukegan, Ill., assignor to S.I. Jacobson Manufacturing Co., Waukegan, Ill.
 Filed May 6, 1996, Ser. No. 54,079
 Term of patent 14 years
 LOC (6) Cl. 03 - 01

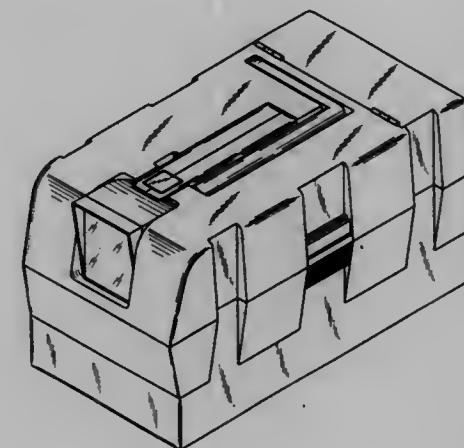
U.S. Cl. D3—299



384,202
STORAGE BOX
 Benjamin E. Gilmore, 638 6th St., Hermosa Beach, Calif. 90254, assignor to Benjamin E. Gilmore, Hermosa Beach, Calif.

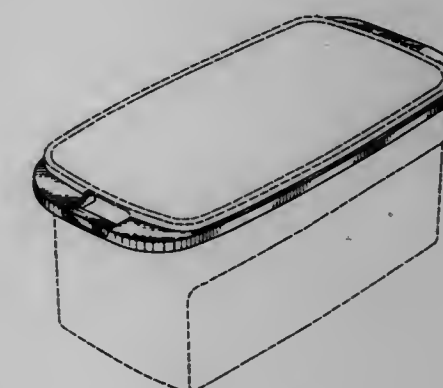
Filed May 24, 1996, Ser. No. 54,956
 Term of patent 14 years
 LOC (6) Cl. 03 - 01

U.S. Cl. D3—274

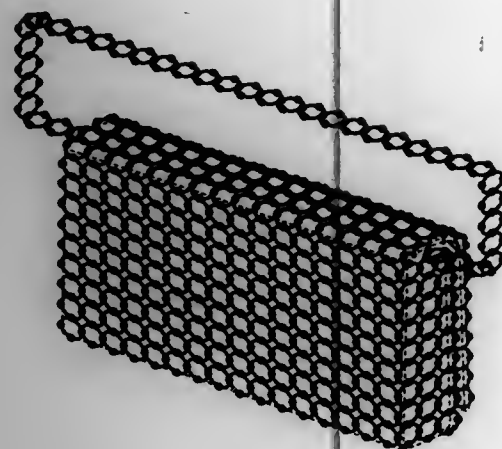


384,204
TOP BAND OF A STORAGE BOX
 Hangwind Franz Lippisch, Fitchburg, Mass., assignor to Steri-lite Corporation, Townsend, Mass.
 Filed Nov. 28, 1995, Ser. No. 47,175
 Term of patent 14 years
 LOC (6) Cl. 03 - 99

U.S. Cl. D3—318



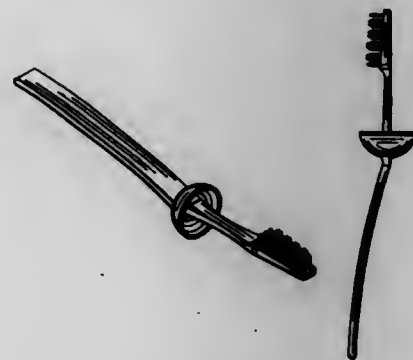
384,205
BEADED BAG COVER
 Brian D. Fink, Miami Beach, Fla., assignor to Excel Handbags Co., Inc., Miami, Fla.
 Filed Jan. 18, 1996, Ser. No. 49,131
 Term of patent 14 years
 LOC (6) Cl. 03 - 09
 U.S. Cl. D3—321



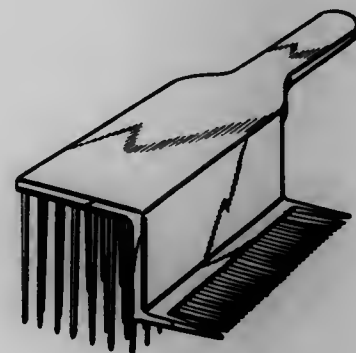
384,206
WHEELED BASE FRAME OF A SUITCASE
 Jin-jiao Wang, No. 18, Lane 116, Ta An Gan Rd., Tachia Chen, Tainchung Hsien, Taiwan
 Filed Sep. 10, 1996, Ser. No. 59,410
 Term of patent 14 years
 LOC (6) Cl. 03 - 09
 U.S. Cl. D3—321



384,207
TOOTHBRUSH
 Clay B. Underwood, 9102 Barnwell Cir., Richmond, Va. 23236
 Filed May 6, 1996, Ser. No. 54,105
 Term of patent 14 years
 LOC (6) Cl. 04 - 02
 U.S. Cl. D4—104



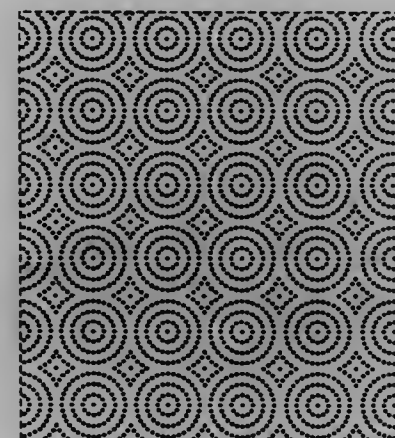
384,208
COMBINED BRUSH AND COMB
 Jammie Joiner, 323 N. Caroline St., Daytona Beach, Fla. 32114
 Filed Sep. 17, 1996, Ser. No. 60,280
 Term of patent 14 years
 LOC (6) Cl. 04 - 02
 U.S. Cl. D4—117



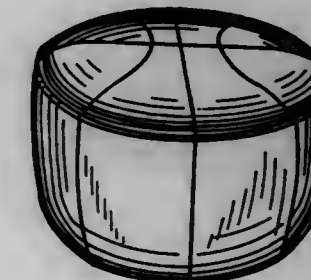
384,209
MITT FOR APPLYING PAINT
 Susan Goans Driggers, Lilburn, Ga., assignor to Plaid Enterprises, Inc., Norcross, Ga.
 Filed Jan. 19, 1996, Ser. No. 49,203
 The portion of the term of this patent subsequent to May 13, 2011, has been disclaimed.
 Term of patent 14 years
 LOC (6) Cl. 04 - 04
 U.S. Cl. D4—137



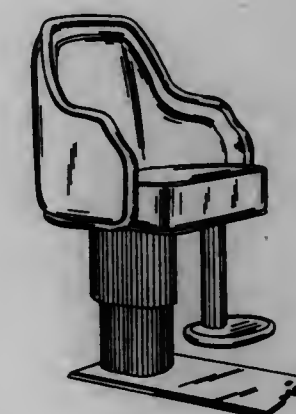
384,210
PATTERN FOR ABSORBENT SHEET MATERIAL
 Carol Lefebvre du Grosriez, Maisons Laiffie, France, assignor to Kayserberg S.A., Kayserberg, France
 Filed Oct. 25, 1995, Ser. No. 45,657
 Claims priority, application France; Apr. 26, 1995, 952471
 Term of patent 14 years
 LOC (6) Cl. 05 - 06
 U.S. Cl. D5—57



384,211
HASSOCK
 Richard A. Wied, Green Bay, and Robert P. Wied, Pulaski, both of Wis., assignors to NW Enterprises, Green Bay, Wis.
 Division of Ser. No. 41,627, Jul. 19, 1995. This application
 Jul. 23, 1996, Ser. No. 57,324
 Term of patent 14 years
 LOC (6) Cl. 06 - 01
 U.S. Cl. D6—351



384,212
CASINO CHAIR WITH ATTACHED FOOTREST
 Vittorio Infanti, Mattawan, N.J., assignor to Infanti Chair Manufacturing Corp., Staten Island, N.Y.
 Filed May 9, 1996, Ser. No. 54,320
 Term of patent 14 years
 LOC (6) Cl. 06 - 01
 U.S. Cl. D6—360



384,213

CASINO CHAIR WITH CONSOLE

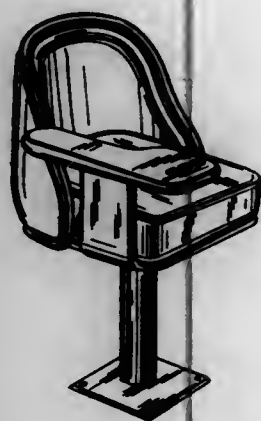
Vittorio Infantl, Matawan, N.J., assignor to Infantl Chair Manufacturing Corp., Staten Island, N.Y.

Filed May 22, 1996, Ser. No. 54,823

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6-364



384,215

SOFA

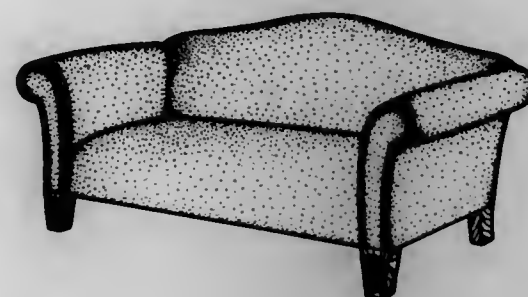
David Paul Chandler, Jamestown, N.C., assignor to Henredon Furniture Industries, Inc., Morganton, N.C.

Filed Jan. 22, 1996, Ser. No. 49,290

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6-381



384,214

COLLAPSIBLE SEAT

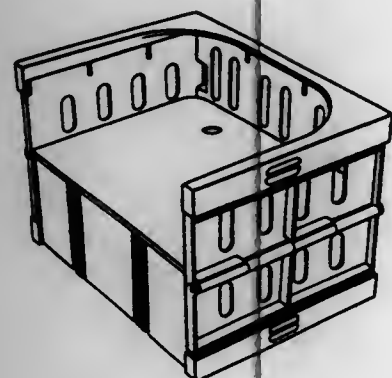
Elaine Green, Arkley, United Kingdom, assignor to Tamsit International Limited, London, England

Filed Jun. 20, 1996, Ser. No. 56,038

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6-368



384,216

SOFA

Pascal Mourgue, Paris, France, assignor to Cinna of Briord, Serrieres de Briord, France

Filed Jul. 9, 1996, Ser. No. 56,782

Claims priority, application WIPO, Jan. 11, 1996, DM/035 179

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6-381



384,217

SEAT

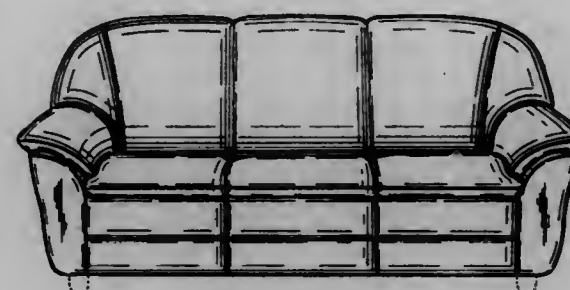
Pasquale Natuzzi, Santeramo In Colle, and Domenico Abbruzzese, Gioia del Colle, both of Italy, assignors to Industrie Natuzzi, Spa, Bari, Italy

Filed Sep. 5, 1996, Ser. No. 59,246

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6-381



384,219

SEAT

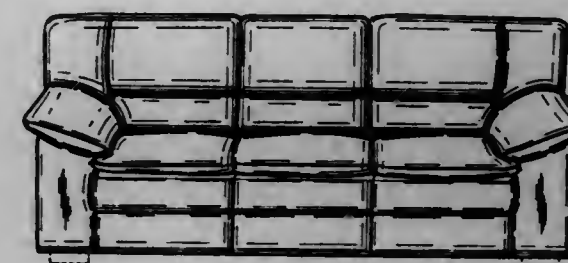
Pasquale Natuzzi, and Raffaella Lucarelli, both of Santeramo in Colle, Italy, assignors to Industrie Natuzzi, Spa, Bari, Italy

Filed Sep. 5, 1996, Ser. No. 59,250

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6-381



384,218

SEAT

Pasquale Natuzzi, Santeramo In Colle, and Arcangelo Scarati, Talsano, both of Italy, assignors to Industrie Natuzzi, Spa, Bari, Italy

Filed Sep. 5, 1996, Ser. No. 59,249

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6-381



384,220

SEAT

Pasquale Natuzzi, Santeramo In Colle, and Arcangelo Scarati, Talsano, both of Italy, assignors to Industrie Natuzzi, Spa, Bari, Italy

Filed Sep. 5, 1996, Ser. No. 59,251

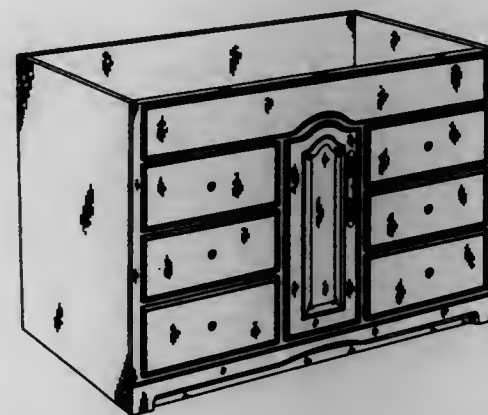
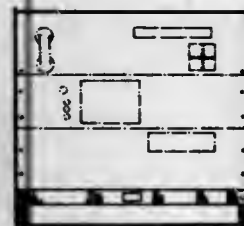
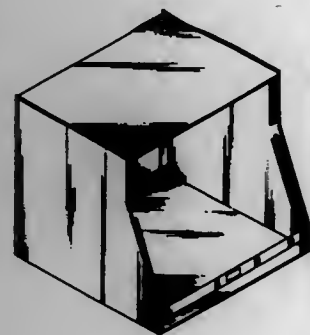
Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6-381



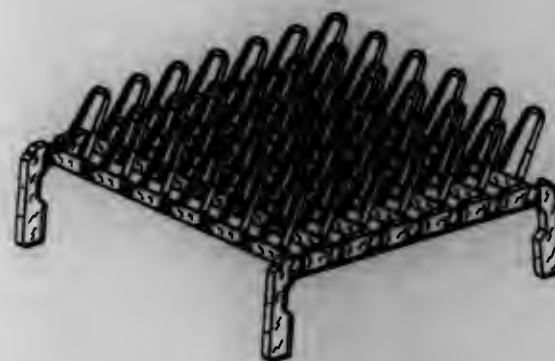
- 384,221
HOUSING FOR AN EMERGENCY 911 CABINET
Harold C. Roeder, 7 Park St., P.O. Box 7, Georgetown, Mass. 01833
Filed Nov. 9, 1995, Ser. No. 46,228
Term of patent 14 years
LOC (6) Cl. 06 - 04
U.S. Cl. D6-396
- 384,223
VANITY CABINET
James J. Palka, 22351 W. Thornridge Dr., Kildeer, Ill. 60047
Filed Sep. 21, 1995, Ser. No. 44,230
Term of patent 14 years
LOC (6) Cl. 06 - 04
U.S. Cl. D6-445



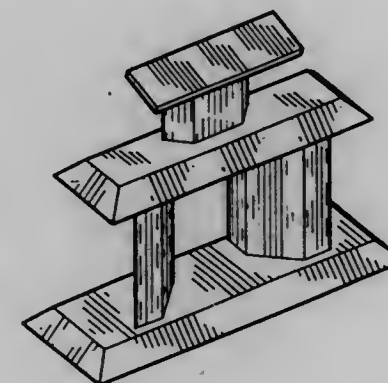
- 384,222
PLANT STAND
Allen Yik Cheng, 3704 Kenmore Ave., Baldwin Park, Calif. 91706
Filed Jun. 17, 1996, Ser. No. 55,934
Term of patent 14 years
LOC (6) Cl. 11 - 02
U.S. Cl. D6-403



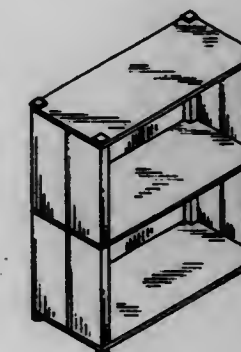
- 384,224
FREESTANDING SHOE RACK
Thomas Dickinson, and Bradley D. Gale, both of St. Louis, Mo., assignors to Contico International, Inc., St. Louis, Mo.
Filed Mar. 19, 1996, Ser. No. 51,922
Term of patent 14 years
LOC (6) Cl. 06 - 04
U.S. Cl. D6-463



- 384,225
PINEWOOD DERBY CAR STAND
Thomas P. Miller, 9552 Caravan Dr., St. Louis, Mo. 63126
Filed Mar. 29, 1996, Ser. No. 52,419
Term of patent 14 years
LOC (6) Cl. 06 - 04
U.S. Cl. D6-474



- 384,227
MULTI-LEVEL ARTICLE SUPPORT SHELF
Raymond Grosfillex, Oyonnax, France, assignor to Grosfillex Sarl, Oyonnax, France
Filed May 10, 1996, Ser. No. 54,216
Term of patent 14 years
LOC (6) Cl. 06 - 04
U.S. Cl. D6-479



- 384,226
HEAVY-DUTY DECORATIVE SHELVING
Charles R. Goetz, Carnegie, Pa., assignor to Alco Industries, Inc., Valley Forge, Pa.
Division of Ser. No. 26,352, Jul. 26, 1994, Pat. No. Des. 367,784. This application Nov. 28, 1995, Ser. No. 46,875
Term of patent 14 years
LOC (6) Cl. 06 - 04
U.S. Cl. D6-479

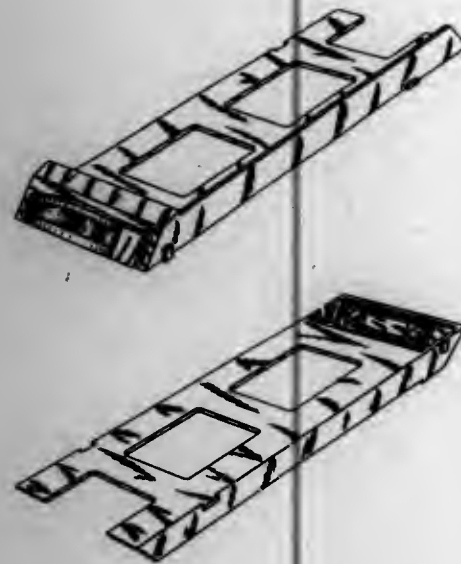


- 384,228
BASE
Charles Desmoyers, St-Pie, Canada, assignor to Dutallier Group Inc., St. Pie, Canada
Filed Sep. 29, 1995, Ser. No. 44,672
Term of patent 14 years
LOC (6) Cl. 06 - 06
U.S. Cl. D6-495



384,229
COMBINED SWATCH CASSETTE AND DISPLAY TRAY
 Thomas V. Verrangia, Baldwin, N.Y., assignor to L'Oreal S.A., Paris Cedex, France
 Filed Jan. 19, 1996, Ser. No. 49,189
 Term of patent 14 years
 LOC (6) Cl. 06 - 06

U.S. Cl. D6-509



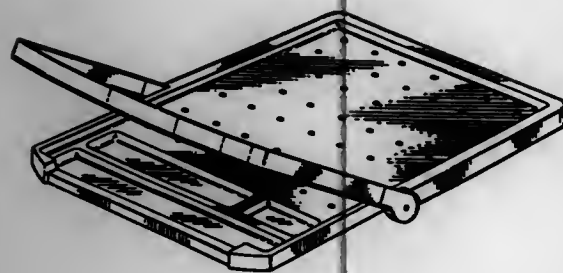
384,231
STRIP DISPLAY
 Clark J. Burns, P.O. Box 430, O'Fallon, Mo. 63366-0430
 Filed Oct. 16, 1995, Ser. No. 45,285
 Term of patent 14 years
 LOC (6) Cl. 06 - 99

U.S. Cl. D6-514



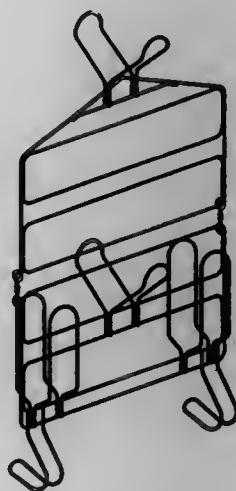
384,230
TOP FOR A MOBILE STORAGE UNIT
 John R. Edwards, Nobleton, and Conrad Mark Marini, Woodbridge, both of Canada, assignors to Hollanding Inc., Newmarket, Canada
 Filed Apr. 29, 1996, Ser. No. 53,678
 Claims priority, application Canada, Mar. 18, 1996, 1996-0644
 Term of patent 14 years
 LOC (6) Cl. 06 - 06

U.S. Cl. D6-511



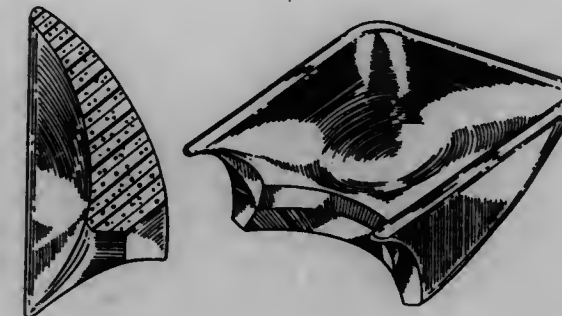
384,232
DESIGN FOR SPORTS EQUIPMENT RACK
 Peter R. Evans, 475 Orton Avenue, Ancaster, Ontario, Canada, L9G 4M7; Robert R. Dunn, 52 Hummingbird Lane, Hamilton, Ontario, Canada, L9A 4A9, and Stephen W. McNeill, 577 Tusarora Rd., Ancaster, Ontario, Canada, L9G 3N9
 Filed Jun. 12, 1996, Ser. No. 55,759
 Claims priority, application Canada, Dec. 22, 1995, 1995-2903
 Term of patent 14 years
 LOC (6) Cl. 08 - 08

U.S. Cl. D6-552



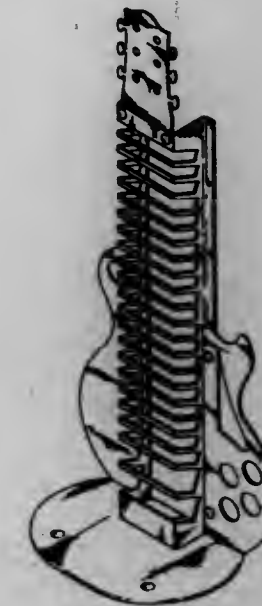
384,233
HEAD AND NECK PILLOW
 Gino Civitarese, 330 Washington St., Canton, Mass. 02021
 Filed Oct. 1, 1996, Ser. No. 60,591
 Term of patent 14 years
 LOC (6) Cl. 06 - 09

U.S. Cl. D6-601



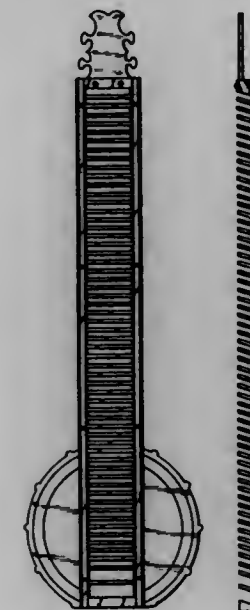
384,235
STORAGE TOWER
 Shahriar Dardashti, c/o Atlantic Representations, Inc., P.O. Box 2399, Santa Fe Springs, Calif. 90670
 Filed Mar. 1, 1996, Ser. No. 51,075
 Term of patent 14 years
 LOC (6) Cl. 06 - 04

U.S. Cl. D6-630



384,234
STORAGE ASSEMBLY
 Shahriar Dardashti, 236 S. Oakhurst Dr., Beverly Hills, Calif. 90212
 Division of Ser. No. 41,422, Jul. 13, 1995, Pat. No. Des. 374,587, which is a division of Ser. No. 17,825, Jan. 21, 1994, Pat. No. Des. 361,464. This application Mar. 12, 1996, Ser. No. 51,523
 Term of patent 14 years
 LOC (6) Cl. 06 - 04

U.S. Cl. D6-629



384,236
UNIQUE HIGH QUALITY SHAKER
 Morris I. Dower, P.O. Box 230-244 Gravesend Station, Brooklyn, N.Y. 11223
 Continuation-in-part of Ser. No. 24,978, Jun. 24, 1994, Pat. No. Des. 364,566. This application Oct. 27, 1995, Ser. No. 45,720
 Term of patent 14 years
 LOC (6) Cl. 07 - 01

U.S. Cl. D7-300.1



384,237

JUICE PITCHER

Kevin Hess, Mt. Prospect, Ill., assignor to The Pampered Chef, Ltd., Addison, Ill.

Filed Feb. 15, 1996, Ser. No. 50,370

Term of patent 14 years

LOC (6) Cl. 07 - 01

U.S. Cl. D7—319



384,239

COOKTOP

Gerd Wilsdorf, Olching, Germany, assignor to Bosch-Siemens Hausgeraete GmbH, Munich, Germany

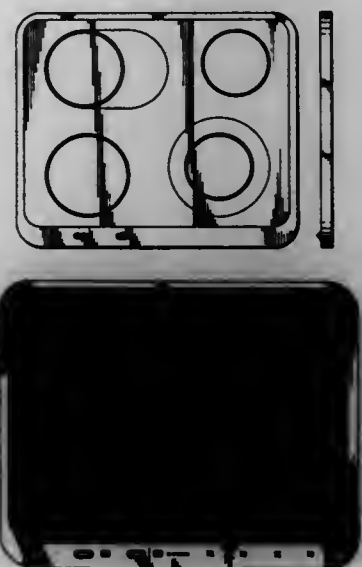
Filed Aug. 16, 1993, Ser. No. 11,860

Claims priority, application Germany, Feb. 15, 1993, M 93 01 279.9

Term of patent 14 years

LOC (6) Cl. 07 - 02

U.S. Cl. D7—346



384,238

VACUUM FLASK

Frank Teh-Hsiung Huang, Suite 804, 8 Fl., No. 128, Sec. 3, Ming-Sheng E. Rd., Taipei, Taiwan

Filed Jun. 24, 1996, Ser. No. 56,135

Term of patent 14 years

LOC (6) Cl. 07 - 01

U.S. Cl. D7—319



384,240

OVEN

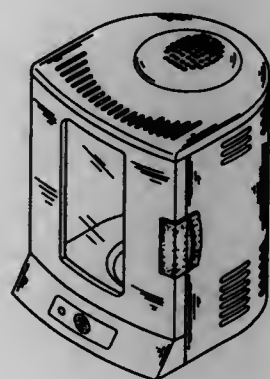
Ching-Hsiang Wang, P.O. Box 90, Tainan 704, Taiwan

Filed Jun. 18, 1996, Ser. No. 56,233

Term of patent 14 years

LOC (6) Cl. 07 - 02

U.S. Cl. D7—350



384,241

UTENSIL COVER WITH DETACHABLE KNOB

Jean-Francois Brasset, Cran-Gevrier, France, assignor to Tefal S.A., Rumilly, France

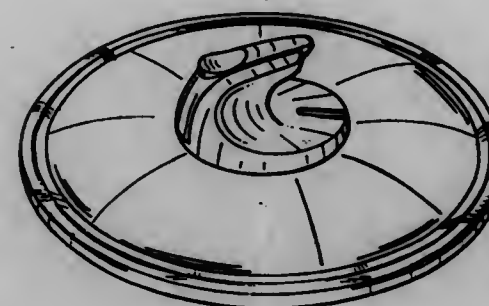
Filed Aug. 1, 1996, Ser. No. 57,807

Claims priority, application France, Feb. 2, 1996, 96 0663

Term of patent 14 years

LOC (6) Cl. 07 - 02

U.S. Cl. D7—391



384,243

HANDLE FOR COOKING UTENSILS

Eric Nicolet, Rumilly, France, assignor to Tefal S.A., Rumilly, France

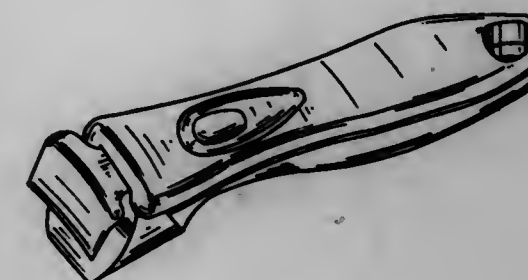
Filed Jun. 28, 1996, Ser. No. 56,451

Claims priority, application France, Jan. 3, 1996, 96 0018

Term of patent 14 years

LOC (6) Cl. 07 - 02

U.S. Cl. D7—395



384,244

DRIP CATCHER FOR A BEVERAGE DISPENSER

David M. Hensarling, 2730 W. Mississippi St., Apr. 7, Denver, Colo. 80219

Filed May 10, 1996, Ser. No. 54,258

Term of patent 14 years

LOC (6) Cl. 07 - 99

U.S. Cl. D7—397



384,242

HANDLE FOR KITCHEN UTENSIL

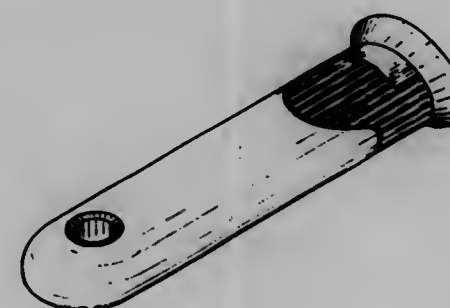
Bruce Ancona; Jane Ancona, and Mary Jenline deGuzman, all of New York, N.Y., assignors to B. Via International Housewares, Inc., Englewood Cliffs, N.J.

Filed Jan. 11, 1996, Ser. No. 48,672

Term of patent 14 years

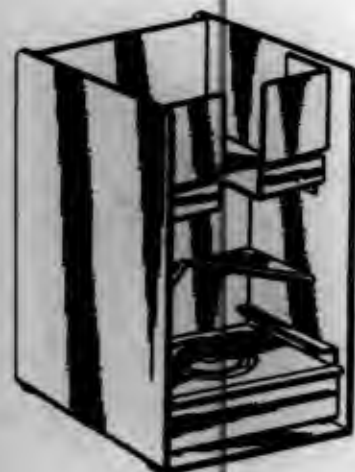
LOC (6) Cl. 07 - 03

U.S. Cl. D7—393



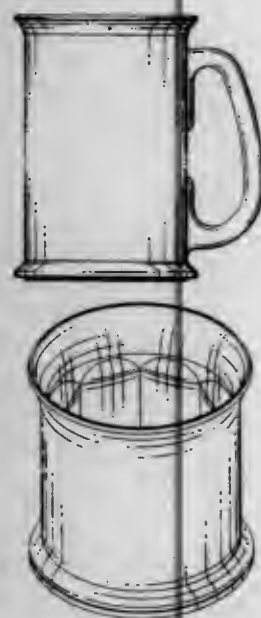
384,245
STAND
Alex Horvath, 130 Don Park Road Unit 6, Markam, Ontario, Canada, L3R 1C3
Filed Jun. 17, 1996, Ser. No. 55,923
Claims priority, application Canada, Feb. 23, 1996, 19960411
Term of patent 14 years
LOC (6) Cl. 07 - 99

U.S. Cl. D7—399



384,246
GLASSWARE
Thomas J. McKnight, Beaver, Pa., assignor to Moderne Glass Company, Inc., Alliquippa, Pa.
Filed Oct. 21, 1994, Ser. No. 30,048
Term of patent 14 years
LOC (6) Cl. 07 - 01

U.S. Cl. D7—509



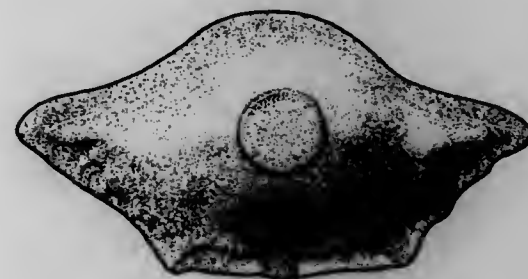
384,247
FOOD CONTAINER
Stephen A. Smith, Naperville; Michael J. A. Sagan, Batavia, and Thomas J. Hayes, Wauconda, all of Ill., assignors to Tenneco Packaging, Evanston, Ill.
Filed Aug. 20, 1996, Ser. No. 58,657
Term of patent 14 years
LOC (6) Cl. 07 - 01

U.S. Cl. D7—542



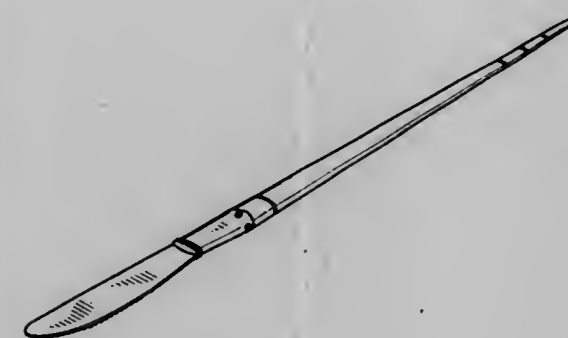
384,248
CRAB-LIKE SEAFOOD SERVING DISH
Edward Cooley, 73 Ocean Breeze, Hilton Head, S.C. 29928
Filed Mar. 14, 1996, Ser. No. 51,589
Term of patent 14 years
LOC (6) Cl. 07 - 01

U.S. Cl. D7—549



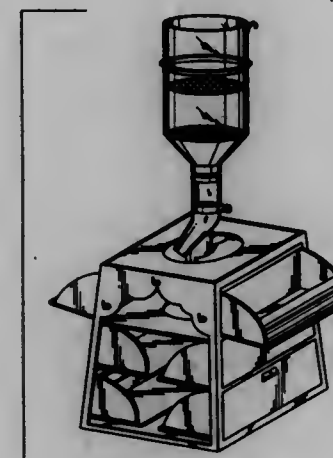
384,249
COMBINATION KNIFE AND CHOPSTICK EATING
UTENSIL
Manvinder Pal Singh Puri, 36 A Draycott Drive, Singapore, Singapore, 259389
Filed Sep. 17, 1996, Ser. No. 59,903
Claims priority, application United Kingdom, Mar. 21, 1996, 2055041

Term of patent 14 years
LOC (6) Cl. 07 - 03
U.S. Cl. D7—643



384,250
COMBINED FAT AND OIL SEPARATOR AND STAND
THEREFOR
Jose M. Dumlaog, 4201 Monroe Ave., Los Angeles, Calif. 90029
Filed Feb. 20, 1996, Ser. No. 50,431
Term of patent 14 years
LOC (6) Cl. 07 - 04

U.S. Cl. D7—667



384,251
TROWEL
Jui-ju Yeh, 4th Fl., No. 9, Alley 3, Lane 179, Sec. 4, Nanking E. Rd., Taipei, Taiwan
Filed Jul. 22, 1996, Ser. No. 57,286
Term of patent 14 years
LOC (6) Cl. 08 - 01

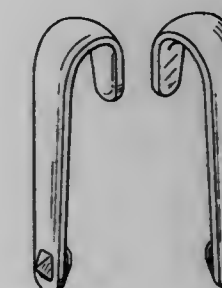
U.S. Cl. D8—10



384,252
PICTURE HANGING TOOL
Richard M. Aydelott, 1600 SE. 140th Ct., Vancouver, Wash. 98684

Filed Sep. 14, 1995, Ser. No. 43,908
Term of patent 14 years
LOC (6) Cl. 08 - 05

U.S. Cl. D8—14



384,253
TRUCKER'S HOOK TOOL
 John David Patino, 9522 Epsom Pl., Pico Rivera, Calif. 90660
 Filed Nov. 24, 1995, Ser. No. 46,999
 Term of patent 14 years
 LOC (6) Cl. 08 - 05

U.S. Cl. D8-14



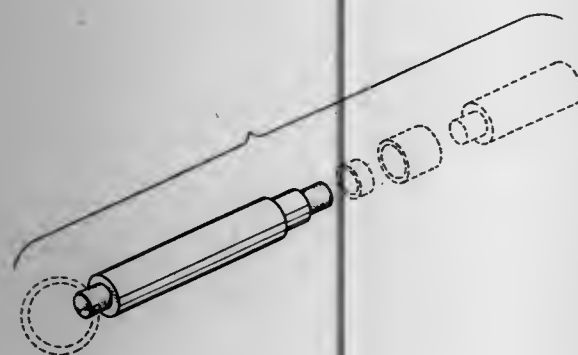
384,255
TOOL FOR FEEDING CAR SEAT BELTS THROUGH THE BACK OF A CHILD CAR SEAT
 Tim E. Beckner, 2421 West Ave., Fullerton, Calif. 92633
 Filed Jan. 16, 1996, Ser. No. 49,048
 Term of patent 14 years
 LOC (6) Cl. 08 - 05

U.S. Cl. D8-16



384,254
O-RING INSTALLATION TOOL
 Charles H. Johnson, 1101 Ayers Ln., Crystal Spring, Miss. 39059
 Filed Nov. 2, 1995, Ser. No. 47,805
 Term of patent 14 years
 LOC (6) Cl. 08 - 05

U.S. Cl. D8-14



384,256
FOIL CUTTER
 Tjeerd Dijkstra, Leiderdorp, Netherlands, assignor to Polly-flame International B.V., Roelofarendsveen, Netherlands
 Filed May 31, 1995, Ser. No. 39,453
 Claims priority, application WIPO, Jan. 4, 1995, DM/031 736

Term of patent 14 years
 LOC (6) Cl. 07 - 99

U.S. Cl. D8-34



384,257
LIGHT DUTY FORWARD ACTING STAPLING MACHINE
 Joel Steven Marks, Los Angeles, and John Kevin Clay, Oxnard, both of Calif., assignors to WorkTools, Inc., Chatsworth, Calif.

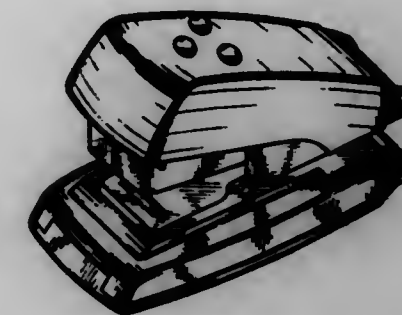
Filed Aug. 9, 1996, Ser. No. 58,174
 Term of patent 14 years
 LOC (6) Cl. 19 - 02

U.S. Cl. D8-49



384,259
MINI-STAPLER
 Robert S. Smith, 1468 Rimcrest Ct., Bonita, Calif. 91902
 Filed Dec. 15, 1995, Ser. No. 47,950
 Term of patent 14 years
 LOC (6) Cl. 19 - 02

U.S. Cl. D8-50



384,258
HEAVY DUTY FORWARD ACTING STAPLING MACHINE
 Joel Steven Marks, Los Angeles, and Ernesto Victor Quintero, Burbank, both of Calif., assignors to WorkTools, Inc., Chatsworth, Calif.

Filed Aug. 9, 1996, Ser. No. 58,175
 Term of patent 14 years
 LOC (6) Cl. 19 - 02

U.S. Cl. D8-49



384,260
SHEARS
 William T. Dunch, 1207 Whispering Oaks Dr., Danville, Calif. 94506

Filed Jun. 18, 1996, Ser. No. 56,237
 Term of patent 14 years
 LOC (6) Cl. 08 - 03

U.S. Cl. D8-57



384,261

PORTABLE ELECTRIC SCREWDRIVER

Naohiro Hayakawa, and Shingo Umemura, both of Anjo, Japan, assignors to Makita Corporation, Anjo, Japan

Filed Jul. 22, 1996, Ser. No. 57,259

Claims priority, application Japan, Jan. 26, 1996, 8-1848

Term of patent 14 years

LOC (6) Cl. 08 - 04

U.S. Cl. D8—68



384,263

DRIVER HANDLE

Ching-Chou Lin, Taichung Hsien, Taiwan, assignor to Shou King Enterprise Co., Ltd., Taichung Hsien, Taiwan

Filed Jul. 15, 1996, Ser. No. 56,988

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—83



384,262

PORTABLE ELECTRIC SCREWDRIVER

Naohiro Hayakawa, and Shingo Umemura, both of Anjo, Japan, assignors to Makita Corporation, Anjo, Japan

Filed Jul. 22, 1996, Ser. No. 57,260

Claims priority, application Japan, Jan. 26, 1996, 8-1847

Term of patent 14 years

LOC (6) Cl. 08 - 04

U.S. Cl. D8—68



384,264

MULTI-PURPOSE AXHAMMER

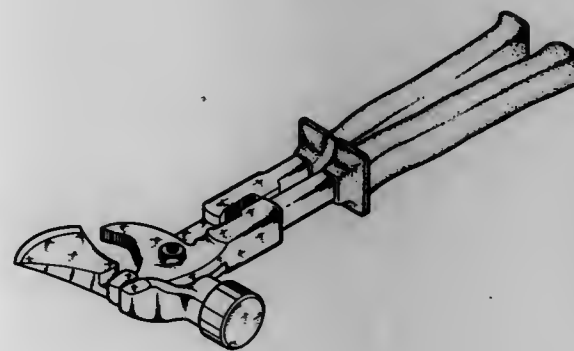
Mou-Tang Liou, No. 33, Hsi Hu Road, Da Lie City, Taichung Hsien, Taiwan

Filed May 24, 1996, Ser. No. 54,898

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—105



384,265

HANDLE FOR STORAGE CABINET

Darren Scott Saravis, Long Beach, Calif., assignor to Rubbermaid Office Products Inc., Maryville, Tenn.

Filed Oct. 30, 1995, Ser. No. 45,806

Term of patent 14 years

LOC (6) Cl. 08 - 06

U.S. Cl. D8—300



384,267

LOCKABLE HOUSING FOR POSITIONING ABOUT A HOSE FITTING WITH PROJECTION FOR SECUREMENT OF A HOSE CLAMP AND SCREW

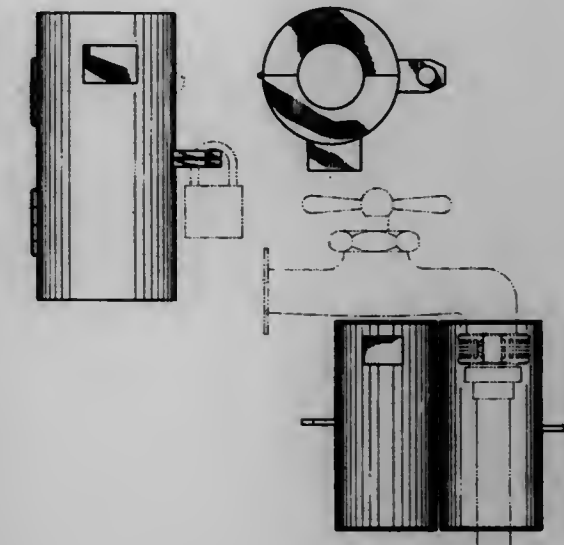
Jack W. Giles, 96000 O/S Highway EE24, Buttonwood Bay Condo, Key Largo, Fla. 33037

Filed Jan. 22, 1996, Ser. No. 49,254

Term of patent 14 years

LOC (6) Cl. 08 - 07

U.S. Cl. D8—346



384,266

SLIDING DOOR HANDLE

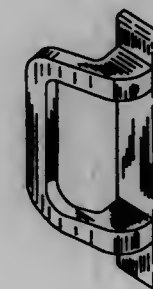
Petros Z. Mantarakis, Northridge, and Kevin Michael Argo, Tujunga, both of Calif., assignors to Reflectolite Products, Inc., Sun Valley, Calif.

Filed Jan. 29, 1996, Ser. No. 49,678

Term of patent 14 years

LOC (6) Cl. 08 - 06

U.S. Cl. D8—301

384,268
TUBULAR HOOK

Gary Ian Jones, 5 Glenelg Court, Paralowie SA 5108, Australia

Filed Jul. 26, 1995, Ser. No. 41,893

Claims priority, application Australia, Jan. 27, 1995, 211/95

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—367



384,269

LOCKABLE HOOK

Gary Ian Jones, 5 Glenton Court, Paralowie SA 5108, Australia
Filed Dec. 21, 1995, Ser. No. 48,188

Claims priority, application Australia, Jun. 21, 1995, 1901/95

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—367



384,271

FASTENING PEG

Vincent T. Kozyrski, Plainville, Conn., assignor to The Fletcher-Terry Company, Farmington, Conn.

Filed Nov. 27, 1995, Ser. No. 47,139

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D8—382



384,270

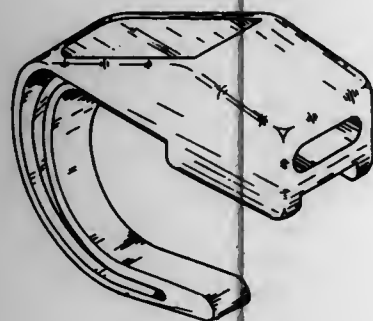
WALL HOOK

Hsiu-Huei Chang, 58, Ma Yuan West St., Taichung, Taiwan
Filed Jul. 22, 1996, Ser. No. 57,278

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—367



384,272

FACE ATTACHMENT

Tomoo Eguchi, Utsunomiya, Japan, assignor to Nifco Inc., Yokohama, Japan

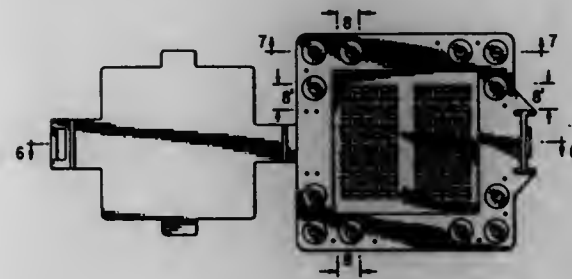
Filed Mar. 1, 1996, Ser. No. 51,077

Claims priority, application Japan, Oct. 12, 1995, 7-30289

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D8—394



384,273

RECLOSABLE BAG FOR USE INSIDE A BOX

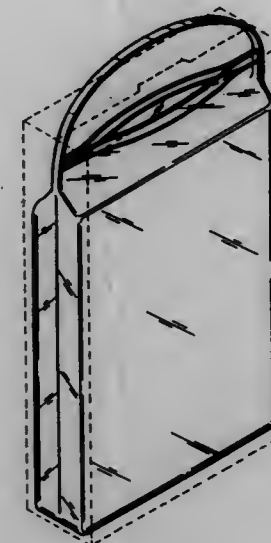
Carol A. Willis, 5120 Dodson St., Box 193, Somis, Calif. 93066-0193

Filed Apr. 4, 1996, Ser. No. 52,636

Term of patent 14 years

LOC (6) Cl. 09 - 05

U.S. Cl. D9—305



384,275

BEVERAGE CUP CARRIER

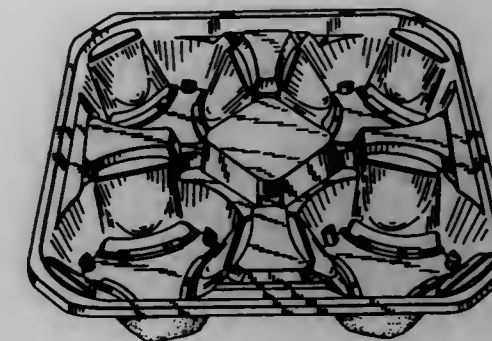
John P. DuBois, Windham, and Richard C. Sweeney, Falmouth, both of Me., assignors to Tenneco Packaging, Evanston, Ill.

Filed Feb. 5, 1996, Ser. No. 50,010

Term of patent 14 years

LOC (6) Cl. 09 - 03

U.S. Cl. D9—341



384,276

BOX FOR A CHOCOLATE FIGURE

Daniel B. Casey, and Theresa A. Casey, both of 41 Queen St. #2, East Greenwich, R.I. 02818-3753

Filed Mar. 28, 1996, Ser. No. 52,368

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—415



384,274

CONFECTION PACKAGE

Thomas W. Tolpin, 444 Dell La., Highland Park, Ill. 60035

Filed Dec. 4, 1995, Ser. No. 47,419

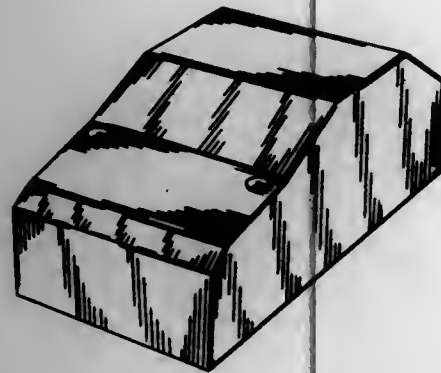
Term of patent 14 years

LOC (6) Cl. 09 - 03

U.S. Cl. D9—317



384,277
BOX
Henri Lenterman, Culver City, Calif., assignor to Intromarket-
ing, Inc., Woodland Hills, Calif.
Filed Jun. 26, 1995, Ser. No. 40,751
Term of patent 14 years
LOC (6) Cl. 09 - 07
U.S. Cl. D9-432



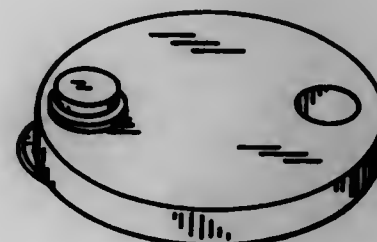
384,279
CARRIER HANDLE
Linda Anne Hepworth, Farnham, England, assignor to Angel
Handles (International) Limited, Guildford, England
Filed Jun. 5, 1995, Ser. No. 40,199
Term of patent 14 years
U.S. Cl. D9-434



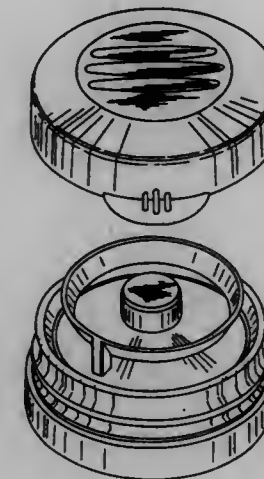
384,278
DIE-CUT BLANK FOR COMBINED DISPLAY CARD AND
EASEL
John Bosworth, 601 N. Broadway, Upper Nyack, N.Y. 10960
Filed May 17, 1996, Ser. No. 54,650
Term of patent 14 years
LOC (6) Cl. 09 - 07
U.S. Cl. D9-433



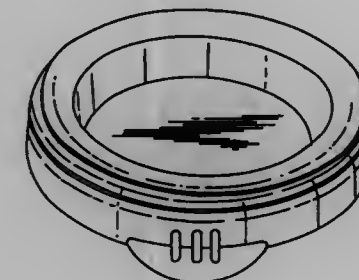
384,280
VENTED CAN LID
Ronald R. Kuczer, 14715 Timberway Ct., St. Louis, Mo. 63017
Filed Oct. 1, 1993, Ser. No. 13,797
Term of patent 14 years
LOC (6) Cl. 09 - 07
U.S. Cl. D9-436



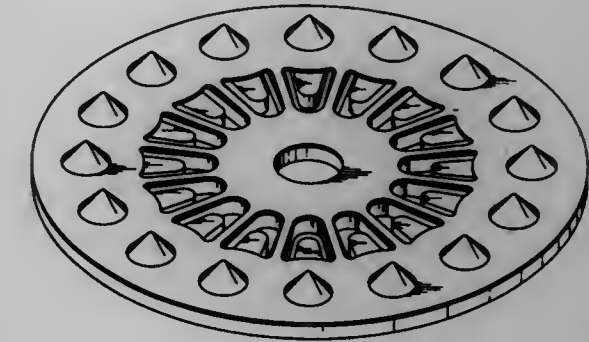
384,281
CLOSURE
Kon Euan Wong, Box Hill, Australia, assignor to Bayly Design
Associates Pty. Ltd., Victoria, Australia
Filed Jun. 15, 1995, Ser. No. 40,348
Claims priority, application Australia, Dec. 16, 1994, 4199/94
Term of patent 14 years
LOC (6) Cl. 09 - 07
U.S. Cl. D9-443



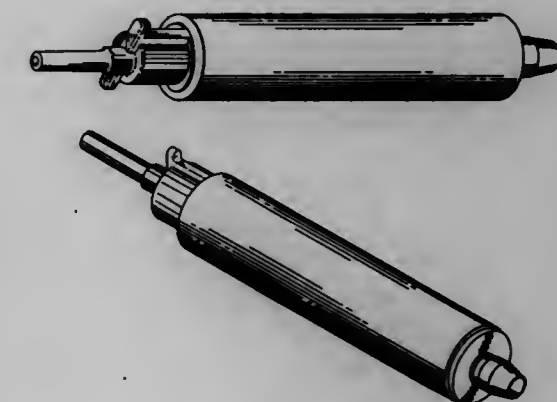
384,282
CLOSURE
Kon Euan Wong, Box Hill, Australia, assignor to Bayly Design
Associates Pty. Ltd.
Filed Jun. 15, 1995, Ser. No. 40,356
Claims priority, application Australia, Dec. 16, 1994,
AU4200/94
Term of patent 14 years
LOC (6) Cl. 09 - 07
U.S. Cl. D9-443



384,283
BLISTER PACK DISK
Karen Davies; Robert F. Eisele, and Clyde Witham, all of San
Diego, Calif., assignors to Dura Pharmaceuticals, Inc., San
Diego, Calif.
Filed Apr. 15, 1996, Ser. No. 53,173
Term of patent 14 years
LOC (6) Cl. 09 - 03
U.S. Cl. D9-345



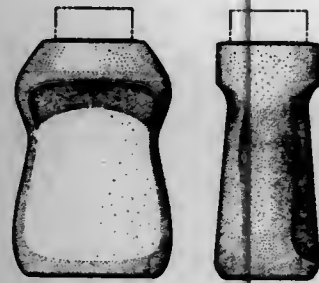
384,284
PUMP FOR A SOAP DISPENSER
Warren S. Daansen, P.O. Box 614, Nashua, N.H. 03061
Filed Feb. 8, 1996, Ser. No. 50,104
The portion of the term of this patent subsequent to Jul. 23,
2010, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 09 - 07
U.S. Cl. D9-448



384,285
BOTTLE

Stephen W. D'Amico, Cincinnati; Michael R. Morgan, Maineville, both of Ohio; Thomas B. Aldrich, III, Chestnut Ridge, and Jim F. Warner, New York, both of N.Y., assignors to The Procter & Gamble Company, Cincinnati, Ohio
Filed Jun. 18, 1996, Ser. No. 56,269
Term of patent 14 years
LOC (6) Cl. 09 - 01

U.S. Cl. D9-542



384,287
OPEN-BOOKED CLOCK

Kul-Eng Cheng, 99 Glencairn Street, Toronto, Ontario, Canada, M4R 1M7
Filed Feb. 21, 1996, Ser. No. 50,512
Term of patent 14 years
LOC (6) Cl. 10 - 01

U.S. Cl. D10-6



384,288
CLOCK

Julius C. Ekeoba, 3403 University Blvd., Kensington, Md. 20895

Filed Sep. 26, 1995, Ser. No. 44,549
Term of patent 14 years
LOC (6) Cl. 10 - 01

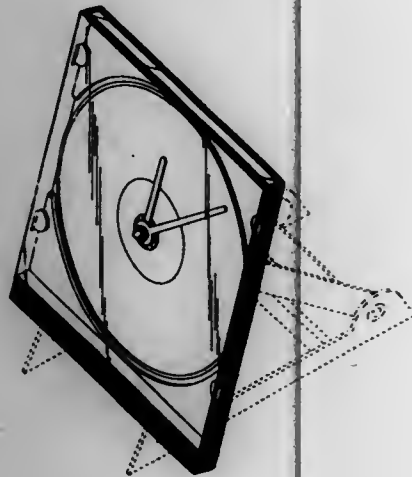
U.S. Cl. D10-31



384,286
COMPACT DISK CLOCK

Robert G. Abbott, 3597 E. 72nd St., Cleveland, Ohio 44105
Filed Apr. 10, 1995, Ser. No. 37,303
Term of patent 14 years
LOC (6) Cl. 10 - 01

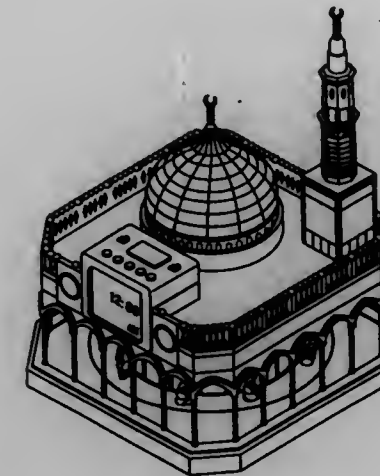
U.S. Cl. D10-6



384,289
CASTLE CLOCK

Ming Kun Chan, No. 537, Chung Cheng Road, Shin Tien, Taipei, Taiwan
Filed Jul. 31, 1996, Ser. No. 57,755
Term of patent 14 years
LOC (6) Cl. 10 - 01

U.S. Cl. D10-11



384,291
WATCH CASE

Atsushi Goto, Kunitachi, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan
Filed May 28, 1996, Ser. No. 54,975
Term of patent 14 years
LOC (6) Cl. 10 - 02

U.S. Cl. D10-30

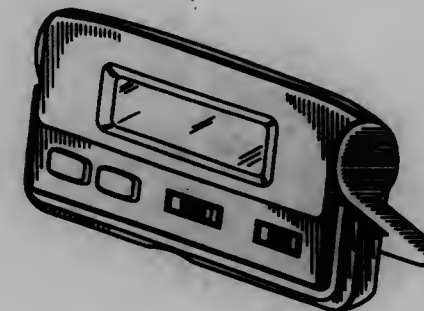


384,290
FLIP LID ALARM CLOCK

Thomas R. Steinhagen, West Des Moines; Charles A. Haas, Des Moines, and John E. Schenken, West Des Moines, all of Iowa, assignors to Cobbs Manufacturing Company, Des Moines, Iowa

Filed Jul. 29, 1996, Ser. No. 57,615
Term of patent 14 years
LOC (6) Cl. 10 - 01

U.S. Cl. D10-18

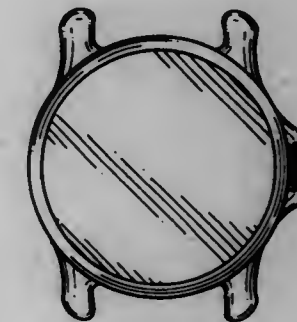


384,292
CASING FOR A WATCH

Moon K. Woo, Palisades Park, N.J., and Wai Chung Ng, Staten Island, N.Y., assignors to Timex Corporation, Middlebury, Conn.

Filed May 30, 1996, Ser. No. 55,157
Term of patent 14 years
LOC (6) Cl. 10 - 02

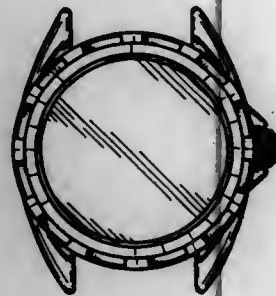
U.S. Cl. D10-30



384,293
CASING FOR A WATCH
Moon K. Woo, Palisades Park, N.J., and Wai Chung Ng, Staten Island, N.Y., assignors to Timex Corporation, Middlebury, Conn.

Filed May 30, 1996, Ser. No. 55,159
Term of patent 14 years
LOC (6) Cl. 10 - 02

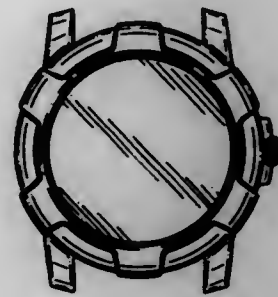
U.S. Cl. D10-30



384,295
CASING FOR A WATCH
Judith Reichel Riley, Goshen, Conn., assignor to Timex Corporation, Middlebury, Conn.

Filed Jun. 25, 1996, Ser. No. 56,208
Term of patent 14 years
LOC (6) Cl. 10 - 02

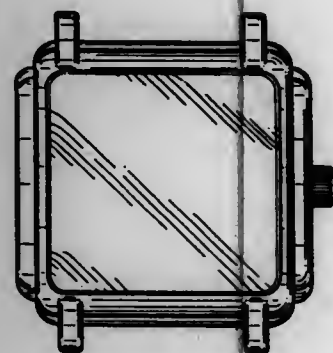
U.S. Cl. D10-30



384,294
CASING FOR A WATCH
Moon K. Woo, Palisades, N.J., and Percy Cheung, Happy Valley, Hong Kong, assignors to Timex Corporation, Middlebury, Conn.

Filed May 30, 1996, Ser. No. 55,161
Term of patent 14 years
LOC (6) Cl. 10 - 02

U.S. Cl. D10-30



384,296
WATCH
Barbara Giardiello, Naples, Italy, assignor to Arttime SA, Neuchatel, Switzerland

Filed Jun. 19, 1996, Ser. No. 55,977
Claims priority, application Hague Agreement, Dec. 22, 1995, DMA/003186

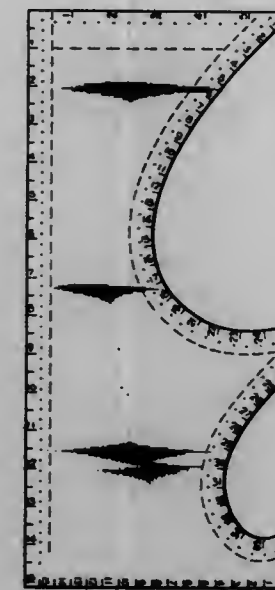
Term of patent 14 years
LOC (6) Cl. 10 - 02

U.S. Cl. D10-39



384,297
CURVED RULER
Dorothy M. Paynes, 1036 Adeline St., Oakland, Calif. 94607
Filed May 24, 1996, Ser. No. 55,964
Term of patent 14 years
LOC (6) Cl. 10 - 04

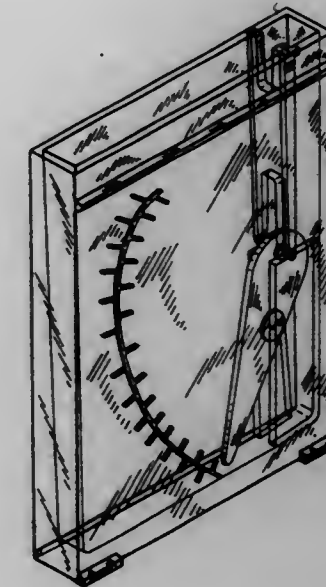
U.S. Cl. D10-71



384,299
HYDROMETER
Edmund J. Mowka, Jr., and Thomas A. Frakes, both of Mentor, Ohio, assignors to Aquarium Systems, Inc., Mentor, Ohio

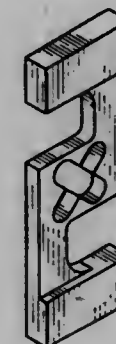
Filed Mar. 22, 1996, Ser. No. 52,067
Term of patent 14 years
LOC (6) Cl. 10 - 04

U.S. Cl. D10-84



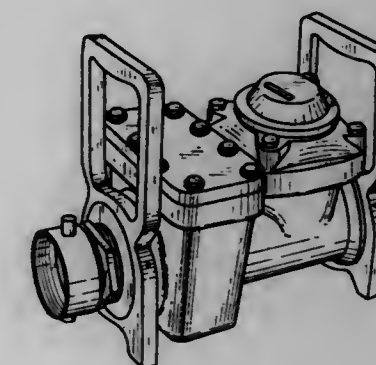
384,298
LOAD GAUGE BLOCK
Darryl L. Boyd, 1314 Oceanoire, San Luis Obispo, Calif. 93405
Filed Nov. 2, 1995, Ser. No. 45,931
Term of patent 14 years
LOC (6) Cl. 10 - 04

U.S. Cl. D10-83

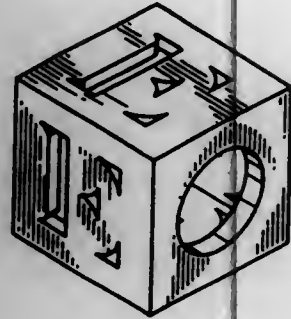


384,300
FIRE HYDRANT WATER METER
Arthur A. Hendy, P.O. Box 529, Beaumont, Calif. 92223
Filed Jun. 5, 1996, Ser. No. 55,452
Term of patent 14 years
LOC (6) Cl. 10 - 04

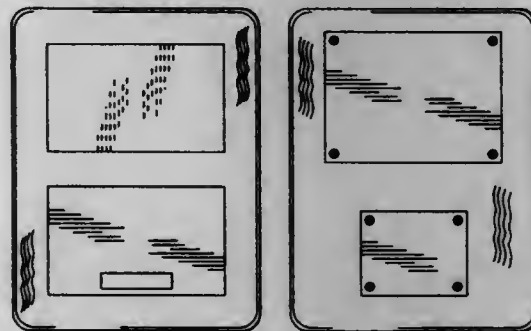
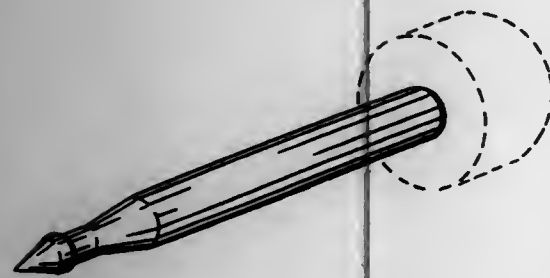
U.S. Cl. D10-99



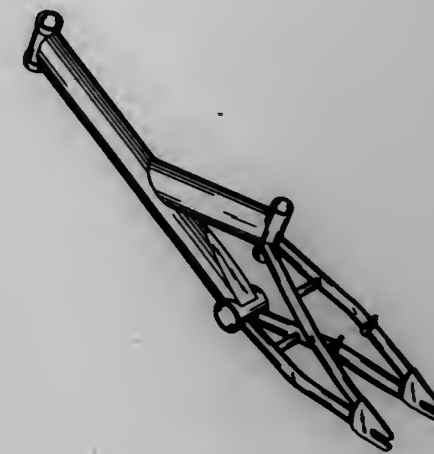
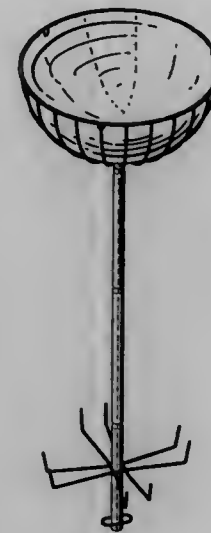
- 384,301
JEWELRY PENDANT
Michael Gusky, Fort Lauderdale, Fla., assignor to Aurafin Corporation
Filed Dec. 12, 1995, Ser. No. 47,769
Term of patent 14 years
LOC (6) Cl. 11 - 01
U.S. Cl. D11—81
- 384,303
ANGEL ORNAMENT
Brenda H. Vige, 164 H. Vige Rd., DeQuincy, La. 70633
Filed Dec. 19, 1995, Ser. No. 48,075
Term of patent 14 years
LOC (6) Cl. 11 - 05
U.S. Cl. D11—128



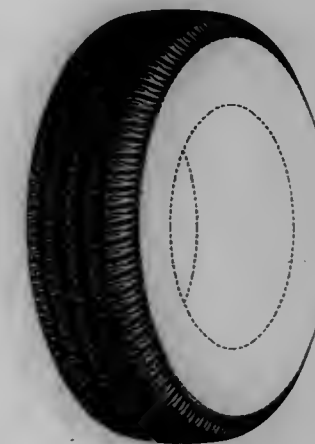
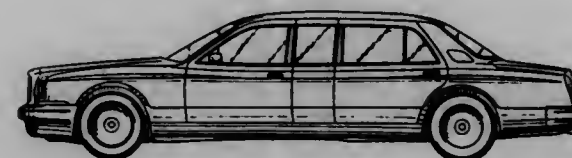
- 384,302
SLOPED EAR STUD
Vladimir Reil, 32450 Nautilus Dr., Rancho Palos Verdes, Calif. 90274
Filed Jun. 21, 1996, Ser. No. 56,065
Term of patent 14 years
LOC (6) Cl. 11 - 01
U.S. Cl. D11—86
- 384,304
PERSONALIZED PLAQUE
Carlton W. Sheldon, Milton, Vt., assignor to Eloise B. Rollins, Boca Raton, Fla.
Filed Nov. 9, 1995, Ser. No. 46,223
Term of patent 14 years
LOC (6) Cl. 11 - 02
U.S. Cl. D11—132



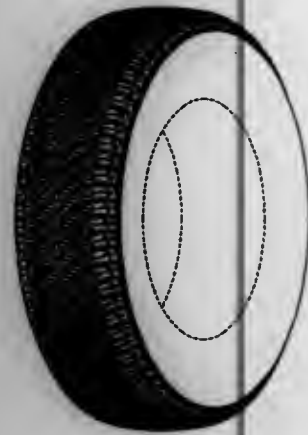
- 384,305
PLANT DISPLAY SYSTEM
Gary D. Cox, Joplin, Mo., assignor to Southwestern Products, Inc., Joplin, Mo.
Filed Feb. 20, 1996, Ser. No. 50,447
Term of patent 14 years
LOC (6) Cl. 11 - 02
U.S. Cl. D11—153
- 384,307
BICYCLE FRAME
Gary Fisher, San Anselmo, Calif., assignor to Trek Bicycle Corporation, Waterloo, Wis.
Filed Jul. 3, 1996, Ser. No. 56,626
Term of patent 14 years
LOC (6) Cl. 12 - 11
U.S. Cl. D12—111



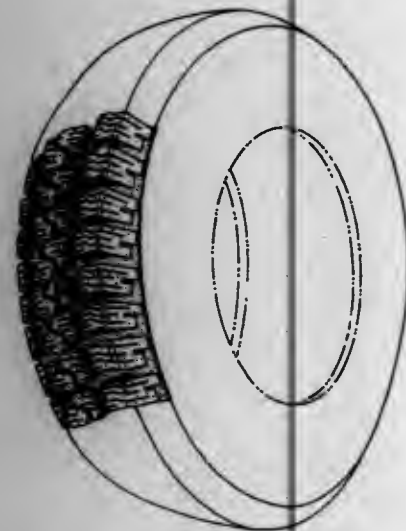
- 384,308
TIRE TREAD
Richard Heinen, Habay-la-Neuve, Belgium, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Aug. 9, 1996, Ser. No. 58,225
Term of patent 14 years
LOC (6) Cl. 12 - 15
U.S. Cl. D12—146
- 384,306
AUTOMOBILE
Jonathan Mark Gould, Rugby, England, assignor to Rolls-Royce Motor Cars Limited, Cheshire, England
Filed Apr. 21, 1995, Ser. No. 37,989
Claims priority, application United Kingdom, Oct. 22, 1994, 2042802
The portion of the term of this patent subsequent to Apr. 16, 2010, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 12 - 08
U.S. Cl. D12—92



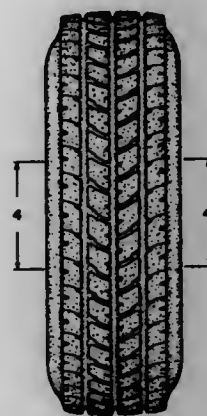
384,309
TIRE TREAD
 Richard Heinen, Habay-la-Neuve, Belgium, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed Nov. 28, 1995, Ser. No. 47,174
 Term of patent 14 years
 LOC (6) Cl. 12 - 15
 U.S. Cl. D12-147



384,310
TIRE TREAD
 Walter Szyms, Trumbull, Conn., assignor to Pirelli Armstrong Tire Corporation, New Haven, Conn.
 Filed Dec. 21, 1995, Ser. No. 48,157
 Term of patent 14 years
 LOC (6) Cl. 12 - 15
 U.S. Cl. D12-147



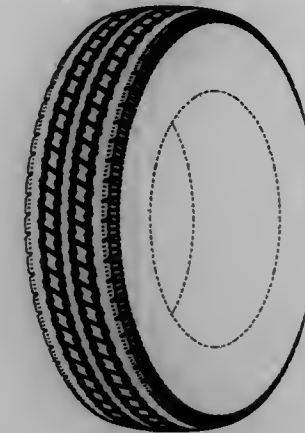
384,311
AUTOMOBILE TIRE
 Hirokatsu Maruyama, Hiratsuka, and Kohtaroh Iwabuchi, Tokyo, both of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan
 Filed Apr. 9, 1996, Ser. No. 52,724
 Claims priority, application Japan, Oct. 30, 1995, 7-032356
 Term of patent 14 years
 LOC (6) Cl. 12 - 15
 U.S. Cl. D12-147



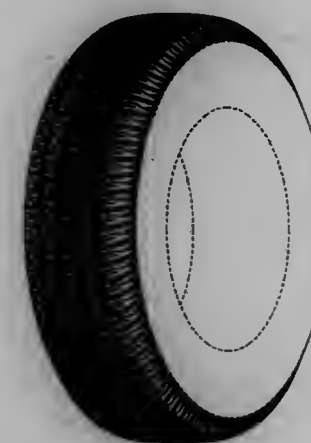
384,312
TIRE TREAD
 Kenneth Jenner Powell, Vaux-Sur-Sure, Belgium, and William Urbano Villamizar, Mersch, Luxembourg, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed Jun. 14, 1996, Ser. No. 55,848
 Term of patent 14 years
 LOC (6) Cl. 12 - 15
 U.S. Cl. D12-147



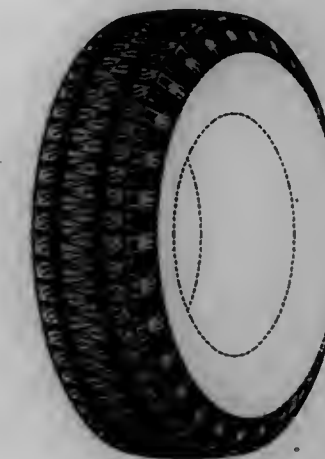
384,313
TIRE TREAD
 Richard Winfield Harden, Jr., Tallmadge, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed Aug. 15, 1996, Ser. No. 58,474
 Term of patent 14 years
 LOC (6) Cl. 12 - 15
 U.S. Cl. D12-147



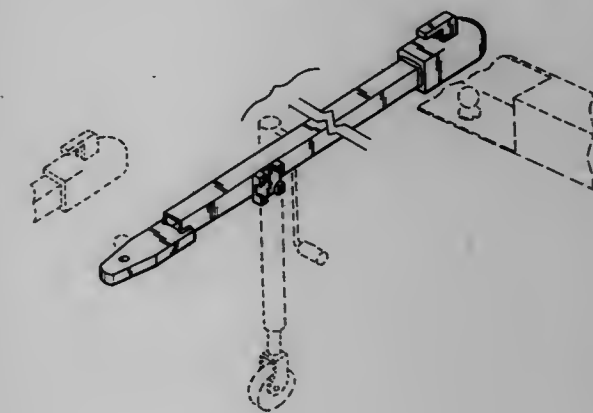
384,314
TIRE TREAD
 Richard Heinen, Habay-la-Neuve, Belgium, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed Sep. 5, 1996, Ser. No. 59,207
 Term of patent 14 years
 LOC (6) Cl. 12 - 15
 U.S. Cl. D12-147



384,315
TIRE TREAD
 Efimia Ellen Rohweder, Unlontown; Frederick William Miller, Akron; Michael Alois Kolowski, Mogadore, and Stephanie Carol Brown, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed Dec. 7, 1995, Ser. No. 47,550
 Term of patent 14 years
 LOC (6) Cl. 12 - 15
 U.S. Cl. D12-148



384,316
PUSH/PULL TOW BAR HITCH
 Curtis B. Freeman, Jr., Rte. 2 Box 234, Eupora, Miss. 39744-9547
 Filed Jan. 11, 1996, Ser. No. 48,905
 Term of patent 14 years
 LOC (6) Cl. 12 - 16
 U.S. Cl. D12-162



384,317

AIR DEFLECTOR

Klaus Gernot Jahnke, São Paulo, Brazil, assignor to Mercedes-Benz Do Brasil S.A., São Paulo, Brazil

Filed Feb. 12, 1996, Ser. No. 50,205

Claims priority, application Brazil, Aug. 16, 1995, 5501273

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—181



384,319

BAFFLED CHROME EXHAUST TIP

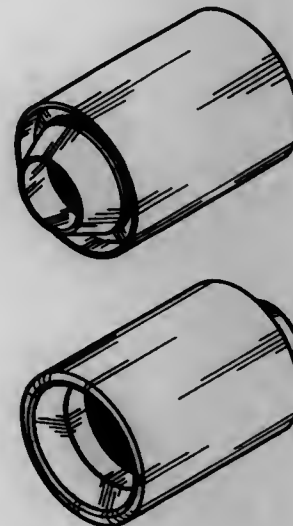
Harut Harutunian, 905 N. San Antonio Ave., Ontario, Calif. 91762

Filed Feb. 26, 1996, Ser. No. 50,750

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—194



384,320

FRONT FACE OF A VEHICLE WHEEL

Randjit Bhambra, Stuttgart, Germany, assignor to Dr. Ing. h.c.F. Porsche AG, Weissach, Germany

Filed Sep. 11, 1995, Ser. No. 43,727

Claims priority, application Germany, Mar. 11, 1995, 95 02 093.4

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—209



384,318

FOLDED SHADE WITH WRAPPER

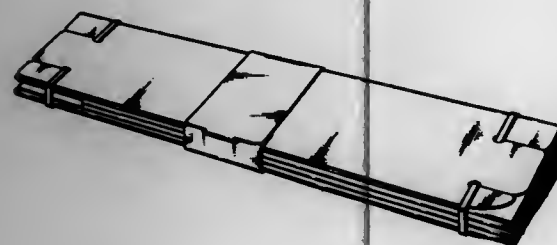
Ezra David Eakandry, 1925 Brickell Ave., Apt. D901, Miami, Fla. 33129

Filed Jan. 24, 1995, Ser. No. 33,944

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—191



384,321

BOAT HULL

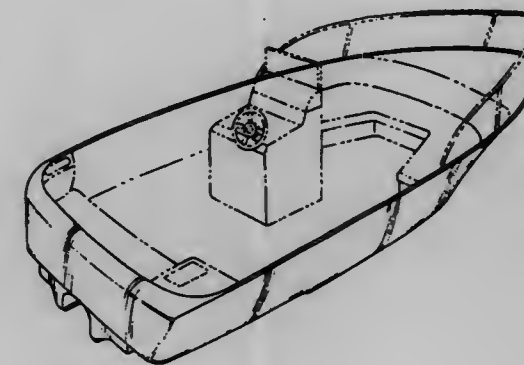
Carl J. Anderson, 4317 S. River Rd., East China, Mich. 48054

Filed Jun. 19, 1996, Ser. No. 55,995

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—310



384,323

BELT LINE MOLDING OF A CAR

Hideki Naito, and Hiroshi Ishibashi, both of Hiroshima, Japan, assignors to Nishikawa Rubber Co., Ltd., Hiroshima, Japan

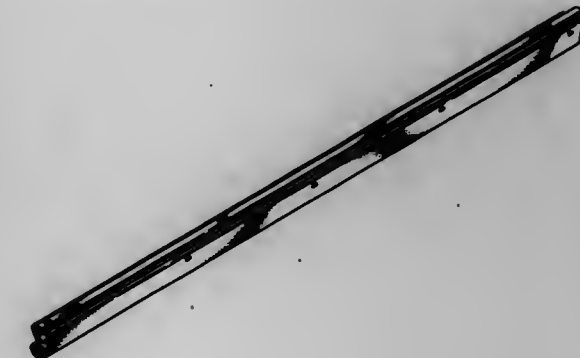
Filed Oct. 5, 1995, Ser. No. 46,569

Claims priority, application Japan, Apr. 7, 1995, 7-9802

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—400



384,322

ULTRALIGHT AIRPLANE PILOT ENCLOSURE

Mark D. Vanderhoof, 16110 E. Laurel Rd., Elk, Wash. 99009,

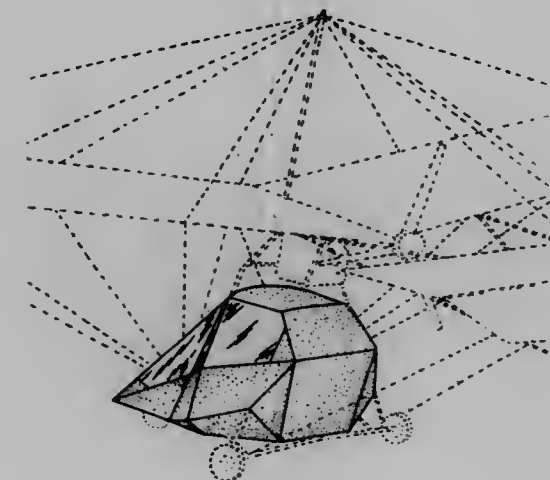
assignor to Mark D. Vanderhoof, Elk, Wash.

Filed Jan. 25, 1996, Ser. No. 49,653

Term of patent 14 years

LOC (6) Cl. 12 - 07

U.S. Cl. D12—321



384,324

REMOVABLE FABRIC TOP FOR OFF-ROAD VEHICLES

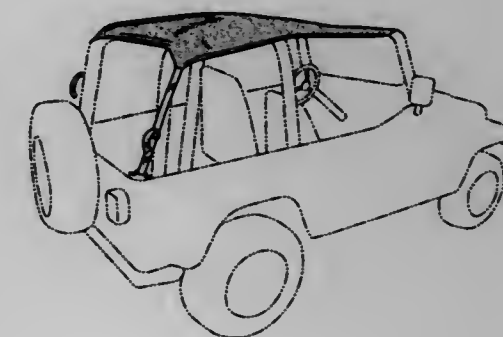
Donald M. Barker, 205 "C" St., Petaluma, Calif. 94952

Filed Oct. 26, 1995, Ser. No. 45,698

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—401



384,325

COVER OF A CARRIER FOR A VEHICLE

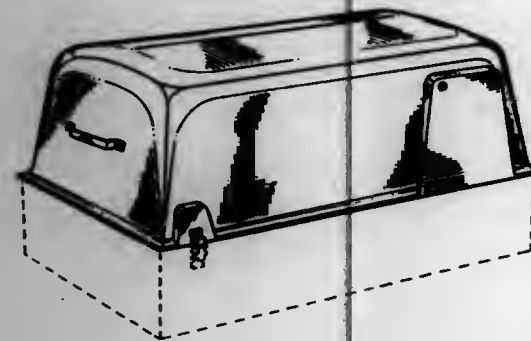
David L. Laker, Philo, Ill., assignor to U.S. Abilities, Inc., Philo, Ill.

Filed Aug. 10, 1995, Ser. No. 42,457

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—406



384,327

CELLULAR PHONE BATTERY PACK

Yuko Nakui, Tokyo, Japan, assignor to ToCad Company Ltd., Parsippany, N.J.

Filed Sep. 18, 1995, Ser. No. 44,079

Term of patent 14 years

LOC (6) Cl. 13 - 02

U.S. Cl. D13—103



384,328

ADAPTOR

Ronald L. Muller, Norwalk, and Duane D. Adams, Deep River, both of Conn., assignors to Philips Electronics North America Corporation, New York, N.Y.

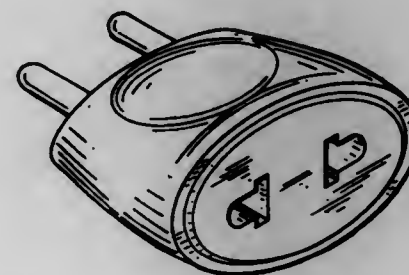
Filed Oct. 6, 1995, Ser. No. 45,030

The portion of the term of this patent subsequent to Jun. 3, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13—139



384,326

TRAILER SIDE BOTTOM RAIL

Charles R. Fetz, Savannah, Ga., and James T. Colling, Memphis, Tenn., assignors to Great Dane Trailers, Inc., Savannah, Ga.

Filed Jul. 5, 1995, Ser. No. 41,065

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—414



384,329

FLEXIBLE JUMPER

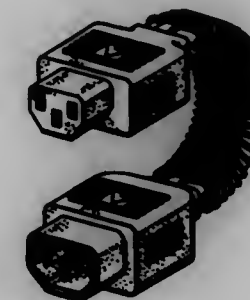
Dana W. Kammersgard, Vista; Angus R. Colson, Jr., Jamul, and Cory Echito, San Diego, all of Calif., assignors to Arteccon, Carlsbad, Calif.

Continuation of Ser. No. 40,142, Jun. 12, 1995, Pat. No. Des. 375,724, which is a division of Ser. No. 28,436, Sep. 15, 1994, abandoned. This application Oct. 27, 1995, Ser. No. 47,800

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13—146



384,331

SURFACE PATTERN FOR THE FRONT OF A CONTROL PANEL OF A PORTABLE MACHINE

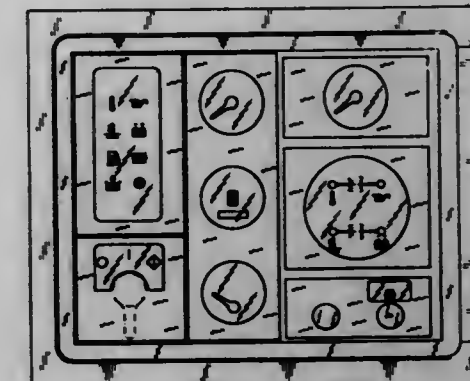
William R. Hutchinson; Godfrey Little, both of Clemmons; David F. Rowe, Jr., Advance; Dale R. Herbstritt, Clemmons; Dean P. Hendrix, Mocksville, all of N.C., and Pedro Pelaez, Hialeah Gardens, Fla., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Jan. 19, 1996, Ser. No. 49,190

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13—162



384,330

ELECTRICAL CONNECTOR

Kazunori Ichikawa, Tokyo, Japan, assignor to Hirose Electric Co., Ltd., Tokyo, Japan

Filed Apr. 25, 1996, Ser. No. 53,564

Claims priority, application Japan, Dec. 5, 1995, 7-36587

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13—146



384,332

LOAD CENTER DOOR

George Robert Downie, Jr., Tucker, Ga., assignor to Siemens Energy & Automation, Inc., Alpharetta, Ga.

Filed Mar. 27, 1996, Ser. No. 52,499

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13—177



384,333

MAGNETIC CORE FOR ELECTRONIC EQUIPMENT

Mikio Suzuki, Tokyo, Japan, assignor to TDK Corporation, Japan

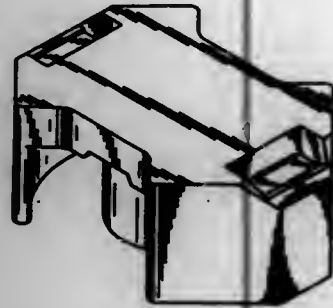
Filed Aug. 10, 1995, Ser. No. 42,447

Claims priority, application Japan, Feb. 10, 1995, 3466/1995

Term of patent 14 years

LOC (6) Cl. 13 - 99

U.S. Cl. D13—183



384,335

ELECTRONIC COMPONENT MOUNT

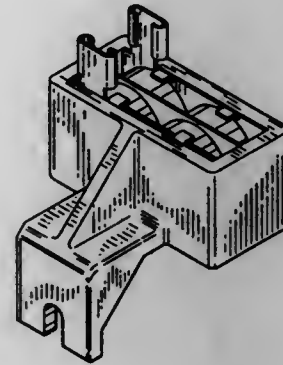
Edward I. Nelson, Plantation, Fla., assignor to Watsco Components, Inc., Hialeah, Fla.

Filed Nov. 14, 1995, Ser. No. 46,438

Term of patent 14 years

LOC (6) Cl. 13 - 99

U.S. Cl. D13—184



384,334

ELECTRONIC COMPONENT MOUNT

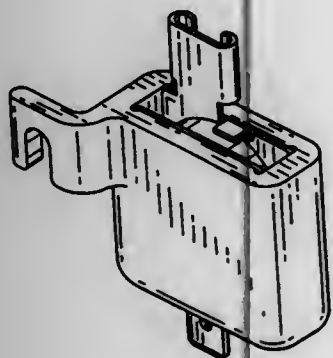
Edward I. Nelson, Plantation, Fla., assignor to Watsco Components, Inc., Hialeah, Fla.

Filed Nov. 14, 1995, Ser. No. 46,436

Term of patent 14 years

LOC (6) Cl. 13 - 99

U.S. Cl. D13—184



384,336

POWER CAP COVER

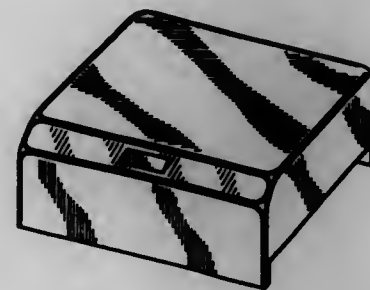
Mark A. Gerber, Plano; Neil McLellan, Garland, and Michael K. Strittmatter, Carrollton, all of Tex., assignors to Dallas Semiconductor Corporation, Dallas, Tex.

Filed Mar. 6, 1996, Ser. No. 51,307

Term of patent 14 years

LOC (6) Cl. 13 - 99

U.S. Cl. D13—184



384,337

DESKTOP PERSONAL COMPUTER

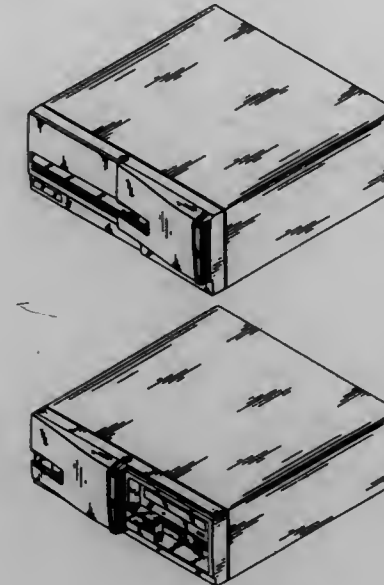
Roberto Fraquelli, Hampstead, England; Susan Sommers Moffatt, Chapel Hill, N.C., and John Alan Wiseman, Hampshire, England, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 26, 1996, Ser. No. 50,793

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—100



384,339

PORTABLE LAPTOP COMPUTER

Masaru Tochishita, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

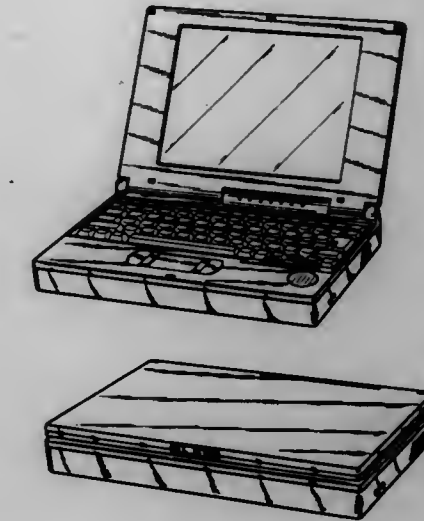
Filed Jun. 18, 1996, Ser. No. 56,271

Claims priority, application Japan, Dec. 20, 1995, 7-38493

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—106



384,338

PERSONAL COMPUTER SYSTEM

Markus Oates, Near Farnham, United Kingdom; Julie Elaine Tierney, Renfrew, Scotland, and Paul Flowers, Newcastle-upon-Tyne, United Kingdom, assignors to International Business Machines Corporation, Armonk, N.Y.

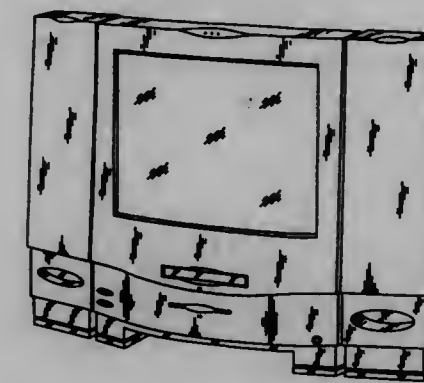
Filed Apr. 25, 1996, Ser. No. 53,551

Claims priority, application United Kingdom, Oct. 25, 1995, 2051406

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—100



384,340

DISC PLAYER/RECORDER FOR COMPUTER

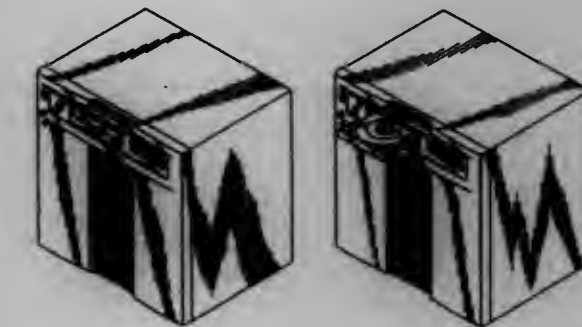
Toshiyuki Hisatsune, and Tetsu Sumii, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 6, 1996, Ser. No. 51,227

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—107

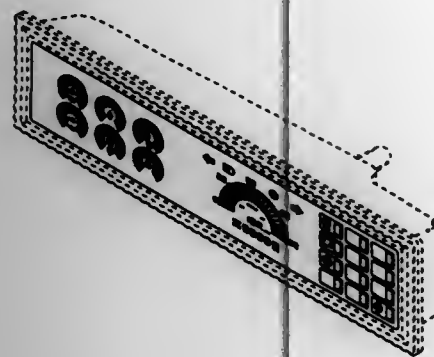


384,341
VEHICLE COMPUTER MONITORING SYSTEM SCREEN AND DISPLAY

John P. Hoffman, Peoria; Dennis A. Barney, Morton, and Joseph G. Kozlevcar, Peoria, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Sep. 16, 1992, Ser. No. 945,459
 Term of patent 14 years
 LOC (6) Cl. 14 - 02

U.S. Cl. D14—114

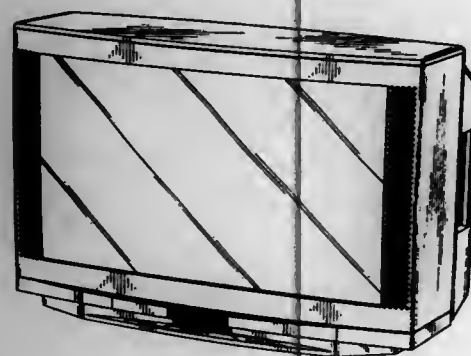


384,342
TELEVISION RECEIVER

Hiroyuki Maeno, Neyagawa; Shigeo Usui; Mitsunari Fujii, both of Takatsuki, and Toru Higashibata, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 29, 1996, Ser. No. 51,048
 Claims priority, application Japan, Sep. 4, 1995, 7-26059
 Term of patent 14 years
 LOC (6) Cl. 14 - 03

U.S. Cl. D14—126

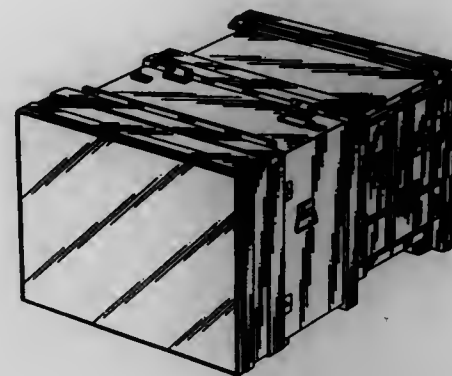


384,343
PROJECTION TYPE MONITOR TV RECEIVER SYSTEM

Shusuke Yamazaki, Hiratsuka, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 6, 1995, Ser. No. 46,054
 Claims priority, application Japan, May 23, 1995, 7-14492
 Term of patent 14 years
 LOC (6) Cl. 14 - 03

U.S. Cl. D14—128

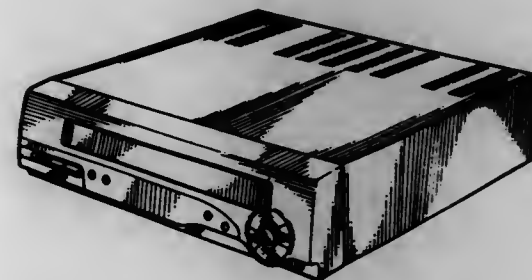


384,344
VIDEO TAPE RECORDER

Won O Do, Kyungki-do, Rep. of Korea, assignor to LG Electronics, Inc., Seoul, Rep. of Korea

Filed Oct. 3, 1995, Ser. No. 44,909
 Term of patent 14 years
 LOC (6) Cl. 14 - 01

U.S. Cl. D14—135



384,345
PORTABLE RADIO

Phillip E. Lindeman, Gurnee, Ill.; Julio C. Castaneda, Coral Springs, Fla., and Joseph R. Rauch, Cary, Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 18, 1994, Ser. No. 25,961
 Term of patent 14 years
 LOC (6) Cl. 14 - 03

U.S. Cl. D14—137

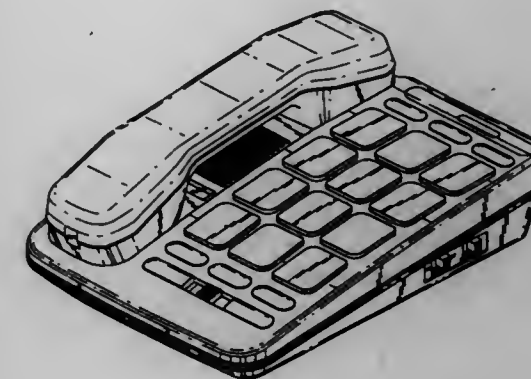


384,347
TELEPHONE

Kao Keng Hua, Hong Kong, Hong Kong, assignor to Maxfaith Electronics Limited, Hong Kong, Hong Kong

Filed Aug. 7, 1995, Ser. No. 42,303
 Claims priority, application United Kingdom, Feb. 13, 1995, 2045218
 Term of patent 14 years
 LOC (6) Cl. 14 - 03

U.S. Cl. D14—151

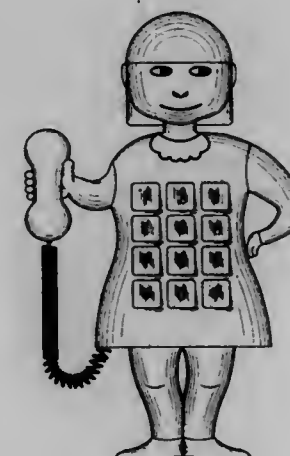


384,346
CHILD'S TELEPHONE

Diana Ramos, Box 828, Scotchtown Collabar Rd., Middleton, N.Y. 10940

Division of Ser. No. 30,390, Oct. 28, 1994, Pat. No. Des. 376,627. This application Jul. 29, 1996, Ser. No. 57,573
 Term of patent 14 years
 LOC (6) Cl. 14 - 03

U.S. Cl. D14—143

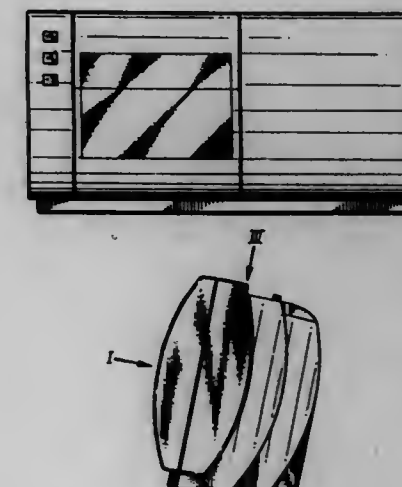


384,348
RADIO CASSETTE PLAYER

Serge Kokkinis, Hong Kong, Hong Kong, assignor to Alfa Technology Ltd., Hong Kong, Hong Kong

Filed Nov. 13, 1995, Ser. No. 46,382
 Claims priority, application United Kingdom, May 11, 1995, 2047366
 Term of patent 14 years
 LOC (6) Cl. 14 - 01

U.S. Cl. D14—162



384,349

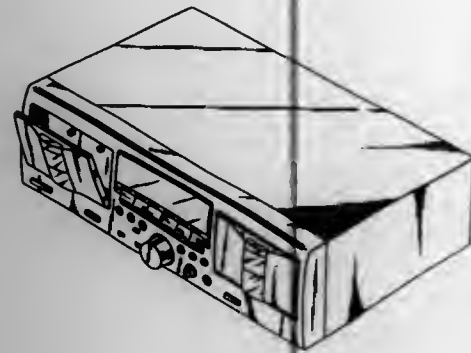
TAPE RECORDER

Masafumi Ito; Minoru Sube, and Hiroyuki Watanabe, all of Musashino, Japan, assignors to Tasc Corporation, Japan
Filed Apr. 10, 1996, Ser. No. 52,940

Claims priority, application Japan, Oct. 25, 1995, 7-032083
Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—164



384,351

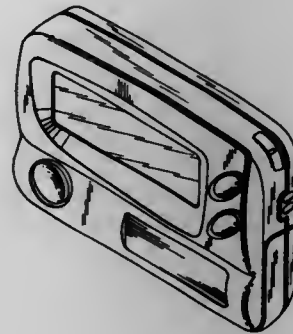
PAGER

Masataka Suzuki, and Mamoru Takahashi, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Jan. 19, 1996, Ser. No. 50,547

Claims priority, application Japan, Jul. 20, 1995, 7-21106
Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—191



384,350

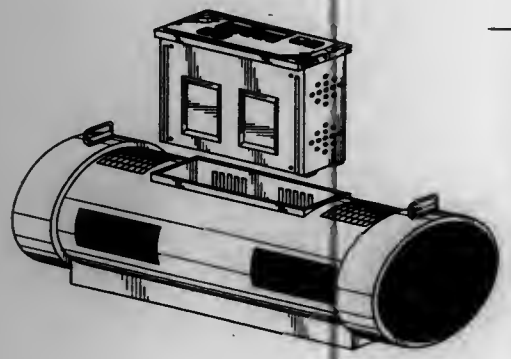
PORTABLE RADIO-CASSETTE-CD PLAYER

Ramon Nuevo, and Adam Arrocha, both of P.O. Box 352281, Miami, Fla. 33135

Filed Mar. 26, 1996, Ser. No. 52,226
Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—168



384,352

SELECTIVE CALL RECEIVER

William J. Scheid, Coral Springs; Anthony W. Cuteri, Lantana, and Troy Allen Bailey, Lake Worth, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 4, 1996, Ser. No. 61,943
Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—191



384,353

LOUDSPEAKER

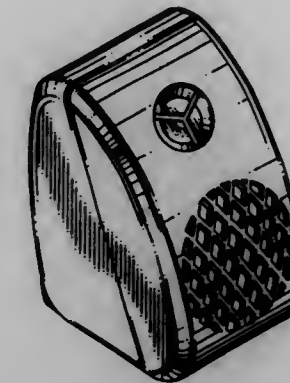
Arnie Nudell, Minturn, Colo.; John B. Poling, Sparks, Md.; William Rupert, Perryville, Md.; Bradley M. Starobin, Baltimore, Md., and Mark Waker, Randallstown, Md., assignors to Britannia Investment Corporation, San Diego, Calif.

Filed Feb. 9, 1996, Ser. No. 50,128

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—214



384,355

SPEAKER

Shih-Hsiung Chang, No. 169, Chung-Min Rd., Taichung, Taiwan

Filed May 31, 1996, Ser. No. 55,202

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—214



384,354

WEDGE SHAPED SPEAKER ENCLOSURE

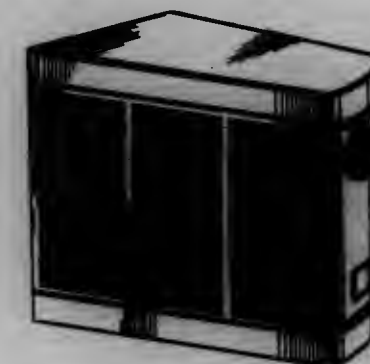
Gary Stephen Weisberg, Owings Mills, Md., and Milton Halstead, San Juan Capistrano, Calif., assignors to Micro Multimedia Labs Inc., Owings Mills, Md.

Filed Feb. 23, 1996, Ser. No. 51,032

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—214



384,356

COMBINED AUDIO MIXER AND TAPE RECORDER

Masafumi Ito; Shigeru Hasegawa; Haruki Takita, and Katsuhiko Takashima, all of Musashino, Japan, assignors to Tasc Corporation, Tokyo, Japan

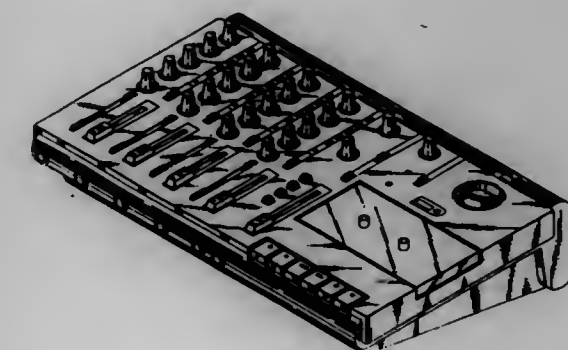
Filed Mar. 21, 1996, Ser. No. 51,909

Claims priority, application Japan, Oct. 25, 1995, 7-32000

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—217



384,357

DIRECTIONAL MICROPHONE

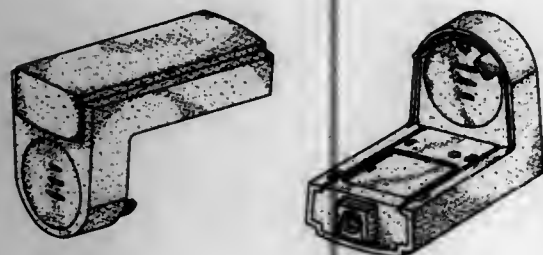
Jeffrey Phillip McAteer, Fishers; William Joseph McLaughlin, Indianapolis, both of Ind.; Dennis Jay Wasserman, Austin, Tex., and Christopher T. Welsh, Noblesville, Ind., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 13, 1995, Ser. No. 46,279

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14-225



384,359

WELDING BRACKET FOR ROUND PIPE

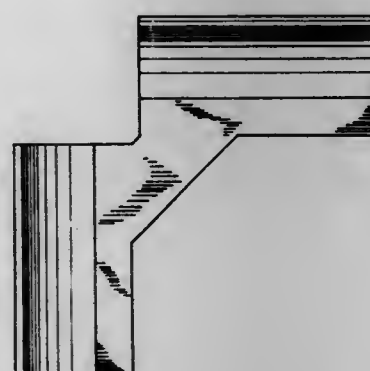
Robert B. Walker, 5340 Harrison Rd., Paradise, Calif. 95969

Filed Mar. 19, 1996, Ser. No. 56,011

Term of patent 14 years

LOC (6) Cl. 15 - 09

U.S. Cl. D15-140



384,358

TRACTOR CAB

Derek John Smith, Sutton Coldfield, United Kingdom, assignor to Massey Ferguson S.A., Beauvais, France

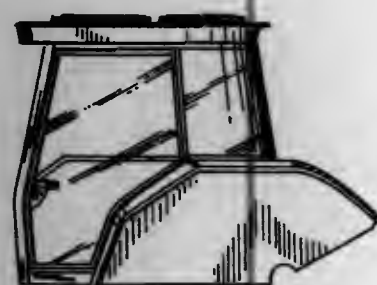
Filed Jun. 30, 1995, Ser. No. 40,961

Claims priority, application United Kingdom, Dec. 31, 1994, 2044184

Term of patent 14 years

LOC (6) Cl. 15 - 03

U.S. Cl. D15-30



384,360

VIDEO CAMERA

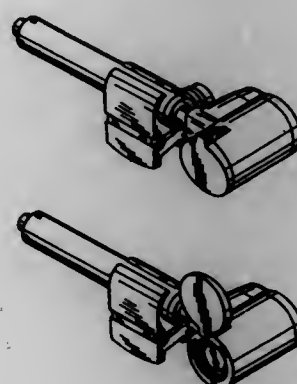
Toshiyuki Yamachi, and Yoshiki Miyamoto, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 5, 1995, Ser. No. 47,486

Term of patent 14 years

LOC (6) Cl. 16 - 01

U.S. Cl. D16-202



384,361

EYEWEAR FRAME

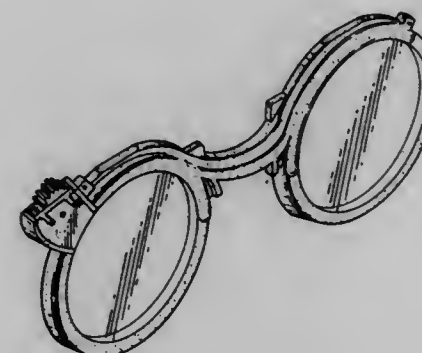
Naoki Karasawa; Toshio Totsuka, and Takuro Tsukatani, all of Ann Arbor, Mich., assignors to Ozmix, Inc., Ann Arbor, Mich.

Filed May 13, 1996, Ser. No. 54,368

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16-302



384,363

SPORTS GOGGLES FRAME

Soo An Park, Seoul, Rep. of Korea, assignor to Korea OGK Co., Ltd., Seoul, Rep. of Korea

Filed Mar. 25, 1996, Ser. No. 52,259

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16-328



384,364

EYEGLASS FRAME FRONT

Peter Yee, Irvine, Calif., assignor to Oakley, Inc., Irvine, Calif.

Filed Jun. 6, 1996, Ser. No. 55,504

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16-330

384,362

EYEGLASS FRONT

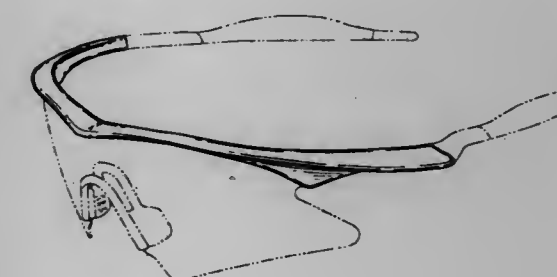
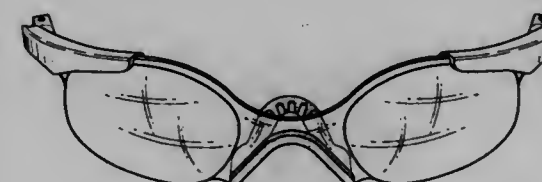
Peter Yee, Irvine, Calif., assignor to Oakley, Inc., Irvine, Calif.

Filed May 30, 1996, Ser. No. 55,148

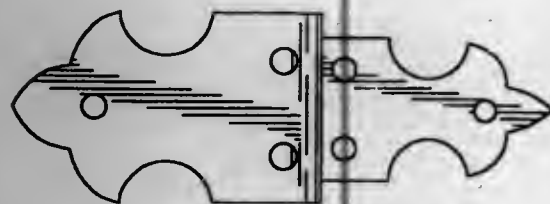
Term of patent 14 years

LOC (6) Cl. 16 - 06

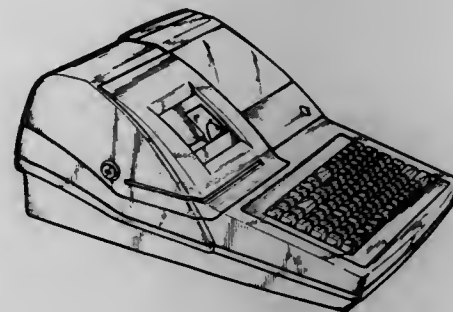
U.S. Cl. D16-315



384,365
EYEGLOSS HINGE
 Robert G. Keith, Hollywood, Calif., assignor to MYB Partnership, Miami, Fla.
 Filed Oct. 16, 1995, Ser. No. 45,272
 Term of patent 14 years
 LOC (6) Cl. 16 - 06
 U.S. Cl. D16-334



384,367
CASH REGISTER
 Byung Shick Jung, Seoul, Rep. of Korea, assignor to Samsung Electronics, Co. Ltd., Kyunggi-do, Rep. of Korea
 Filed Oct. 13, 1995, Ser. No. 45,227
 Claims priority, application Rep. of Korea, Apr. 14, 1995, 1995-6912
 The portion of the term of this patent subsequent to Oct. 15, 2010, has been disclaimed.
 Term of patent 14 years
 LOC (6) Cl. 18 - 01
 U.S. Cl. D18-4



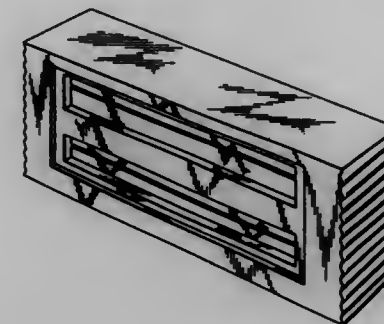
384,368
TONER BOTTLE FOR COPYING MACHINE
 Nobuyuki Agata, Soka, and Kyota Miyazaki, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Filed May 2, 1996, Ser. No. 53,918
 Claims priority, application Japan, Nov. 8, 1995, 7-33641
 Term of patent 14 years
 LOC (6) Cl. 16 - 03
 U.S. Cl. D18-43



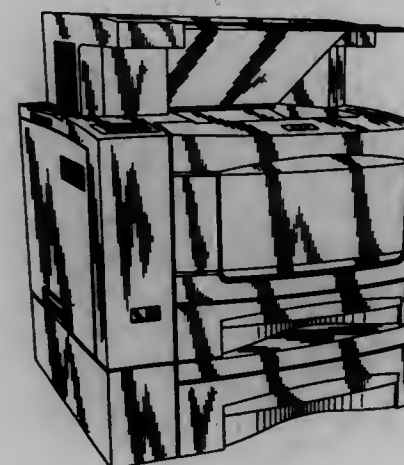
384,366
COMBINATION RULER AND CALCULATOR
 Jana Millstone, Kingston, N.Y., and Keith H. Wood, Doylestown, Pa., assignors to Myron Manufacturing Corporation, Maywood, N.J.
 Filed Aug. 8, 1996, Ser. No. 58,139
 Term of patent 14 years
 LOC (6) Cl. 18 - 01
 U.S. Cl. D18-2



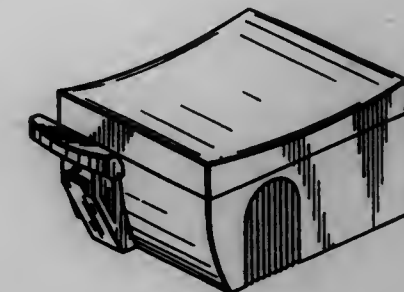
384,369
SORTER FOR PHOTOCOPIER
 Hiroshi Komatsu, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
 Filed Dec. 11, 1995, Ser. No. 47,677
 Claims priority, application Japan, Jun. 12, 1995, 7-16687
 Term of patent 14 years
 LOC (6) Cl. 18 - 99
 U.S. Cl. D18-47



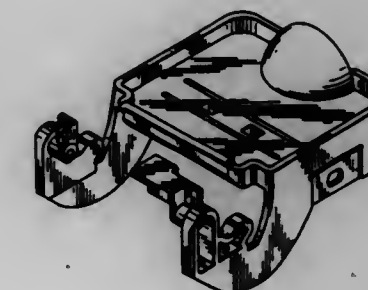
384,370
PRINTER
 Tomoyuki Kobayashi, Yokohama, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan
 Filed Jun. 18, 1996, Ser. No. 56,246
 Term of patent 14 years
 LOC (6) Cl. 18 - 02
 U.S. Cl. D18-55



384,371
INK CARTRIDGE FOR PRINTER
 Naoki Tashiro, Kawasaki; Toshihiko Ujita, Yamato; Teruo Arashima, Kawasaki; Yuji Hamasaki, Sagami-hara; Hisashi Yamamoto, Hiratsuka, and Wataru Takahashi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Filed Aug. 4, 1995, Ser. No. 42,283
 Claims priority, application Japan, Feb. 6, 1995, 7-2779
 The portion of the term of this patent subsequent to Dec. 3, 2010, has been disclaimed.
 Term of patent 14 years
 LOC (6) Cl. 18 - 02
 U.S. Cl. D18-56



384,372
LEVER FOR PRINT HEAD FOR AN INK JET PRINTER
 Fujio Akahane, and Kohji Watanabe, both of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
 Filed Aug. 23, 1995, Ser. No. 43,028
 Claims priority, application Japan, Feb. 23, 1995, 7-4719; Apr. 28, 1995, 7-12166; Apr. 28, 1995, 7-12167; Apr. 28, 1995, 7-12168
 Term of patent 14 years
 LOC (6) Cl. 18 - 02
 U.S. Cl. D18-56



384,373

RIBBONED BOOKMARK

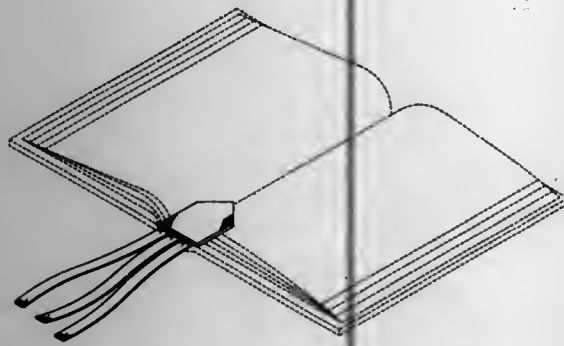
Myndilee Wong, 217 Sixteenth St., NW, Canton, Ohio 44703

Filed May 18, 1995, Ser. No. 39,456

Term of patent 14 years

LOC (6) Cl. 19 - 99

U.S. Cl. D19—34



384,375

COMBINED TELESCOPIC HOLDER FOR NOTE PAD AND A WRITING INSTRUMENT

Patrick Marguerie, Annecy le Vieux, France, assignor to IMPEX, S, Les Abrets, France

Filed Apr. 11, 1995, Ser. No. 37,373

Claims priority, application Hague Agreement, Oct. 12, 1994, DM/030 958

Term of patent 14 years

LOC (6) Cl. 19 - 06

U.S. Cl. D19—78



384,374

DUAL LEVEL ELLIPTICAL SIGN HOLDER

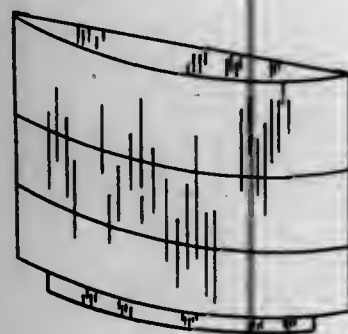
Hal Sandy, 4937 Glendale Rd., Shawnee-Mission, Kans. 66205

Filed Feb. 20, 1996, Ser. No. 50,456

Term of patent 14 years

LOC (6) Cl. 20 - 03

U.S. Cl. D20—43



384,376

GAME BOARD

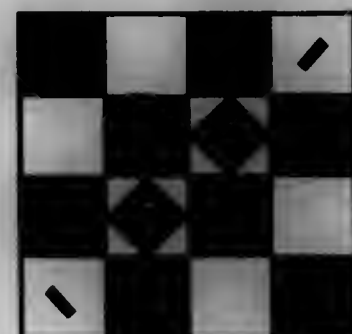
Scott D. Pardee, 150 Etna Rd., Ithaca, N.Y. 14850

Filed Apr. 9, 1996, Ser. No. 52,799

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—24



384,377

TOY CAR

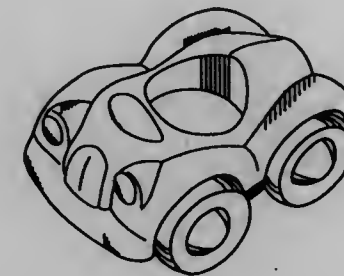
Wong Chung Lun, Kowloon, Hong Kong, assignor to Fu Hong Industries Limited, Mongkok, Hong Kong

Filed Jul. 18, 1996, Ser. No. 56,282

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—136



384,379

ABDOMINAL EXERCISER

Jui-Chin Lin, Chia Yi, Taiwan, assignor to Armotech Ind. Co., Ltd., Chia Yi Hsi, Taiwan

Filed Jul. 23, 1996, Ser. No. 57,378

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—191



384,380

GYMNASTIC BIKE

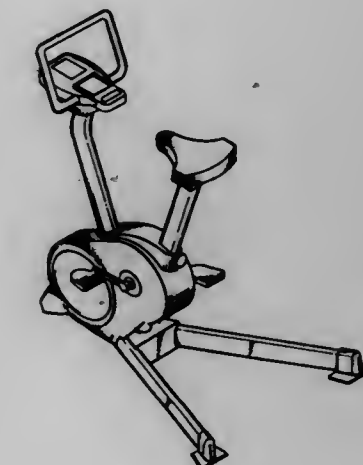
Leao Wang, Peter Wu, and Enzo Hang, all of Taichung Hsien, Taiwan, assignors to Greenmaster Industrial Corp., Taichung Hsien, Taiwan

Filed Apr. 17, 1996, Ser. No. 53,188

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—194



384,378

PUNCHING BAG

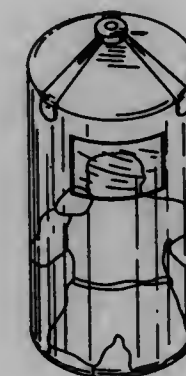
Rita M. Sigler, 623 Leith Ave., Waukegan, Ill. 60085

Filed Jan. 18, 1996, Ser. No. 49,122

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—191



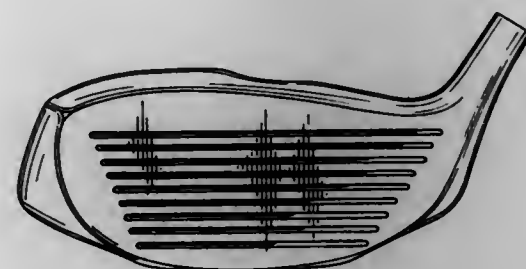
384,381
FINGER WEIGHT
 Peter C. Reilly, Three Hanover Sq., New York, N.Y. 10004
 Filed Apr. 10, 1996, Ser. No. 55,722
 Term of patent 14 years
 LOC (6) Cl. 21 - 02

U.S. Cl. D21—196



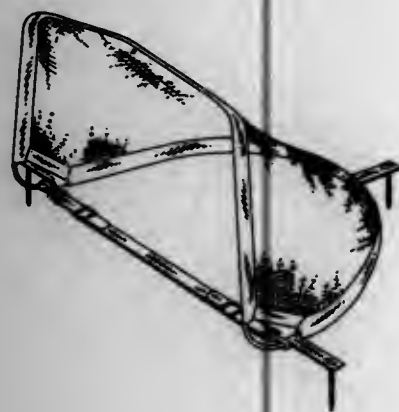
384,383
GOLF CLUB HEAD
 Kunihiro Takahashi, Musashino; Masato Fujii, and Kenji Sasaki, both of Higashikurume, all of Japan, assignors to Daiwa Seiko, Inc., Tokyo, Japan
 Filed Jun. 25, 1996, Ser. No. 56,203
 Claims priority, application Japan, Dec. 27, 1995, 7-39335
 Term of patent 14 years
 LOC (6) Cl. 21 - 02

U.S. Cl. D21—214



384,382
SPORTS GOAL
 Robert S. Armell, 199 Clark St., Brookline, Mass. 02146
 Filed Jul. 6, 1995, Ser. No. 41,102
 Term of patent 14 years
 LOC (6) Cl. 21 - 99

U.S. Cl. D21—200



384,384
BOOT AND FRAME FOR IN-LINE ROLLER SKATE
 Jinny Lu, c/o Hung Hsing Patent Service Center P.O. Box 55-1670, Taipei (10477), and Ming-Ho Chou, c/o Hung Hsing Patent Service Center P.O. Box 55-1670, Taipei (104), both of Taiwan

Filed Jul. 8, 1996, Ser. No. 56,703
 Term of patent 14 years
 LOC (6) Cl. 21 - 02

U.S. Cl. D21—226



384,385
GOLF BALL PUTTING AID
 Matthew James Farage, Box 9617, Wyoming, Mich. 49509
 Filed Mar. 21, 1995, Ser. No. 34,573
 Term of patent 14 years
 LOC (6) Cl. 21 - 02

U.S. Cl. D21—234

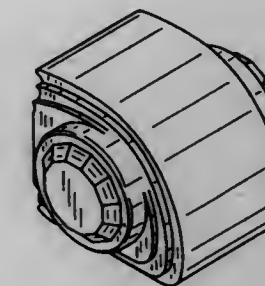


384,387
RECREATIONAL EQUIPMENT JUNCTION BOX
 James O. Dunn, Jr., 416 N. Laurel Ave., Charlotte, N.C. 28204, and Todd A. Coble, 12854 Oak Grove Rd., Stanfield, N.C. 28163

Filed Jun. 5, 1996, Ser. No. 55,393

Term of patent 14 years
 LOC (6) Cl. 21 - 03

U.S. Cl. D21—240



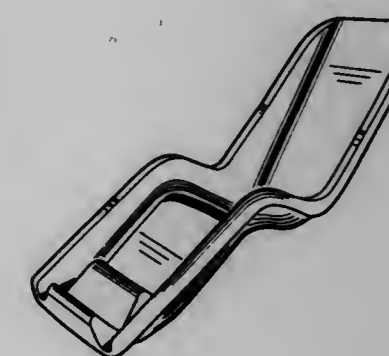
384,386
GOLF TEE MARKER
 William J. Eakins, P.O. Box 28689, El Jebel, Colo. 81628
 Filed Feb. 15, 1996, Ser. No. 50,350
 Term of patent 14 years
 LOC (6) Cl. 21 - 02

U.S. Cl. D21—234



384,388
SWING SEAT
 Beanna M. Eddy, 1003 Berkeley, Urbana, Ill. 61801
 Filed Nov. 7, 1995, Ser. No. 46,092
 Term of patent 14 years
 LOC (6) Cl. 21 - 03

U.S. Cl. D21—246



384,389

ADJUSTABLE MUZZLE BRAKE

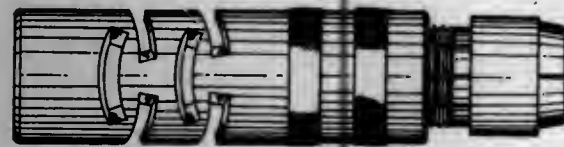
James M. Cyklich, P.O. Box 2471, Everett, Wash. 98203

Filed Mar. 15, 1996, Ser. No. 51,664

Term of patent 14 years

LOC (6) Cl. 22 - 01

U.S. Cl. D22—108



384,391

FISHING POLE HOLDING BUCKET

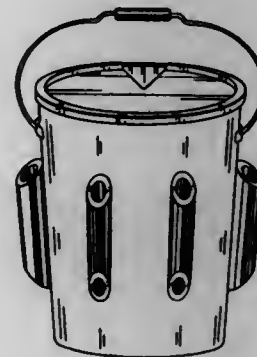
Eugene Bastian, 6025 Nelson Rd., Helena, Mont. 59601

Filed Jan. 18, 1996, Ser. No. 49,135

Term of patent 14 years

LOC (6) Cl. 22 - 05

U.S. Cl. D22—148



384,392

FAUCET

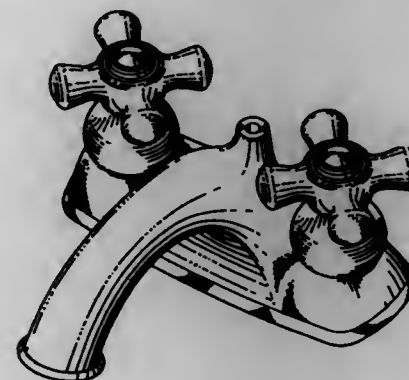
Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

Filed Apr. 4, 1996, Ser. No. 52,640

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



384,390

FLAPPING FISHING LURE

Edward J. Grabenhorst, 1323 Deslow La., and Ronald P. Mitchell, 135 Galliano St., both of Royal Palm Beach, Fla. 33411

Filed Jun. 2, 1995, Ser. No. 39,715

Term of patent 14 years

LOC (6) Cl. 22 - 05

U.S. Cl. D22—133



384,393

FAUCET BODY

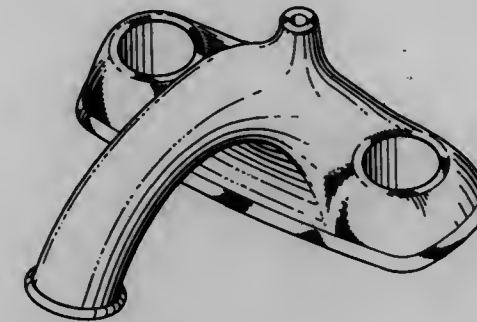
Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

Filed Apr. 4, 1996, Ser. No. 52,642

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



384,395

FAUCET

Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

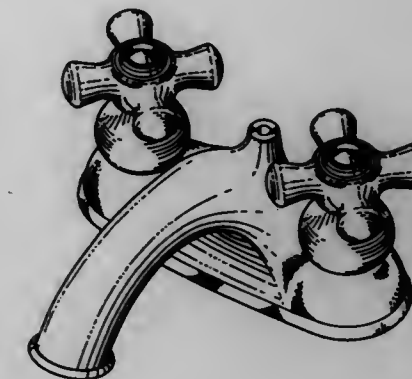
Filed Apr. 4, 1996, Ser. No. 52,685

The portion of the term of this patent subsequent to Feb. 25, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



384,394

FAUCET

Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

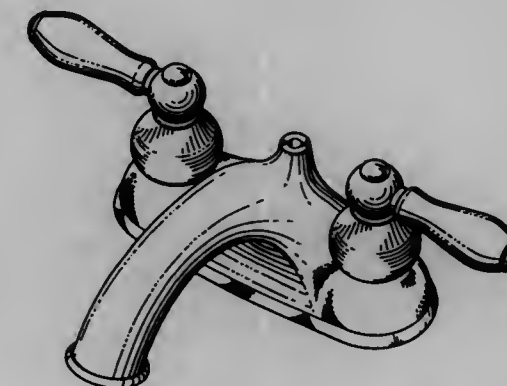
Filed Apr. 4, 1996, Ser. No. 52,684

The portion of the term of this patent subsequent to Feb. 25, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



384,396

FAUCET BODY

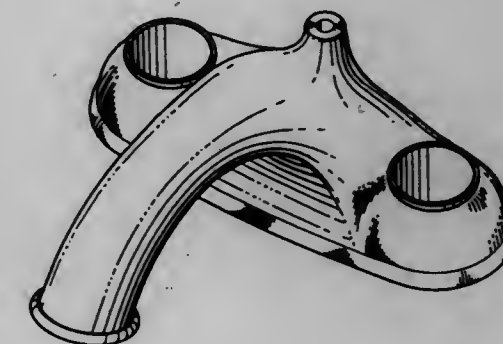
Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

Filed Apr. 4, 1996, Ser. No. 52,686

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—241

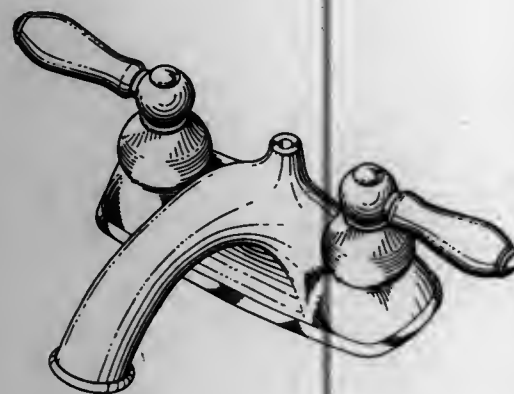


384,397
FAUCET

Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

Filed Apr. 4, 1996, Ser. No. 52,687
Term of patent 14 years
LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



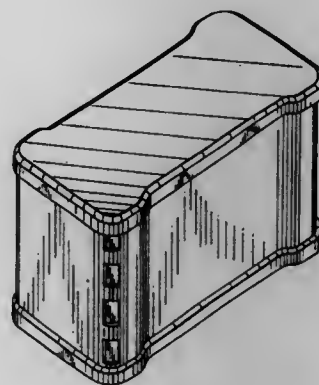
384,399

SPRINKLER SYSTEM VACUUM BREAKER COVER

James J. Doke, 1425 Weld County Rd. 32, Longmont, Colo. 80504-9619

Filed Sep. 1, 1995, Ser. No. 43,403
Term of patent 14 years
LOC (6) Cl. 23 - 01

U.S. Cl. D23—235



384,398

WATER SPRAY GUN

King-Yuan Wang, Changhua Hsien, Taiwan, assignor to Yuan Mei Corporation, Changhua Hsien, Taiwan

Filed Jun. 25, 1996, Ser. No. 56,189
Term of patent 14 years
LOC (6) Cl. 23 - 01

U.S. Cl. D23—223

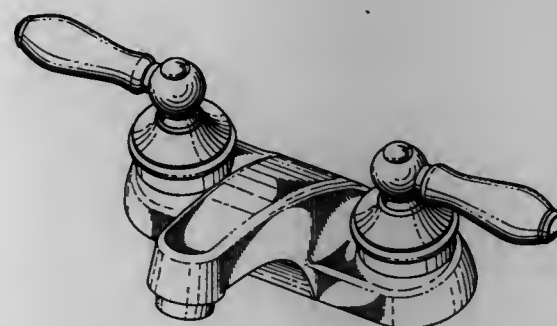


384,400
FAUCET

Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

Filed Sep. 22, 1995, Ser. No. 44,387
The portion of the term of this patent subsequent to Aug. 19, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 23 - 01

U.S. Cl. D23—241

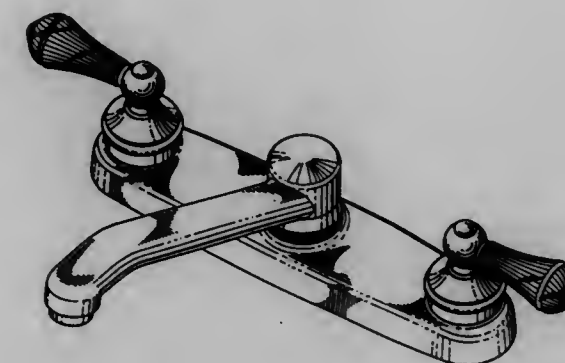


384,401
FAUCET

Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

Filed Sep. 28, 1995, Ser. No. 44,651
The portion of the term of this patent subsequent to Jul. 22, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



384,403

SINK PEDESTAL

Sherie Wagner, New York, N.Y., assignor to Sherie Wagner International, Inc., New York, N.Y.

Filed Apr. 18, 1996, Ser. No. 52,460
Term of patent 14 years
LOC (6) Cl. 23 - 02

U.S. Cl. D23—292

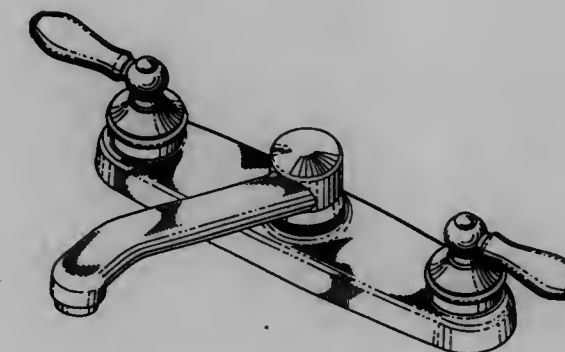


384,402
FAUCET

Frederic C. Doughty, S. Pasadena, and Darren M. Mark, Castaic, both of Calif., assignors to Emhart Inc., Newark, Del.

Filed Sep. 28, 1995, Ser. No. 44,653
Term of patent 14 years
LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



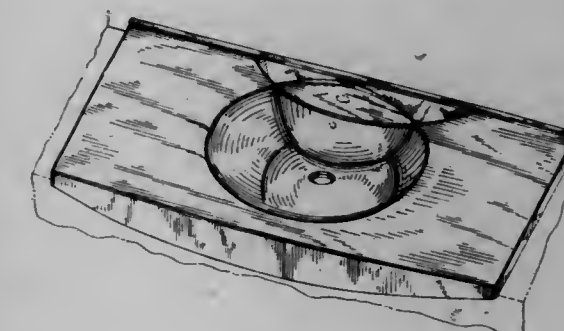
384,404

LAVATORY

Francois Kergoet, Malakoff, France, assignor to Jacob Delafon, Paris, France

Filed Nov. 3, 1995, Ser. No. 45,978
Term of patent 14 years
LOC (6) Cl. 23 - 02

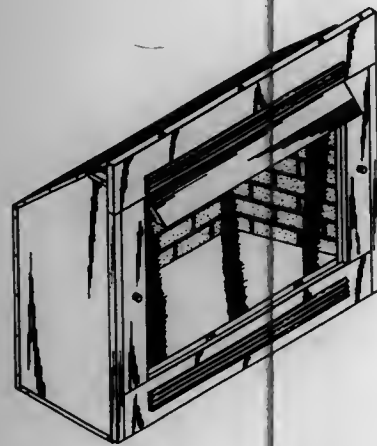
U.S. Cl. D23—284



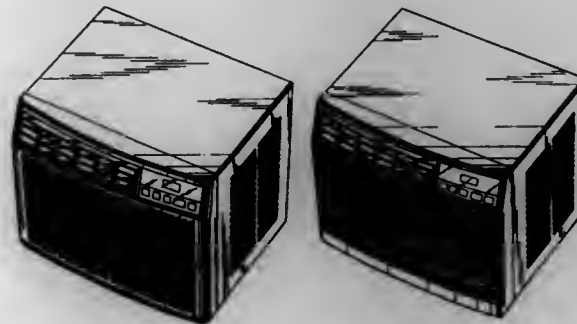
384,405
GAS FIRED HEATER
 Andrew Mark Wilson, Handsacre, England, assignor to Valor Limited, Erdington, England
 Filed Aug. 14, 1995, Ser. No. 43,445
 Claims priority, application United Kingdom, May 25, 1995, 2047746
 Term of patent 14 years
 LOC (6) Cl. 23 - 03
 U.S. Cl. D23—339



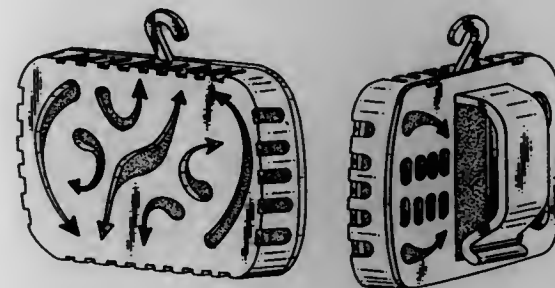
384,406
GAS FIREPLACE
 R. Dean Newman, and Douglas Lantz, both of Harrisonburg, Va., assignors to Shenandoah Manufacturing Co., Harrisonburg, Va.
 Filed Aug. 22, 1996, Ser. No. 58,759
 Term of patent 14 years
 LOC (6) Cl. 23 - 04
 U.S. Cl. D23—343



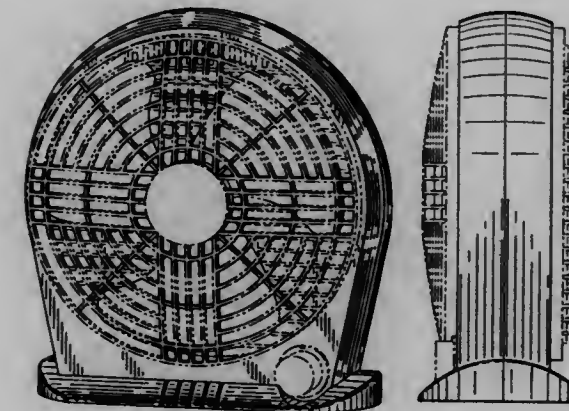
384,407
AIR CONDITIONER
 Hiromichi Yamada, Kawachinagano, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
 Filed Dec. 13, 1995, Ser. No. 50,529
 Claims priority, application Japan, Jun. 13, 1995, 7-16963; Jun. 13, 1995, 7-16964
 Term of patent 14 years
 LOC (6) Cl. 23 - 04
 U.S. Cl. D23—353



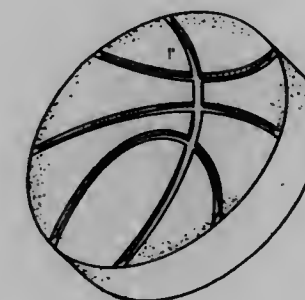
384,408
ODOR ABSORBER
 Scott H. Foreman, 1006 Overlook Ter., Cazenovia, N.Y. 13035
 Filed Jul. 2, 1996, Ser. No. 56,587
 Term of patent 14 years
 LOC (6) Cl. 23 - 04
 U.S. Cl. D23—368



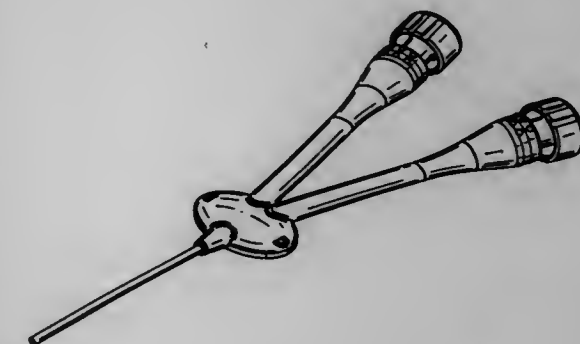
384,409
PORTABLE ELECTRICAL FAN HOUSING
 Rodney B. Jané, Westboro; John Longan, Natick, both of Mass.; Jui-Shang Wang, Taipei, Taiwan, and Stanley Gressens, Homewood, Ill., assignors to Duracraft Corp., Southborough, Mass.
 Division of Ser. No. 39,775, May 23, 1995. This application Nov. 13, 1995, Ser. No. 46,294
 Term of patent 14 years
 LOC (6) Cl. 23 - 04
 U.S. Cl. D23—411



384,410
VITAMIN TABLET
 Michael K. Hessom, Diamond Bar, and Tresa D. Sue, Buena Park, both of Calif., assignors to Amway Corporation, Ada, Mich.
 Filed Jul. 16, 1996, Ser. No. 57,075
 Term of patent 14 years
 LOC (6) Cl. 28 - 01
 U.S. Cl. D24—103



384,411
DOUBLE LUMEN CATHETER WITH GUIDEWIRE RETAINER
 Kenneth C. Musgrave; Glade H. Howell, both of Sandy; Christopher N. Cindrich, Provo, and Timothy J. Erskine, Sandy, all of Utah, assignors to Becton Dickinson and Company, Franklin Lakes, N.J.
 Filed Feb. 29, 1996, Ser. No. 50,891
 The portion of the term of this patent subsequent to Jul. 22, 2011, has been disclaimed.
 Term of patent 14 years
 LOC (6) Cl. 24 - 02
 U.S. Cl. D24—112



384,412
RECTAL PROBE
 Louis M. Mainiero, Delafield, Wis., assignor to Sensor Devices, Inc., Waukesha, Wis.
 Filed Oct. 20, 1995, Ser. No. 45,472
 Term of patent 14 years
 LOC (6) Cl. 24 - 02
 U.S. Cl. D24—135



384,413

ENDOSCOPIC SUTURING INSTRUMENT

Stephen W. Zlock, Hawthorne, N.Y., and Richard H. Yagami, Ridgefield, Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Filed Oct. 7, 1994, Ser. No. 29,496

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24-145



384,415

CELL SEPARATION COLUMN

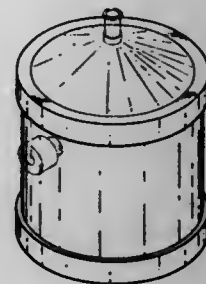
Patrick M. Maloney, Bothell; Michael D. Emde, Redmond, and Randal A. Goffe, Arlington, all of Wash., assignors to Cell-Pro Incorporated, Bothell, Wash.

Division of Ser. No. 425,379, Apr. 20, 1995, , each which is a division of Ser. No. 5,891, Jan. 15, 1993, which is a division of Ser. No. 780,750, Oct. 23, 1991, Pat. No. 5,240,856. This application Jun. 30, 1995, Ser. No. 40,948

Term of patent 14 years

LOC (6) Cl. 24 - 01

U.S. Cl. D24-162



384,414

ARTIFICIAL NIPPLE

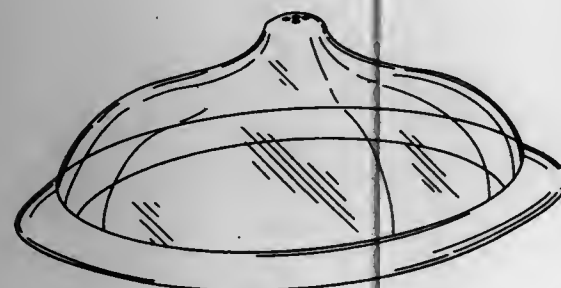
Maria T. Pernaella, 2899 Collins Ave. Apt. 744, Miami Beach, Fla. 33139

Filed Dec. 1, 1995, Ser. No. 47,363

Term of patent 14 years

LOC (6) Cl. 24 - 03

U.S. Cl. D24-155



384,416

PERSONAL SAUNA WITH LIGHTED HOOD

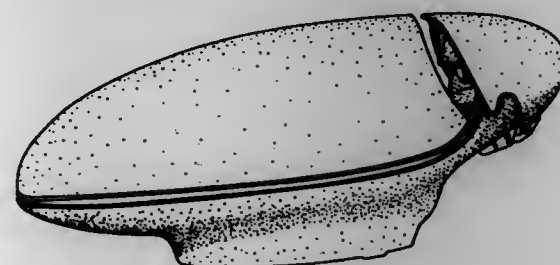
Steven J. Daffer, Edina; James M. Garrison, St. Louis Park, and Roger E. Mitchell, Bloomington, all of Minn., assignors to Visibelle Dermal Institute, Inc., Edina, Minn.

Filed Nov. 13, 1995, Ser. No. 46,274

Term of patent 14 years

LOC (6) Cl. 23 - 02

U.S. Cl. D24-203



384,417

MASSAGING TOOL TO TREAT SOFT TISSUE INJURY

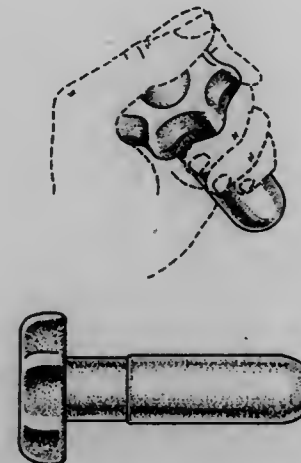
Gregory J. Zurbay, 4238 Thomas Ave., North, Minneapolis, Minn. 55412

Filed Jan. 31, 1996, Ser. No. 49,808

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24-214



384,419

STORAGE SHED

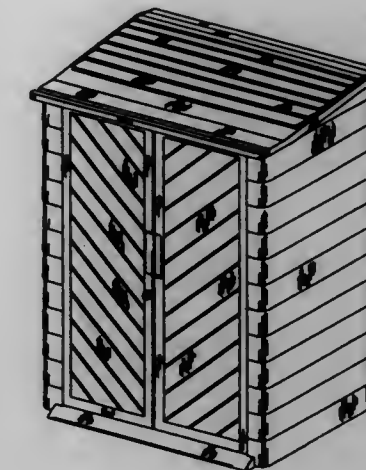
Thomas Dickinson, St. Louis, Mo., and James F. Hampshire, Solon, Ohio, assignors to Contico International, Inc., St. Louis, Mo.

Filed Aug. 29, 1996, Ser. No. 55,953

Term of patent 14 years

LOC (6) Cl. 25 - 03

U.S. Cl. D25-16



384,418

PIPETTE TIP

Victor A. Torti, Brookline, N.H., and Joseph A. Del Genio, Marlborough, Mass., assignors to Matrix Technologies Incorporated, Lowell, Mass.

Filed May 19, 1995, Ser. No. 39,065

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24-222



384,420

INSTANT PRIVATE FENCE

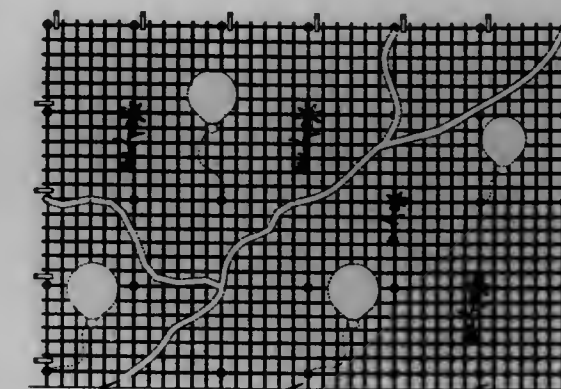
Jery D. Irvin, 18336 Rosemont, Detroit, Mich. 48219

Filed Sep. 22, 1995, Ser. No. 44,325

Term of patent 14 years

LOC (6) Cl. 25 - 02

U.S. Cl. D25-38



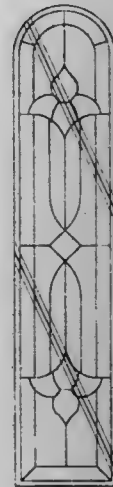
384,421
LOUVER BLADE
 Tony DiGiorgio, Woodbridge, Canada, assignor to Dominion Plastics Inc., Woodbridge, Canada
 Filed Oct. 19, 1995, Ser. No. 45,415
 Term of patent 14 years
 LOC (6) Cl. 25 - 02

U.S. Cl. D25—49



384,423
DOORWAY SIDELITE
 Jeffery D. Lint, Columbus; David L. Williams, Orient, and Stephen J. Sparer, Loveland, all of Ohio, assignors to American Architectural Products, Inc., Salem, Ohio
 Filed Sep. 14, 1995, Ser. No. 43,890
 Term of patent 14 years
 LOC (6) Cl. 25 - 01

U.S. Cl. D25—103



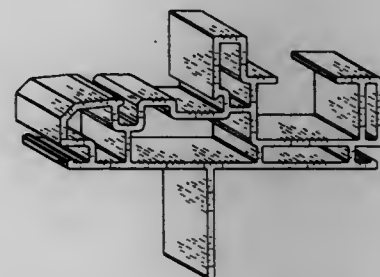
384,422
PET DOOR SECURITY COVER
 George N. Davlantes, 21457 Iglesia Dr., Woodlawn Hills, Calif. 91364
 Filed Jan. 18, 1996, Ser. No. 49,121
 The portion of the term of this patent subsequent to Mar. 18, 2011, has been disclaimed.
 Term of patent 14 years
 LOC (6) Cl. 25 - 02

U.S. Cl. D25—49



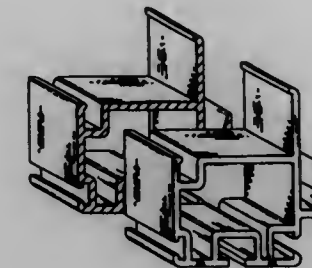
384,424
WINDOW COMPONENT EXTRUSION
 Robert A. Schrader, Puyallup, Wash., assignor to Mikron Industries, Kent, Wash.
 Filed May 31, 1995, Ser. No. 39,583
 Term of patent 14 years
 LOC (6) Cl. 25 - 01

U.S. Cl. D25—124



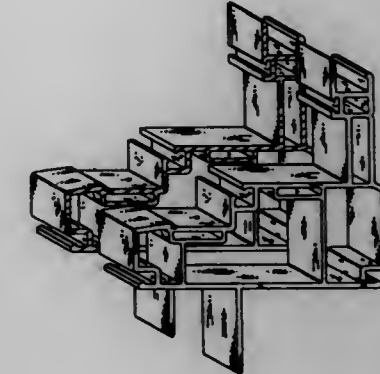
384,425
WINDOW COMPONENT EXTRUSION
 Lorane Goss, Slippery Rock, Pa., and Teresa A. Oliver, Kent, Wash., assignors to Mikron Industries, Inc., Kent, Wash.
 Filed Dec. 8, 1995, Ser. No. 47,647
 Term of patent 14 years
 LOC (6) Cl. 25 - 01

U.S. Cl. D25—124



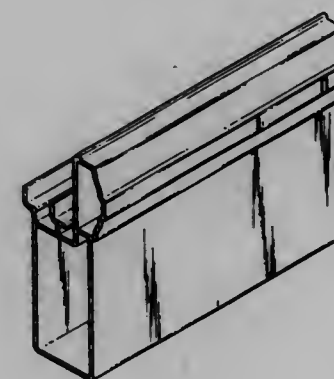
384,427
WINDOW COMPONENT EXTRUSION
 Robert B. Jarrell, Seattle, Wash., assignor to Mikron Industries, Inc., Kent, Wash.
 Filed Aug. 13, 1996, Ser. No. 58,618
 Term of patent 14 years
 LOC (6) Cl. 25 - 01

U.S. Cl. D25—124



384,426
DOOR FRAME EXTRUSION
 Terry J. Kenkel, Des Moines, Iowa, assignor to EMCO Enterprises, Inc., Des Moines, Iowa
 Filed Jul. 29, 1996, Ser. No. 57,636
 Term of patent 14 years
 LOC (6) Cl. 25 - 01

U.S. Cl. D25—124



384,428
DECORATIVE LAMP
 Katunori Sato, Tochigi, and Kazuaki Murata, Tokyo, both of Japan, assignors to Moriyama Sangyo Kabushiki Kaisha, Tokyo, Japan
 Filed Jul. 17, 1996, Ser. No. 57,156
 Claims priority, application Japan, Feb. 7, 1996, 8-2962
 Term of patent 14 years
 LOC (6) Cl. 26 - 04

U.S. Cl. D26—3

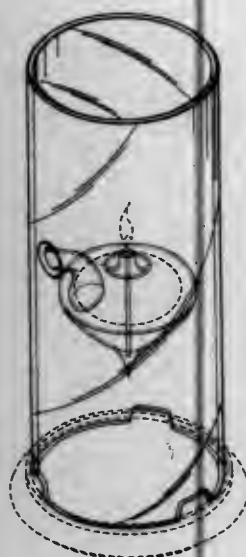


384,429

OIL LAMP

Michael Henry Vanbragt, 2509 Madison, Boise, Id. 83702
 Filed Apr. 29, 1996, Ser. No. 53,722
 Term of patent 14 years
 LOC (6) Cl. 26 - 01

U.S. Cl. D26—11



384,431

RECESSED LIGHTING FIXTURE

Jacques Bliton, 27 Brookmill Drive, Thornhill Ontario, Canada, L4J 6K6

Filed Apr. 8, 1996, Ser. No. 53,187

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—74



384,430

LIGHT PROJECTOR

Michel Lecluze, 1009, rue du Parc Industriel, St-Jean-Chrysostome, Québec, Canada, G6Z 1C5
 Filed Aug. 7, 1996, Ser. No. 58,044
 Term of patent 14 years
 LOC (6) Cl. 26 - 05

U.S. Cl. D26—24



384,432

CHANDELIER WITH DECORATIVE SCROLL FRAME

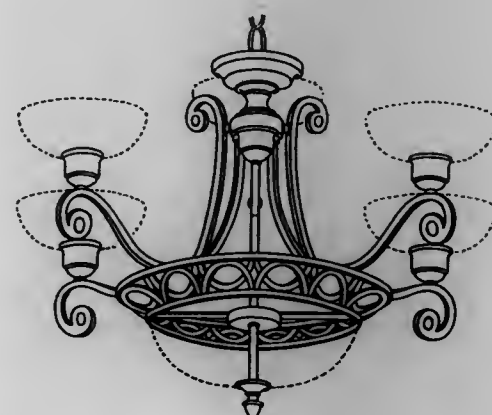
José Llusà Octavio, Barcelona, Spain, assignor to Jimway, Inc., Rancho Dominguez, Calif.

Filed Jun. 28, 1996, Ser. No. 56,455

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—84



384,433

LIGHTING FIXTURE

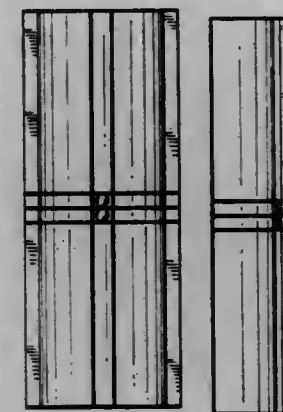
Sandra E. Littman, New York, N.Y., assignor to Sandy Littman, Inc., New York, N.Y.

Filed Dec. 26, 1995, Ser. No. 48,307

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—85



384,435

AUTOMOBILE CIGARETTE LIGHTER PIPE

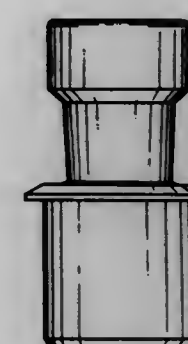
Jason Richard Frye, Valley Village, Calif., assignor to Fish Head Enterprises, Inc., North Hollywood, Calif.

Filed Mar. 27, 1996, Ser. No. 52,331

Term of patent 14 years

LOC (6) Cl. 27 - 05

U.S. Cl. D27—148



384,434

LIGHTING FIXTURE BASE

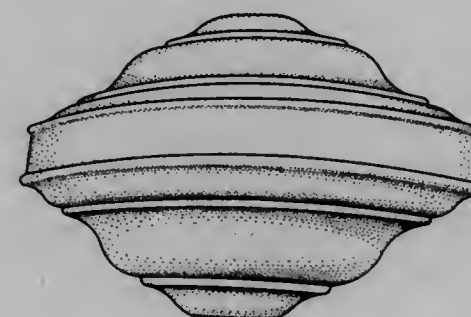
Patrick S. Dolan, 1901 NW. Upshur, Portland, Oreg. 97209

Filed May 1, 1996, Ser. No. 53,886

Term of patent 14 years

LOC (6) Cl. 26 - 99

U.S. Cl. D26—142



384,436

COMBINED BACK WASHER AND LOTION DISPENSER

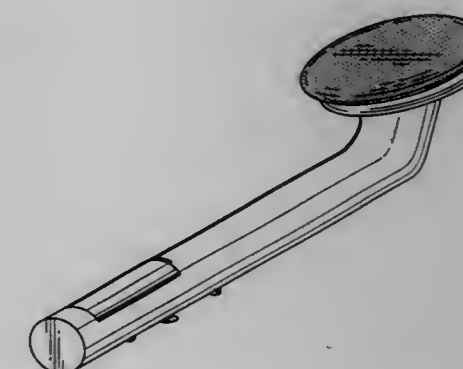
Kathy Kelley, 3527 SE. Bryant St., Topeka, Kans. 66605

Filed Jun. 4, 1996, Ser. No. 55,367

Term of patent 14 years

LOC (6) Cl. 28 - 02

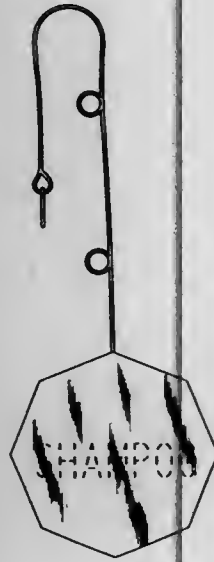
U.S. Cl. D28—7



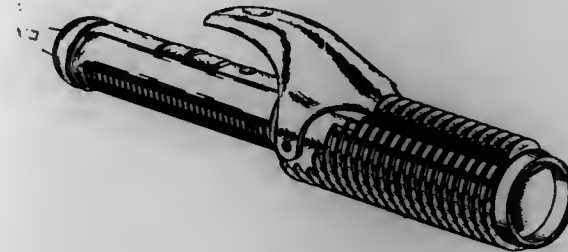
384,437
LOTION APPLICATOR
 Richard Helbock, 345 Main St., White Plains, N.Y. 10601
 Filed Jun. 7, 1996, Ser. No. 55,567
 Term of patent 14 years
 LOC (6) Cl. 28 - 02
 U.S. Cl. D28—7



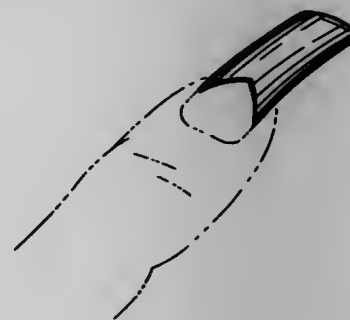
384,438
SHAMPOO BAR WITH STRING AND HOOK FASTENER
 Issam Hage, 172 E. 92nd St., #4F, New York, N.Y. 10128
 Filed Aug. 8, 1996, Ser. No. 58,105
 Term of patent 14 years
 LOC (6) Cl. 28 - 02
 U.S. Cl. D28—8.1



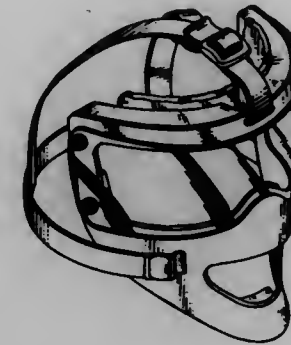
384,439
ANTI-BURN CURLING IRON
 Charles W. Howard, 3550 Greenview La., Sacramento, Calif. 95821
 Filed Feb. 29, 1996, Ser. No. 51,051
 Term of patent 14 years
 LOC (6) Cl. 28 - 03
 U.S. Cl. D28—35



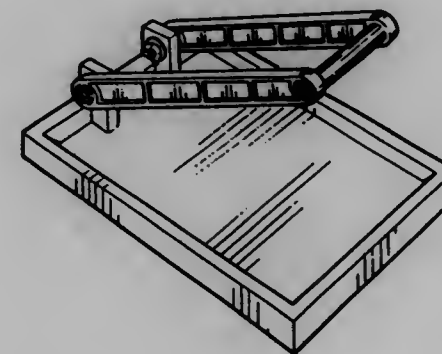
384,440
ARTIFICIAL FINGERNAIL
 John Meyerovich, Fox Point, Wis., assignor to European Touch Co., Inc., Milwaukee, Wis.
 Filed Jul. 9, 1996, Ser. No. 56,813
 Term of patent 14 years
 LOC (6) Cl. 28 - 03
 U.S. Cl. D28—56



384,441
PROTECTIVE FACE MASK
 Stephen M. Badger, Clarkston, Mich., assignor to N & S Sports Equipment, LLC, Dallas, Tex.
 Filed Oct. 27, 1995, Ser. No. 45,717
 Term of patent 14 years
 LOC (6) Cl. 29 - 02
 U.S. Cl. D29—110



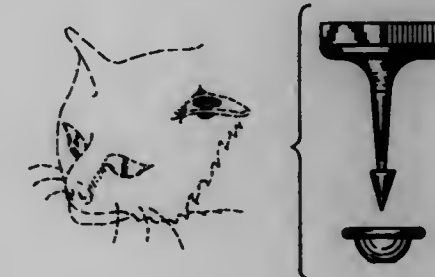
384,442
BIRD PERCH
 Bernard J. Cirelli, 2566 Mammoth Dr., San Diego, Calif. 92123
 Filed Oct. 13, 1995, Ser. No. 46,618
 Term of patent 14 years
 LOC (6) Cl. 30 - 02
 U.S. Cl. D30—119



384,443
LATCH FOR AN ANIMAL KENNEL
 Donald Offert, Mountain Lake, Minn., assignor to Kennel-Aire, Inc., St. Louis Park, Minn.
 Filed Apr. 29, 1996, Ser. No. 53,653
 Term of patent 14 years
 LOC (6) Cl. 30 - 02
 U.S. Cl. D30—119



384,444
IDENTIFICATION TAG FOR SMALL ANIMALS
 Frank R. Andrews, 15229 S. Normandy La., LaMirada, Calif. 90638
 Filed Apr. 8, 1996, Ser. No. 52,576
 Term of patent 14 years
 LOC (6) Cl. 30 - 08
 U.S. Cl. D30—155



384,445

MILKING CLAW

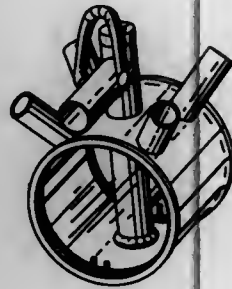
Mofazzal Chowdhury, Lenexa, Kans., assignor to Alfa Laval Agri, Inc., Kansas City, Mo.

Division of Ser. No. 23,773, Jun. 1, 1994, Pat. No. Des. 372,566. This application Mar. 18, 1996, Ser. No. 51,810

Term of patent 14 years

LOC (6) Cl. 30 - 09

U.S. Cl. D30-199



384,447

CARPET CLEANER

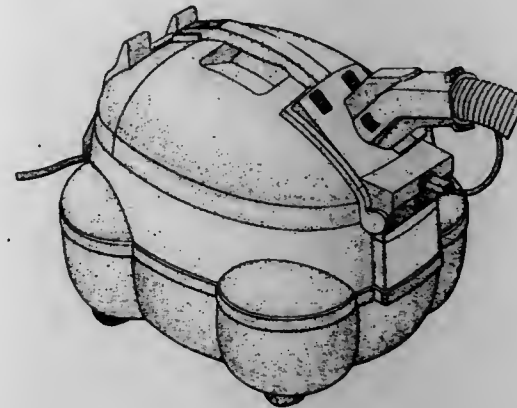
Robert W. Lauer, Fort Worth, Tex.; Michael C. Mayne, Convers; Gregory K. Mundt, Duluth, both of Ga., and Daniel A. Chunn, Greenville, S.C., assignors to Bissel Inc., Grand Rapids, Mich.

Filed Apr. 19, 1996, Ser. No. 53,376

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32-21



384,446

PARTS WASHER

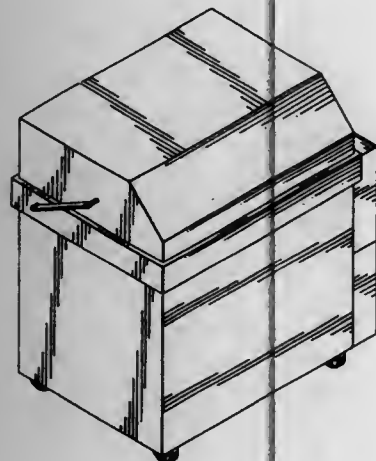
Paul W. Linton, Vancouver, Wash.; Bill George Epperson, Jr., Hillsboro; Hal W. Hardinge, Lake Oswego, both of Oreg., and David Alan Bergerud, Vancouver, Wash., assignors to Landa, Inc., Portland, Oreg.

Filed Jun. 13, 1996, Ser. No. 55,839

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32-1



384,448

WET/DRY VACUUM CLEANER

Paul D. Stephens, Cleveland Heights; Craig M. Saunders, Rocky River; Michael F. Wright, Cuyahoga Falls; Richard C. Farone, Wickliffe, and John F. Sevis, Twinsburg, all of Ohio, assignors to Royal Appliance Mfg. Co., Cleveland, Ohio

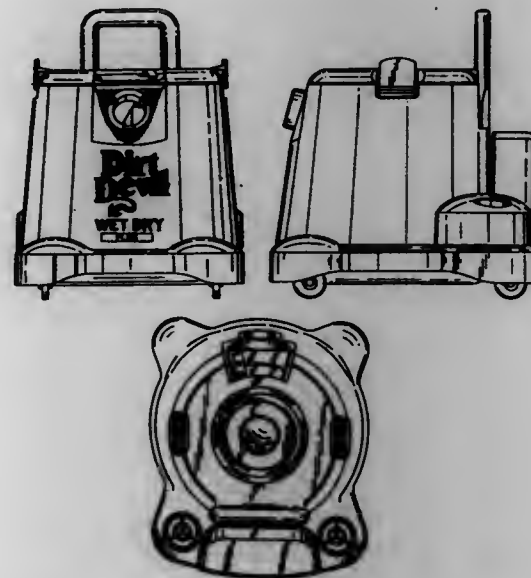
Division of Ser. No. 17,193, Jan. 6, 1994. This application

May 8, 1995, Ser. No. 38,552

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32-23



384,449

BLOWER OUTLET FITTING

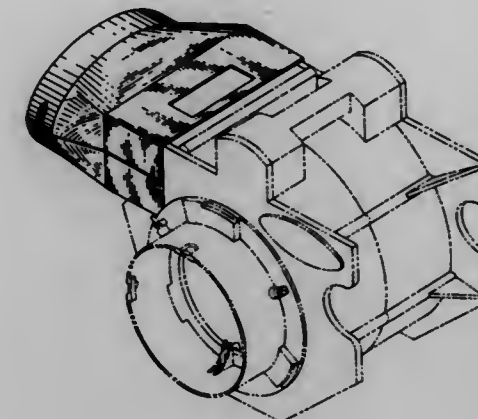
Edward W. Vipond, Gardner, and Robert W. Shaffer, II, East Templeton, both of Mass., assignors to Tuthill Corporation, Millbury, Mass.

Filed May 22, 1996, Ser. No. 54,803

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32-25



384,451

LAUNDRY DETERGENT DISPENSER

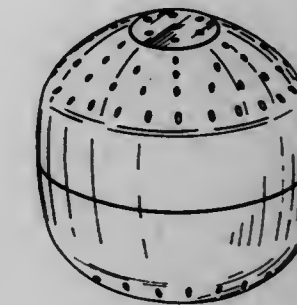
Freida Shioh Juan Leu, No. 487, Noan Noan Street, Noan District, Keelung City, Taiwan

Filed Aug. 27, 1996, Ser. No. 58,908

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32-30



384,452

PORTION OF A VACUUM CLEANER

Richard A. Wareham, North Canton, Ohio, assignor to The Hoover Company, North Canton, Ohio

Continuation-in-part of Ser. No. 8,595, May 19, 1993. This

application Nov. 25, 1994, Ser. No. 31,412

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32-31

384,450

LAUNDRY DETERGENT DISPENSER

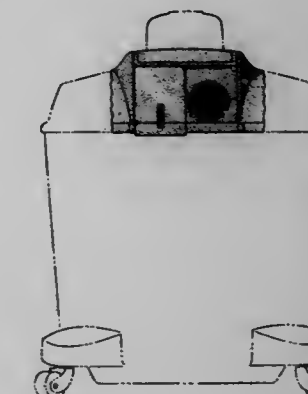
Freida Shioh Juan Leu, No. 487, Noan Noan Street, Noan District, Keelung City, Taiwan

Filed Aug. 27, 1996, Ser. No. 58,907

Term of patent 14 years

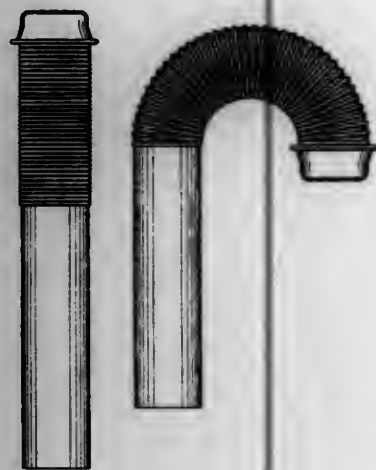
LOC (6) Cl. 15 - 05

U.S. Cl. D32-30



384,453
ADJUSTABLE HEAD EXTENSION ATTACHMENT FOR A VACUUM CLEANER
 Ronald D. Bartz, 938 E. Adams, Orange, Calif. 92867
 Filed Jul. 1, 1996, Ser. No. 56,526
 Term of patent 14 years
 LOC (6) Cl. 15 - 05

U.S. Cl. D32—31

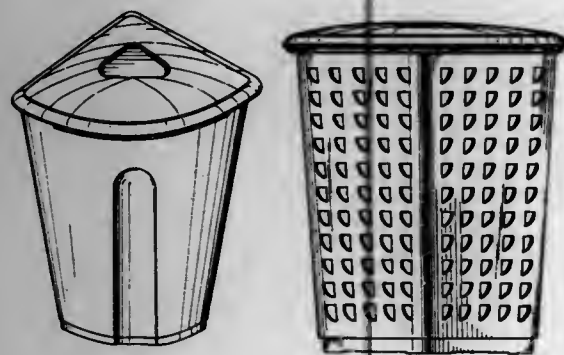


384,454

Patent Not Issued For This Number

384,455
HAMPER WITH BI-DIRECTIONAL OPENING LID
 Robert A. O'Neill, Glen Ellyn; Kevin Short, Midlothian, and James Kyroudis, Chicago, all of Ill., assignors to Tucker Housewares, Leominster, Mass.
 Filed Sep. 12, 1995, Ser. No. 43,768
 Term of patent 14 years
 LOC (6) Cl. 07 - 07

U.S. Cl. D32—37



384,456
BROOM APPARATUS WITH BRISTLE COVER
 Mark C. Jurica, 7648 E. Avalon, Scottsdale, Ariz. 85251
 Filed Jul. 11, 1996, Ser. No. 56,919
 Term of patent 14 years
 LOC (6) Cl. 04 - 01

U.S. Cl. D32—50



384,457
MOP FOR CLEANING A BATH
 André Morissette, Waterloo, Canada, assignor to AM Plastique Enr., Waterloo, Canada
 Filed Dec. 11, 1995, Ser. No. 47,681
 Term of patent 14 years
 LOC (6) Cl. 04 - 01

U.S. Cl. D32—51



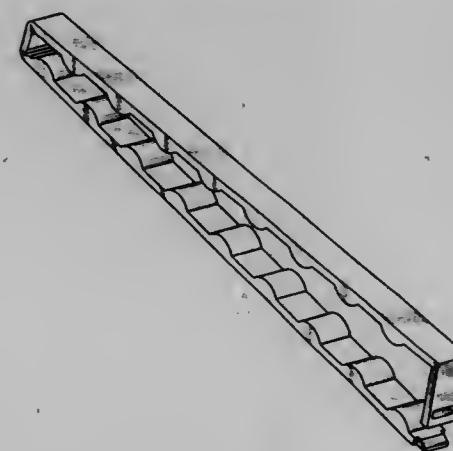
384,458
WRINGER MOP
 Harold J. Schroeck, West Chester, and Paul R. Burger, Lebanon, both of Ohio, assignors to Vining Industries, Inc., Springfield, Ohio
 Filed Dec. 18, 1995, Ser. No. 48,018
 Term of patent 14 years
 LOC (6) Cl. 04 - 01

U.S. Cl. D32—51



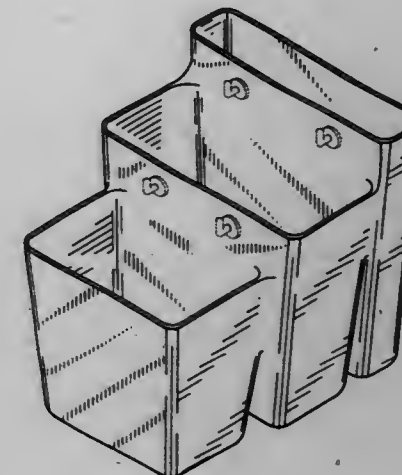
384,459
CLIP FOR USE IN LAUNDERING SOCKS
 Kevin Eisenman, 134 N. Ellsworth St., Allentown, Pa. 18103
 Filed May 28, 1996, Ser. No. 55,006
 Term of patent 14 years
 LOC (6) Cl. 07 - 05

U.S. Cl. D32—61



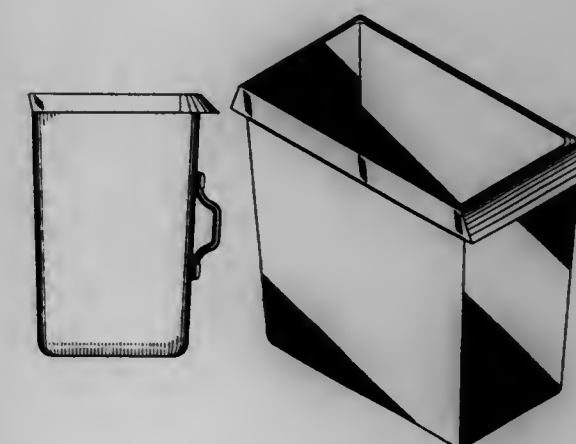
384,460
RECYCLING GARBAGE CAN
 Ramona Lee Wright, 5766 N. 99th St., Milwaukee, Wis. 53225
 Filed Feb. 12, 1996, Ser. No. 50,257
 Term of patent 14 years
 LOC (6) Cl. 09 - 09

U.S. Cl. D34—1



384,461
LEAF COLLECTION BOX
 Eleftheria Kouvdos, 10633 Charbono Way, Rancho Cardova, Calif. 95670
 Filed Apr. 5, 1996, Ser. No. 52,551
 Term of patent 14 years
 LOC (6) Cl. 09 - 09

U.S. Cl. D34—1



384,462

LITTER CONTAINER

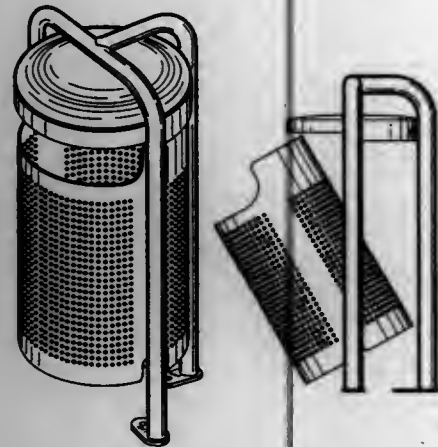
Michael B. Fox, Aloha, Oreg., and S. Kenneth Kirn, Vancouver, Wash., assignors to Columbia Cascade Corporation, Portland, Oreg.

Filed Jun. 10, 1996, Ser. No. 55,676

Term of patent 14 years

LOC (6) Cl. 09 - 09

U.S. Cl. D34—8



384,464

UTILITY CART FOR TRASH AND/OR RECYCLABLE CONTAINERS

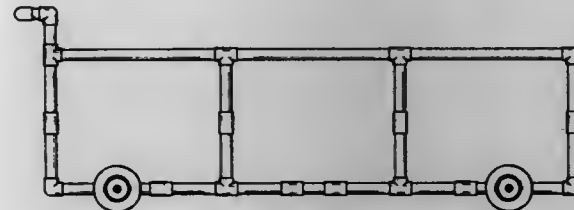
Anthony J. Tonzillo, 3580 Quakerbridge Rd., Mercerville, N.J. 08619

Filed May 28, 1996, Ser. No. 55,025

Term of patent 14 years

LOC (6) Cl. 12 - 02

U.S. Cl. D34—17



384,463

VENDING CART

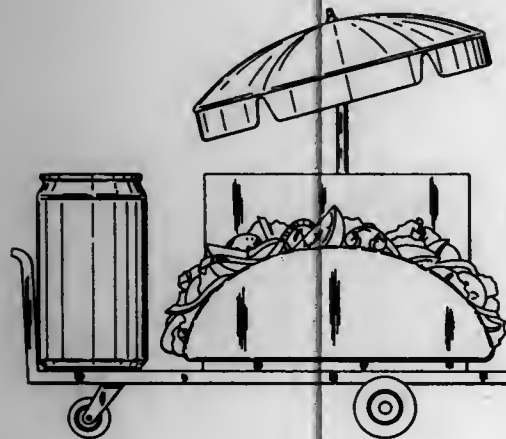
Alan A. Genovese, 1302 Clarkson Clayton Center, Suite 209, Ellisville, Mo. 63011

Filed Jul. 12, 1996, Ser. No. 56,948

Term of patent 14 years

LOC (6) Cl. 12 - 02

U.S. Cl. D34—13



384,465

MOBILE FOOD PREPARATION AND SERVICE CART

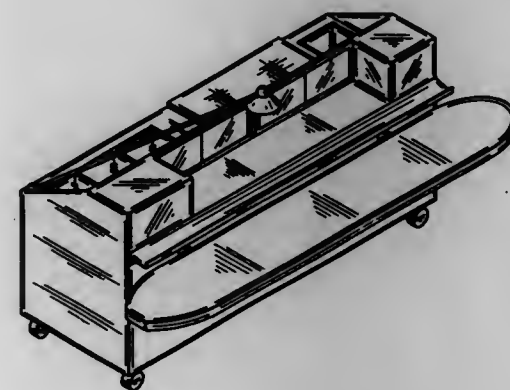
Paul Somerset, and J. Scott Reams, both of 1651 Oliver St., San Diego, Calif. 92109

Filed Sep. 15, 1995, Ser. No. 44,028

Term of patent 14 years

LOC (6) Cl. 12 - 02

U.S. Cl. D34—20



384,466

DROP SHOULDER CREEPER WITH T-BAR SUPPORT AND TILTING HEADREST

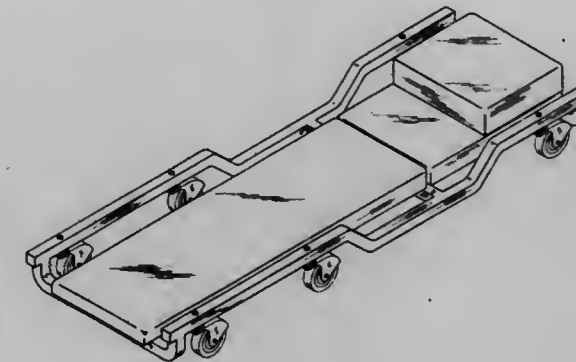
Ken Taylor, 2621 Atlantic St., Merced, Calif. 95340

Filed Jul. 8, 1996, Ser. No. 56,721

Term of patent 14 years

LOC (6) Cl. 12 - 02

U.S. Cl. D34—23



384,468

INVALID LIFTER

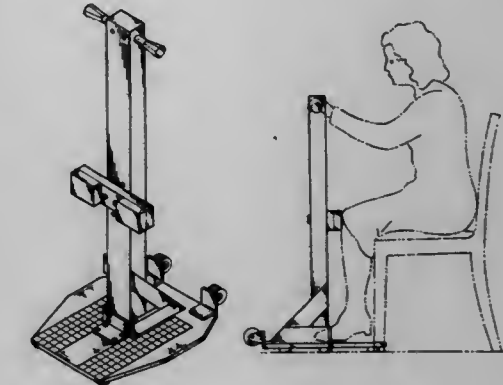
Stewart Tobias, 2215 73 St. E. Box 303, Palmetto, Fla. 34221

Continuation-in-part of Ser. No. 23,484, May 25, 1994, abandoned. This application Sep. 5, 1995, Ser. No. 43,426

Term of patent 14 years

LOC (6) Cl. 12 - 05

U.S. Cl. D34—28



384,469

PORTABLE LIFTING AID FOR THE HANDICAPPED

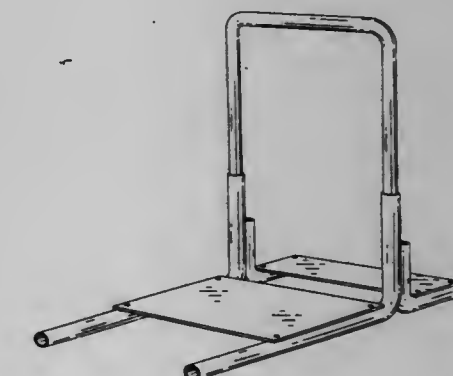
Gustave De Deyne, Box 7259 Diamond Head, Hot Springs, Ark. 71913

Filed Mar. 4, 1996, Ser. No. 51,118

Term of patent 14 years

LOC (6) Cl. 12 - 05

U.S. Cl. D34—28



384,467

HAND TRUCK SIDE FRAME

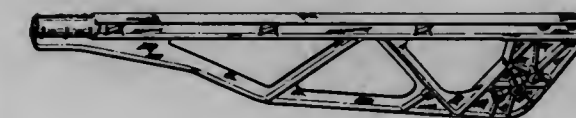
John J. Stallbaumer, Wichita, Kans., assignor to Harper Trucks, Inc., Wichita, Kans.

Filed Jun. 28, 1996, Ser. No. 56,428

Term of patent 14 years

LOC (6) Cl. 12 - 02

U.S. Cl. D34—27



384,470

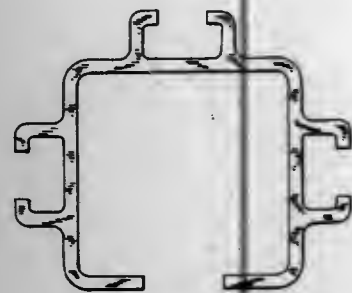
CONVEYOR TRACK

Robert Kubsik, West Bloomfield; Robert Goryca, Farmington Hills; James P. Johnson, Howell, and Eric T. Nemeth, Canton, all of Mich., assignors to Jervis B. Webb Company, Farmington Hills, Mich.

Continuation of Ser. No. 32,552, Dec. 21, 1994, Pat. No. Des. 370,759. This application Jan. 22, 1996, Ser. No. 49,269

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—29



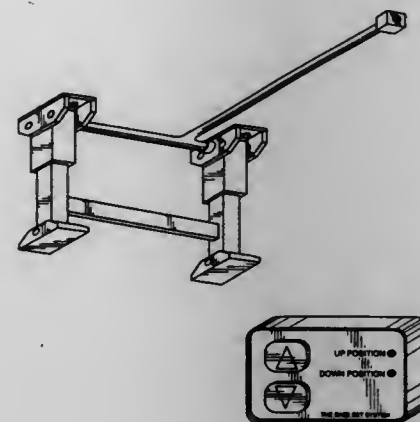
384,472

PNEUMATIC JACK UNIT

Frank P. Lujan, 1001 Essex Dr., Cedar Hill, Tex. 75104
Filed Oct. 30, 1995, Ser. No. 45,788

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—31



384,473

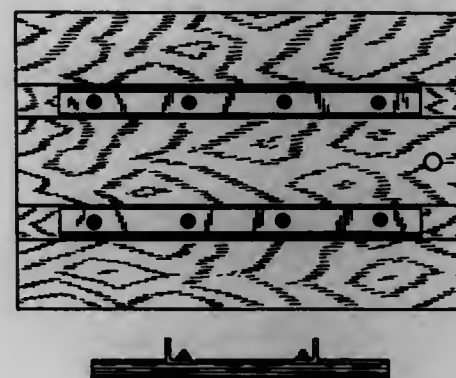
BASE FOR A MOBILE HOME SUPPORT STANCHION

Glenn F. Thole, Midpines, Calif., assignor to Gus-Guard Products, Inc., Midpines, Calif.

Continuation-in-part of Ser. No. 35,878, Mar. 8, 1995, Pat. No. Des. 368,569. This application Mar. 4, 1996, Ser. No. 51,153

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—31



384,471

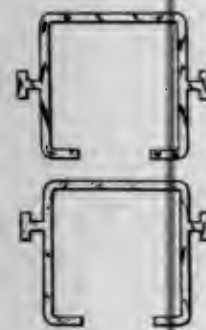
CONVEYOR TRACK

Robert Kubsik, West Bloomfield; Robert Goryca, Farmington Hills; James P. Johnson, Howell, and Eric T. Nemeth, Canton, all of Mich., assignors to Jervis B. Webb Company, Farmington Hills, Mich.

Filed Mar. 6, 1996, Ser. No. 51,858

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—29



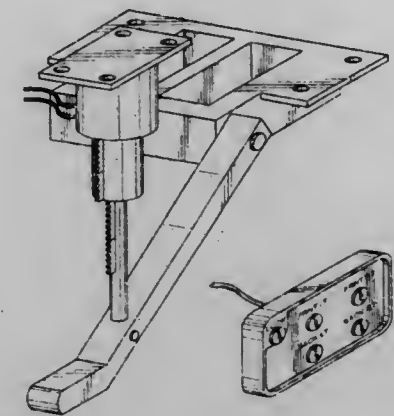
384,474

VEHICLE MOUNTED JACK

Anderson White, 4731 Matthew Dr., Westland, Mich. 48185
Filed Apr. 2, 1996, Ser. No. 52,736

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—31



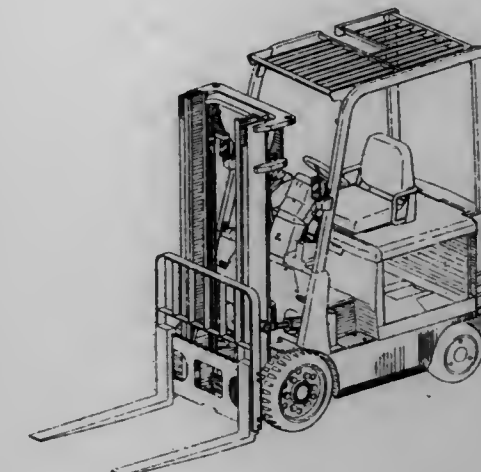
384,476

FORKLIFT

Sean E. Rick, Muscatine, Iowa, and Jay B. Stotts, Houston, Tex., assignors to Mitsubishi Caterpillar Forklift America Inc., Houston, Tex.

Filed Jun. 1, 1995, Ser. No. 40,300
Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—34



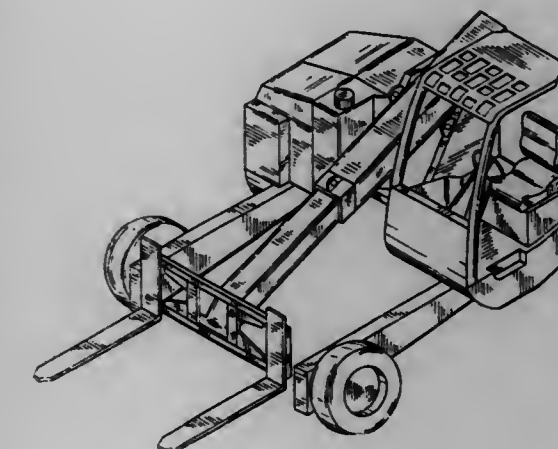
384,477

MOTORIZED LIFT TRUCK

Marcel-Claude Braud, Champtoceaux, France, assignor to Manitou BF, Ancenis, France

Filed Sep. 14, 1995, Ser. No. 43,902
Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—34



384,475

ROOF CAR FOR SUSPENDING A WORKING CAGE

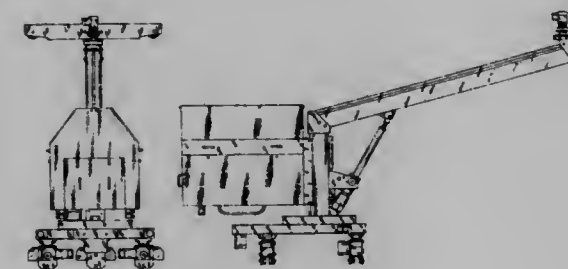
Osamu Fukutomi, Tokyo, Japan, assignor to Nihon Biso Co., Ltd., Tokyo, Japan

Filed Apr. 15, 1996, Ser. No. 53,180

Claims priority, application Japan, Oct. 20, 1995, 7-31510

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—33



384,478

CONTROL HANDLE FOR LIFT TRUCKS

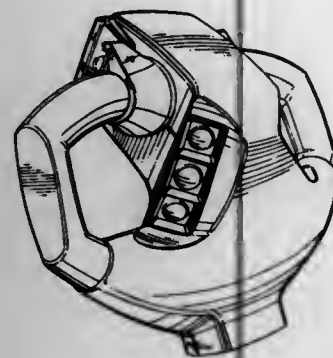
Volkmar Prehn, Norderstedt, and Kai Hestermann, Kiel, both of Germany, assignors to Jungheinrich AG, Hamburg, Germany

Filed Mar. 13, 1996, Ser. No. 51,995

Claims priority, application Germany, Sep. 29, 1995, DM/034 244

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—35



384,480

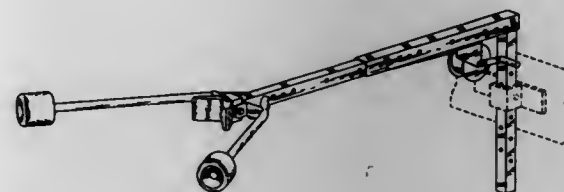
COMBINED TOWING BOOM AND STABILIZER FOR WATERBORNE BOAT

Mark S. Patterson, 2525 Sabre Ct. - Apt. B, Redding, Calif. 96002

Filed Mar. 28, 1996, Ser. No. 52,388

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—36



384,479

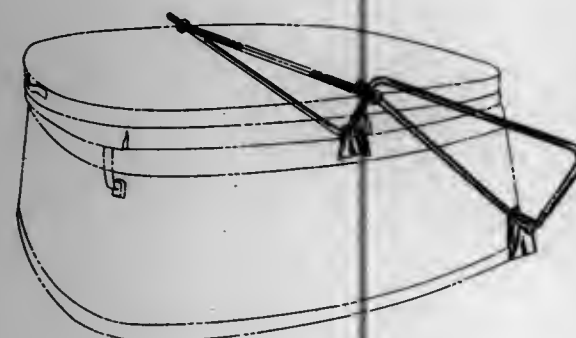
LIFTING FRAME FOR A SPA COVER

Roger J. Ouellette, 5235 S. Kyrene, Suite 24, Tempe, Ariz. 85283

Filed Jan. 24, 1996, Ser. No. 49,365

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—36



384,481

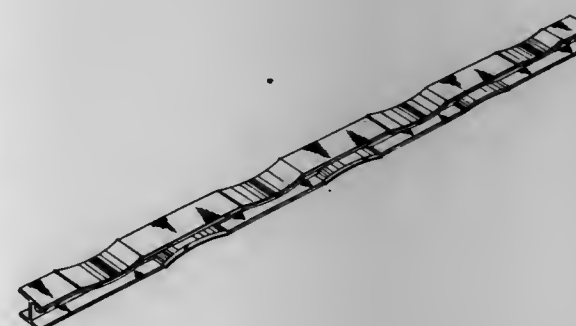
LOAD RACK

Amuel E. Sheckells, 2374 Old Wire Rd., Meridian, Miss. 39301

Filed May 17, 1996, Ser. No. 54,598

Term of patent 14 years
LOC (6) Cl. 09 - 08

U.S. Cl. D34—38



384,482

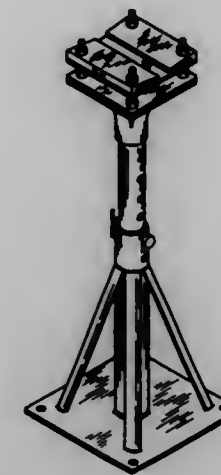
MOBIL HOME SUPPORT STANCHION

Glenn F. Thole, P.O. Box 209, Midpines, Calif. 95345

Filed Jun. 3, 1996, Ser. No. 55,258

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—31



384,484

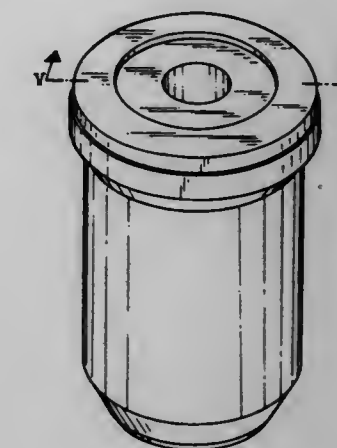
NOZZLE FOR TAPPING CONTAINERS

Gonzalo Guinea Ibarra, Getxo, and Tomás Aurrekoetxea Ugalde, Bilbao, both of Spain, assignors to Deguisa, S.A., Spain

Filed Sep. 15, 1995, Ser. No. 44,041

Claims priority, application Spain, Mar. 17, 1995, 134642
Term of patent 14 years
LOC (6) Cl. 09 - 02

U.S. Cl. D34—39



384,483

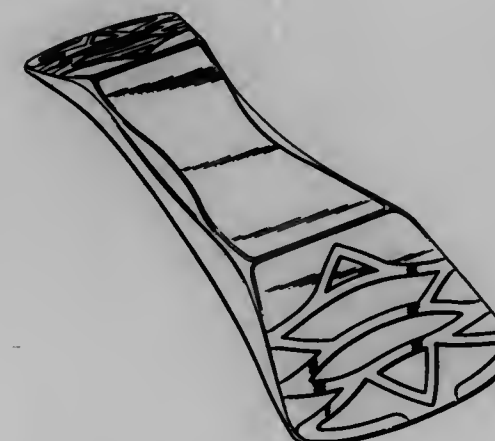
DUAL RAMP AND POSITIONER FOR WASHING AND DRESSING VEHICULAR TIRES

Alvin Buckman, 5531 James C. Johnson Rd., Jacksonville, Fla. 32218

Filed Nov. 27, 1995, Ser. No. 47,116

Term of patent 14 years
LOC (6) Cl. 12 - 05

U.S. Cl. D34—32



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 30th DAY OF SEPTEMBER, 1997

NOTE— Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- . NOM-ITO: *See—*
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- AAF International: *See—*
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- ABB Power T&D Company Inc.: *See—*
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- ABB Vetco Gray Inc.: *See—*
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- Abbecker, Abraham Nico: *See—*
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- Abber, Herman; Carlson, Lee A.; Johnson, Lewis H.; and Donaldson, Craig
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- Abbott, Donald C.; and Frechette, Raymond A., to Texas Instruments Incor-
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- Abbott Laboratories: *See—*
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- Abdo, Joel M. Applicator for applying lotion to hard-to-reach areas of body.
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- Abramowski, Stephan: *See—*
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- Abt, Reinhold: *See—*
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- Advanced Elastomer Systems, L.P.: *See—*
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- Aerospatiale Societe Nationale Industrielle: *See—*
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- Affolderbach, Uwe: *See—*
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- Merecki, John A.; and Omvik, John F., 5,673,125, Cl. 358-487,000.
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- Akamatsu, Seiji: See—
- Nakai, Satoru; Aihara, Koutoku; Mori, Hitomi; Tominaga, Michiaki; Adachi, Masakazu; Ichikawa, Hiroyuki; Akamatsu, Seiji; and Saito, Fumio, 5,672,603, Cl. 514-254,000.
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- Sasaki, Mitsuhiro; and Akiyama, Koji, 5,672,454, Cl. 430-106,600.
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- Albers, Heinrich: See—
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- Bronicki, Lucien Y.; Riollot, Gilbert; Amir, Nadav; Grassianni, Moshe; Elvov, Asher; Gilon, Yoel; and Moritz, Alex, 5,671,601, Cl. 60-641,500.
- Amitai, Zvi; and Mueggen, Mark, to Quality Semiconductor, Inc. Scan test circuit using fast transmission gate switch. 5,673,277, Cl. 371-22,300.
- Amkor Electronics, Inc.: See—
- Glenn, Thomas P.; Molnar, Ronald J.; and Hollaway, Roy Dale, 5,672,909, Cl. 257-668,000.
- Ammermann, Eberhard: See—
- Mueller, Bernd; Sauter, Hubert; Wingert, Horst; Koenig, Hartmann; Roehl, Franz; Ammermann, Eberhard; and Lorenz, Gisela, 5,672,616, Cl. 514-378,000.
- Amoco Corporation: See—
- Froment, Gilbert Fernand Alphonse; and Dehertog, Wilfried Jozef Hippolyte, 5,672,796, Cl. 585-419,000.
- Ampad Corporation: See—
- Hanson, Charles, 5,671,950, Cl. 281-29,000.
- Amplas, Inc.: See—
- Blaser, Giles R.; Greely, William J.; and Hanley, Shaughn V., 5,672,235, Cl. 156-497,000.
- Anai, Noriyuki: See—
- Murakami, Shinya; Kamikawa, Yuuji; Izumi, Sinichiro; Anai, Noriyuki; Satoh, Takami; Shiraiishi, Hirofumi; Harada, Koji; Tomoeoda, Takayuki; and Tanaka, Hiroshi, 5,671,764, Cl. 134-200,000.
- Analog Devices, Inc.: See—
- Moreland, Carl W., 5,673,047, Cl. 341-139,000.
- Szepesi, Thomas S., 5,672,952, Cl. 320-25,000.
- Andersen, Hans Gram; and Jacobsen, Per Stagsted, to V. Kann Rasmussen Industri A/S. Screening device for a wall opening. 5,671,790, Cl. 160-24,000.
- Anderson, Barbara: See—
- Beer, Kenneth D.; Anderson, Barbara; and Davis, Richard Alan, 5,672,641, Cl. 523-214,000.
- Anderson, David J.; and Stemple, Derek L., to California Institute of Technology. Immobilized neural crest stem cells and methods of making. 5,672,499, Cl. 435-240,400.
- Anderson, Edward James: See—
- Stirling, John Andrew; Farnocchi, Carol Jean; and Anderson, Edward James, 5,672,202, Cl. 106-496,000.
- Anderson, James R., to Evergreen Tool Co., Inc. Open-ended ratcheting wrench. 5,671,644, Cl. 81-119,000.
- Anderson, Kevin: See—
- Ecker, David J.; Wyatt, Jacqueline; Bruce, Thomas W.; Anderson, Kevin; Hanecek, Ronnie C.; Vickers, Timothy; and Davis, Peter, 5,672,472, Cl. 435-6,000.
- Anderson, W. French: See—
- Eglitis, Martin; Thompson, J. Anthony; and Anderson, W. French, 5,672,510, Cl. 435-325,000.
- Andersson, Bo Göran, to Dresser Industries, Inc. Gasoline dispensing and vapor recovery system and method. 5,671,785, Cl. 141-59,000.
- Andideh, Ebrahim: See—
- Morimoto, Seiichi; and Andideh, Ebrahim, 5,672,095, Cl. 451-41,000.
- Ando Electric Co., Ltd.: See—
- Takeuchi, Nobunari, 5,673,108, Cl. 356-73,100.
- Ando, Hiroshi: See—
- Isogai, Emiko; Koike, Satoshi; Kimura, Teiyuu; Ando, Hiroshi; and Tatebayashi, Hiroyuki, 5,672,448, Cl. 430-1,000.
- Ando, Kazumasa; and Horie, Syoji, to Kabushiki Kaisha Toshiba. Programmable logic array having power-saving banks. 5,672,984, Cl. 326-39,000.
- Ando, Motonobu, to Brother Kogyo Kabushiki Kaisha. Image reading device with starting position setting system. 5,673,126, Cl. 358-498,000.
- Ando, Takao: See—
- Kobayashi, Akira; Ando, Takao; and Fujii, Masahiko, 5,672,688, Cl. 530-391,700.
- Ando, Yasuhiro: See—
- Iwano, Shin'ichi; Nagase, Ryo; Kanayama, Kazunori; Sugita, Etsuji; and Ando, Yasuhiro, 5,673,346, Cl. 385-60,000.
- Andrea, Douglas; and Topf, Martin, to Andrea Electronics Corporation. Noise cancellation apparatus. 5,673,325, Cl. 381-92,000.
- Andrea Electronics Corporation: See—
- Andrea, Douglas; and Topf, Martin, 5,673,325, Cl. 381-92,000.
- Andresen, Peter Louis, to General Electric Company. Method of mitigating stress corrosion cracking of metals in high-temperature water by control of crack tip pH. 5,673,297, Cl. 376-306,000.
- Andrus, W. Scott; Polyak, Mark; and Hauschild, Sidney F., to American Medical Systems, Inc. Apparatus and method for interstitial laser treatment. 5,672,171, Cl. 606-15,000.
- Andruska, Donald Lee; and Tsai, Liane Toy, to Lucent Technologies Inc. Hierarchical switch support of services for subscribers of separate centrex exchanges. 5,673,310, Cl. 379-207,000.
- Andruska, Donald Lee; and Tsai, Liane Toy, to Lucent Technologies Inc. Hierarchical switch support of services for subscribers directly served by local exchange carriers. 5,673,311, Cl. 379-207,000.
- Andruska, Donald Lee; and Tsai, Liane Toy, to Lucent Technologies Inc. Control of call features provided to a subscriber by a hierarchical telecommunication switch. 5,673,312, Cl. 379-207,000.
- Andraska, Elisabeth; Andraska, Stig; and Bergqvist, Anders, to Kvaerner Pulpung Technologies Aktiebolag. Recycling of knots in a continuous process for cooking chemical pulp. 5,672,245, Cl. 162-17,000.
- Andraska, Stig: See—
- Andraska, Elisabeth; Andraska, Stig; and Bergqvist, Anders, 5,672,245, Cl. 162-17,000.
- Anelva Corporation: See—
- Jimba, Hitoshi; Kim, So Won; and Sekiguchi, Atsushi, 5,672,385, Cl. 427-248,100.
- Anglin, James R.; Urbanski, Julie A.; and Knighton, Theresa S., to Aluminum Company of America. Lubricated sheet product and lubricant composition. 5,672,401, Cl. 428-64,100.
- Annigeri, Balkrishna S.; Favrow, Leroy H.; Haas, Robert J.; Winter, Michael; Holland, Ronald I., Jr.; Wegge, Jason S.; and Sanford, David M., to United Technologies Corporation. Crack monitoring apparatus. 5,673,203, Cl. 364-508,444.
- Anscher, Joseph, to National Molding Corp. Preloadable cord lock requiring less force to preload and to actuate. 5,671,505, Cl. 24-115,00G.
- Antberg, Martin: See—
- Winter, Andreas; Antberg, Martin; Bachmann, Bernd; Dolle, Volker; Küber, Frank; Rohmann, Jürgen; and Spaleck, Walter, 5,672,668, Cl. 526-127,000.
- Anthony, Thomas R.; Banholzer, William F.; Spiro, Clifford L.; Webb, Steven W.; and Williams, Bradley E., to General Electric Company. Method for enhancing the toughness of CVD diamond. 5,672,395, Cl. 427-444,000.
- Anzai, Mitsutoshi: See—
- Shimada, Tomoyuki; Sasaki, Masaomi; Aruga, Tamotsu; Ohta, Masa-fumi; Anzai, Mitsutoshi; and Imai, Akihiro, 5,672,756, Cl. 564-426,000.
- Aoi, Takahiro: See—
- Hamada, Masaaki; and Aoi, Takahiro, 5,671,909, Cl. 267-141,000.
- Aoki, Akio, to Trion Corporation. Ball catching glove having a projecting protecting unit. 5,671,477, Cl. 2-19,000.
- Aoki, Hisashi; Mitsui, Hidero; and Noda, Yasushi, to Sony Corporation. Battery device and driving device for battery device. 5,672,441, Cl. 429-97,000.
- Aoki, Kazumasa; and Sota, Yoshiaki, to Sharp Kabushiki Kaisha. Resin-sealed type semiconductor device and method for manufacturing the same. 5,672,912, Cl. 257-693,000.
- Aoki, Keiichi, to Toyota Jidosha Kaisha. Apparatus for determining the condition of an air-fuel ratio sensor. 5,671,721, Cl. 123-688,000.
- Aoki, Kenichi: See—
- Suzuki, Hideo; Takahashi, Ken; Takahashi, Yukio; Yamamoto, Yoshimi; Aoki, Kenichi; and Tobita, Tomoyuki, 5,672,826, Cl. 73-754,000.
- Aoki, Seizo: See—
- Miyakawa, Katsutoshi; Tsunashima, Kenji; and Aoki, Seizo, 5,672,409, Cl. 428-141,000.

Aoki, Toshio: See—
Maeda, Yoshimichi; Aoki, Toshio; Mikachi, Masafumi; and Iai, Ken-
ichiro, 5,671,510, Cl. 24-408,000.

Aota, Jay, to Canada, Her Majesty the Queen in right of, as represented by the
Minister of Energy, Mines and Resources Canada. EAF dust treatment.
5,672,146, Cl. 588-256,000.

Aoyagi, Keitaro; Niibe, Sadao; Umegae, Toshitomi; Iwai, Hideo; and
Oshima, Yoshitugu, to Zenitaka Corporation, The; and Sekisui Kagaku
Kogyo K.K. Sludge treatment tank and construction method thereof.
5,672,506, Cl. 435-289,100.

Appleton Papers Inc.: See—
Dalebroux, Dean G.; Sands, Peggy D.; Miller, Robert E.; Schleicher,
Lowell; and Glanz, Kenneth D., 5,672,434, Cl. 428-537,500.

Applicazioni S.R.L.: See—
Miranda Camino, Santiago; King, Perry Allan; Secco, Andrea; and
Secco, Lorenzo, 5,671,579, Cl. 52-653,100.

Applied Materials, Inc.: See—
Davenport, Robert E.; and Tepman, Avi, 5,673,167, Cl. 361-234,000.

Aradigm Corporation: See—
Rubenstein, Reid M.; and Lloyd, Lester John, 5,672,581, Cl. 514-3,000.

Arai, Hideo; Owashi, Hitoaki; Hosokawa, Kyoichi; Nishimura, Keizo; Wata-
tani, Yoshizumi; and Shibata, Akira, to Hitachi, Ltd. Digital transmission
signal processing system and recording/reproducing system. 5,673,154, Cl.
360-8,000.

Arai, Katsuya; Asano, Satoshi; and Wada, Sadao. Lubricating oil composi-
tion. 5,672,572, Cl. 508-364,000.

Arai, Shoji: See—
Hattori, Akitaka; Nakamura, Kazuhiro; Washiyama, Tomohiro; Kato,
Takao; Saito, Toshihiro; and Arai, Shoji, 5,672,782, Cl. 568-899,000.

Arai, Tatsuya; and Ichimura, Yutaka, to Hirose Electric Co., Ltd. Circuit board
electrical connector. 5,672,072, Cl. 439-377,000.

Arai, Youichi; and Saigo, Tsutomu, to Yazaki Corporation. Apparatus for
monitoring battery residual capacity in multiple modes. 5,672,973, Cl.
324-427,000.

Arakawa, Junichi: See—
Nakanishi, Hideki; Arakawa, Junichi; Horigome, Hideo; Kaneko, Yui-
chi; Ikeda, Tetsuhito; and Kuribayashi, Akira, 5,673,070, Cl. 347-
19,000.

Arch Development Corporation: See—
Nishikawa, Robert M.; Ema, Takehiro; Yoshida, Hiroyuki; and Doi,
Kunio, 5,673,332, Cl. 382-128,000.

Arima, Hideaki; Ohi, Makoto; Ajika, Naoto; Hachisuka, Atsushi; and
Okudaira, Tomonori, to Mitsubishi Denki Kabushiki Kaisha. Field effect
transistor having impurity regions of different depths and manufacturing
method thereof. 5,672,533, Cl. 437-52,000.

Arimoto, Shinobu, to Canon Kabushiki Kaisha. Image recording method and
device with memory printing of plural recording media on a recording
drum. 5,673,115, Cl. 358-296,000.

Arimura, Toshio: See—
Koyama, Fumio; Yonekubo, Masatoshi; Takeda, Takashi; Arimura,
Toshio; Sakata, Hidefumi; and Yokoyama, Osamu, 5,673,241, Cl.
369-44,230.

Arisaka, Yuichi: See—
Sato, Kenichi; Chiba, Kazunobu; Arisaka, Yuichi; and Yamada, Yukari,
5,672,425, Cl. 428-332,000.

Armanno, Frank, Sr. Hurricane shelter. 5,671,568, Cl. 52-66,000.

Armbrust, Dirk: See—
Timm, Volker; Armbrust, Dirk; and Holtz, Tom, 5,673,228, Cl. 365-
201,000.

Armor, John Nelson: See—
Vedage, Gamin Ananda; and Armor, John Nelson, 5,672,762, Cl.
564-490,000.

Arnold, John Eric, to Goodyear Tire & Rubber Company, The. Method of
attachment of flexible member to stamped steel piston. 5,671,907, Cl.
267-64,270.

Aronne, Armand, to Northrop Grumman Corporation. Method and apparatus
for sealing a pressure vessel. 5,671,522, Cl. 29-419,200.

Arthur, John R.; Graupner, Robert K.; Monson, Tyrus K.; Van Vechten, Jarjes
A.; and Wolff, Ernest G., to State of Oregon, acting by and through the State
Board of Higher Education on behalf of Oregon State University. Concrete
solar cell. 5,672,214, Cl. 136-250,000.

Aruga, Tamotsu: See—
Shimada, Tomoyuki; Sasaki, Masaomi; Aruga, Tamotsu; Ohta, Masa-
fumi; Anzai, Mitsutoshi; and Imai, Akihiro, 5,672,756, Cl. 564-
426,000.

Tanaka, Chiaki; Sasaki, Masaomi; Aruga, Tamotsu; Shimada, Tomoyuki;
and Adachi, Hiroshi, 5,672,728, Cl. 558-376,000.

Asada, Satoshi: See—
Ogawa, Yasuyuki; Kadosawa, Tsuneaki; Nakamura, Takashi; Watanabe,
Hitoshi; and Asada, Satoshi, 5,673,067, Cl. 345-157,000.

Asahi Glass Company Ltd.: See—
Morikawa, Shinsuke; Samejima, Shunichi; Yoshitake, Masaru; and
Tatematsu, Shin, 5,672,785, Cl. 570-163,000.

Asahi Kogyo Kogyo Kabushiki Kaisha: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh,
Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Naka-
mura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro;
and Ishii, Haruo, 5,673,099, Cl. 354-199,000.

Asai, Koichi; Matsumoto, Koso; Ooe, Kunio; and Shimura, Masayuki, to
Fuji Machine Mfg. Co., Ltd. Electronic component mounting system.
5,671,527, Cl. 29-740,000.

Asano, Satoshi: See—
Arai, Katsuya; Asano, Satoshi; and Wada, Sadao, 5,672,572, Cl. 508-
364,000.

Ascent Pharmaceuticals, Inc.: See—
Tabibi, S. Esmail; Mendes, Robert W.; and Pathak, Nitin P., 5,672,358,
Cl. 424-450,000.

Aschenbeck, David P.: See—
Berdan II, Clarke; Houpt, Ronald A.; Potter, Russell M.; and Aschen-
beck, David P., 5,672,429, Cl. 428-401,000.

Ascione, Jean-Marc; Forestier, Serge; and Sterle, Pascal, to L'Oreal. Amido
photostabilization of dibenzoylmethane sunscreens. 5,672,337, Cl. 424-
59,000.

Asea Brown Boveri AG: See—
Bürgin, Markus; Carcer, Bruno; Edlinger, Alfred; and Martelli, Jean-
Marc, 5,671,688, Cl. 110-344,000.

ASEC Manufacturing: See—
Williamson, W. Burton; Silver, Ronald G.; and Summers, Jack C.,
5,672,557, Cl. 502-303,000.

Asgharian, Bahram; Quintana, Ronald P.; and Hong, Bor-Shyue, to Alcon
Laboratories, Inc. Liquid enzyme compositions containing aromatic acid
derivatives. 5,672,213, Cl. 134-42,000.

Ashihara, Hiromoto: See—
Ishida, Fumiaki; Fujio, Masayuki; Ashihara, Hiromoto; and Moritake,
Takeshi, 5,672,052, Cl. 417-312,000.

Ashimori Kogyo Kabushiki Kaisha: See—
Sakuragi, Hiroyuki; Seshimo, Masahiro; Makimoto, Futoshi; Takebe,
Shinichi; Sokawa, Takuji; and Saito, Hitoshi, 5,671,778, Cl. 138-
97,000.

Ashizawa, Takatoshi: See—
Narisawa, Tsutomu; Tobe, Michihiro; and Ashizawa, Takatoshi,
5,672,930, Cl. 310-323,000.

Ashland, Inc.: See—
Fleener, Bruce Forester, 5,671,591, Cl. 53-452,000.

Astle, Henry: See—
Sandford, William E.; and Astle, Henry, 5,671,646, Cl. 82-113,000.

Astroflex Inc.: See—
Dery, Normand; Mailhot, Guy; and Jean, Alain, 5,673,017, Cl. 340-
426,000.

AT&T: See—
Story, Guy A., 5,673,430, Cl. 455-4,200.

AT&T Global Information Solutions Company: See—
Cousins, William R.; and Carl, Karen M., 5,673,404, Cl. 395-347,000.

Fehrman, Edmund P., 5,672,981, Cl. 324-760,000.

Lee, Steven S.; and Miller, Gayle W., 5,672,905, Cl. 257-529,000.

Athayde, Amulya L.; Faste, Rolf A.; Horres, C. Russell, Jr.; and Low, Thomas
P., to Recordati Corporation. Controlled release osmotic pump. 5,672,167,
Cl. 604-892,100.

Atkinson, Jerry W.: See—
Gurganus, Cecil R.; Sanford, Roy C.; Atkinson, Jerry W.; Baker, Scott
E.; Sander, Michael C.; and Vincini, John J., 5,671,967, Cl. 296-
146,900.

Atlantec Inc.: See—
Nardone, Edward A.; Caron, Paul R.; Rothwell, Christian S.; Schofield,
Harold D.; and Field, Gary, 5,673,076, Cl. 347-171,000.

Atlantic Richfield Company: See—
Chapin, David A.; and Mosher, Charles C., 5,673,191, Cl. 364-420,000.

Atoma International, Inc.: See—
O'Connor, James G., 5,671,965, Cl. 296-65,100.

Atrix International, Inc.: See—
Kahleck, Curtis O.; Riedel, Steven D.; and Correll, Thomas D.,
5,673,190, Cl. 364-131,000.

Au, Wai-Ming William; Nowak, Edward Joseph; and Tong, Minh Ho, to
International Business Machines Corporation. Antifuse circuit using stan-
dard MOSFET devices. 5,672,994, Cl. 327-525,000.

Aubret, Jean-Pierre, to Aerospatiale Societe Nationale Industrielle. Slotted
nut type releasing device for a microsatellite, with full mechanical and
pyrotechnical redundancy. 5,671,650, Cl. 89-1,140.

Auerbach, Joshua Seth; Chow, Chee-Seng; Kaplan, Marc Adam; and Crigler,
Jeffrey Charles, to International Business Machines Corporation. Creation
and distribution of cryptographic envelope. 5,673,316, Cl. 380-4,000.

Automated Packaging Systems, Inc.: See—
Wehrmann, Rick Steven, 5,671,787, Cl. 141-134,000.

Avery Dennison Corporation: See—
Abber, Herman; Carlson, Lee A.; Johnson, Lewis H.; and Donaldson,
Craig L., 5,672,021, Cl. 401-199,000.

Deschenes, Charles L.; Sword, Randall Jay; and Jantz, Christine Joann,
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Miecka, Richard G.; Benoit, Dennis R.; Thomas, Richard M.; Rettker,
James P.; and Josephy, Karl, 5,672,410, Cl. 428-148,000.

Wojnoski, Eugene A.; Caldwell, Carol A.; Beeder, Wayne A.; and
Jensen, George W., 5,673,309, Cl. 379-144,000.

Awaji, Toshio: See—
Shirataki, Hirobumi; Sagae, Atsushi; and Awaji, Toshio, 5,671,836, Cl.
192-113,320.

Azuma, Shigeaki; and Ogawa, Kazuhiro, to Sumitomo Metal Industries, Ltd.
Duplex stainless steel excellent in corrosion resistance. 5,672,215, Cl.
148-325,000.

Azusawa, Katsumi: See—
Ohara, Toru; Fujiwara, Akihiro; Notagashira, Hidefumi; Iizuka, Toshiaki;
Tamekuni, Yasuhiro; Kino, Yoshiki; Morofuji, Tsuyoshi; Azusawa,
Katsumi; and Sato, Hidekage, 5,672,862, Cl. 250-204,000.

Baba, Shigeo, to Nemoto & Co., Ltd. Method and apparatus for measuring
distribution of radioactive nuclide in subject. 5,672,876, Cl. 250-358,100.

Baba, Yasuyuki; Okamoto, Arifumi; and Niuchi, Kunio, to Mitsubishi Juko-
gyo Kabushiki Kaisha. Flexographic printer. 5,671,676, Cl. 101-425,000.

Baba, Yoshitaka: See—
Yamawaki, Akifumi; Nakahori, Shinsuke; Hamamatsu, Takeo; and
Baba, Yoshitaka, 5,672,447, Cl. 429-223,000.

Babcock & Wilcox Company, The: See—
Bhat, Pervaje A.; and Johnson, Dennis W., 5,672,323, Cl. 422-172,000.

Babiuk, Lorne A.: See—
Parker, Michael D.; Cox, Graham J.; and Babiuk, Lorne A., 5,672,350,
Cl. 424-221,100.

Babnik, Klaus-Henning: See—
Hölzl, Stefan; Philipp, Roland; Reichert, Peter; and Babnik, Klaus-
Henning, 5,671,682, Cl. 105-199,200.

Bachand, Carol: See—
Martel, Alain; Bachand, Carol; and Menard, Marcel, 5,672,701, Cl.
540-350,000.

Bachmann, Andrew G.; and Cantor, Stephen E., to Dymax Corporation.
Coating method using actinic radiation-curable formulation. 5,672,393, Cl.
427-493,000.

Bachmann, Bernd: See—
Winter, Andreas; Antberg, Martin; Bachmann, Bernd; Dolle, Volker;
Küster, Frank; Rohrmann, Jürgen; and Spaleck, Walter, 5,672,668, Cl.
526-127,000.

Bacon, Deborah Kay. Display unit having detachable item holders. 5,671,849,
Cl. 211-13,000.

Baer, William F. Unitary plastic filter plate including expandable skins and
plastic foam core. 5,672,272, Cl. 210-231,000.

Baes, Marleen Augusta: See—
Mathys, Georges Marie Karel; Marrens, Luc Roger Marc; Baes, Marleen
Augusta; Verduijn, Johannes Petrus; and Huybrechts, Diane Renata
Cornelia, 5,672,804, Cl. 585-520,000.

Bahouth, Donald G. Eyeglass flotation assembly. 5,673,094, Cl. 351-43,000.

Baile, Clifton Augustus; Day, Jeffrey Wilson; Hampton, Thomas Riley, II;
Kasser, Thomas Richard; Pike, James Brian; Smith, Jonathan Paul; and
Ziemann, Lyle Elmore, to Monsanto Company. Method and device for
implantation of large diameter objects in bovines. 5,672,357, Cl. 424-
438,000.

Bailey, John C., to Eveready Battery Company. Cell tester device employing
a cathodically depositable metal ion electrolyte solution. 5,672,440, Cl.
429-93,000.

Baker, Andrew Russell: See—
Combs, Christopher David; Baker, Andrew Russell; Davidson, Steven
Lee; and Rezsanya, Thomas, 5,671,530, Cl. 29-834,000.

Baker, Daniel N.: See—
Maynard, Nelson C.; Baker, Daniel N.; Freeman, John W., Jr.; Siscoe,
George L.; and Vassiliadis, Dimitris V., 5,673,366, Cl. 395-20,000.

Baker Hughes Incorporated: See—
Hodge, Richard; Halliday, William S.; Daves, Thomas; and Carter,
Thomas, 5,671,810, Cl. 166-301,000.

Meador, Richard A.; Meisner, James Edward; Hall, Ronald Anthony;
Thompson, Larry Wayne; and Mumby, Edward Sheldon, 5,672,971,
Cl. 324-338,000.

Tibbitts, Gordon A., 5,671,816, Cl. 175-101,000.

Voll, Benn Arild; and Richard, Bennett M., 5,672,275, Cl. 210-497,010.

Baker, James A.: See—
Lax, Ronald G.; and Baker, James A., 5,672,153, Cl. 604-22,000.

Baker, Lawrence A.: See—
Schurig, Gregory A.; Bezaira, Bud; Ratko, Michael; Baker, Lawrence
A.; and Mikalian, Robert, 5,672,300, Cl. 264-4,000.

Baker, Scott E.: See—
Gurganus, Cecil R.; Sanford, Roy C.; Atkinson, Jerry W.; Baker, Scott
E.; Sander, Michael C.; and Vincini, John J., 5,671,967, Cl. 296-
146,900.

Baker, Stephen Richard: See—
Chen, Bang-Chi; Stark, Derron Ray; Baker, Stephen Richard; and
Quinlan, Sandra L., 5,672,698, Cl. 536-55,300.

Bakos, Tamas: See—
Weis, Alexander L.; Bakos, Tamas; and Goodhue, Charles T., 5,672,594,
Cl. 514-45,000.

Baldenweg, Urs; and Sauter, Beat, to Energy Management Team AG. System
for minimizing the energy consumption of an electrical load. 5,673,202, Cl.
364-492,000.

Baldwin, Daniel Flanagan; and Deshmukh, Rajan D., to Lucent Technologies
Inc. Semiconductor device having a layer of gallium amalgam on bump
leads. 5,672,913, Cl. 257-737,000.

Balk, Brett. Overhead door spring shield system. 5,671,500, Cl. 16-72,000.

Ball, Keith R., to Technical Fabricators, Inc. In-line filter with flange seal.
5,672,273, Cl. 210-448,000.

Ballard Power Systems, Inc.: See—
Wilkinson, David P.; Johnson, Mark C.; Colbow, Kevin M.; and Camp-
bell, Stephen A., 5,672,439, Cl. 429-40,000.

Balzer, Thomas: See—
Krause, Werner; Balzer, Thomas; Press, Wolf-Rüdiger; Schuhmann-
Giampieri, Gabriele; Speck, Ulrich; and Müller, Andreas, 5,672,335,
Cl. 424-9,420.

Banerjee, Shoihal; Copley, Cecelia C.; Kosek, John A.; and La Conti,
Anthony B., to Du Pont de Nemours, E. I., and Company. Membrane
and electrode assembly employing exclusion membrane for direct methanol
fuel cell. 5,672,438, Cl. 429-33,000.

Banholzer, William F.: See—
Anthony, Thomas R.; Banholzer, William F.; Spiro, Clifford L.; Webb,
Steven W.; and Williams, Bradley E., 5,672,395, Cl. 427-444,000.

Barbe, Christian: See—
Moreau, Serge; and Barbe, Christian, 5,672,195, Cl. 95-96,000.

Barbe, Jacques; Mazodier, François; Vendeville, Luc; Delassus, Pierre;
Sarkis, Elias; Grandenevre, Yves; and Pelletier, Jean-Marie, to Usinor-
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of thin metal products between two rolls. 5,671,625, Cl. 72-10,700.

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Mary K.; and Kirchhoff, Kenneth J., 5,671,557, Cl. 40-358,000.

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substrate. 5,672,521, Cl. 437-24,000.

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- Brant, William: See—
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- Braun, Paul-Wilhelm. Timing device for controlling machinery and other servomechanical devices and method of manufacture therefor, 5,672,865, Cl. 250-233.000.
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- Brehm, Helmut; and Hartan, Hans-Georg, to Chemische Fabrik Stockhausen GmbH. Powdered polymers capable of absorbing aqueous liquids, a process for their production and their use as absorbents, 5,672,633, Cl. 521-53.000.
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- Bridgeport Machines Inc.: See—
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- Bridges, Charles D., to ABB Vetco Gray Inc. Hydraulic pressure assisted casing tensioning system, 5,671,812, Cl. 166-348.000.
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- Martel, Alain; Bachand, Carol; and Menard, Marcel, 5,672,701, Cl. 540-350.000.
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- British Autogard Limited: See—
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- British Technology Group Limited: See—
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- Bruckelt, Michael: See—
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- Brockman, James Joseph: See—
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- Brodsky, William Louis; Kehley, Glenn Lee; and Sathe, Sanjeev Balwant, to International Business Machines Corporation. Heat sink structure with corrugated wound wire heat conductive elements, 5,673,177, Cl. 361-704.000.
- Brody, Thomas P. Method for manufacturing laminated color filters for liquid crystal displays, 5,673,093, Cl. 349-106.000.
- Broese, Einar; Gramkow, Otto; Martinez, Thomas; and Soergel, Guenter, to Siemens Aktiengesellschaft. Method and device for conducting a process in a controlled system with at least one precomputed process parameter determined using a mathematical model having variable model parameters adjusted based on a network response of a neural network, 5,673,368, Cl. 395-22.000.
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- Bronicki, Lucien Y.; Rioulet, Gilbert; Amir, Nadav; Grassianni, Moshe; Elovic, Asher; Gilon, Yoel; and Moritz, Alex, to Ormat Industries, Ltd. Geothermal power plant operating on high pressure geothermal fluid, 5,671,601, Cl. 60-641.500.
- Brons, Cornelius Hendrick: See—
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- Brons, Robert: See—
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- Brook, Mark George, III, to AGFA Division, Bayer Corporation. Scanning system cover having a plurality of bending axes, 5,673,105, Cl. 355-75.000.
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- Kato, Tokunori, 5,673,313, Cl. 379-373.000.
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- Brown, Alan E.; and Wiscombe, Nathan, to Dell USA L.P. Method and apparatus for modifying feedback sensing for a redundant power supply system, 5,672,958, Cl. 323-269.000.
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- Brown, Billy Steve: See—
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- Brown, Bruce B. Aircraft having fixed and pivotal wings, 5,671,898, Cl. 244-46.000.
- Brown, Dale Marius, to General Electric Company. Vertical channel silicon carbide metal-oxide-semiconductor field effect transistor with self-aligned gate for microwave and power applications, and method of making, 5,672,889, Cl. 257-77.000.
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- Brown, Gary L.; Carbine, Adrian L.; and Parker, Donald D., to Intel Corporation. Packing valid micro operations received from a parallel decoder into adjacent locations of an output queue, 5,673,427, Cl. 395-595.000.
- Brown, Michael Wilfrid; Hickerson, Lester Brooks; Powell, Colin Victor; Tims, William Chapel; Tycast, Robert Leonard; and Verburg, Richard Lee, to International Business Machines Corporation. Method and system for displaying applications of different operating systems on a single system using the user interface of the different operating systems, 5,673,403, Cl. 395-335.000.
- Brown, Ronald: See—
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- Browne-Wilkinson, Oliver. Orthopaedic human skeletal demonstration aids, 5,672,059, Cl. 434-274.000.
- Bruhn, Wayne Michael: See—
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- Bruce, Thomas W.: See—
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- Brunelle, Timothy: See—
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- Brunet, Philippe: See—
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- Bruno, Dario: See—
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- Brunson, Gordon R., to Lucent Technologies Inc. Accessing a video message via video snapshots, 5,673,205, Cl. 364-514.00A.
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- Brust, Jonathan; and Kraft, Peter, to Creative Media Generations, Inc. System and method for processing bulk mail, 5,673,193, Cl. 364-464.160.
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- BSG Laboratories: See—
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- Bucci, George H.: See—
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- Buck, David A. Back-up power tongs, 5,671,961, Cl. 294-116.000.
- Buckley, Theresa M. Method for neural network control of motion using real-time environmental feedback, 5,673,367, Cl. 395-21.000.
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- Bugg, Claude A.: See—
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- Bühler, Jürg; and Müller, Siegfried, to Roche Diagnostics Systems, Inc. Analyzer with fixed position bar code reader, 5,672,317, Cl. 422-65.000.
- Buhr, Chris; Matteucci, Mark; Bischofberger, Norbert W.; and Froehler, Brian, to Gilead Sciences, Inc. Nucleoside 5'-methylene phosphonates, 5,672,697, Cl. 536-26.700.
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- Burberry, Mitchell Stewart: See—
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- Burcham, Gregory S.: See—
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- Burghard, Harald: See—
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- Bürgin, Markus; Carcer, Bruno; Edlinger, Alfred; and Martelli, Jean-Marc, to Asea Brown Boveri AG. Process for treating slag from refuse incineration plants, 5,671,688, Cl. 110-344.000.
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- Burkhart, Glenn E. Grading apparatus, 5,671,553, Cl. 37-270.000.
- Burkholder, Timothy P.; Le, Tieu-Binh; and Kudlacz, Elizabeth M., to Hoechst Marion Roussel, Inc. Substituted piperazine derivatives, 5,672,602, Cl. 514-253.000.
- Bürmann, Dominik, to class obg beschraekt haftende offene handelsgesellschaft. Receiving table for harvesters, 5,671,595, Cl. 56-208.000.
- Burn, Paul; See—
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- Burnett, James. Dust mite control method using dot, 5,672,362, Cl. 424-660.000.
- Burnett, Jason Todd, to Yazaki Corporation. Battery terminal and post with rotation inhibiting means, 5,672,442, Cl. 429-121.000.
- Burns, David M.; Olson, David B.; and Pavelka, Lee A., to Minnesota Mining and Manufacturing Company. Fluorescent dye blends, 5,672,643, Cl. 524-90.000.
- Burns, Francis Charles; Fleming, William Weathers; Lee, Victor Yee-Way; and Snyder, Randy William, to International Business Machines Corporation. Ablatively photodecomposable compositions, 5,672,760, Cl. 564-440.000.
- Burns, Ivey Lee; Ham, William Glenn; Harvick, Roly Dean; and Holzman, Charles Leroy, Jr., to Walt Disney World Co. Fluid filtering apparatus and method, 5,672,281, Cl. 210-744.000.
- Burov, Yury Valentinovich; Goncharenko, Sergei Borisovich; Robakidze, Tatyana Nikolaevna; Portnov, Jury Nikolaevich; Kadyshcheva, Ljubov Vladislavovna; Penke, Ilmar Kharievich; Peganov, Eduard Maximovich; Sukhanova, Svetlana Alexeevna; Tananova, Galina Vasilievna; Voronin, Anatoly Evgenievich; Kotlobai, Anatoly Alexeevich; Oshis, Yanis Fritsevich; and Pchelintseva, Lidia Evgenievna, to Vserossiyskiy Nauchny Tsentr Po Bezopasnosti Biologicheskii Aktivnykh veshchestv (Vntsbav), 5-aminoacridine derivatives possessing psychotropic, antiamnesic and lipid-regulative activity, 5,672,707, Cl. 546-105.000.
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- Busch-Sørensen, Thomas, to Eskofot A/S. Method and apparatus for removing silver in the form of silver salts from a liquid, 5,672,328, Cl. 423-561.100.
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- Connor, Larry W.; McKeithan, Tracy; Lubin, David; and Seuberling, Thomas, to AC Corporation. Programmable emergency communication system including automatic dialer. 5,673,304, Cl. 379-45.000.
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- Contractin, A.G.: See—
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- Cornforth, Frederick J.: See—
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- Correia, George Charles: See—
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- Correll, Thomas D.: See—
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- Corvasce, Filomeno Gennaro; Linster, Tom Dominique; and Thielen, Georges, to Goodyear Tire & Rubber Company. The. Starch composite reinforced rubber composition and tire with at least one component thereof. 5,672,639, Cl. 524-52.000.
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- Cottrell, Paul R.: See—
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- Wykes, Katharine Anne; and Quigley, Michael Colin, 5,671,768, Cl. 137-14.000.
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- Cytec Technology Corp.: See—
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Park, Jae-Gyeong, 5,671,773, Cl. 137-386.000.
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- Lee, Moon-Geol, 5,673,164, Cl. 361-79.000.
- Shin, Jun-Chul, 5,671,610, Cl. 62-418.000.
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- Matsuyama, Akinobu; and Kobayashi, Yoshinori, 5,672,504, Cl. 435-280,000.
- Ueda, Masayuki; and Katsuta, Nobuyuki, 5,671,944, Cl. 280-737,000.
- Daido Metal Company Ltd.: See—
Tanaka, Tadashi; Mizuno, Yoshikazu; Sugita, Mitsuru; Sawano, Katsumi; and Ono, Akira, 5,671,835, Cl. 192-107,00R.
- Daimler-Benz AG: See—
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- Dalebout, William T.: See—
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- Damman, Alex Scott: See—
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- Damon, Philippe: See—
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- D'Amore, Michael B.: See—
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- Damstra, Ate K.: See—
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- Dana Corporation: See—
Maughan, Garth B.; and O'Daniel, Leanne C., 5,672,024, Cl. 403-141,000.
- Schweiger, David J., 5,671,927, Cl. 277-9,000.
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- Danfoss A/S: See—
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- Martensen, Lars; and Möller, Henry Madison, 5,671,653, Cl. 92-57,000.
- Daniele, Vincenzo: See—
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- Daniels, Gerald M.: See—
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- Daniels, Lovick T., Jr. Liquid container paper towel holder, 5,671,872, Cl. 222-192,000.
- Dantoni, Joseph L. Automatic turn signal and safety device, 5,673,019, Cl. 340-475,000.
- Danz, Lisa M. Baseball glove training device, 5,672,127, Cl. 473-458,000.
- Dar, Ather R. Articulated putter with sighting device, 5,672,117, Cl. 473-232,000.
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- Darsow, Tamara: See—
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- Dauerer, Norman J.: See—
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- Daugherty, Thomas L.: See—
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- Davenport, Robert E.; and Tepman, Avi, to Applied Materials, Inc. Support platen with removable insert useful in semiconductor processing apparatus, 5,673,167, Cl. 361-234,000.
- Daves, Thomas: See—
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- David, Laurent Jean Pierre: See—
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- David S. Smith (Packaging) Limited: See—
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- Davis, Adam B.: See—
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- Davis, Clark C.: See—
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- Davis, Daniel S. Laser beam track alignment safety device, 5,671,540, Cl. 33-287,000.
- Davis, Garland W.: See—
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- Davis, Jeffrey P.: See—
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- Davis, Richard Alan: See—
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- Davison, Paul D., to Nelson Irrigation Corporation. Nutating sprinkler with rotary shaft and seal, 5,671,885, Cl. 239-222,170.
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- Day, Jeffrey Wilson: See—
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- Daykin, Victor, to Sarnco Scientific, Inc. Biological specimen collection system, 5,672,321, Cl. 422-102,000.
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- Dean, Robert Wayne, to Berryville Graphics. Method of making books, 5,672,030, Cl. 412-7,000.
- Deardorf, Joan Sharon, to Delco Electronics Corporation. Process of forming multilayer circuit boards, 5,672,226, Cl. 156-288,000.
- December, Timothy S.: See—
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- Deckman, Harry William: See—
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- Decknick, James J.: See—
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- De Clercq, Arnold; Höhr, Lothar; and Riebeling, Ulrich, to BASF Aktiengesellschaft. Preparation of recording materials for inkjet printers, 5,672,392, Cl. 427-391,000.
- Decosterd, Laurent A.: See—
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- Dedrick, Ted Randall. Reversibly collapsible lap tray, 5,671,479, Cl. 2-46,000.
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- Deguchi, Takashi: See—
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- Hartmann, Werner; Mangold, Helmut; and Kerner, Dieter, 5,672,330, Cl. 423-610,000.
- Hasseberg, Hans-Albrecht; Huthmacher, Klaus; Rautenberg, Stephan; Petsch, Heinrich; and Weigel, Horst, 5,672,745, Cl. 562-559,000.
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- Delassus, Pierre: See—
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- Deardorf, Joan Sharon, 5,672,226, Cl. 156-288,000.
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- Kearney, Mark Billings; and Koglin, Dennis Michael, 5,673,048, Cl. 341-159,000.
- DeLeeuw, William C., to Intel Corporation. Color reduction and conversion using an ordinal lookup table, 5,673,065, Cl. 345-153,000.
- DeGrec, Anthony Armand. Guidance device for a track-following vehicle and method of guiding a track-following vehicle, 5,671,680, Cl. 104-130,070.
- Dell U.S.A., L.P.: See—
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- Dell USA L.P.: See—
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- Penniman, Mark B.; Skillman, Peter N.; Lillios, Tony J.; and Boyle, Dennis J., 5,673,176, Cl. 361-687,000.
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- Demharter, Manfred: See—
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- Demmering, Guenther: See—
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- Demuth, Thomas Prosser, Jr.; and White, Ronald Eugene, to Procter & Gamble Company. The Antimicrobial dithiocarbamoyl quinolones, 5,672,600, Cl. 514-224,500.
- Denenberg, Stuart; Petersen, Robert; Densberger, John; and Christensen, John J., to Verification Technologies, Inc. System for verification of unique items, 5,673,338, Cl. 382-209,000.
- Densberger, John: See—
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- Dent, Paul W., to Ericsson Inc. Simultaneous demodulation and decoding of a digitally modulated radio signal using known symbols, 5,673,291, Cl. 375-262,000.
- DeOrnellas, Stephen Paul, to Tegal Corporation. Integrated semiconductor wafer processing system, 5,672,239, Cl. 156-625,100.
- DePalma, Vito A.: See—
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- DePuy Inc.: See—
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- Der, Lawrence, to Micro Linear Corporation. Low drop-out voltage regulator having high ripple rejection and low power consumption, 5,672,959, Cl. 323-273,000.
- DeRees, Delbert D.; Mehta, Kanaiyalal C.; Vetter, Robert A.; and Meyer, Howard W., to Chrysler Corporation. Vehicle seat mounting mechanism, 5,671,964, Cl. 296-65,100.
- Dem, Klaus. Rotary microtome with horizontal sweep, 5,671,648, Cl. 83-411,100.
- Derudder, Carlos: See—
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- DeRudder, James L.; and Howery, Richard W., to General Electric Company. Color improved polycarbonate compositions and molded articles, 5,672,664, Cl. 525-469,000.
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- Desantis, Nicola: See—
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- Deschenes, Charles L.; Sword, Randall Jay; and Jantz, Christine Joann, to Avery Dennison Corporation. Fastener for attaching a button or the like to a garment or piece of fabric, 5,671,507, Cl. 24-114,700.
- Deshmukh, Rajan D.: See—
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- Deshmukh, Uday V.: See—
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- Deshpande, Sanjay Raghunath; and Kaiser, John Michael, to International Business Machines Corporation. Method and apparatus for coherency reporting in a multiprocessing system, 5,673,413, Cl. 395-468,000.
- Desilets, Dave: See—
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- de Silva, Jon Douglas: See—
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- DeSimone, Joseph M.; and Romack, Timothy, to University of North Carolina at Chapel Hill. The Multi-phase polymerization process, 5,672,667, Cl. 526-89,000.
- Desire, Gérard: See—
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- Desmos, Inc.: See—
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- Desrosiers, Ronald Roger: See—
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- Deutsche Thomson-Brandt GmbH: See—
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- Deutschendorf, James S.: See—
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- DSP Group Ltd., The: See—
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- Fialer, Philip A.: See—
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- Ficke, Jonathan Andrew: See—
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- Filla, Deborah S.: See—
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- Finch, Steven Jay: See—
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- Fischer, James B.: See—
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- Fisher, Raymond Earl; Rudell, Elliot; and Foster, George T., to Rudell, Elliot, Game for projecting a projectile with a stick and coupling members for releasably attaching the projectile to the stick, 5,672,129, Cl. 473-471.000.
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- Fishman, Scott E.: See—
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- Forbes, Daniel A. Torso-settling harness for truck drivers, 5,671,699, Cl. 119-857.000.
- Forbes, Stephen J.: See—
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- Donovan, David Alvin, 5,671,634, Cl. 73-150.000.
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- Fredrick, Mark D., to Mitchell Corporation of Owosso, Inc. Modular automotive seat frame, 5,671,976, Cl. 297-452.180.
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- Frost, Douglas E.: See—
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Nakano, Takaharu; Tsuchiya, Katsuyoshi; Yoshimatsu, Shunji; and Fuchigami, Takeru, 5,672,671, Cl. 528-14.000.
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- Fuji Jukogyo Kabushiki Kaisha: See—
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- Fuji Photo Film Co., Ltd.: See—
Okazaki, Kentaro, 5,672,468, Cl. 430-522.000.
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- Omori, Toshihiko, 5,673,122, Cl. 358-471.000.
- Ryoke, Katsumi, 5,672,185, Cl. 51-295.000.
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- Shimada, Katsumi; Ishikawa, Hiromi; Nishihata, Sumihiko; and Noguchi, Masaru, 5,673,137, Cl. 359-206.000.
- Tsuchiya, Toku; Akimoto, Taizo; Mori, Keiji; Kojima, Yasushi; Dietzel, Günter; Petz, Gerhard; and Köpke, Andreas, 5,672,514, Cl. 436-86.000.
- Yamakawa, Katsuyoshi; and Sato, Tadahisa, 5,672,714, Cl. 548-319.500.
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Itoi, Hiromu, 5,671,748, Cl. 128-662.060.
- Fuji Xerox Co., Ltd.: See—
Fuse, Takeshi, 5,673,071, Cl. 347-35.000.
- Hamada, Tsutomu; and Hikichi, Takehito, 5,672,255, Cl. 204-298.070.
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- Fujii, Shuji, to NEC Corporation, Image output device, 5,673,120, Cl. 358-456.000.
- Fujii, Yasuhiro: See—
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- Fujikura Kasei Co., Ltd.: See—
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- Fujimori, Jiro: See—
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- Fujimoto, Hiroshi: See—
Maeda, Hiroshi; Ueda, Susumu; Fujimoto, Hiroshi; and Nakayama, Yoshiaki, 5,672,894, Cl. 257-343.000.
- Fujio, Masayuki: See—
Ishida, Fumiaki; Fujio, Masayuki; Ashihara, Hiromoto; and Moritake, Takeshi, 5,672,052, Cl. 417-312.000.
- Fujisawa, Tadahito: See—
Inoue, Soichi; Tanaka, Satoshi; and Fujisawa, Tadahito, 5,673,103, Cl. 355-71.000.
- Fujita, Mamoru, to Yoshino Kogyosha Co., Ltd. Method and apparatus for forming seal portion of tubular body of synthetic resin, 5,672,308, Cl. 264-248.000.
- Fujita, Ryo: See—
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- Fujitsu, Ltd.: See—
Iida, Takashi; Sumi, Satoru; Shimizu, Hiroshi; Tahara, Akinori; Amano, Isao; and Nakajima, Tetsuya, 5,672,895, Cl. 257-357.000.
- Iwashita, Hiroaki, 5,673,425, Cl. 395-568.000.
- Jimbo, Masaki; Furukawa, Tsuyoshi; Kaneko, Hisashi; Sugimoto, Masaharu; Ino, Tsuneyori; Fukuzawa, Shinichi; and Ishida, Katsuaki, 5,673,159, Cl. 360-98.010.
- Kaji, Yukio; Kanemitsu, Norio; and Murosaki, Mikio, 5,673,124, Cl. 358-474.000.
- Kobayashi, Osamu; Matsuda, Atsushi; and Yuasa, Tachio, 5,673,002, Cl. 330-288.000.
- Matsumoto, Taisuro, 5,673,362, Cl. 395-2.690.
- Minatogawa, Masamitsu; Sakuta, Maki; and Shibano, Masayuki, 5,673,429, Cl. 395-611.000.
- Motoyama, Nobuhiko; Katsuyama, Yukio; and Sugihara, Hiroyuki, 5,673,155, Cl. 360-92.000.
- Mugiya, Hiroshi, 5,671,531, Cl. 29-840.000.
- Suzuki, Kaori, 5,673,380, Cl. 395-173.000.
- Yanagi, Shigenori; and Furuta, Satoshi, 5,673,243, Cl. 369-59.000.
- Ycas, John A.; Malek, Stefan J.; and Soderfelt, Wayne G., 5,673,157, Cl. 360-97.010.
- Yoshida, Shigeru; Okada, Yoshiyuki; Nakano, Yasuhiko; and Yahagi, Hironori, 5,673,042, Cl. 341-51.000.
- Yumitori, Fuminori; and Fujii, Yasuhiro, 5,673,226, Cl. 365-190.000.
- Fujitsu, Takao, to Kabushiki Kaisha Toshiba, Thin semiconductor integrated circuit device assembly, 5,672,908, Cl. 257-668.000.
- Fujiwara, Akihiro: See—
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- Fujiwara, Tsuneo: See—
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- Fukamachi, Makoto; and Kawase, Hajime, to Sumitomo Wiring Systems, Ltd. Connector, 5,672,078, Cl. 439-701.000.
- Fukaya, Masae: See—
Funawataru, Takatsugu; Fukaya, Masae; and Honma, Hiroyuki, 5,671,590, Cl. 53-442.000.
- Fukazawa, Chiaki, to Kabushiki Kaisha Toshiba, Surface inspection system for detecting various surface faults, 5,672,886, Cl. 250-559.460.
- Fukuda, Kumio: See—
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- Fukui, Tsugushi; Inoue, Kimio; Kuroda, Yoshinori; Ueda, Hiroshi; and Kashiwa, Masahiko, to Kabushiki Kaisha Kobeseikoshu, Kneader, 5,672,005, Cl. 366-75.000.
- Fukui, Tsutomu; and Niu, Tokihide, to Matsushita Electric Industrial Co., Ltd. Static reactive power compensating equipment, 5,672,956, Cl. 323-210.000.
- Fukui, Wataru; and Kozuka, Yasukazu, to Mitsubishi Denki Kabushiki Kaisha, Apparatus for controlling operation timing of internal combustion engine, 5,671,714, Cl. 123-414.000.
- Fukumoto, Katsumi; and Taki, Masamitsu, to Sharp Kabushiki Kaisha, Nonvolatile semiconductor memory device, 5,673,222, Cl. 365-185.040.
- Fukumura, Yoshikazu: See—
Tomogami, Shin; Takaki, Masuo; Fukumura, Yoshikazu; Ikeda, Takeshi; and Terada, Kenji, 5,672,113, Cl. 464-175.000.
- Fukuoka, Hiroyuki; Takahashi, Koji; and Hirose, Hisataka, to Canon Kabushiki Kaisha, Image aspect ratio conversion processing apparatus, 5,673,086, Cl. 348-445.000.
- Fukushige, Yasuharu: See—
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- Fukushima, Ryosuke: See—
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- Fukushima, Shigenobu, to Minolta Camera Kabushiki Kaisha, Image forming apparatus wherein data is converted between multi-level data and bi-level data, 5,673,116, Cl. 358-298.000.
- Fukutome Meat Packers, Ltd.: See—
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- Fukuzaki, Yasuhiro; and Katsurahira, Yuji, to Wacom Co., Ltd. Position pointing device including a memory and a position detecting device coupled by AC fields to the pointing device, 5,672,852, Cl. 178-19.000.
- Fukuzawa, Shinichi: See—
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- Fulmer, John W.: See—
Dyckman, Arkady S.; Boyarsky, Vadim P.; Malinovskii, Alexander S.; Petrov, Yuri I.; Krasnov, Leontii M.; Zinenkov, Andrey V.; Gorovits, Boris I.; Chernukhin, Sergey N.; Sorokin, Anatoly D.; and Fulmer, John W., 5,672,774, Cl. 568-749.000.
- Funai Electric Co., Ltd.: See—
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- Funawataru, Takatsugu; Fukaya, Masae; and Honma, Hiroyuki, to Sony Corporation, Casing for housing disc cartridge and method for packaging the casing, 5,671,590, Cl. 53-442.000.
- Fung, Clifford D., to Foxboro Company, The, Method for manufacturing a semiconductor pressure sensor with single-crystal silicon diaphragm and single-crystal gage elements, 5,672,551, Cl. 437-228.5EN.
- Fung, Ella Y.; and Rajagopalan, Raghavan, to Mallinckrodt Medical, Inc. Delta 1,2 bicyclo[4.4.0] functional dyes for contrast enhancement in optical imaging, 5,672,332, Cl. 424-9.600.
- Fung, Ella Y.: See—
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Funk, Gregory A.: See—
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Kohmura, Yukio; Ishida, Yoshinori; and Hino, Takashi, 5,672,193, Cl. 65-484.000.

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Furukawa, Tsuyoshi: See—
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Furuta, Satoshi: See—
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Masale, Norio; Tachibana, Tomoyuki; Shimizu, Hiroyuki; Ito, Kazuhiko; Matsuguchi, Akira; Sasa, Yoshikazu; and Furuya, Atsushi, 5,672,287, Cl. 219-145.220.

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Huang, Hong-Chih; and Reitz, David R., 5,672,627, Cl. 514-520.000.

Nugent, Sean T.; and Mueller, Richard A., 5,672,769, Cl. 568-496.000.

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Gagne, Daniel Paul; and Dustin, Bryan Charles, to Heidelberg Harris Inc.; and Heidelberger Druckmaschinen AG. Method and apparatus for preventing circumferential separation between two gears of a gear train. 5,671,636, Cl. 74-409.000.

Gal, Erez: See—
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Smolansky, Leonid; Kowal, Sbai; Goren, Avner; and Galanti, David, 5,673,396, Cl. 395-250.000.

Gale, Ronald: See—
Zavracky, Matthew; Chern, Wen-Foo; Gale, Ronald; Ronzani, Peter A.; and Pombo, Stephen, 5,673,059, Cl. 345-8.000.

Gall, Claus: See—
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Galloway, Terry R.; and Green, Thomas J., to Scientific Ecology Group, Inc., The. Method and system for suppression of foam of waste streams. 5,672,278, Cl. 210-696.000.

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Garcia, Michael E.: See—
Pecoraro, John J.; and Garcia, Michael E., 5,672,124, Cl. 473-417.000.

Garcia, Rodolfo F.; and Graeve, Egbert, to Schlumberger Technology, Inc. Accelerated mode tester timing. 5,673,275, Cl. 371-22.100.

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Gardner, Roger: See—
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Gardner, Trevis Daniell. Sock organizer. 5,671,876, Cl. 223-1.000.

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Garth, Geoffrey C.; and Patterson, Charles A., to Laerdal Medical Corporation. Intubation device having stiffening member. 5,672,179, Cl. 606-108.000.

Garvey, James P.: See—
Reyes, Alberto J.; Ycap, Gary K.; and Garvey, James P., 5,673,420, Cl. 395-500.000.

Gary, Richard Gerald; Nicholson, John Richard; Oakes, John; and Wiley, Jean Pekaar, to Lever Brothers Company, Division of Conopco, Inc. Amido peroxydicarboxylic acids for bleaching. 5,672,295, Cl. 252-186.420.

Gas Research Institute: See—
Kormanyos, Kenneth R., 5,672,191, Cl. 65-273.000.

Litka, Anthony F.; Woodroffe, Jamie A.; Goldfarb, Victor; McClaine, Andrew W.; and Keane, Kevin J., 5,672,190, Cl. 65-134.100.

Gastaldi, Roberto: See—
Calligaro, Cristiano; Daniele, Vincenzo; Gastaldi, Roberto; Manstretta, Alessandro; Telecco, Nicola; and Torelli, Guido, 5,673,221, Cl. 365-168.000.

Gatti, Massimo: See—
Mauro, Marina; Viscardi, Carlo Felice; Gatti, Massimo; and Desantis, Nicola, 5,672,735, Cl. 560-252.000.

Gauthier, André, to Surfbike Products Inc. Water bicycle. 5,672,080, Cl. 440-27.000.

Gauthier, Jean André; and Moss, Neil, to Bio-Mega/Boehringer Ingelheim Research, Inc. Herpes ribonucleotide reductase inhibitors. 5,672,586, Cl. 514-18.000.

Gauthier, Patricia: See—
Dabee, Annick; Gauthier, Patricia; and Senet, Jean-Pierre, 5,672,770, Cl. 568-676.000.

Gauthiere, John Gustave; and Wood, Paul Douglas. Axially moveable plate valve. 5,671,902, Cl. 251-63.500.

Gay, Michel: See—
Allas, Michel; Chassaing, Serge; Gay, Michel; and Mur, Gilles, 5,672,646, Cl. 524-357.000.

Gaynes, Michael Anthony: See—
Culnane, Thomas Moran; Gaynes, Michael Anthony; Seto, Ping Kwong; and Shaikatullah, Hussain, 5,672,548, Cl. 437-209.000.

Gaytan, Andre J.: See—
Oskouy, Rasoul M.; Palaniraj, Sunderraj V.; and Gaytan, Andre J., 5,673,279, Cl. 371-67.100.

Gearhart, Steven S.: See—
Booske, John H.; and Gearhart, Steven S., 5,672,541, Cl. 437-160.000.

GEC Alsthom Limited: See—
Vivers, Peter, 5,672,943, Cl. 318-103.000.

Geelhoed, Jack, to J. Mastenbrook & Company Limited. Sensor positioning apparatus for trench excavator. 5,671,554, Cl. 37-348.000.

Gehring, Reinhold: See—
Döring, Fritz; Gehring, Reinhold; and Heinrich, Josef, 5,672,791, Cl. 570-191.000.

Geissler, Roland: See—
Helbig, Klaus; Geissler, Roland; and Wulst, Norbert, 5,673,258, Cl. 370-293.000.

Gellissen, Gerd: See—
Schweden, Jürgen; Bollschweiler, Claus; Piontek, Michael; Weydemann, Ulrike; and Gellissen, Gerd, 5,672,487, Cl. 435-69.100.

Gemplus Card International: See—
Fidalgo, Jean-Christophe, 5,671,525, Cl. 29-600.000.

Gemstar Development Corporation: See—
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GenCorp Inc.: See—
Gurganus, Cecil R.; Sanford, Roy C.; Atkinson, Jerry W.; Baker, Scott E.; Sander, Michael C.; and Vincini, John J., 5,671,967, Cl. 296-146.900.

Gendlin, Shimon, to Kappa Numerics, Inc. Memory material and method for its manufacture. 5,673,220, Cl. 365-157.000.

Genencor International, Inc.: See—
Weis, Alexander L.; Bakos, Tamas; and Goodhue, Charles T., 5,672,594, Cl. 514-45.000.

Genentech, Inc.: See—
Aggarwal, Bharat B.; Palladino, Michael A.; and Shalaby, Mohamed R., 5,672,347, Cl. 424-139.100.

General Electric Company: See—
Andresen, Peter Louis, 5,673,297, Cl. 376-306.000.

Anthony, Thomas R.; Banholzer, William F.; Spiro, Clifford L.; Webb, Steven W.; and Williams, Bradley E., 5,672,395, Cl. 427-444.000.

Berthiaume, Marianne D., 5,672,338, Cl. 424-59.000.

Brown, Dale Michael, 5,672,889, Cl. 257-77.000.

Darrow, Robert David; Dumoulin, Charles Lucian; and Souza, Steven Peter, 5,671,739, Cl. 128-653.100.

DeRudder, James L.; and Howery, Richard W., 5,672,664, Cl. 525-469.000.

Dumoulin, Charles Lucian; and Schneider, Erika, 5,671,742, Cl. 128-653.300.

Dyckman, Arkady S.; Boyarsky, Vadim P.; Malinovsky, Alexander S.; Petrov, Yuri I.; Krasnov, Leonid M.; Zinenkov, Andrey V.; Gorovits, Boris I.; Chernukhin, Sergey N.; Sorokin, Anatoly D.; and Fulmer, John W., 5,672,774, Cl. 568-749.000.

Halila, Herbert; and Mannava, Seetharamaiah, 5,671,628, Cl. 72-53.000.

Herd, Kenneth Gordon; and Laskaris, Evangelos Trifon, 5,672,921, Cl. 310-52.000.

Hoffman, Mark E.; Provost, Roland J.; Maehl, Thomas; Lavoie, Gregory P.; Plis, Mark J.; Elmore, David D.; Gerner, Warren R.; Mammen, Jeffrey W.; Bullock, Donald F.; Putcha, Sivarama Seshu; Staver, Daniel A.; Burt, Arthur C.; Crittenden, Curtis W.; and Edge, Ellen D., 5,673,196, Cl. 364-483.000.

Inoue, Kazushige, 5,672,644, Cl. 524-99.000.

Knudsen, Bruce Alan; and Briant, Clyde Leonard, 5,672,085, Cl. 445-28.000.

McCloskey, Patrick Joseph; and Lee, Julia Lam, 5,672,776, Cl. 568-756.000.

Ohtsuka, Yoshio; and Oishi, Katsumi, 5,672,663, Cl. 525-438.000.

Ortiz, Angel Luis, Jr.; Feldman, Sandra Freedman; and Staver, Philip Randall, 5,673,343, Cl. 385-31.000.

Tekriwal, Prabhat Kumar, 5,673,301, Cl. 378-130.000.

Terhune, James Howard, 5,672,928, Cl. 310-305.000.

Wheat, Gary E.; McCracken, Robert E.; and Palmer, Nicholas C., 5,672,261, Cl. 205-206.000.

Wojnarowski, Robert John, 5,672,546, Cl. 437-209.000.

Zhou, Xiaohong; Maier, Joseph K.; and Epstein, Frederick H., 5,672,969, Cl. 324-309.000.

General Hospital Corporation, The: See—
Seidman, Edward B., 5,672,177, Cl. 606-71.000.

General Motors Corporation: See—
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Lonbani, Sohrab Sadri, 5,671,626, Cl. 72-42.000.

Rhule, Daniel Allen; Damman, Alex Scott; and Otto, Vince Urban, 5,671,945, Cl. 280-740.000.

Rogers, Daryl Jay, 5,671,802, Cl. 165-41.000.

Sabha, Nick George, 5,672,053, Cl. 417-569.000.

Tepas, John Milton; and Mowell, Robert Michael, 5,671,803, Cl. 165-41.000.

Genet, Alain: See—
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Genetic Therapy, Inc.: See—
Egltis, Martin; Thompson, J. Anthony; and Anderson, W. French, 5,672,510, Cl. 435-325.000.

Gentry, Roy M., to Hughes Electronics. Computer aided reuse tool. 5,673,199, Cl. 364-490.000.

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German, Elena N., executrix: See—
Sono, Takahiro; Tatsu, Haruyoshi; German, Lev Solomonovich, deceased; Polishchuk, Valeri Romanovich, deceased, 5,672,758, Cl. 564-440.000.

German, Lev Solomonovich, deceased (by Elena N. German, executrix): See—
Sono, Takahiro; Tatsu, Haruyoshi; German, Lev Solomonovich, deceased; Polishchuk, Valeri Romanovich, deceased, 5,672,758, Cl. 564-440.000.

Germer, Warren R.: See—

Hoffman, Mark E.; Provost, Roland J.; Maehl, Thomas; Lavoie, Gregory P.; Plis, Mark J.; Elmore, David D.; Gerner, Warren R.; Mammen, Jeffrey W.; Bullock, Donald F.; Putcha, Sivarama Seshu; Staver, Daniel A.; Burt, Arthur C.; Crittenden, Curtis W.; and Edge, Ellen D., 5,673,196, Cl. 364-483.000.

Geyer, David L.: See—
Whalen, Daniel D.; Geyer, David L.; and Simpson, Gina H., 5,671,946, Cl. 280-741.000.

Ghiassi, Homayon: See—
Nesburn, Anthony Bart; Wechsler, Steven Lewis; and Ghiassi, Homayon, 5,672,349, Cl. 424-186.100.

Ghosh, Syamal K.: See—
Chatterjee, Dilip K.; Ghosh, Syamal K.; and Jarrold, Gregory S., 5,672,302, Cl. 264-60.000.

Giacalone, Biagio: See—
Manaresi, Nicolò; Gnudi, Antonio; Bruno, Dario; and Giacalone, Biagio, 5,672,960, Cl. 323-313.000.

Giamello, Bruno, to Soremartec S.A. Equipment for the metered supply of arrays of products. 5,671,661, Cl. 99-450.700.

Giard, B. Joan. Folding sweatband with interior compartment. 5,671,481, Cl. 2-170.000.

Giat Industries: See—
Brion, Bernard; and Hossard, Michel, 5,672,842, Cl. 102-282.000.

Gibbs, Ernest Edward: See—
Clarke, Kenneth Paul; Coulson, David; Gibbs, Ernest Edward; Keon, Barry John; and Kruijschoop, Alfred Willem, 5,673,351, Cl. 385-100.000.

Gibbs, Henry L.: See—
MacNicol, Allan E.; and Gibbs, Henry L., 5,672,010, Cl. 384-42.000.

Gibson, George A.; and Chamberlain, Scott D., to Xerox Corporation. Liquid developers and methods thereof. 5,672,457, Cl. 430-115.000.

Gifu Seiki Kogyo Kabushiki Kaisha: See—
Nozaki, Mikiya; Karaki, Mitsuhiro; Inui, Mitsuru; Futamura, Takehito; and Saitoh, Akira, 5,671,797, Cl. 164-120.000.

Gilead Sciences, Inc.: See—
Burr, Chris; Matteucci, Mark; Bischofberger, Norbert W.; and Froehler, Brian, 5,672,697, Cl. 536-26.700.

Giles, Martin Francis: See—
Garland, Carl Sherman; Giles, Martin Francis; and Sunley, John Glenn, 5,672,743, Cl. 562-519.000.

Gill, Michael: See—
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Gillete Company, The: See—
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Gilon, Yoel: See—
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Gindele, Alexander: See—
Lang, Philipp; Wendland, Michael; Saeed, Maythem; and Gindele, Alexander, 5,671,741, Cl. 128-653.200.

Ginestra, Larry J.; and Miller, Michael E., to Wrap-It-Up, Inc. Semiautomatic package wrapping machine. 5,671,593, Cl. 53-504.000.

Gippen, Karl-Ludwig: See—
Moll, Stefan; Bausch, Uwe; Linke, Stefan; Reichert, Dirk-Stefan; Gippert, Karl-Ludwig; and Falb, Wolfgang, 5,671,729, Cl. 128-203.140.

Girard, François, to Salomon S.A. Apparatus for attaching a shoe to a gliding element. 5,671,941, Cl. 280-615.000.

Girard, Marc: See—
Kiény, Marie-Paule; Rautmann, Guy; Lecocq, Jean-Pierre; Hobson, Simon Wain; Girard, Marc; and Montagnier, Luc, 5,672,689, Cl. 530-395.000.

Girard, Pierre; and Boschetti, Egisto, to BioSeptra Inc. Passivated porous polymer supports and methods for the preparation and use of same. 5,672,276, Cl. 210-635.000.

Girotti, Gianni: See—
Perego, Carlo; Pazuconi, Giannino; Girotti, Gianni; and Terzoni, Giuseppe, 5,672,799, Cl. 585-467.000.

Givadan-Roure (International) SA: See—
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Glanz, Kenneth D.: See—
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Glasson, Richard Owen, to Calculagraph Co. Method and apparatus for switching mechanism. 5,671,841, Cl. 200-406.000.

Glauning, Rainer: See—
Kabanik, Wilfried; and Glauning, Rainer, 5,671,815, Cl. 173-217.000.

Glavish, Hilton F. System and method for producing superimposed static and time-varying magnetic fields. 5,672,879, Cl. 250-396.000.

Glenn, Thomas P.; Molnar, Ronald J.; and Hollaway, Roy Dale, to Amkor Electronics, Inc. Interdigitated wirebond programmable fixed voltage planes. 5,672,909, Cl. 257-668.000.

Glicksman, Milton, to Multi-Flex Seals, Inc. Vacuum formed electric switch seals. 5,671,840, Cl. 200-302.300.

Glimcher, Laurie H.; Zhou, Hong; and Douhan, John, III, to President and Fellows of Harvard College. Methods of identifying compounds useful for treating autoimmune diseases. 5,672,473, Cl. 435-6.000.

Glines, Bradley G.: See—

- Rodenstein, Larry M.; Glines, Bradley G.; and Amell, Theodore, 5,672,234, Cl. 156-494,000.
Global Upholstery Company: See—
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Gloer, James B.: See—
Alfatafa, Ali A.; Dowd, Patrick F.; Gloer, James B.; and Wicklow, Donald T., 5,672,621, Cl. 514-422,000.
Glover, Bryan K., to UOP. Process for the removal of polynuclear aromatic compounds from a vapor effluent from a normally gaseous hydrocarbon dehydrogenation reaction zone. 5,672,804, Cl. 585-655,000.
Glowcore Acquisition Company: See—
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Glyko, Inc.: See—
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Gnudi, Antonio: See—
Manaresi, Nicolò; Gnudi, Antonio; Bruno, Dario; and Giacalone, Biagio, 5,672,960, Cl. 323-313,000.
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Kagano, Hirokazu; Goda, Hiroshi; and Sakaue, Shigeki, 5,672,751, Cl. 564-162,000.
Goddard, Robert M.: See—
Callahan, Michael; Chester, John K.; and Goddard, Robert M., 5,672,941, Cl. 315-194,000.
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Tutt, Lee William; Burberry, Mitchell Stewart; DePalma, Vito A.; Goebel, William Keith; and Tunney, Scott Eric, 5,672,458, Cl. 430-124,000.
Goetting, F. Erich: See—
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Goff, Sherwood Lunsford: See—
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Gokhale, Kalyan P.; and Mueller, Dennis L., to ITT Automotive Electrical Systems Inc. Method and apparatus for minimizing torque ripple in a DC brushless motor using phase current overlap. 5,672,944, Cl. 318-254,000.
Goldenheim, Paul: See—
Sackler, Richard S.; Kaiko, Robert F.; and Goldenheim, Paul, 5,672,360, Cl. 424-490,000.
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Litka, Anthony F.; Woodroffe, Jamie A.; Goldfarb, Victor; McClaine, Andrew W.; and Keane, Kevin J., 5,672,190, Cl. 65-134,100.
Goldin, Stanley M.; Katragadda, Subbarao; Hu, Lian-Yen; Reddy, N. Laxma; Fischer, James B.; Knapp, Andrew Gannett; and Margolin, Lee David, to Cambridge Neuroscience, Inc. Acenaphthyl substituted guanidines and methods of use thereof. 5,672,608, Cl. 514-313,000.
Goldman, Dennis. Compact lamp assembly with tubular portions arranged in V-shaped configuration. 5,672,932, Cl. 313-318,010.
Goldman, Kenneth Alan: See—
Cesar, Christian Lenz; Chan, Shun Shing; Cofino, Thomas Anthony; Goldman, Kenneth Alan; Greene, Sharon L.; Heinrich, Harley Kent; and McAuliffe, Kevin Patrick, 5,673,037, Cl. 340-825,540.
Goldstar Co., Ltd.: See—
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Lim, Jae Cheol; Yeo, Myung Keon; Lim, Yong Taik; Lee, Nam Su; Seo, Jim Woo; and Shim, Dae Sul, 5,673,044, Cl. 348-341,000.
Golston, Jeremiah E.: See—
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Gonsalves, John M., to University of California, Regents of the. Pendulum detector testing device. 5,672,807, Cl. 73-1,00R.
Gonzalez, Fernando: See—
Thakur, Randhir P. S.; Rolison, J. Brett; Gonzalez, Fernando; and Moore, John T., 5,672,539, Cl. 437-70,000.
Gonzalez, Mark A., to MGWhiz, Inc. Circular gamepiece with protector. 5,671,925, Cl. 273-424,000.
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Good, Lowell M.: See—
Hastings, Robert J.; Varghese, Paily T.; Good, Lowell M.; and McAuliffe, Barry S., 5,673,172, Cl. 361-685,000.
Goodell, Daniel L.: See—
Peronek, Michael H.; and Goodell, Daniel L., 5,671,585, Cl. 53-253,000.
Goodfriend, Steven L.: See—
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Corvasce, Filomeno Gennaro; Linster, Tom Dominique; and Thielen, Georges, 5,672,639, Cl. 524-52,000.
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Gossen, Ralf; Herlitzkamp, Bernhard; Broich, Ludwig; Buxhofer, Horst; and Onusseit, Hermann, to Henkel Kommanditgesellschaft auf Aktien. Water-containing antislip composition. 5,672,199, Cl. 106-36,000.
Goswami, Ramanuj; Perry, Robert J.; and Zieliński, Paul Anthony, to Eastman Kodak Company. Thermal recording element. 5,672,562, Cl. 503-227,000.
Goto, Masahisa: See—
Miyaji, Tomomi; Goto, Masahisa; and Narita, Keiichi, 5,672,570, Cl. 508-192,000.
Goto, Masahito; Morimoto, Hiroshi; Shimada, Yasunori; Nagayasu, Takayoshi; Hirata, Mitsunori; Hibino, Yoshitaka; and Yamamoto, Tomohiko, to Sharp Kabushiki Kaisha. Metallic wiring board and a method for producing the same. 5,672,251, Cl. 204-192,170.
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Gough, Edward J.; and Stein, Alan A., to Rita Medical Systems, Inc. Multiple antenna ablation apparatus and method. 5,672,174, Cl. 606-41,000.
Gowley, Mervyn. Shoe lace safety guard. 5,671,517, Cl. 24-712,100.
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Barbe, Jacques; Mazodier, François; Vendeville, Luc; Delassus, Pierre; Sarkis, Elias; Grandenevre, Yves; and Pelletier, Jean-Marie, 5,671,625, Cl. 72-10,700.
Grant, Alexander, to Norfrost Limited. Cabinet. 5,671,991, Cl. 312-406,000.
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Sinderby, Christer; Grassino, Alejandro; Friberg, Sven; and Lindström, Lars, 5,671,752, Cl. 128-733,000.
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Green, George David; Snyder, James Ronald; and Swedo, Raymond John, to AlliedSignal, Inc. Vinyl ether-terminated polyester oligomer stabilizers for vinyl ether-based coating systems. 5,672,675, Cl. 528-307,000.

- Green, Thomas J.: See—
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Greene, Sharon L.: See—
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Greenen, David P.: See—
Fayerman, Jeffrey T.; Greenen, David P.; Hershberger, Charles L.; Larson, Jeffrey L.; Sterner, Jane L.; and Zhang, Haichao, 5,672,496, Cl. 435-212,000.
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- Hall, Richard D. Apparatus for forming hollow tube flexible tape. 5,672,233, Cl. 156-466.000.
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- Hangartner, Thomas Niklaus, to Wright State University. Method and apparatus for the evaluation of structural width and density by computed tomography. 5,673,303, Cl. 378-207.000.
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- Hanning Electronic GmbH & Co.: See—
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- Hanrahan, Peter J.: See—
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- Hansen, Frederick B.: See—
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- Hansen, Michael R.; and Young, Richard H., Sr., to Weyerhaeuser Company. Particle binders. 5,672,418, Cl. 428-283.000.
- Hansen, Peder M., to United States of America, Navy. Rosette-shaped monopole antenna top-load for increased antenna voltage and power capability. 5,673,055, Cl. 343-752.000.
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- Hardee, Kenneth L.; Ernes, Lynne M.; and Carlson, Richard C., to Eltech Systems Corporation. Electrodes of improved service life. 5,672,394, Cl. 427-453.000.

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- Harosi, Ferenc I., to Marine Biological Laboratory. Self-operable tonometer for measuring intraocular pressure of a patient's eye. 5,671,737, Cl. 128-645.000.
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- Harris, J. Milton; and Kozlowski, Antoni, to Shearwater Polymers, Inc. Poly(ethylene glycol) and related polymers monosubstituted with propionic or butanoic acids and functional derivatives thereof for biotechnical applications. 5,672,662, Cl. 525-408.000.
- Harris, Paul J.; and December, Timothy S., to BASF Corporation. Cathodic electrocoat compositions containing self-crosslinking polymers. 5,672,432, Cl. 428-425.800.
- Harris, Randall L., to Riverwood International Corporation. Wrap-around carrier panel lock and article retainer. 5,671,845, Cl. 206-434.000.
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- Hartmann, Werner; Mangold, Helmut; and Kerner, Dieter, to Degussa Aktiengesellschaft. Flame-hydrolytically produced titanium dioxide mixed oxide method of its production and its use. 5,672,330, Cl. 423-610.000.
- Hartzell, Michelle L.: See—
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- Hartzell, Dennis E.: See—
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- Harvick, Rory Dean: See—
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- Hashimoto, Masashi, to Texas Instruments Incorporated. Apparatus and method for reducing leakage current in a dynamic random access memory. 5,673,219, Cl. 365-149.000.
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- Hasseberg, Hans-Albrecht; Huthmacher, Klaus; Rautenberg, Stephan; Petsch, Heinrich; and Weigel, Horst, to Degussa Aktiengesellschaft. Method for the continuous preparation of methionine or methionine derivatives. 5,672,745, Cl. 562-559.000.
- Hassebroek, Gary M.: See—
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- Hastings, Robert J.: See—
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- Hatagishi, Yuji: See—
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- Hatsuda, Tsuguyasu: See—
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- Hatsutori, Masao; and Nishida, Masaharu, to West Electric Co., Ltd. Cold cathode fluorescent discharge tube. 5,672,936, Cl. 313-491.000.
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- Henn, Uwe, to Dr. Ing. h.c.F. Porsche, Convertible passenger car, 5,671,947, Cl. 280-756,000.
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- Hershberger, Charles L.: See—
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- Childers, Winthrop D.; and Scheffelin, Joseph E., 5,673,073, Cl. 347-86,000.
- Connor, Brian G., 5,671,747, Cl. 128-662,060.
- Diehl, Michael R., 5,673,379, Cl. 395-141,000.
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- Schwiebert, Matthew K.; Campbell, Donald T.; Heydinger, Matthew; Kraft, Robert E.; and Vander Plas, Hubert A., 5,672,542, Cl. 437-183,000.
- Ziegler, Jochen; and Steiner, Rolf, 5,673,348, Cl. 385-90,000.
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- Hibino, Yoshitaka: See—
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- Hickerson, Lester Brooks: See—
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- Hicok, Gary Dwayne; Alexander, Thomas; Lim, Yong Je; and Kim, Yongmin, to VLSI Technology, Inc. Self-defining instruction size, 5,673,409, Cl. 395-381,000.
- Higa, Ryuji: See—
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- Higashi, Akihiro: See—
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- Higgins, Irving John: See—
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- Higgins, Marty F.: See—
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- Higgins, Roger G.: See—
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- Hikichi, Takehito: See—
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- Hill, Gary Ray: See—
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- Himelick, James Max: See—
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- Hino, Takashi: See—
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- Hino, Yoshiaki: See—
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- Hiraga, Mikitoshi: See—
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- Hirai, Katsuaki: See—
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- Hirakawa, Hideki, to Kabushiki Kaisha Toshiba, Information collection system connected to a communication network, 5,673,428, Cl. 395-605,000.
- Hirakawa, Kazuyoshi: See—
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- Hirama, Makoto: See—
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- Hirama RIKKA Kenkyujo Ltd.: See—
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- Hiramatsu, Soichi; Suzuki, Tetsuo; Taniguro, Masahiro; Saito, Hiroyuki; Yanagi, Haruyuki; Nojima, Takashi; Saikawa, Satoshi; Kinoshita, Hiroyuki; and Kawakami, Hideaki, to Canon Kabushiki Kaisha, Sheet supplying apparatus, 5,672,019, Cl. 400-624,000.
- Hirao, Mitsuru: See—
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- Hirao, Takashi: See—
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- Hirata, Mitsunori: See—
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- Hirayama, Tomohito, to Sony Corporation, Portable information processing apparatus having simplified page selection, 5,673,406, Cl. 395-350,000.
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- Hiro Art Directions, Inc.: See—
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- Hirose Electric Co., Ltd.: See—
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- Hirose, Hisataka: See—
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- Hirosuru, Hideki: See—
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- Hisada, Yukio; Otake, Hiromi; Ike, Tadashi; and Sugiyama, Motohiro, to Yazaki Industrial Chemical Co., Ltd. Automatic guide method for vehicles, 5,672,947, Cl. 318-587,000.
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- Scarpa, Carl G.; Koslov, Joshua L.; and Lane, Frank A., 5,673,293, Cl. 375-321,000.
- Hitachi, Ltd.: See—
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- Hiraguchi, Naohisa, 5,673,264, Cl. 370-397,000.
- Hori, Youichi, 5,673,375, Cl. 395-126,000.
- Ishida, Fumiaki; Fujio, Masayuki; Ashihara, Hiromoto; and Moritake, Takeshi, 5,672,052, Cl. 417-312,000.
- Izumi, Akiya; Takemoto, Iwao; Sokei, Hiroichi; Kadowaki, Masahiko; Naito, Takamasa; Kojima, Hiroyoshi; Iguchi, Atsumu; Yokoyama, Masaaki; Nakajima, Junichiro; Takahashi, Masayuki; and Niwa, Kunio, 5,673,083, Cl. 348-340,000.
- Kamo, Yoshihisa; Kakuta, Hitoshi; Tanaka, Atsushi; and Seo, Yosuke, 5,673,412, Cl. 395-441,000.
- Kato, Masataka; Adachi, Tetsuo; Kume, Hitoshi; and Shukuri, Shoji, 5,672,529, Cl. 437-43,000.
- Sakibara, Toru; Kuwana, Toshiyuki; and Fujita, Ryo, 5,673,374, Cl. 395-126,000.
- Suzuki, Hideo; Takahashi, Ken; Takahashi, Yukio; Yamamoto, Yoshimi; Aoki, Kenichi; and Tobita, Tomoyuki, 5,672,826, Cl. 73-754,000.
- Takeda, Hiroshi, 5,673,398, Cl. 395-285,000.
- Uragami, Akira; and Kojima, Shinichi, 5,673,058, Cl. 345-3,000.
- Watanabe, Atsuo; Ikeda, Takahide; Tsukada, Kiyoshi; Hirao, Mitsuru; Mukai, Touji; and Kamei, Tatsuya, 5,672,897, Cl. 257-370,000.
- Yamaguchi, Junichi; Ohsuga, Minoru; and Komuro, Ryoichi, 5,671,713, Cl. 123-308,000.
- Yamamoto, Hideaki; Matsumaru, Haruo; Tanaka, Yasuo; Tsutsui, Ken; Tsukada, Toshihisa; Shirahashi, Kazuo; Sasano, Akira; and Matsukawa, Yuka, 5,672,523, Cl. 437-40,000.
- Hiti, Louis: See—
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- Hoare, Anthony Robert, to David S. Smith (Packaging) Limited, Inserts for containers, 5,671,871, Cl. 222-105,000.
- Hobson, Simon Wain: See—
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- Höcherl, Johann, to Bayern-Chemie Gesellschaft für Flugchemische Antriebe GmbH, Solid-propellant rocket engine with inner and outer burner surfaces, 5,671,599, Cl. 60-234,000.
- Hodge, Richard; Halliday, William S.; Daves, Thomas; and Carter, Thomas, to Baker Hughes Incorporated, Composition and method for relief of differential sticking during drilling, 5,671,810, Cl. 166-301,000.
- Hodogaya Chemical Co., Ltd.: See—
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- Bickel, Martin; Brocks, Dietrich; Burghard, Harald; Günzler, Volkmar; Henke, Stephan; Hanauske-Abel, Hartmut; Mohr, Jürgen; and Tschank, Georg, 5,672,614, Cl. 514-454,000.
- Schumacher, Christian; Meier, Michael; and Russ, Werner Hubert, 5,672,738, Cl. 562-45,000.
- Winter, Andreas; Antberg, Martin; Bachmann, Bernd; Dolle, Volker; Kübler, Frank; Rohrmann, Jürgen; and Spaleck, Walter, 5,672,668, Cl. 526-127,000.
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- Hoffman, Ronald: See—
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- Holweg, Friedrich: See—
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Ryan, Ronald D.; Marquart, Ronald G.; and Millwood, Timothy S., 5,673,402, Cl. 395-238.000.
- Homma, Kenji; and Nishi, Hironobu, to Tokyo Electron Tokoku Kabushiki Kaisha. Heat treatment apparatus and valve device for use in the same. 5,671,903, Cl. 251-69.000.
- Hommeltoft, Sven Ivar; and Ekelund, Ole, to Haldor Topsøe A/S. Process for the hydrolysis of fluorinated sulphonyl fluorides. 5,672,741, Cl. 562-113.000.
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- Hon, Edward H. Method for the diagnosis of preterm birth. 5,671,749, Cl. 128-670.000.
- Hon Hai Precision Ind. Co., Ltd.: See—
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Matsumoto, Yasushi; Sugai, Takashi; and Yanagisawa, Shigeru, 5,671,705, Cl. 123-90.110.
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- Garner, Robin E., 5,673,182, Cl. 361-829.000.
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- Honma, Masayuki: See—
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- Hoogovens Staal, B.V.: See—
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- Hooper, Alan; Collins, Les; Reckzin, Earl; Richard, Andrew; Kelly, Mark; Palangio, Tom; and Simpson, Grant, to ETI Explosives Technologies (Canada) Ltd. Method and apparatus for controlled refining of explosive compositions. 5,672,839, Cl. 86-20.150.
- Hoopman, Timothy L., to Minnesota Mining and Manufacturing Company. Abrasive article for finishing. 5,672,097, Cl. 451-526.000.
- Hoover & Strong, Incorporated: See—
Hoover, Torrance D.; Klotz, Frederick Walter; and Stickley, Stephen D., 5,671,613, Cl. 63-27.000.
- Hoover, Todd: See—
Susko, Thomas J.; St. Clair, Paul M.; and Hoover, Todd, 5,671,948, Cl. 280-801.100.
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- Hopkins, Dean A., Jr. Electrochemical actuator and method of making same. 5,671,905, Cl. 251-129.010.
- Hopwood, David A.: See—
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- Hordesky, Laura: See—
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- Hori, Takashi: See—
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- Horiba, Ltd.: See—
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- Horiba, Tamotsu: See—
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- Horie, Syoji: See—
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- Horie, Wataru; Okamoto, Masayuki; Yamahara, Motohiro; Shiomi, Makoto; Yamada, Nobuaki; and Kozaki, Shuichi, to Sharp Kabushiki Kaisha. Liquid crystal device and method for fabricating the same. 5,673,092, Cl. 349-86.000.
- Horigome, Hideo: See—
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- Horiguchi, Masanobu, to Unisia Jecs Corporation. Drive force controller for an automatic transmission. 5,672,139, Cl. 477-120.000.
- Hortii, Youichi, to Hitachi, Ltd. Method for three-dimensionally drawing figure on display plane. 5,673,375, Cl. 395-126.000.
- Horn, Peter; Jung, Ludwig; Larbig, Harald; Lebkücher, Rolf; and Lehr, Gerhard, to BASF Aktiengesellschaft. Production of low-fogging polyurethane foams, and specific poly-oxyalkylene-polyols which can be used for this purpose. 5,672,636, Cl. 521-167.000.
- Horne, Richard Louis: See—
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- Horres, C. Russell, Jr.: See—
Athayde, Amulya L.; Faste, Rolf A.; Horres, C. Russell, Jr.; and Low, Thomas P., 5,672,167, Cl. 604-892.100.
- Horsford, Kibby Barth: See—
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- Hosokawa, Kyoichi: See—
Arai, Hideo; Owashi, Hitoaki; Hosokawa, Kyoichi; Nishimura, Keizo; Watatani, Yoshizumi; and Shibata, Akira, 5,673,154, Cl. 360-8.000.
- Hossard, Michel: See—
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- Hostler, John C.: See—
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- Hotary, Charles M.: See—
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- Hou, Jui-Hua. Steering wheel lock. 5,671,619, Cl. 70-209.000.

- Haupt, Ronald A.: See—
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- Houston Digital Instruments, Inc.: See—
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- Hovey, Richard Reid: See—
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- Howers, Richard W.: See—
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- Hozumi, Shigeo; Kitayama, Shinichiro; and Nakagawa, Hiroya, to Sumitomo Chemical Company, Limited. Polyfunctional vinyl ether compound and photoresist resin composition containing the same. 5,672,463, Cl. 430-281.100.
- Hsia, Liang-Choo; and Chang, Thomas, to Mosel Vitelic, Inc. Antireflection coating for highly reflective photolithographic layers comprising chromium oxide or chromium suboxide. 5,672,243, Cl. 156-659.110.
- Hsieh, Jung-Chie: See—
Wong, Chen-Sheng; Hsieh, Jung-Chie; Chien, Shen-Yuan; and Lin, Shern, 5,673,239, Cl. 368-238.000.
- Hsieh, Chang Fa. Moire control of a color display device. 5,672,939, Cl. 315-1.000.
- Hsu, Fu-Yu. IC card assembly. 5,673,181, Cl. 361-760.000.
- Hsu, Ming-ta S.: See—
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- Hsu, Peyson, to Ching Feng Blinds Co., Ltd. Collapsible laundry container structure. 5,671,858, Cl. 220-9.200.
- Hsu, Robert Y. Cooking fume purifier. 5,671,726, Cl. 126-299.00D.
- Hsu, Sheng Teng, to Sharp Microelectronics Technology, Inc.; and Sharp Kabushiki Kaisha. Method of making MOS transistor with controlled shallow source/drain junction. 5,672,530, Cl. 437-44.000.
- Hsu, Steve I.: See—
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- Hsu, Yun-Tung. Lock assembly with a curved keyway and a flexible key for actuation thereof. 5,671,623, Cl. 70-375.000.
- Hsue, Chen Chiu; and Hong, Gary, to United Microelectronics Corporation. Method of forming bit lines having lower conductivity in their respective edges. 5,672,532, Cl. 437-48.000.
- Hu, Lain-Yen: See—
Goldin, Stanley M.; Katragadda, Subbarao; Hu, Lain-Yen; Reddy, N. Lakma; Fischer, James B.; Knapp, Andrew Gannett; and Margolin, Lee David, 5,672,608, Cl. 514-313.000.
- Huai, Reijane; Daly, Robert; Curti, Walter; Mohan, Deepak; Chueh, James Kuang-Ru; and Louie, Larry, to Cheyenne Software International Sales Corp. System and parallel streaming and data stripping to back-up a network. 5,673,381, Cl. 395-180.000.
- Huang, Ben. Grip for golf shafts. 5,671,923, Cl. 273-301.000.
- Huang, Chieh-Lin: See—
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- Huang, Dennis. Locator paging system with sub kits. 5,673,035, Cl. 340-825.440.
- Huang, Heng-Sheng, to United Microelectronics Corporation. Process for fabricating capacitor cells in dynamic random access memory (DRAM) chips. 5,672,534, Cl. 437-52.000.
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- Hub, Serge: See—
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- Hubbell Incorporated: See—
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- Huber, Moti: See—
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- Hughes Electronic: See—
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- Gentry, Roy M., 5,673,199, Cl. 364-490.000.
- Messina, Peter V., 5,672,866, Cl. 250-252.10A.
- Nussbaum, Howard S.; Posey, William P.; Hsu, Steve I.; and Taylor, Stephen D., 5,673,051, Cl. 342-202.000.
- Ramanujam, Parthasarathy; Ha, Eng-Chong; and Bockrath, Thomas A., 5,673,056, Cl. 343-756.000.
- Reinhardt, Victor S., 5,673,006, Cl. 331-3.000.
- Wu, Yeong-Wei A.; Hartman, David F.; and Youhanaie, Mark, 5,672,872, Cl. 250-330.000.
- Hughes, William M.: See—
Toland, Brent T.; Hughes, William M.; and Johnson, Dan R., 5,673,057, Cl. 343-761.000.
- Hulme, Edward M. Slant-board exercising device. 5,672,144, Cl. 482-140.000.
- Hum, Chris: See—
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- Hung, Patrick, to Patrick Plastics Inc. Method and apparatus for calibrating a gas detector sensor. 5,672,806, Cl. 73-1.00G.
- Hunt, Grover C., Jr., to Hunts' Serendipity, Inc. Balance beam automatically adjusting torques translator (stepless variable transmission). 5,672,136, Cl. 475-255.000.
- Hunter Energy Technologies Inc.: See—
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- Hunter, Louis G., Jr., to Lockheed Corporation. Pulse detonation device for coal gasification. 5,672,184, Cl. 48-77.000.
- Hunter, Robert M.; Stewart, Frank M.; and Darsow, Tamara, to Yellowstone Environmental Science, Inc. Method and apparatus for extracting precious metals from their ores and the product thereof. 5,672,194, Cl. 75-712.000.
- Huntley, Robert I., to Paccar Inc. Extruded license plate mounting bracket for multiple license plates. 5,671,556, Cl. 40-200.000.
- Hunts' Serendipity, Inc.: See—
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- Huntzberry, Gordon D.: See—
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- Hur, Han-Sun: See—
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- Hurley, Gregory M.; and Whalen, Kevin, to Manchester Plastics, Inc. Automotive console writing table. 5,671,686, Cl. 108-45.000.
- Hutchison, Richard M.: See—
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- Huthmacher, Klaus: See—
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- Hüthwohl, Georg: See—
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- Huybrechts, Diane Renata Cornelia: See—
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- Hwang, Nam: See—
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- Hwang, William B.: See—
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- Hyundai Electronics America: See—
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- Lee, Steven S.; and Miller, Gayle W., 5,672,905, Cl. 257-529.000.
- Iai, Kenichiro: See—
Maeda, Yoshimichi; Aoki, Toshio; Mikkaichi, Masafumi; and Iai, Kenichiro, 5,671,510, Cl. 24-408.000.
- Iavarone, Moise A. High pressure water sprayer. 5,671,887, Cl. 239-310.000.
- Ichihara, Takao: See—
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- Ichikawa, Hiroyuki: See—
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- Ichimura, Masaru, to NEC Corporation. Shock absorbing device for a magnetic disk drive. 5,673,158, Cl. 360-97.010.
- Ichimura, Yutaka: See—
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- Ichinose, Hiroki; Takeda, Keiso; Kojima, Susumu; and Sadakane, Shinji, to Toyota Jidosha Kabushiki Kaisha. Engine. 5,671,708, Cl. 123-184.540.
- ICI Americas Inc.: See—
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- Icon Health & Fitness, Inc.: See—
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- Idemitsu Kosan Co., Ltd.: See—
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- Iguchi, Atsumu: See—

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Iguchi, Kazuhiko: See—
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Ihama, Mikio: See—
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Ihara, Tomohiko: See—
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Iida, Hisashi: See—
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Iida, Takashi; Sumi, Satoru; Shimizu, Hiroshi; Tahara, Akinori; Amano, Isao; and Nakajima, Tetsuya, to Fujitsu, Ltd. Semiconductor integrated circuit with protection circuit against electrostatic breakdown and layout design method therefor, 5,672,895, Cl. 257-357,000.

Iijima, Masayuki: See—
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Yamashita, Shugo; Okino, Toshiyuki; Iinuma, Toshiya; Maenaka, Akihiro; Murata, Haruhiko; and Mori, Yukio, 5,673,081, Cl. 348-42,000.

Iiyama, Michitomo: See—
Nakamura, Takao; Inada, Hiroshi; and Iiyama, Michitomo, 5,672,569, Cl. 505-330,000.

Iizuka, Toshimi: See—
Ohara, Toru; Fujiwara, Akihiro; Notagashira, Hidefumi; Iizuka, Toshimi; Tamekuni, Yasuhiro; Kino, Yoshiaki; Morofuji, Tsuyoshi; Azusawa, Katsumi; and Sato, Hidekage, 5,672,862, Cl. 250-204,000.

Ike, Tadashi: See—
Hisada, Yukio; Otake, Hiromi; Ike, Tadashi; and Sugiyama, Motohiro, 5,672,947, Cl. 318-587,000.

Ikeda, Matsuri: See—
Okihara, Naoto; Kojima, Katsuo; Morimoto, Masayuki; Ikeda, Matsuri; and Tanioka, Naohiro, 5,673,011, Cl. 335-78,000.

Ikeda, Takahide: See—
Watanabe, Atsuo; Ikeda, Takahide; Tsukuda, Kiyoshi; Hirao, Mitsuru; Mukai, Touji; and Kamei, Tatsuya, 5,672,897, Cl. 257-370,000.

Ikeda, Takeshi: See—
Tomogami, Shin; Takaki, Masuo; Fukumura, Yoshikazu; Ikeda, Takeshi; and Terada, Kenji, 5,672,113, Cl. 464-175,000.

Ikeda, Tetsuhito: See—
Nakanishi, Hideki; Arakawa, Junichi; Horigome, Hideo; Kaneko, Yui-chi; Ikeda, Tetsuhito; and Kuribayashi, Akira, 5,673,070, Cl. 347-19,000.

ILC Technology, Inc.: See—
Kiss, John; and Roberts, Roy D., 5,672,931, Cl. 313-44,000.

Illinois Tool Works Inc.: See—
Corrigan, Don J.; Reynolds, Jon O., and Hutchison, Richard M., 5,672,963, Cl. 323-339,000.

Malin, Art, 5,672,009, Cl. 383-204,000.

White, James B., 5,672,269, Cl. 210-130,000.

Image Optical Corporation: See—
Soll, David B.; and Feinbloom, Richard Evans, 5,673,153, Cl. 359-846,000.

Imai, Akihiro: See—
Shimada, Tomoyuki; Sasaki, Masaomi; Aruga, Tamotsu; Ohta, Masa-fumi; Anzai, Mitsutoshi; and Imai, Akihiro, 5,672,756, Cl. 564-426,000.

Imai, Takashi: See—
Yanagida, Kazuhiko; Yoshino, Susumu; Imai, Takashi; Takahashi, Koichi; and Kim, Suk, 5,672,455, Cl. 440-108,000.

Imai, Tamotsu: See—
Vora, Bipin V.; Imai, Tamotsu; and Pujado, Peter R., 5,672,795, Cl. 585-332,000.

Imaizumi, Hiroaki, to HiroArt Directions, Inc. Idea processor, 5,673,217, Cl. 365-49,000.

Imamura, Kazuhiko: See—
Okamoto, Kenji; Nakajima, Yukio; Imamura, Kazuhiko; and Ichihara, Takao, 5,672,414, Cl. 428-209,000.

Imamura, Masao; and Hayasi, Satoshi, to Tubame Musen Inc. Sliding type variable resistor, 5,673,015, Cl. 338-176,000.

Imamura, Saburo: See—
Amano, Michiyuki; Watanabe, Toshio; Usui, Mitsuo; Sugawara, Shungo; Hayashida, Shoichi; and Imamura, Saburo, 5,672,672, Cl. 528-16,000.

Imaoka, Atsushi; and Kihara, Masami, to Nippon Telegraph and Telephone Corporation. Phase synchronization system, 5,673,133, Cl. 359-189,000.

ImmunoGen, Inc.: See—
Chittenden, Thomas D., 5,672,686, Cl. 530-387,900.

IMO Industries, Inc.: See—
Schmidt, Edward A., Jr., 5,672,004, Cl. 362-421,000.

Imperial Chemical Industries PLC: See—
Boniface, David William; Scott, John David; and Watson, Michael John, 5,672,786, Cl. 570-165,000.

IMS Ionen Mikrofabrikations Systeme GmbH: See—
Löschner, Hans; Shi, Feng; and Rangelow, Ivaylo W., 5,672,449, Cl. 430-5,000.

Ina Walzinger Schaeffler KG: See—
Eder, Jean Marie; Holweg, Friedrich; and Greiner, Heinz, 5,672,011, Cl. 384-45,000.

Inaba, Hiroo; and Ejiri, Kiyomi, to Fujii Photo Film Co., Ltd. Magnetic recording medium having an underlayer containing three different powders, 5,672,423, Cl. 428-323,000.

Inaba, Koji: See—
Kanbayashi, Makoto; Kasuya, Takashige; Nakamura, Tatsuya; Chiba, Tatsuhiro; and Inaba, Koji, 5,672,452, Cl. 430-47,000.

Inaba, Shigemitsu; and Katoh, Hisaharu, to Yazaki Corporation. Shielded connector, 5,672,076, Cl. 439-610,000.

Inada, Hiroshi: See—
Nakamura, Takao; Inada, Hiroshi; and Iiyama, Michitomo, 5,672,569, Cl. 505-330,000.

Inao, Takeshi: See—
Tokunaga, Yuichiro; and Inao, Takeshi, 5,671,632, Cl. 72-275,000.

Indian Head Industries: See—
Plantan, Ronald S., 5,671,654, Cl. 92-63,000.

Indiana University Foundation: See—
Srou, Edward; Zanjani, Esmail; Brandt, John E.; and Hoffman, Ronald, 5,672,346, Cl. 424-93,700.

Indresco Canada, Inc.: See—
Bennett, George W.; Leduc, Maxime; St-Hilaire, Jean-Guy; and Garceau, Christian, 5,672,327, Cl. 423-448,000.

Industrial Technology Research Institute: See—
Jeng, Jian Dli; and Wang, Hsing Seng, 5,672,547, Cl. 437-209,000.

Wong, Chen-Sheng; Hsieh, Jung-Chie; Chien, Shen-Yuan; and Lin, Shen, 5,673,239, Cl. 368-238,000.

Infrasonics, Inc.: See—
Kelly, Edmund F., 5,671,767, Cl. 137-7,000.

Ingram, Anthony Paul: See—
Charlton, Richard Gordon; Correia, George Charles; Couture, Mark Andrew; Hill, Gary Ray; Horsford, Kibby Barth; Ingraham, Anthony Paul; Lowell, Michael David; Markovich, Voya Rista; Osborne, Gordon Charles, Jr.; and Pierson, Mark Vincent, 5,672,980, Cl. 324-755,000.

Inizan, Gérard François: See—
Champenois, Christophe Jean Roger; David, Laurent Jean Pierre; and Inizan, Gérard François, 5,672,417, Cl. 428-257,000.

Innocenzi, Mark E.: See—
Rossi, John H.; Innocenzi, Mark E.; Goodfriend, Steven L.; and Lowe, Douglas E., 5,672,820, Cl. 73-178,000.

Ino, Tsuneyori: See—
Jinbo, Masaki; Furukawa, Tsuyoshi; Kaneko, Hisashi; Sugimoto, Masaharu; Ino, Tsuneyori; Fukuzawa, Shinichi; and Ishida, Katsuaki, 5,673,159, Cl. 360-98,010.

Inomata, Katsumi; Akiyama, Masahiro; Ota, Toshiyuki; and Tsuji, Akira, to Japan Synthetic Rubber Co., Ltd. Radiation sensitive resin composition containing quinone diazide ester having two hindered phenol groups, 5,672,459, Cl. 430-191,000.

Inoue, Hiroto: See—
Yokota, Yasuo; Iwata, Yukihiro; Fusayasu, Hirotosugu; Inoue, Hiroto; Ishizuka, Atsufumi; and Okada, Yukihiro, 5,673,152, Cl. 359-813,000.

Inoue, Kazushige, to General Electric Co. Light resistant polyphenylene ether resin compositions, 5,672,644, Cl. 524-99,000.

Inoue, Kimio: See—
Fukui, Tsugushi; Inoue, Kimio; Kuroda, Yoshinori; Ueda, Hiroshi; and Kashiwa, Masahiko, 5,672,005, Cl. 366-75,000.

Inoue, Masatsugu: See—
Ohama, Shinji; Shimizu, Norio; Murai, Takashi; Saotome, Ichiro; Inoue, Masatsugu; and Fukuda, Kumio, 5,672,934, Cl. 313-402,000.

Inoue, Nozomu; Hama, Takashi; Nomura, Yujiro; and Takada, Kyu, to Seiko Epson Corporation. Optical scanner, 5,673,136, Cl. 359-205,000.

Inoue, Soichi; Tanaka, Satoshi; and Fujisawa, Tadahito, to Kabushiki Kaisha Toshiba. Exposure apparatus and method, 5,673,103, Cl. 355-71,000.

Inoue, Tomohiko: See—
Mori, Tomoyuki; Takai, Masaki; and Inoue, Tomohiko, 5,672,766, Cl. 568-454,000.

Inoue, Tsuyoshi: See—
Kimura, Akira; Inoue, Tsuyoshi; Abe, Naruhiko; and Watanabe, Tadashi, 5,672,040, Cl. 414-403,000.

Inoue, Yoshitsugu: See—
Kawai, Hiroyuki; Inoue, Yoshitsugu; and Nakamura, Hisashi, 5,673,422, Cl. 395-519,000.

Institut Français Du Pétrole: See—
Didillon, Blaise, 5,672,801, Cl. 585-660,000.

Integrated Device Technology, Inc.: See—
Jen, Jang, 5,672,242, Cl. 156-662,100.

Integrated Network Corporation: See—
Gupta, Dev Vrat; Chen, Yu-Ren Brian; Sharper, Craig A.; and Stone, Alan E., 5,673,265, Cl. 370-432,000.

Intel Corporation: See—
Brown, Gary L.; Carbine, Adrian L.; and Parker, Donald D., 5,673,427, Cl. 395-595,000.

DeLeeuw, William C., 5,673,065, Cl. 345-153,000.

Marshall, Robert Alexander; Lantz, Philip R.; and Johnson, David B., 5,673,393, Cl. 395-200,040.

Morimoto, Seiichi; and Andideh, Ebrahim, 5,672,095, Cl. 451-41,000.

Murthy, Raghu; and Tetric, Scott, 5,673,388, Cl. 395-183,180.

Shield, David J., 5,672,997, Cl. 327-538,000.

InterClean Equipment, Inc.: See—

Kaipainen, Pasi, 5,671,761, Cl. 134-57,00R.

InterDigital Technology Corporation: See—
Lomp, Gary R., 5,673,286, Cl. 375-208,000.

Intermetals Co., Ltd.: See—
Sagawa, Masato; Nagata, Hiroshi; and Shirai, Hiroo, 5,672,363, Cl. 425-3,000.

International Business Machine Corporation: See—
Pricer, W. David, 5,673,005, Cl. 331-1,00R.

International Business Machines Corporation: See—
Abernathy, John Robert; Mann, Randy William; Parries, Paul Christian; and Springer, Julie Anne, 5,672,901, Cl. 257-413,000.

Amini, Nader; Boury, Bechara Fouad; Brannon, Sherwood; and Horne, Richard Louis, 5,673,414, Cl. 395-473,000.

Au, Wai-Ming William; Nowak, Edward Joseph; and Tong, Minh Ho, 5,672,994, Cl. 327-525,000.

Auerbach, Joshua Seth; Chow, Chee-Seng; Kaplan, Marc Adam; and Criegler, Jeffrey Charles, 5,673,316, Cl. 380-4,000.

Basso, Claude; Damon, Philippe; and Schmitt, Jean-Bernard, 5,673,263, Cl. 370-396,000.

Bellare, Mihir; Guerin, Roch Andre; and Rogaway, Phillip Walder, 5,673,318, Cl. 380-23,000.

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Brodsky, William Louis; Kehley, Glenn Lee; and Sathe, Sanjeev Balwant, 5,673,177, Cl. 361-704,000.

Brown, Michael Wilfrid; Hickerson, Lester Brooks; Powell, Colin Victor; Tims, William Chapel; Tycast, Robert Leonard; and Verburg, Richard Lee, 5,673,403, Cl. 395-335,000.

Burns, Francis Charles; Fleming, William Weathers; Lee, Victor Yee-Way; and Snyder, Randy William, 5,672,760, Cl. 564-440,000.

Cannon, David Maxwell; and Kaczmarek, Michael Allen, 5,673,382, Cl. 395-182,040.

Carbone, Quiedo Joseph, Jr.; Miracle, Gerald Holt; and Potvin, Peter Lloyd, 5,673,132, Cl. 359-177,000.

Carey, Charles Francis; Fallon, Kenneth Michael; Markovich, Voya Rista; Powell, Douglas Oliver; Vlasak, Gary Paul; and Zarr, Richard Stuart, 5,672,260, Cl. 205-118,000.

Carl, Daniel A.; Kenney, Donald M.; Mlynko, Walter E.; and Van Nguyen, Son, 5,672,537, Cl. 437-67,000.

Cesar, Christian Lenz; Chan, Shun Shing; Cofino, Thomas Anthony; Goldman, Kenneth Alan; Greene, Sharon L.; Heinrich, Harley Kent; and McAuliffe, Kevin Patrick, 5,673,037, Cl. 340-825,540.

Charlton, Richard Gordon; Correia, George Charles; Couture, Mark Andrew; Hill, Gary Ray; Horsford, Kibby Barth; Ingraham, Anthony Paul; Lowell, Michael David; Markovich, Voya Rista; Osborne, Gordon Charles, Jr.; and Pierson, Mark Vincent, 5,672,980, Cl. 324-755,000.

Chastang, Jean-Claude Andre; Kintley, Kathryn Barr; and Rosenbluth, Alan Edward, 5,673,144, Cl. 359-585,000.

Culnane, Thomas Moran; Gaynes, Michael Anthony; Seto, Ping Kwong; and Shaikatullah, Hussain, 5,672,548, Cl. 437-209,000.

Deshpande, Sanjay Raghunath; and Kaiser, John Michael, 5,673,413, Cl. 395-468,000.

Edgar, Albert Durr; and Kasson, James Matthews, 5,673,336, Cl. 382-167,000.

Guthrie, Guy Lynn; Neal, Danny Marvin; Silha, Edward John; and Thurber, Steven Mark, 5,673,399, Cl. 395-308,000.

Heiney, Ronald L.; Duvall, Keith E.; Stuart, Anthony F.; Bugg, Claude A.; Felderman, Gregory S.; and Scott, Steven M., 5,673,209, Cl. 364-715,020.

Jones, Ronald Henry, Jr., 5,673,206, Cl. 364-514,00R.

Kelley, Edward E.; Dauerer, Norman J.; Motika, Franco; and Ahsan, Aziz M., 5,673,216, Cl. 364-771,000.

Kim, Michelle Yoonkyung, 5,673,369, Cl. 395-75,000.

Lyerly, Jeffrey B.; Miller, Frederick C.; and Robinson, Carl W., 5,672,015, Cl. 400-58,000.

Malm, Richard LaVerne; and Meiley, Charles L., 5,673,201, Cl. 364-491,000.

Mueller, Steven Hol, 5,673,390, Cl. 395-185,100.

Ogura, Seiki; Rovedo, Nivo; and Wong, Robert C., 5,672,892, Cl. 257-314,000.

Thoma, Nandor Gyorgy; and Nguyen, Trong Duc, 5,672,991, Cl. 327-239,000.

Tsay, Albert Suan-Wei, 5,673,215, Cl. 364-767,000.

Webb, Charles Franklin; Farrell, Mark Steven; and Swaney, Scott Barnett, 5,673,391, Cl. 395-182,180.

Wolf, Timothy J., 5,673,315, Cl. 380-4,000.

International Rectifier Corporation: See—
Nadd, Bruno C., 5,672,992, Cl. 327-390,000.

Inui, Mitsuru: See—
Nozaki, Mikiya; Karaki, Mitsuhiro; Inui, Mitsuru; Futamura, Takehito; and Saitoh, Akira, 5,671,797, Cl. 164-120,000.

Inventec Corporation: See—
Liao, Thomas, 5,673,417, Cl. 395-488,000.

Iowa State University Research Foundation, Inc.: See—
Verkade, John; and Tang, Jianseng, 5,672,717, Cl. 548-518,000.

Ireton, Mark A., to Advanced Micro Devices, Inc. System and method for performing predictive scaling in computing LPC speech coding coefficients, 5,673,361, Cl. 395-2,280.

Irvine, Gerald O.; Miller, Bobby L., Jr.; and Sundquist, Matthew V., to Riverwood International Corporation. Tape perforating head assembly and method, 5,671,589, Cl. 53-412,000.

Ish, A. Buell, III, to Vectra Fitness, Inc. Exercise station for leg exercises, 5,672,143, Cl. 482-99,000.

Ishibashi, Yutaka: See—
Hamamoto, Takeshi; Yamada, Takashi; and Ishibashi, Yutaka, 5,672,891, Cl. 257-301,000.

Ishida, Fumiaki; Fojio, Masayuki; Ashihara, Hiromoto; and Moritake, Takeshi, to Hitachi, Ltd. Blower muffling apparatus, 5,672,052, Cl. 417-312,000.

Ishida, Katsuaki: See—
Jinbo, Masaki; Furukawa, Tsuyoshi; Kaneko, Hisashi; Sugimoto, Masaharu; Ino, Tsuneyori; Fukuzawa, Shinichi; and Ishida, Katsuaki, 5,673,159, Cl. 360-98,010.

Ishida, Masahiko: See—
Fuji, Hiroshi; Fukushima, Ryosuke; Tsutsui, Tatsuhide; Ishida, Masahiko; and Takada, Shuzi, 5,672,874, Cl. 250-343,000.

Ishida, Yoshinori: See—
Kohmura, Yukio; Ishida, Yoshinori; and Hibino, Takashi, 5,672,193, Cl. 65-484,000.

Ishihara, Nobuyoshi, to Citizen Watch Co., Ltd. Printing color display device for a printer, 5,673,372, Cl. 395-114,000.

Ishii, Haruo: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, 5,673,099, Cl. 354-199,000.

Ishii, Kiyoshi; and Ishikawa, Mizuo, to Kabushiki Kaisha Mold Gijutsu Kenkyusho; and Minebea Co., Ltd. Die assembly for molding a lead screw, 5,672,365, Cl. 425-127,000.

Ishii, Shigeru: See—
Adachi, Kazutaka; Ishii, Shigeru; and Sudo, Hideki, 5,672,137, Cl. 477-45,000.

Ishii, Takayuki: See—
Hatanaka, Katsunori; Saika, Toshihiro; Ishii, Takayuki; and Yamada, Katsuhiko, 5,672,902, Cl. 257-431,000.

Ishikawa, Hiromi: See—
Shimada, Katsumi; Ishikawa, Hiromi; Nishihata, Sumihiko; and Noguchi, Masaru, 5,673,137, Cl. 359-206,000.

Ishikawa, Hitoshi: See—
Amano, Kosuke; Ishikawa, Hitoshi; Kobayashi, Atsushi; and Satoh, Masaharu, 5,672,377, Cl. 427-80,000.

Ishikawa, Makoto: See—
Okuda, Sadanao; Ishikawa, Makoto; Kawabe, Takao; and Kawano, Masakazu, 5,671,669, Cl. 101-116,000.

Ishikawa, Mizuo: See—
Ishii, Kiyoshi; and Ishikawa, Mizuo, 5,672,365, Cl. 425-127,000.

Ishikawa, Shinji: See—
Saito, Masahide; Semura, Shigeru; Ishikawa, Shinji; Yui, Dai; and Kanamori, Hiroo, 5,673,345, Cl. 385-49,000.

Ishiwatari, Takao: See—
Iwasaki, Tomonori; Suzuki, Masaya; Furukawa, Takashi; Tsushima, Kazunori; Ishiwatari, Takao; and Tsuchiya, Toru, 5,672,779, Cl. 568-838,000.

Ishiyama, Nobuo; Koyama, Toshihiro; Hayashida, Mitsuo; Otsuka, Katsuyuki; Fujii, Masahiro; Kimura, Kunio; Hata, Yoshiyuki; and Miyao, Nobuko, to Kaken Pharmaceutical Co., Ltd. Acetamide derivative, 5,672,597, Cl. 514-210,000.

Ishizuka, Atsufumi: See—
Yokota, Yasuo; Iwata, Yukihiro; Fusayasu, Hirotosugu; Inoue, Hiroto; Ishizuka, Atsufumi; and Okada, Yukihiro, 5,673,152, Cl. 359-813,000.

ISIS Pharmaceuticals, Inc.: See—
Ecker, David J.; Wyatt, Jacqueline; Bruce, Thomas W.; Anderson, Kevin; Hanecak, Ronnie C.; Vickers, Timothy; and Davis, Peter, 5,672,472, Cl. 435-6,000.

Isogai, Emiko; Koike, Satoshi; Kimura, Teiyuu; Ando, Hiroshi; and Tatebayashi, Hiroyuki, to Nippondenso Co., Ltd. Multi-exposure system for hologram, 5,672,448, Cl. 430-1,000.

Isolyser Co., Inc.: See—
Smith, Hal P., 5,672,162, Cl. 604-319,000.

Isover Saint-Gobain: See—
Kummermehr, Hans; Bihi, Lothar; and Stoyke, Reinhard, 5,671,518, Cl. 28-112,000.

Isozaki, Takashi: See—
Okuda, Sadanao; Isozaki, Takashi; Higa, Ryuji; and Tojima, Takahito, 5,671,675, Cl. 101-424,200.

ISP Investments Inc.: See—
Narayanan, Kolazi S., 5,672,353, Cl. 424-409,000.

Tseng, Susan Y.; and Wolf, Philip F., 5,672,634, Cl. 521-53,000.

Ito, Hideo: See—
Minami, Katsunori; and Ito, Hideo, 5,672,549, Cl. 437-211,000.

Ito, Hideya; Morimoto, Shoji; Itoh, Junko; Yamada, Akira; Hattori, Atsushi; and Sakaiya, Hiroyuki, to Mitsubishi Denki Kabushiki Kaisha. Supporting members for a color selecting electrode assembly, 5,672,935, Cl. 313-406,000.

Ito, Kazuhiko: See—
Masaki, Norio; Tachibana, Tomoyuki; Shimizu, Hiroyuki; Ito, Kazuhiko; Matsuguchi, Akira; Sasa, Yoshikazu; and Furuya, Atsushi, 5,672,287, Cl. 219-145,220.

Itoh, Junko: See—
Ito, Hideya; Morimoto, Shoji; Itoh, Junko; Yamada, Akira; Hattori, Atsushi; and Sakaiya, Hiroyuki, 5,672,935, Cl. 313-406,000.

Itoh, Naoto: See—

Ohta, Minemasa; and Itoh, Naoto, 5,673,359, Cl. 386-125.000.
 Itoi, Hiromu, to Fuji Photo Optical Co., Ltd. Ultrasound endoscope having ultrasound probe in combination with endoscopic observation system. 5,671,748, Cl. 128-662.060.
 Ito, Syoji: See—
 Kurita, Masahiro; Ito, Syoji; and Okamoto, Yuji, 5,672,110, Cl. 464-37.000.
 Itozaki, Hideo: See—
 Moto, Akihiro; Nagaishi, Tatsuki; and Itozaki, Hideo, 5,672,210, Cl. 118-726.000.
 Itron, Inc.: See—
 Johnson, Dennis F.; Marcynuk, Don; and Holowick, Erwin, 5,673,252, Cl. 370-94.100.
 ITT Automotive Electrical Systems Inc.: See—
 Gokhale, Kalyan P.; and Mueller, Dennis L., 5,672,944, Cl. 318-254.000.
 ITT Automotive Europe GmbH: See—
 Wanke, Peter, 5,671,982, Cl. 303-146.000.
 ITT Corporation: See—
 Kemp, William Harry; and Shideler, Victor Joseph, 5,672,950, Cl. 318-801.000.
 Iverson, Brent L.: See—
 Sessler, Jonathan L.; Iverson, Brent L.; Král, Vladimir; Shreder, Kevin; Furuta, Hiroyuki; and Thomas, Richard E., 5,672,490, Cl. 435-91.100.
 Ivy, Donald: See—
 Smith, Rodney E.; and Ivy, Donald, 5,672,851, Cl. 177-225.000.
 Iwabuchi, Yoshiharu: See—
 Fujii, Ikuo; Iwabuchi, Yoshiharu; and Miyashita, Hideaki, 5,672,489, Cl. 435-72.000.
 Iwagami, Tooru: See—
 Majumdar, Gourab; Mori, Satoshi; Noda, Sukehisa; Iwagami, Tooru; Takagi, Yoshio; and Kawafuji, Hisashi, 5,672,910, Cl. 257-690.000.
 Iwai, Hideo: See—
 Aoyagi, Keitaro; Niibe, Sadao; Uemae, Toshitomi; Iwai, Hideo; and Oshima, Yoshitugu, 5,672,506, Cl. 435-289.100.
 Iwano, Shin'ichi; Nagase, Ryo; Kanayama, Kazunori; Sugita, Etsuji; and Ando, Yasuhiro, to Nippon Telegraph and Telephone Corporation. Optical jack for plug-jack optical connector. 5,673,346, Cl. 385-60.000.
 Iwasaki, Tomonori; Suzuki, Masaya; Furukawa, Takashi; Tsushima, Kazunori; Ishiwatari, Takao; and Tsuchiya, Toru, to Sumitomo Chemical Company, Limited. Ester compound, active agent for controlling noxious insect pests containing the same as active ingredient, intermediate for production of the ester compound and process for producing the intermediate. 5,672,779, Cl. 568-838.000.
 Iwashita, Hiroaki, to Fujitsu Limited. System for automatic generating instruction string to verify pipeline operations of a processor by inputting specification information having time for the processor to access hardware resources. 5,673,425, Cl. 395-568.000.
 Iwata Bolt Kabushiki Kaisha: See—
 Iwata, Yukichi, 5,672,037, Cl. 411-311.000.
 Iwata, Yukichi, to Iwata Bolt Kabushiki Kaisha. Loosening and dislodging preventing screw. 5,672,037, Cl. 411-311.000.
 Iwata, Yukihiko: See—
 Yokota, Yasuo; Iwata, Yukihiko; Fuyasasu, Hirotsugu; Inoue, Hiroto; Ishizuka, Atsufumi; and Okada, Yukihiko, 5,673,152, Cl. 359-813.000.
 Izadpanah, Hossein: See—
 Fatchi, Mohammad T.; and Izadpanah, Hossein, 5,673,142, Cl. 359-341.000.
 Izumi, Akiya; Takemoto, Iwao; Sokei, Hirochi; Kadowaki, Masahiko; Naito, Takamasa; Kojima, Hiroyoshi; Iguchi, Atsumu; Yokoyama, Masaki; Nakajima, Junichiro; Takahashi, Masayuki; and Niwa, Kunio, to Hitachi, Ltd.; and Echo Co., Ltd. Semiconductor device and video camera unit having the same and method for manufacturing the same. 5,673,083, Cl. 348-340.000.
 Izumi, Sinichiro: See—
 Murakami, Shinya; Kamikawa, Yuuji; Izumi, Sinichiro; Anai, Noriyuki; Satoh, Takami; Shiraishi, Hirofumi; Harada, Koji; Tomoe, Takayuki; and Tanaka, Hiroshi, 5,671,764, Cl. 134-200.000.
 J. Mastenbroek & Company Limited: See—
 Geelhood, Jack, 5,671,554, Cl. 37-348.000.
 JAB Technologies, Inc.: See—
 Conn, Byron C., 5,672,128, Cl. 473-467.000.
 Jackson, Charles E.: See—
 Campbell, Kevin P.; Lim, Leland; Duclos, Franck; Sunada, Yoshihide; Beckmann, Jacques S.; Broux, Odile; Tome, Fernando M. S.; Fardeau, Michel; and Jackson, Charles E., 5,672,694, Cl. 536-22.100.
 Jackson, Paul F.; and Slusher, Barbara S., to Guilford Pharmaceuticals Inc. Certain phosphonomethyl-pentanedioic acid derivatives thereof. 5,672,592, Cl. 514-75.000.
 Jackson, Steven A.: See—
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- Kadowaki, Masahiko: See—
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- Kaipainen, Pasi, to InterClean Equipment, Inc. Vehicle wash system with shut-off switch activated by the wash medium, 5,671,761, Cl. 134-57.00R.
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- Kaiser, Klaus: See—
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- Kajikawa, Yasuteru: See—
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- Kamei, Tatsuya: See—
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- Kamikawa, Yuuji: See—
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- Kamiya, Masaaki: See—
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- Saito, Yutaka; Akiba, Takao; Nonaka, Koju; Kamiya, Masaaki; and Watanabe, Hitomi, 5,672,906, Cl. 257-617.000.
- Kamiyama, Hironori: See—
Obata, Hiroyuki; Utsumi, Minoru; Iijima, Masayuki; Okabe, Masato; and Kamiyama, Hironori, 5,672,453, Cl. 430-50.000.
- Kamo, Yoshihisa; Kakuta, Hitoshi; Tanaka, Atsushi; and Seo, Yosuke, to Hitachi, Ltd. Disk system and power-on sequence for the same, 5,673,412, Cl. 395-441.000.
- Kanamori, Hiroo: See—
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- Kanamori, Shinji; and Hino, Yoshiaki, to Honda Giken Kobyo Kabushiki Kaisha. Spare tire storage arrangement, 5,671,963, Cl. 296-37.200.
- Kanayama, Kazunori: See—
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- Kanda, Ryoichi: See—
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- Kanda, Yoshimichi, to Ricoh Company, Ltd. Image processing apparatus for preventing occurrence of moire in a reconstructed image, 5,673,340, Cl. 382-250.000.

- Kane, Michael: See—
Cosenza, John M.; and Kane, Michael, 5,673,052, Cl. 343-700.0MS.
- Kaneko, Hisashi: See—
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- Kaneko, Yuichi: See—
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- Kaneko, Yutaka, to Tetra Laval Holdings & Finance, S.A. Automatic sheet loader, 5,671,916, Cl. 271-99.000.
- Kanemitsu, Norio: See—
Kaji, Yukio; Kanemitsu, Norio; and Murosaki, Mikio, 5,673,124, Cl. 358-474.000.
- Kang, Seung-Goo: See—
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- Kangas, Lauri: See—
Heiskanen, Kalevi, deceased; and Kangas, Lauri, 5,672,628, Cl. 514-648.000.
- Kaniewski, Joseph A.: See—
Ludersher, Edward C.; and Kaniewski, Joseph A., 5,671,559, Cl. 421.080.
- Kanne, David B.: See—
Chin, Hsiao-Ling M.; Wei, Yi-Qiu; Nguyen, Nhan H.; and Kanne, David B., 5,672,567, Cl. 504-239.000.
- Kanngard, Bengt; and Kristensson, Jan. Method of eliminating moisture problems in housing, 5,672,384, Cl. 427-230.000.
- Kano, Kunihiko: See—
Yuyama, Shoji; Murakami, Takaaki; and Kano, Kunihiko, 5,671,592, Cl. 53-493.000.
- Kao, Camilla: See—
Khosla, Chaitan; Hopwood, David A.; Ebert-Khosla, Suzanne; McDaniel, Robert; Fu, Hong; and Kao, Camilla, 5,672,491, Cl. 435-148.000.
- Kao Corporation: See—
Sasaki, Mitsuhiko; and Akiyama, Koji, 5,672,454, Cl. 430-106.600.
- Takahashi, Hiromichi; and Hamaguchi, Koji, 5,672,244, Cl. 162-5.000.
- Kapell, JoGene: See—
Volk, Patrick Michael; Robin, Michael Breed; Thorne, Edwin, III; and Kapell, JoGene, 5,673,401, Cl. 395-327.000.
- Kaplan, Marc Adam: See—
Auerbach, Joshua Seth; Chow, Chee-Seng; Kaplan, Marc Adam; and Crigler, Jeffrey Charles, 5,673,316, Cl. 380-4.000.
- Kaplan, Martin Charles, to Eastman Kodak Company. Light integrator, 5,672,864, Cl. 250-227.280.
- Kappa Numerics, Inc.: See—
Gendlin, Shimon, 5,673,220, Cl. 365-157.000.
- Karaki, Mitsuhiro: See—
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- Karakida, Shoichi: See—
Kajikawa, Yasutomo; Miyashita, Motoharu; Karakida, Shoichi; and Shima, Akihiro, 5,673,283, Cl. 372-46.000.
- Kardorff, Uwe: See—
Wigger, August; Fricke, Hans-Michael; Kardorff, Uwe; Parg, Adolf; and Kober, Reiner, 5,672,564, Cl. 504-116.000.
- Karl M. Reich Maschinenfabrik GmbH: See—
Haas, Guenter, 5,671,642, Cl. 81-57.370.
- Raichle, Dieter; and Haas, Guenter, 5,672,922, Cl. 310-68.00A.
- Karniewicz, Joseph: See—
Wu, Jeff Zhiqiang; and Karniewicz, Joseph, 5,672,536, Cl. 437-52.000.
- Karol, Frederick John: See—
Wasserman, Eric Paul; Smale, Mark Wilton; Lynn, Timothy Roger; Brady III, Robert Converse; and Karol, Frederick John, 5,672,669, Cl. 526-170.000.
- Karpeisky, Alex: See—
Beigelman, Leonid; and Karpeisky, Alex, 5,672,511, Cl. 435-325.000.
- Matulic-Adamic, Jasenka; Beigelman, Leonid; Usman, Nassim; Karpeisky, Alex; and Burgin, Alex, 5,672,501, Cl. 435-240.200.
- Karström, Anders: See—
Stahl, Lennart; and Karström, Anders, 5,671,805, Cl. 165-80.300.
- Kasagi, Yasuo, to Nippon Steel Corporation. Semiconductor device having character in BPSG film, 5,672,907, Cl. 257-632.000.
- Katsbauer, Josef; and Fiege, Helmut, to Bayer Aktiengesellschaft. Process for the preparation of isobenzofuranones, 5,672,719, Cl. 549-240.000.
- Kasel, Wolfgang: See—
Ettl, Roland; Kasel, Wolfgang; Fankhänel, Matthias; and Reuther, Wolfgang, 5,672,721, Cl. 549-329.000.
- Kashiwa, Masahiko: See—
Fukui, Tsugushi; Inoue, Kimio; Kuroda, Yoshinori; Ueda, Hiroshi; and Kashiwa, Masahiko, 5,672,005, Cl. 366-75.000.
- Kashiya, Motohisa: See—
Yagi, Sakai; and Kashiya, Motohisa, 5,672,025, Cl. 403-288.000.
- Käster, Karl-Heinz: See—
Kirschmeyer, Stephan; Mazanek, Jan; and Käster, Karl-Heinz, 5,672,673, Cl. 528-70.000.
- Kaspi, Joseph: See—
Lerman, Ori; Tennenbaum, Michael; Gal, Erez; and Kaspi, Joseph, 5,672,755, Cl. 564-425.000.
- Kässer, Jürgen; and Herrmann, Matthias, to Blaupunkt-Werke GmbH. Radio receiver circuit for deriving at least one reception quality signal, 5,673,324, Cl. 381-4.000.
- Kasser, Thomas Richard: See—
Baile, Clifton Augustus; Day, Jeffrey Wilson; Hampton, Thomas Riley, II; Kasser, Thomas Richard; Pike, James Brian; Smith, Jonathan Paul; and Ziemann, Lyle Elmore, 5,672,357, Cl. 424-438.000.
- Kasson, James Matthews: See—
Edgar, Albert Durr; and Kasson, James Matthews, 5,673,336, Cl. 382-167.000.
- Kasuya, Takashige: See—
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- Katakura, Kazunori; and Tsuboyama, Akira, to Canon Kabushiki Kaisha. Liquid crystal apparatus, 5,673,062, Cl. 345-95.000.
- Kato, Heizaburo; Tsushima, Yuki; Ohwaki, Takayuki; Nakajima, Masaharu; and Morita, Yutaka, to Sankyo Seisakusho Co. & Eisai Co., Ltd. Apparatus for manufacturing tablets, 5,672,364, Cl. 425-89.000.
- Kato, Masataka; Adachi, Tetsuo; Kume, Hitoshi; and Shukuri, Shoji, to Hitachi, Ltd. Method of manufacturing nonvolatile semiconductor memory device, 5,672,529, Cl. 437-43.000.
- Kato, Masayoshi: See—
Uno, Masayoshi; Kimura, Tomonori; and Kato, Masayoshi, 5,672,825, Cl. 73-579.000.
- Kato, Nobuhide; and Nakagaki, Kunihiro, to NGK Insulators, Ltd. Method of measuring a gas component and sensing device for measuring the gas component, 5,672,811, Cl. 73-31.050.
- Kato, Rentaro, to Tokai Rubber Industries, Ltd.; and Showa Aluminum Corporation. Elastic mount and process of manufacturing the same, 5,671,908, Cl. 267-140.120.
- Kato, Takao: See—
Hattori, Akitaka; Nakamura, Kazuhiro; Washiyama, Tomohiro; Kato, Takao; Saito, Toshihiro; and Arai, Shoji, 5,672,782, Cl. 568-899.000.
- Kato, Tokunori, to Brother Kogyo Kabushiki Kaisha. Telephone set of distinctive ringing type wherein pattern of telephone number call signal is registered for determination of telephone number being called, 5,673,313, Cl. 379-373.000.
- Katoh, Hisaharu: See—
Inaba, Shigemitsu; and Katoh, Hisaharu, 5,672,076, Cl. 439-610.000.
- Katoh, Toshihiro; Kuriyama, Takao; Takei, Tatsuya; Kawai, Takashi; Murakami, Hiroshi; Munemoto, Eiji; Ohta, Norio; and Shimada, Koji, to Nippon Hoso Kyokai; and Dai Nippon Printing Co., Ltd. Method for forming conductive or insulating layers, 5,672,460, Cl. 430-198.000.
- Katono, Hiroki; Shouji, Masuhiro; Ogihara, Takeo; and Sakagami, Teruo, to Kureha Kagaku Kogyo Kabushiki Kaisha. Plastic optical material and production process thereof, 5,672,655, Cl. 524-780.000.
- Katragadda, Subbarao: See—
Goldin, Stanley M.; Katragadda, Subbarao; Hu, Lain-Yen; Reddy, N. Laxma; Fischer, James B.; Knapp, Andrew Gannett; and Margolin, Lee David, 5,672,608, Cl. 514-313.000.
- Katsurahira, Yuji: See—
Fukuzaki, Yasuhiro; and Katsurahira, Yuji, 5,672,852, Cl. 178-19.000.
- Katsuta, Nobuyuki: See—
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- Katsuyama, Yukio: See—
Motoyama, Nobuhiko; Katsuyama, Yukio; and Sugihara, Hiroyuki, 5,673,155, Cl. 360-92.000.
- Katz, Joseph: See—
Li, Yajun; Katz, Joseph; Swartz, Jerome; and McGlynn, Daniel, 5,672,858, Cl. 235-462.000.
- Kaufman, Mark I.; and Meeks, Donald J., Jr. Lot configuration and building position and method for residential housing, 5,671,570, Cl. 52-169.200.
- Kaufmann, Thomas R., to Beckett Corporation. Peel-back re-sealable multiply label, 5,672,224, Cl. 156-257.000.
- Kawabe, Takao: See—
Okuda, Sadanao; Ishikawa, Makoto; Kawabe, Takao; and Kawano, Masakazu, 5,671,669, Cl. 101-116.000.
- Kawafuji, Hisashi: See—
Majumdar, Gourab; Mori, Satoshi; Noda, Sukehisa; Iwagami, Tooru; Takagi, Yoshio; and Kawafuji, Hisashi, 5,672,910, Cl. 257-690.000.
- Kawahara, Kazuyoshi, to Kabushikikaisha Kibun Shokuhin; and Kitasato Institute, The. Glycosphingolipids, 5,672,693, Cl. 536-17.900.
- Kawahara, Seiichi; and Hamamoto, Yoshiaki, to Molten Corporation; and Nifco Inc. Clip, 5,671,513, Cl. 24-573.100.
- Kawai, Hiroyuki; Inoue, Yoshitsugu; and Nakamura, Hisashi, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor integrated circuit for processing image data, 5,673,422, Cl. 395-519.000.
- Kawai, Masumi; and Miura, Yuusuke, to Shimadzu Corporation. Digital angiographic apparatus, 5,671,743, Cl. 128-654.000.
- Kawai, Takashi: See—
Katoh, Toshihiro; Kuriyama, Takao; Takei, Tatsuya; Kawai, Takashi; Murakami, Hiroshi; Munemoto, Eiji; Ohta, Norio; and Shimada, Koji, 5,672,460, Cl. 430-198.000.
- Kawakami, Hideaki: See—
Hiramatsu, Soichi; Suzuki, Tetsuo; Taniguro, Masahiro; Saito, Hiroyuki; Yanagi, Haruyuki; Nojima, Takashi; Saikawa, Satoshi; Kinoshita, Hiroyuki; and Kawakami, Hideaki, 5,672,019, Cl. 400-624.000.
- Kawakami, Soza; and Nakajima, Atsushi, to Konica Corporation. Process of forming a transfer-image of ablation type image-transfer recording material, 5,673,077, Cl. 347-183.000.

Kawakita, Jun. Process for constructing computer network system of tenant intelligent building. 5,673,395, Cl. 395-200.210.
 Kawamura, Hiroshi: See—
 Koishikawa, Kouji; Murata, Hiroyuki; Kawamura, Hiroshi; and Yoshida, Hiroyuki, 5,671,779, Cl. 138-109.000.
 Kawamura, Koichiro, to Nippon Steel Corporation. Method of fabricating a semiconductor device using element isolation by field shield. 5,672,526, Cl. 437-41.00R.
 Kawano, Harumi, to Oki Electric Industry Co., Ltd. Semiconductor integrated circuit. 5,672,982, Cl. 324-765.000.
 Kawano, Masakazu: See—
 Okuda, Sadanao; Ishikawa, Makoto; Kawabe, Takao; and Kawano, Masakazu, 5,671,669, Cl. 101-116.000.
 Kawasaki, Ernest S.: See—
 Ladner, Martha B.; Noble, Janelle A.; Martin, George A.; Kawasaki, Ernest S.; Coyne, Mazie Yee; Halenbeck, Robert F.; and Koths, Kirston E., 5,672,343, Cl. 424-85.100.
 Kawasaki Jukogyo Kabushiki Kaisha: See—
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 Kawasaki, Keiji, to NGK Insulators, Ltd. Ceramic-made guide for rolling line. 5,671,878, Cl. 226-196.000.
 Kawasaki, Satoshi, to NEC Corporation. Seek control circuit for suppressing vibration of objective lens in optical head during seek operation. 5,673,240, Cl. 369-44.280.
 Kawasaki Steel Corporation: See—
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 Kawase, Hajime: See—
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 Kawashima, Naoki; Murase, Yoshihiro; Nishikawa, Eri; and Kurachi, Tamotsu, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Control system and method for vehicle speed-response type intermittent wiper. 5,672,946, Cl. 318-444.000.
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 Keane, Kevin J.: See—
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 Kearney, Mark Billings; and Koglin, Dennis Michael, to Delco Electronics Corporation. Analog voltage address decoder circuit. 5,673,048, Cl. 341-159.000.
 Keba, James Michael; and Powell, Clinton C., II, to Motorola, Inc. Apparatus and method for updating thresholds for peak and valley systems. 5,673,197, Cl. 364-487.000.
 Keegan, E. Kevin; and Hanrahan, Peter J. Vertically movable emergency egress system. 5,671,824, Cl. 182-82.000.
 Keenan, John: See—
 Keenan, Richard; Moore, Richard Christopher; and Keenan, John, 5,671,891, Cl. 239-676.000.
 Keenan, Richard; Moore, Richard Christopher; and Keenan, John, to Vetrion Holdings Limited. Apparatus for spreading material. 5,671,891, Cl. 239-676.000.
 Kehley, Gleno Lee: See—
 Brodsky, William Louis; Kehley, Gleno Lee; and Sathe, Sanjeev Balwant, 5,673,177, Cl. 361-704.000.
 Keil, Kurt A., to Advancing Alternatives, Inc. Roll-up curtain bar attachment device for flexible sheeting. 5,671,795, Cl. 160-384.000.
 Keilbach, Kevin A., to Ohmeda Inc. System and method for increasing the efficiency of a raman gas analysis system. 5,673,109, Cl. 356-301.000.
 Keilert, Jürgen; and Nogosse, Alfred, to Dieter Automatiz GmbH. Method for manufacturing a foamable synthetic material from shredded foam. 5,672,304, Cl. 264-102.000.
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 Grieser, Jerry D.; Nelson, Richard A.; McGinnis, Michael J.; Steinberg, Richard; and Decknick, James J., 5,671,985, Cl. 312-221.000.
 Keller, Randy C.: See—
 Chen, Zhongtai; Shell, Ronald G.; Keller, Randy C.; and Spall, J. Michael, 5,671,919, Cl. 271-260.000.
 Keller, Stephen A.; and Shah, Rajiv R., to Texas Instruments Incorporated. Platinum silicide Schottky diodes in a titanium-silicided CMOS-based high performance BiCMOS process. 5,672,898, Cl. 257-383.000.
 Kelley, Edward E.; Dauener, Norman J.; Motika, Franco; and Ahsan, Aziz M., to International Business Machines Corporation. Process and system for adding or subtracting symbols in any base without converting to a common base. 5,673,216, Cl. 364-771.000.
 Kelley, William N.; Palella, Thomas D.; and Levine, Myron, to University of Michigan. The Regents of the. Viral-mediated gene transfer system. 5,672,344, Cl. 424-93.200.
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 Kharitonov, Alexander Sergeevich; Panov, Gennadi Ivanovich; Sheveleva, Galina Anatolievna; Prituko, Larisa Vladimirovna; Voskresenskaya, Tatyana Pavlovna; and Sobolev, Vladimir Ivanovich, to Monsanto Company. Catalysts for production of phenol and its derivatives. 5,672,777, Cl. 568-800.000.
 Khosla, Chaitan; Hopwood, David A.; Ebert-Khosla, Suzanne; McDaniel, Robert; Fu, Hong; and Kao, Camilla, to Leland Stanford Junior University, The; and John Innes Institute, The. Recombinant production of novel polyketides. 5,672,491, Cl. 435-148.000.
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 Kids II, Inc.: See—
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 Song, Min-Kyu; Kang, Seung-Goo; Lee, Hee-Tae; Hwang, Nam; Park, Seong-Su; and Kim, Dong-Goo, 5,673,350, Cl. 385-93.000.
 Kim, Hee-Deog, to Samsung Electronics Co., Ltd. Charging device and control method for preventing recharging of a fully charged battery. 5,672,953, Cl. 320-32.000.
 Kim, Honggon: See—
 Kim, Hoon Sik; Lee, Byung Gwon; Kim, Honggon; and Lee, Hyunjo, 5,672,789, Cl. 570-168.000.
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 Kim, Michelle Yoonkyung, to International Business Machines Corporation. Authoring knowledge-based systems using interactive directed graphs. 5,673,369, Cl. 395-75.000.
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 Jimba, Hitoshi; Kim, So Won; and Sekiguchi, Atsushi, 5,672,385, Cl. 437-248.100.
 Kim, Suk: See—
 Yanagida, Kazuhiko; Yoshino, Susumu; Imai, Takashi; Takahashi, Koichi; and Kim, Suk, 5,672,455, Cl. 430-108.000.
 Kim, Sung Ki: See—
 Song, Kwang Bok; Kim, Sung Ki; and Shim, Jin Sub, 5,672,519, Cl. 437-3.000.
 Kim, Sung-Hou; and Cho, Joong Myung, to University of California, The Regents of the; and Lucky Biotech Corp. Method for sweetening a food composition with single-chain monellin analogs. 5,672,372, Cl. 426-548.000.
 Kim, Yeon-bae: See—
 Kim, Sang-wook; Kim, Yeon-bae; and Seo, Yang-seock, 5,673,289, Cl. 375-243.000.
 Kim, Yongmin: See—
 Hicok, Gary Dwayne; Alexander, Thomas; Lim, Yong Je; and Kim, Yongmin, 5,673,409, Cl. 395-381.000.
 Kimball Physics, Inc.: See—
 Crawford, Charles K., 5,671,956, Cl. 285-328.000.
 Kimball, William C., to N.A. Taylor Co., Inc. Boat fender. 5,671,692, Cl. 114-219.000.
 Kimberly-Clark Corporation: See—
 Sprang, Troy Alan; Douglas, Annmarie Veronica; and Morgan, Benji Dawn, 5,672,306, Cl. 264-136.000.
 Kimberly-Clark Worldwide, Inc.: See—
 Sawyer, Lawrence Howell; Connor, Linda Ann; and Marmon, Samuel Edward, 5,672,415, Cl. 428-219.000.
 Wendi, Greg Arthur; Chiu, Kai F.; Burazin, Mark Alan; Farrington, Theodore Edwin, Jr.; and Heaton, David Alan, 5,672,248, Cl. 162-109.000.
 Kimbrough, Joseph Robert; and Colella, Nicholas John, to United States of America, Energy. System level latchup mitigation for single event and transient radiation effects on electronics. 5,672,918, Cl. 307-126.000.
 Kimura, Akira; Inoue, Tsuyoshi; Abe, Naruhiko; and Watanabe, Tadashi, to Sony Corporation. Parts feeding apparatus and parts feeding process. 5,672,040, Cl. 414-403.000.
 Kimura, Kiyoshi, to Japan Synthetic Rubber Co., Ltd. Inspection apparatus for printed wiring board. 5,672,978, Cl. 324-754.000.
 Kimura, Kunio: See—
 Ishiyama, Nobuo; Koyama, Toshihiro; Hayashida, Mitsuo; Otsuka, Katsuyuki; Fujii, Masahiro; Kimura, Kunio; Hata, Yoshiyuki; and Miyao, Nobuko, 5,672,597, Cl. 514-210.000.
 Kimura, Shigeaki; and Kitazawa, Hiroshi, to Ricoh Company, Ltd. Method of recycling image-deposited recording material, and recording material for use with the recycling method. 5,672,223, Cl. 156-234.000.
 Kimura, Teiyuu: See—
 Isogai, Emiko; Koike, Satoshi; Kimura, Teiyuu; Ando, Hiroshi; and Tatebayashi, Hiroyuki, 5,672,448, Cl. 430-1.000.
 Kimura, Tomonori: See—
 Uno, Masayoshi; Kimura, Tomonori; and Kato, Masayoshi, 5,672,825, Cl. 73-579.000.
 Kinterton Limited: See—
 Shalaby, Shalaby W.; Jackson, Steven A.; and Moreau, Jacques-Pierre, 5,672,659, Cl. 525-54.100.
 Kinesis Corporation: See—
 Hargreaves, William R.; Lunde, Shirley A.; and Farrand, William P., 5,673,040, Cl. 341-22.000.
 King, Carol A.: See—
 Dowell, Barry L.; Alexander, Debra B.; O'Morchoe, Susan B.; King, Carol A.; and Smith, Allan H., 5,672,480, Cl. 435-7.400.
 King, Gregory: See—
 Meier, Daniel; King, Gregory; and McMahon, Michael, 5,673,208, Cl. 364-525.000.
 King, Perry Allan: See—
 Miranda Camino, Santiago; King, Perry Allan; Secco, Andrea; and Secco, Lorenzo, 5,671,579, Cl. 52-653.100.
 Kingsley, Jeffrey D.: See—
 Jacobs, Timothy W.; and Kingsley, Jeffrey D., 5,673,075, Cl. 347-131.000.
 Kino, Yoshiki: See—
 Ohara, Toru; Fujiwara, Akihiro; Notagashira, Hidefumi; Iizuka, Toshimi; Tamekuni, Yasuhiro; Kino, Yoshiki; Morofuji, Tsuyoshi; Azusawa, Katsumi; and Sato, Hidekage, 5,672,862, Cl. 250-204.000.
 Kinoshita, Hiroyuki: See—

Hiramatsu, Soichi; Suzuki, Tetsuo; Taniguro, Masahiro; Saito, Hiroyuki; Yanagi, Haruyuki; Nojima, Takashi; Saikawa, Satoshi; Kinoshita, Hiroyuki; and Kawakami, Hideaki, 5,672,019, Cl. 400-624.000.
 Kirchhoff, Kenneth J.: See—
 Carlson, Bruce W.; Barnidge, Thomas J.; Laine, Tanya M.; Miller-Bruns, Mary K.; and Kirchhoff, Kenneth J., 5,671,557, Cl. 40-358.000.
 Kirchmeyer, Stephan; Mazanek, Jan; and Käsler, Karl-Heinz, to Bayer Aktiengesellschaft. Fluorine-containing dispersants for aqueous paints and coating compositions. 5,672,673, Cl. 528-70.000.
 Kirisawa, Akihiro, to NEC Corporation. Frequency synthesizer having PLL receiving filtered output of DDS. 5,673,007, Cl. 331-18.000.
 Kirk, Michael D.: See—
 Park, Sang-il; Smith, Ian R.; and Kirk, Michael D., 5,672,816, Cl. 73-105.000.
 Kirtley, Kathryn Barr: See—
 Chastang, Jean-Claude Andre; Kirtley, Kathryn Barr; and Rosenbluth, Alan Edward, 5,673,144, Cl. 359-385.000.
 Kiss, John; and Roberts, Roy D., to ILC Technology, Inc. Arc lamp filter with heat transfer attachment to a radial arc lamp cathode heat sink. 5,672,931, Cl. 313-44.000.
 Kitagawa, Masatoshi: See—
 Hayashi, Shigenori; Komaki, Kazuki; Kamada, Takeshi; Kitagawa, Masatoshi; Deguchi, Takashi; Takayama, Ryoichi; and Hirao, Takashi, 5,672,252, Cl. 204-192.220.
 Kitamura, Takashi: See—
 Tazou, Ken; Ueno, Tsugio; Takaya, Kazuyoshi; Kitamura, Takashi; and Ushida, Mitsuo, 5,671,837, Cl. 198-369.200.
 Kitasato Institute, The: See—
 Kawahara, Kazuyoshi, 5,672,693, Cl. 536-17.900.
 Kitayama, Shinichiro: See—
 Hozumi, Shigeo; Kitayama, Shinichiro; and Nakagawa, Hiroya, 5,672,463, Cl. 430-281.100.
 Kitazawa, Hiroshi: See—
 Kimura, Shigeaki; and Kitazawa, Hiroshi, 5,672,223, Cl. 156-234.000.
 Kitchen, William J. Police radar jammer. 5,673,049, Cl. 342-6.000.
 Kjærgaard, Finn; and Kristensen, Johannes Nyvang. Fixation panty brief. 5,671,615, Cl. 66-177.000.
 Kias, Daniel E.; and Rose, William J., to Hubbell Incorporated. Connector for communication systems with cancelled crosstalk. 5,673,009, Cl. 333-1.000.
 Klauder, Philip R.; Moore, James O.; and O'Brien, Christopher J., to Moore Products Co. Transducer having redundant pressure sensors. 5,672,808, Cl. 73-4.00R.
 Klein, Robert D.; and Kreitzberg, Jeffrey P., to Nelson Irrigation Corporation. Rate-of-flow control valve. 5,671,774, Cl. 137-486.000.
 Kleyn, Hendrik. Polymeric radiators. 5,671,808, Cl. 165-148.000.
 Klingelhoefer, Marc E., to Sun Microsystems, Inc. Loopback video preview for a computer display. 5,673,204, Cl. 364-514.00A.
 Klinger AG: See—
 Pfug, Hervig, 5,671,929, Cl. 277-233.000.
 Klock, John C.: See—
 Striepeke, Steven K.; Edridge, Peter; Starr, Christopher M.; and Klock, John C., 5,672,881, Cl. 250-461.200.
 Klomdsdorf, Armin Werner: See—
 Kim, Jin Dong; Crnkovic, James John; Klomdsdorf, Armin Werner; and Peckham, David Sutherland, 5,673,001, Cl. 330-284.000.
 Klotz, Frederick Walter: See—
 Hoover, Torrance D.; Klotz, Frederick Walter; and Stickley, Stephen D., 5,671,613, Cl. 63-27.000.
 Klubitschko, Gerd; and Stepanek, Premek, to Marker Deutschland GmbH. Front jaw for a ski binding. 5,671,942, Cl. 280-634.000.
 Kluser, Remo, to Hilti Aktiengesellschaft. Device for attaching insulation materials. 5,671,576, Cl. 52-512.000.
 Knapp, Andrew Gannett: See—
 Goldin, Stanley M.; Karagadda, Subbarao; Hu, Lain-Yen; Reddy, N. Laxma; Fischer, James B.; Knapp, Andrew Gannett; and Margolin, Lee David, 5,672,608, Cl. 514-313.000.
 Knapp, Gunter. Microwave-heatable pressure reactor. 5,672,316, Cl. 422-21.000.
 Knight, David Trevor: See—
 Simpson, Leslie Ainsley; Robson, Keith; Knight, David Trevor; and Brown, Ronald, 5,672,201, Cl. 106-447.000.
 Knightly, Daniel C.: See—
 Engles, Bruce E.; and Knightly, Daniel C., 5,673,227, Cl. 365-200.000.
 Knighton, Theresa S.: See—
 Anglin, James R.; Urbanski, Julie A.; and Knighton, Theresa S., 5,672,401, Cl. 428-64.100.
 Knöfel, Hartmut; and Brockelt, Michael, to Bayer Aktiengesellschaft. Fractionation and purification of mixtures of aromatic polyamines and use thereof. 5,672,737, Cl. 560-347.000.
 Knorr Bremse AG: See—
 Holzl, Stefan; Philipp, Roland; Reichert, Peter; and Babnik, Klaus-Henning, 5,671,682, Cl. 105-199.200.
 Knudsen, Arne: See—
 Nielsen, Holger Hjort; Sørensen, Torben Brandt; Brødsgaard, Ole; Jensen, Verner Trygved; and Knudsen, Arne, 5,672,100, Cl. 452-188.000.
 Knudsen, Bruce Alan; and Briant, Clyde Leonard, to General Electric Company. Methods of making an improved x-ray tube cathode cup assembly. 5,672,085, Cl. 445-28.000.

Knutzen, Lars Jacob Stray; and Lau, Jesper, to Novo Nordisk A/S. Purine derivatives. 5,672,588, Cl. 514-46.000.

Ko, Jung Wan: See—
Srolie, Christopher H.; Limberg, Allen LeRoy; Wedam, Werner F.; Schmitzler, Raymond; Weckenbrock, Hermann J.; Ko, Jung Wan; and Yun, Jong Kyung. 5,673,355, Cl. 386-9.000.

Kobayashi, Akira; Ando, Takao; and Fujii, Masahiko, to Kureha Chemical Industry Co., Ltd. Immunoglobulin Fc fragment bound to an alkylating, antibiotic, or antimetabolic antitumor substance. 5,672,688, Cl. 530-391.700.

Kobayashi, Atsushi: See—
Amamo, Kosuke; Ishikawa, Hitoshi; Kobayashi, Atsushi; and Satoh, Masaharu. 5,672,377, Cl. 427-80.000.

Kobayashi, Masahiko; Shimoie, Shizuo; and Demizu, Shizuo, to Kubota Corporation. Backhoe having an engine hood with a driver's seat mounted thereon. 5,671,820, Cl. 180-68.100.

Kobayashi, Osamu; Matsuda, Atsushi; and Yuasa, Tachio, to Fujitsu Limited. Operational amplifier having stable operations for a wide range of source voltage, and current detector circuit employing a small number of elements. 5,673,002, Cl. 330-288.000.

Kobayashi, Takahiro: See—
Suzuki, Kenji; Kobayashi, Takahiro; Kozasa, Naoto; and Fujimori, Jiro. 5,673,251, Cl. 369-275.400.

Kobayashi, Takeo: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo. 5,673,099, Cl. 354-199.000.

Kobayashi, Yoshinori: See—
Matsuyama, Akinobu; and Kobayashi, Yoshinori. 5,672,504, Cl. 435-280.000.

Kobe Steel USA Inc.: See—
Stoner, Brian R.; Holmes, Joseph S., Jr.; Dreifus, David L.; Sahaida, Scott R.; Fauber, Roy E.; Hartsell, Michelle L.; and Malta, Dean. 5,672,240, Cl. 156-631.100.

Kober, Reiner: See—
Wigger, August; Fricke, Hans-Michael; Kardorff, Uwe; Parg, Adolf; and Kober, Reiner. 5,672,564, Cl. 504-116.000.

Koblitz, Karl Rudolf, to Thomson multimedias S.A. Sawtooth generator controlled in a gain control feedback loop. 5,672,942, Cl. 315-408.000.

Kobori, Hiromichi: See—
Hasegawa, Hiroshi; and Kobori, Hiromichi. 5,673,248, Cl. 369-116.000.

Kobori, Hiromichi; and Kobori, Hiromichi. 5,673,249, Cl. 369-116.000.

Kobori, Takuji; Omika, Yukihiko; Nagata, Masayuki; Okawa, Jun; and Yamamoto, Yukimasa, to Kajima Corporation. Seismic response controlled frame of bending deformation control type. 5,671,569, Cl. 52-167.600.

Kocal, Joseph A., to UOP. Alkylation of aromatics using a metal cation-modified friedel-crafts type catalyst. 5,672,797, Cl. 585-467.000.

Koch, Mario: See—
Hofmann, Wolfram; and Koch, Mario. 5,671,918, Cl. 271-182.000.

Kodera, Hiroyuki, to Showa Koki Co., Ltd. Exhibition apparatus. 5,671,984, Cl. 312-114.000.

Koehler, Karl-Hans: See—
Joerg, Wolfgang; Bordovsky, Jaromir; Calmaz, Aydogan; Heck, Hubert; Roehringer, Arno; Gall, Claus; Ahl, Reinhold; Strauss, Rainer; and Koehler, Karl-Hans. 5,671,637, Cl. 74-422.000.

Koehler, Michael; Schmid, Karl-Heinz; Demmering, Guenther; Komp, Horst-Dieter; and Kubersky, Hans-Peter, to Hunkel Kommanditgesellschaft auf Aktien. Process for the production of fatty alcohols based on vegetable fats and oils by fractionation. 5,672,781, Cl. 568-885.000.

Koenig, Hartmann: See—
Mueller, Bernd; Sauter, Hubert; Winger, Horst; Koenig, Hartmann; Roehl, Franz; Ammermann, Eberhard; and Lorenz, Gisela. 5,672,616, Cl. 514-378.000.

Koezuka, Yasukazu: See—
Fukui, Wataru; and Koezuka, Yasukazu. 5,671,714, Cl. 123-414.000.

Koglin, Dennis Michael: See—
Kearney, Mark Billings; and Koglin, Dennis Michael. 5,673,048, Cl. 341-159.000.

Kogure, Yamato. Method of manufacturing medical prosthetic articles. 5,672,305, Cl. 264-102.000.

Kohjin Co., Ltd.: See—
Murayama, Teichi; and Maruyama, Takashi. 5,672,656, Cl. 524-831.000.

Kohmoto, Shinsuke: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo. 5,673,099, Cl. 354-199.000.

Kohmura, Yukio; Ishida, Yoshinori; and Hibino, Takashi, to Furukawa Electric Co., Ltd. The Production apparatus for producing an optical fiber cable. 5,672,193, Cl. 65-484.000.

Koide, Nobuya: See—
Okato, Nobuyoshi; Yoshida, Hiroshi; and Koide, Nobuya. 5,672,315, Cl. 420-40.000.

Koike, Satoshi: See—
Isogai, Emiko; Koike, Satoshi; Kimura, Teiyuu; Ando, Hiroshi; and Tatebayashi, Hiroyuki. 5,672,448, Cl. 430-1.000.

Koishikawa, Kouji; Murata, Hiroyuki; Kawamura, Hiroshi; and Yoshida, Hiroyuki, to Honda Giken Kogyo Kabushiki Kaisha. Exhaust pipe structure in outboard engine system. 5,671,779, Cl. 138-109.000.

Koito Manufacturing Co., Ltd.: See—
Serizawa, Hiroyuki; and Takatsuka, Hiroyuki. 5,671,995, Cl. 362-61.000.

Kojima, Akikazu: See—
Okamoto, Atsuya; Kojima, Akikazu; Takaki, Niro; and Watanabe, Kiyohiko. 5,672,324, Cl. 422-174.000.

Kojima, Hiroyoshi: See—
Izumi, Akiya; Takemoto, Iwao; Sokei, Hiroichi; Kadowaki, Masahiko; Naito, Takamasa; Kojima, Hiroyoshi; Iguchi, Atsumu; Yokoyama, Masaaki; Nakajima, Junichiro; Takahashi, Masayuki; and Niwa, Kumio. 5,673,083, Cl. 348-340.000.

Kojima, Katsuo: See—
Okihara, Naoto; Kojima, Katsuo; Morimoto, Masayuki; Ikeda, Mat-sujiro; and Tanioka, Naohiro. 5,673,011, Cl. 335-78.000.

Kojima, Megumi: See—
Takagi, Kiyoji; Nishida, Koji; and Kojima, Megumi. 5,672,679, Cl. 528-501.000.

Kojima, Shinichi: See—
Uragami, Akira; and Kojima, Shinichi. 5,673,058, Cl. 345-3.000.

Kojima, Susumu: See—
Ichinose, Hiroki; Takeda, Keiso; Kojima, Susumu; and Sadakane, Shinji. 5,671,708, Cl. 123-184.540.

Kojima, Yasushi: See—
Tsuchiya, Tohru; Akimoto, Taizo; Mori, Keiji; Kojima, Yasushi; Dietzel, Gunter; Petz, Gerhard; and Koppke, Andreas. 5,672,514, Cl. 436-86.000.

Kojima, Yoshikazu: See—
Hayashi, Yutaka; Kamiya, Masaaki; Kojima, Yoshikazu; and Takasu, Hiroaki. 5,672,518, Cl. 437-2.000.

Kokura, Kunio: See—
Akasaka, Yutichi; Sugizaki, Ryuichi; and Kokura, Kunio. 5,673,354, Cl. 385-127.000.

Kolar, Roman: See—
Hengstenberg, Wolfgang; Kolar, Roman; and Scholz, Marko. 5,672,470, Cl. 435-4.000.

Kolb, Edgar C.; and Robinson, James S., to Honeywell Inc. Tilt switch with increased angular range of conduction and enhanced differential characteristics. 5,672,856, Cl. 200-61.520.

Kolb, Edgar C.: See—
Frost, Richard L.; Kolb, Edgar C.; and Robinson, James S., 5,672,857, Cl. 200-61.810.

Komag, Inc.: See—
Chen, Tu; Yamashita, Tsutomu Tom; Lee, Kyou H.; and Sakane, Yasuo. 5,673,156, Cl. 360-97.010.

Komaki, Kazuki: See—
Hayashi, Shigenori; Komaki, Kazuki; Kamada, Takeshi; Kitagawa, Masatoshi; Deguchi, Takashi; Takayama, Ryoichi; and Hirao, Takashi. 5,672,252, Cl. 204-192.220.

Komatsu, Shigeo: See—
Nakamitsu, Kazuhiro; Tukamoto, Hisashi; Komatsu, Shigeo; and Nakamura, Toshimichi. 5,672,445, Cl. 429-218.000.

Komorita, Hiroshi; Tanaka, Tadashi; Naba, Takayuki; and Hino, Takashi, to Kabushiki Kaisha Toshiba. Ceramic circuit board. 5,672,848, Cl. 174-260.000.

Komp, Horst-Dieter: See—
Koehler, Michael; Schmid, Karl-Heinz; Demmering, Guenther; Komp, Horst-Dieter; and Kubersky, Hans-Peter. 5,672,781, Cl. 568-885.000.

Komuro, Ryoichi: See—
Yamaguchi, Junichi; Ohsuga, Minoru; and Komuro, Ryoichi. 5,671,713, Cl. 123-308.000.

Kondo, Masaki; and Mackawa, Shigeki, to Matsushita Electric Industrial Co., Ltd. Laser casting apparatus and method. 5,672,285, Cl. 219-121.780.

Kondo, Masaya; Ejiri, Seishi; Yamamoto, Soichi; Kumagai, Takekazu; Tsukamoto, Takeshi; Oishi, Kazuomi; Saruwatari, Masaru; and Toyama, Masaki, to Canon Kabushiki Kaisha. Communication apparatus and method with means to control recall and other communication operations. 5,673,118, Cl. 358-437.000.

Kondo, Shinya: See—
Hatakeyama, Ko; and Kondo, Shinya. 5,672,571, Cl. 508-321.000.

Kondoh, Shigeru: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo. 5,673,099, Cl. 354-199.000.

Kondos, Peter D.: See—
Demopoulos, George P.; Zinck, Janice M.; and Kondos, Peter D., 5,672,280, Cl. 210-709.000.

Konica Corporation: See—
Kawakami, Sota; and Nakajima, Atsushi. 5,673,077, Cl. 347-183.000.

König, Eberhard; Gronemeier, Uwe Fritz; and Wegener, Dirk, to Bayer Aktiengesellschaft. Solvent-free two-component polyurethane reactive adhesives and their use for producing sandwich-type interior panelling for vehicles. 5,672,229, Cl. 156-331.400.

König, Klaus: See—
Müller, Klaus-Helmut; König, Klaus; Findeisen, Kurt; Santel, Hans-Joachim; Lürssen, Klaus; Schmidt, Robert R.; and Dutzmann, Stefan. 5,672,713, Cl. 548-263.800.

Konsti, Patricia R.: See—
Callahan, Joseph P., Jr.; Hamer, Kevin M.; Konsti, Patricia R.; and Windorski, David C., 5,672,404, Cl. 428-100.000.

Konuma, Toshimitsu; Sugawara, Akira; and Tsuji, Takahiro. Insulated gate field effect transistor with an anodic oxidized gate electrode. 5,672,900, Cl. 257-410.000.

Koopman, Stephan B. J.; and Abbecker, Abraham Nico, to Océ-Nederland B.V. Method of modifying the fatness of characters to be output on a raster output device. 5,673,371, Cl. 395-110.000.

Kopelovich, Levy. De novo induction of cells exhibiting characteristics of macrophages utilizing feline sarcoma virus. 5,672,493, Cl. 435-172.300.

Kopetzki, Erhard; Rudolph, Rainer; and Grossmann, Adelbert, to Boehringer Mannheim GmbH. Recombinant core streptavidin. 5,672,691, Cl. 530-413.000.

Kopin Corporation: See—
Zavracky, Matthew; Chern, Wen-Foo; Gale, Ronald; Ronzani, Peter A.; and Pombo, Stephen. 5,673,059, Cl. 345-8.000.

Kopka, Ihor: See—
Chapman, Kevin; Hagmann, William; Durette, Philippe; Esser, Craig; Kopka, Ihor; and Caldwell, Charles. 5,672,583, Cl. 514-19.000.

Köpke, Andreas: See—
Tsuchiya, Tohru; Akimoto, Taizo; Mori, Keiji; Kojima, Yasushi; Dietzel, Gunter; Petz, Gerhard; and Köpke, Andreas. 5,672,514, Cl. 436-86.000.

Kordelin, Tapio, to Oy Shippax Ltd. Heat exchanger element. 5,671,804, Cl. 165-46.000.

Korea Advanced Institute of Science and Technology: See—
Lee, Huen; and Yoon, Ji-Ho. 5,672,775, Cl. 568-749.000.

Korea Institute of Science and Technology: See—
Kim, Hoon Sik; Lee, Byung Gwon; Kim, Honggon; and Lee, Hyunjoon. 5,672,789, Cl. 570-168.000.

Kormanyos, Kenneth R., to Gas Research Institute. Forced convection heating apparatus and process for heating glass sheets therewithin. 5,672,191, Cl. 65-273.000.

Kosek, John A.: See—
Banerjee, Shoibal; Cropley, Cecelia C.; Kosek, John A.; and La Conti, Anthony B., 5,672,438, Cl. 429-33.000.

Kosich, Joseph, to Wheelock, Inc. Zero inrush alarm circuit. 5,673,030, Cl. 340-635.000.

Koslov, Joshua L.: See—
Scarpa, Carl G.; Koslov, Joshua L.; and Lane, Frank A., 5,673,293, Cl. 375-321.000.

Kosugi, Tomonari, to NEC Corporation. Semiconductor laser module. 5,673,349, Cl. 385-92.000.

Koths, Kirston E.: See—
Ladner, Martha B.; Noble, Janelle A.; Martin, George A.; Kawasaki, Ernest S.; Coyne, Mazie Yee; Halenbeck, Robert F.; and Koths, Kirston E., 5,672,343, Cl. 424-85.100.

Kotlobai, Anatoly Alexeevich: See—
Burov, Yury Valentinovich; Goncharenko, Sergei Borisovich; Robakidze, Tatyana Nikolaevna; Portnov, Jury Nikolaevich; Kadyshcheva, Ljubov Vladislavovna; Penke, Ilmar Kharievich; Peganov, Eduard Maximovich; Sukhanova, Svetlana Alexeevna; Tananova, Galina Vasilievna; Voronin, Anatoly Evgenievich; Kotlobai, Anatoly Alexeevich; Oshis, Yanis Fritsevich; and Pchelintseva, Lidia Evgenievna. 5,672,707, Cl. 546-105.000.

Kotte, Wille: See—
Olkoski, Jill C.; Jensen, Tyler D.; Castaneda, Julio C.; James, Gordon Wayne; Kotte, Wille; Werner, William D.; Marvet, Larry E.; Higgins, Roger G.; Finch, Steven Jay; Hafen, Benjamin J.; Williams, William R.; Patino, Joseph; and Chong, Kok Huat. 5,673,314, Cl. 379-433.000.

Koutavas, Ioannis. Dental articulator and method. 5,672,055, Cl. 433-60.000.

Kowal, Shai: See—
Smolansky, Leonid; Kowal, Shai; Goren, Avner; and Galanti, David. 5,673,396, Cl. 395-250.000.

Koyama, Fumio; Yonekubo, Masatoshi; Takeda, Takashi; Arimura, Toshio; Sakata, Hidefumi; and Yokoyama, Osamu, to Seiko Epson Corporation. Focus detection mechanism and optical head and optical storage device that use it. 5,673,241, Cl. 369-44.230.

Koyama, Toshihiro: See—
Ishiyama, Nobuo; Koyama, Toshihiro; Hayashida, Mitsuo; Otsuka, Katsuyuki; Fujii, Masahiro; Kimura, Kunio; Hata, Yoshiyuki; and Miyao, Nobuko. 5,672,597, Cl. 514-210.000.

Koyanagi, Toshiro; Hashimoto, Yayoi; and Takagi, Haruyuki, to Takata Corporation. Apparatus for adjusting fastening position of fastening means in seat belt device. 5,671,971, Cl. 297-250.100.

Kozaki, Shuichi: See—
Horie, Wataru; Okamoto, Masayuki; Yamahara, Motohiro; Shiomi, Makoto; Yamada, Nobuaki; and Kozaki, Shuichi. 5,673,092, Cl. 349-86.000.

Kozasa, Naoto: See—
Suzuki, Kenji; Kobayashi, Takahiro; Kozasa, Naoto; and Fujimori, Jiro. 5,673,251, Cl. 369-275.400.

Kozlowski, Antoni: See—
Harris, J. Milton; and Kozlowski, Antoni. 5,672,662, Cl. 525-408.000.

Kraft, Arno: See—
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Kvaerner Pulping Technologies Aktiebolag: See—
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Zenoni, Pietro; Pedrini, Giovanni; and Castelli, Rosario, 5,671,783, Cl. 139-452.000.

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Rush, Kent R., 5,672,560, Cl. 503-209.000.

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Lindeman, Richard Jay, 5,672,062, Cl. 439-56.000.

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Grijpma, Dirk Wybe; Laimböck, Johannes Fredericus; and Pennings, Albert Johan, 5,672,367, Cl. 426-6.000.

Laine, Tanya M.: See—
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Lakin, Donald D. Flush valve advertising display device. 5,671,558, Cl. 40-661.000.

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Lamatsch, Bernd; Wallquist, Olof; and Schlöder, Ingo, to Ciba-Geigy Corporation. Yellow diketopyrrolopyrrole pigments. 5,672,716, Cl. 548-453.000.

Lamb, Mark Edward: See—
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Landy, Francis Joseph: See—
Schall, Donald Craig; Lavoie, Alvin Charles; Landy, Francis Joseph; and Edwards, Steven Scott, 5,672,379, Cl. 427-137.000.

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Langford, Fred E.; and Johnson, Roger A., to Ederer Corporation. Method & apparatus for providing low speed safety braking for a hoist system. 5,671,912, Cl. 254-267.000.

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Lanyi, Colin K.; and Purdom, Geoff, to Millipore Investment Holdings Limited. Seal for chromatography column having ridges. 5,671,928, Cl. 277-207.00R.

Lapointe, Serge. Awning tensioning structure. 5,671,791, Cl. 160-46.000.

Laramie, Abraham J. Self cleaning sliding door bottom track assembly. 5,671,501, Cl. 16-96.00R.

Larbig, Harald: See—
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Larex A.G.: See—

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Lattaro, Cristina: See—
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Lau, Jesper: See—
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Lauener, Wilhelm F., to Larex A.G. Cooling system for a belt caster and associated methods. 5,671,801, Cl. 164-481.000.

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Laughlin, Richard L.: See—
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Lautenschläger, Horst, to MEPLA-Werke Lautenschläger GmbH & Co. KG. Holding arrangement for drawer bottoms at the side walls of the drawer. 5,671,989, Cl. 312-348.100.

Lavoie, Alvin Charles: See—
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Lavoie, Gregory P.: See—
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Lawman, Gary R.; and Wells, Robert W., to Xilinx, Inc. Concurrent electronic circuit design and implementation. 5,673,198, Cl. 364-489.000.

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Liu, Dexter Chih-Teh, 5,672,090, Cl. 446-268.000.

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Lee, Fung Fung, to Altera Corporation. Programmable logic array integrated circuits with carry and/or cascade rings. 5,672,985, Cl. 326-41.000.

Lee, Hee-Tae: See—
Song, Min-Kyu; Kang, Seung-Goo; Lee, Hee-Tae; Hwang, Nam; Park, Seong-Su; and Kim, Dong-Goo, 5,673,350, Cl. 385-93.000.

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Jang, Cheol-Ung; Lee, Hyong-Gon; and Cho, Sung-Hee, 5,672,989, Cl. 327-143.000.

Lee, Hyunjo: See—
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Fairley, Christopher R.; Thompson, Timothy V.; and Lee, Ken K., 5,672,861, Cl. 250-201.300.

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Lee, Michael: See—
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Lee, Michael J.; Westall, Howard H.; and Connolly, Joseph E., to Chiron Diagnostics Corporation. Mixed luminescent conjugate test. 5,672,475, Cl. 435-6.000.

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Lee, Moon-Geol, to Daewoo Electronics Co., Ltd. Transistor protection circuit of a monitor. 5,673,164, Cl. 361-79.000.

Lee, Nam Su: See—
Lim, Jae Cheol; Yeo, Myung Keon; Lim, Yong Taik; Lee, Nam Su; Seo, Jim Woo; and Shim, Dae Sul, 5,673,084, Cl. 348-341.000.

Lee, Paul, to Enwig Corp. Combination blind controller. 5,671,793, Cl. 160-168.10R.

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Lee, Victor Yee-Way: See—
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Lee, Woo Y.: See—
Stinton, David P.; and Lee, Woo Y., 5,672,420, Cl. 428-288.000.

Lehmick, Michael Albert: See—
Evans, John Harold; and Lehmick, Michael Albert, 5,672,843, Cl. 102-289.000.

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Leitenberger, Werner: See—
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Khosla, Chaitan; Hopwood, David A.; Ebert-Khosla, Suzanne; McDaniel, Robert; Fu, Hong; and Kao, Camilla, 5,672,491, Cl. 435-148.000.

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Byer, Robert L., 5,673,281, Cl. 372-3.000.

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Webber, Daniel J.; and Ratulowski, Wesley, 5,672,050, Cl. 417-18.000.

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- Macasaet, Jorge. Cooking device. 5,671,658, Cl. 99-384.000.
- MacFarlane, Darby Simpson; MacFarlane, David Kenneth; and Billmeyer, Fred W., Jr., to Chromatics Color Sciences International, Inc. Method and apparatus for detecting and measuring conditions affecting color. 5,671,735, Cl. 128-633.000.
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- Mach, Jean-Pierre. See—
- Tersikh, Alexey; Pèlerin, André; and Mach, Jean-Pierre, 5,672,513, Cl. 436-64.000.
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- Mackewicz, Victor L. See—
- Billmers, Robert L.; and Mackewicz, Victor L., 5,672,699, Cl. 536-102.000.
- Mackie, Thomas R. See—
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- MacKinnon, David N. See—
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- Margolin, Lee David. See—
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- Carey, Charles Francis; Fallon, Kenneth Michael; Markovich, Vova Rista; Powell, Douglas Oliver; Vlasak, Gary Paul; and Zarr, Richard Stuart, 5,672,260, Cl. 205-118.000.
- Charlton, Richard Gordon; Corraia, George Charles; Couture, Mark Andrew; Hill, Gary Ray; Horsford, Kibby Barth; Ingraham, Anthony Paul; Lowell, Michael David; Markovich, Vova Rista; Osborne, Gordon Charles, Jr.; and Pierson, Mark Vincent, 5,672,980, Cl. 324-755.000.
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- Martelli, Jean-Marc. See—
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- Matsumoto, Kazuhiko: See—
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- Matsuura, Hirofumi: See—
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- Matsushita Electric Industrial Co., Ltd.: See—
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- Matsuura, Takano: See—
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- Mattes, Bernard; Schumacher, Hartmut; Nitschke, Werner; and Henne, Ralf, to Morton International, Inc.; and Robert Bosch GmbH. Seat belt latch sensor, 5,672,916, Cl. 307-10.100.
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- Maxfield-Bahr, Michelle: See—
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- May, Clayton A.; Breitigam, Walter V.; and Bauer, Ronald S., to Shell Oil Company. Process for preparing thermoset composite articles, 5,672,311, Cl. 264-347.000.
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- Mayerovitch, M. Dave. Razor blade assembly, 5,671,534, Cl. 30-41.000.
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 Fredrick, Mark D., 5,671,976, Cl. 297-452.180.
 Mitomo, Mamoru; Hirosuru, Hideki; Suematsu, Hisayuki; and Nishimura, Toshiyuki, to National Institute for Research in Inorganic Materials. Superplastic silicon nitride sintered body, 5,672,553, Cl. 501-97.000.
 Mitox, Inc.: See—
 Gyuris, Jen; Lamphere, Lou; and Beach, David, 5,672,508, Cl. 435-320.100.
 Mitsubishi Chemical Corporation: See—
 Kushihe, Sachiko; and Tamura, Masao, 5,672,482, Cl. 435-15.000.
 Mori, Tomoyuki; Takai, Masaki; and Inoue, Tomohiko, 5,672,766, Cl. 568-454.000.
 Takagi, Kiyoji; Nishida, Koji; and Kojima, Megumi, 5,672,679, Cl. 528-501.000.
 Mitsubishi Denki Kabushiki Kaisha: See—
 Arima, Hideaki; Ohi, Makoto; Ajika, Natsumi; Hachisuka, Atsushi; and Okudaira, Tomonori, 5,672,533, Cl. 437-52.000.
 Fukui, Wataru; and Kozuka, Yasukazu, 5,671,714, Cl. 123-414.000.
 Furutani, Kiyohiro, 5,673,231, Cl. 365-203.000.
 Furutani, Kiyohiro, 5,673,232, Cl. 365-226.000.
 Ito, Hideo; Morimoto, Shoji; Itoh, Junko; Yamada, Akira; Hattori, Atsushi; and Sakaiya, Hiroyuki, 5,672,935, Cl. 313-406.000.
 Kajikawa, Yasutomo; Miyashita, Motoharu; Karakida, Shoichi; and Shima, Akihiro, 5,673,283, Cl. 372-46.000.
 Kawai, Hiroyuki; Inoue, Yoshitsugu; and Nakamura, Hisashi, 5,673,422, Cl. 395-519.000.
 Kurafuchi, Kazuhiko; Seki, Hiroshi; and Takada, Mitsuyuki, 5,672,965, Cl. 324-158.100.
 Kuriyama, Hirotada, 5,673,230, Cl. 365-203.000.
 Kujumdar, Gourab; Mori, Satoshi; Noda, Sukehisa; Iwagami, Tooru; Takagi, Yoshio; and Kawafuji, Hisashi, 5,672,910, Cl. 257-690.000.
 Nakano, Toshiya, 5,672,917, Cl. 307-116.000.
 Shikama, Shinsuke, 5,671,993, Cl. 353-77.000.
 Shiota, Hisashi, 5,672,951, Cl. 320-5.000.
 Watanabe, Hirofumi, 5,672,954, Cl. 322-28.000.
 Watanabe, Niyo; Nakatsu, Yuji; Yamada, Keiki; and Ohnishi, Masaru, 5,672,559, Cl. 503-201.000.
 Mitsubishi Jidosha Kogyo Kabushiki Kaisha: See—
 Kawashima, Naoki; Murase, Yoshihiro; Nishikawa, Eri; and Kurachi, Tamotsu, 5,672,946, Cl. 318-444.000.
 Mitsubishi Jukogyo Kabushiki Kaisha: See—
 Hanada, Shuichi; Seike, Yajuro; Shojima, Toshikazu; Moribe, Takashi; Takano, Haruhiko; and Nishimura, Ichiro, 5,672,006, Cl. 366-84.000.
 Mitsubishi Jukogyo Kabushiki Kaisha: See—
 Baba, Yasuyuki; Okamoto, Arifumi; and Niuchi, Kunio, 5,671,676, Cl. 101-425.000.
 Mitsubishi Kasei Engineering Company: See—
 Kushihe, Sachiko; and Tamura, Masao, 5,672,482, Cl. 435-15.000.
 Mitsubishi Materials Corporation: See—
 Hagiwara, Masahiro; and Nishihara, Akira, 5,672,427, Cl. 428-403.000.
 Mitsuhashi, Masakazu: See—
 Kurimoto, Masashi; and Mitsuhashi, Masakazu, 5,672,692, Cl. 530-413.000.
 Mitsui, Hidero: See—
 Aoki, Hisashi; Mitsui, Hidero; and Noda, Yasushi, 5,672,441, Cl. 429-97.000.
 Mitsui Toatsu Chemicals, Inc.: See—
 Takuma, Keisuke; Misawa, Tsutami; Sugimoto, Kenichi; Nishimoto, Taizo; Tsuda, Takeshi; and Umebara, Hideki, 5,672,462, Cl. 430-270.150.
 Miura, Yuusuke: See—
 Kawai, Masumi; and Miura, Yuusuke, 5,671,743, Cl. 128-654.000.
 Miyaji, Tomomi; Goto, Masahisa; and Narita, Keiichi, to Idemitsu Kosan Co., Ltd. Lubricating oil composition for diesel engine and method for lubrication of diesel engine using same, 5,672,570, Cl. 508-192.000.
 Miyakawa, Katsutoshi; Tsunashima, Kenji; and Aoki, Seizo, to Toray Industries, Inc. Polyester film reflector for a surface light source, 5,672,409, Cl. 428-141.000.
 Miyake, Tomoyuki: See—
 Sekimoto, Yoshihiro; Nakata, Yasuo; Ogata, Nobuo; and Miyake, Tomoyuki, 5,673,247, Cl. 369-112.000.
 Miyake, Yoshiharu: See—
 Serizawa, Yoshihisa; and Miyake, Yoshiharu, 5,671,634, Cl. 72-256.000.
 Miyano, Tsuyoshi, to Alps Electric Co., Ltd. Method for controlling color image data, 5,672,016, Cl. 400-120.020.
 Miyao, Nobuko: See—
 Ishiyama, Nobuo; Koyama, Toshihiro; Hayashida, Mitsuo; Otsuka, Katsuyuki; Fujii, Masahiro; Kimura, Kunio; Hata, Yoshiyuki; and Miyao, Nobuko, 5,672,597, Cl. 514-210.000.
 Miyashita, Hideaki: See—
 Fujii, Ikuo; Iwabuchi, Yoshiharu; and Miyashita, Hideaki, 5,672,489, Cl. 435-72.000.
 Miyashita, Motoharu: See—
 Kajikawa, Yasutomo; Miyashita, Motoharu; Karakida, Shoichi; and Shima, Akihiro, 5,673,283, Cl. 372-46.000.
 Miyashita, Yumiko: See—
 Jikihara, Kazuo; Suzuki, Hisato; Miyashita, Yumiko; Maruyama, Toshihiro; Usui, Yoshihiro; Makimura, Futaba; and Morishige, Jiro, 5,672,566, Cl. 504-130.000.
 Miyata, Osamu: See—
 Tsuji, Masahiro; and Miyata, Osamu, 5,672,550, Cl. 437-219.000.
 Miyata, Tomoyasu; and Sakamoto, Koichi, to Murata Manufacturing Co., Ltd. Schottky carrier diode with plasma treated layer, 5,672,904, Cl. 257-472.000.
 Miyatake, Hideki: See—
 Ono, Koichi; Yoshida, Yutaka; Miyatake, Hideki; and Horiba, Tamotsu, 5,673,150, Cl. 359-603.000.
 Miyauchi, Yasuo; Tajika, Hiroshi; and Uchida, Haruo, to Canon Kabushiki Kaisha. Recording apparatus having urging member to prevent floating of recording sheet, 5,673,074, Cl. 347-104.000.
 Mizrahi, Tamir; Brons, Robert; Shagas, Gennady; and Marks, Neil, to Red Sea Fish Pharm Ltd. Fluid treatment apparatus, 5,672,268, Cl. 210-110.000.
 Mizrahi, Victor, to CIENA Corporation. WDM optical communication systems with wavelength stabilized optical selectors, 5,673,129, Cl. 359-124.000.
 Mizukami, Hiroshi; Uehara, Hiroshi; and Okada, Shinichi, to Kabushiki Kaisha Daikin Seisakusho. Clutch cover assembly, 5,671,834, Cl. 192-89.230.
 Mizuno, Yoshikazu: See—
 Tanaka, Tadashi; Mizuno, Yoshikazu; Sugita, Mitsuru; Sawano, Katsumi; and Ono, Akira, 5,671,835, Cl. 192-107.000.
 MKS Japan, Inc.: See—
 Suzuki, Isao, 5,672,821, Cl. 73-202.000.
 Mladjan, Gary: See—
 Chin, Richard; Mladjan, Gary; Shaffer, Stephen; and Stenton, Conrad, 5,673,143, Cl. 359-354.000.
 Mlynko, Walter E.: See—
 Carl, Daniel A.; Kenney, Donald M.; Mlynko, Walter E.; and Van Nguyen, Son, 5,672,537, Cl. 437-67.000.
 Mobil Oil Corporation: See—
 Wagner, John R., Jr.; and Mount, Eldridge M., III, 5,672,383, Cl. 427-228.000.
 Moeller, Beate: See—
 Dorsel, Andreas; Donnerhacke, Karl-Heinz; and Moeller, Beate, 5,673,096, Cl. 351-211.000.
 Mohan, Deepak: See—
 Huai, Reijane; Daly, Robert; Curti, Walter; Mohan, Deepak; Chueh, James Kuang-Ru; and Louie, Larry, 5,673,381, Cl. 395-180.000.
 Mohr, Heinz: See—
 Heinz, Dieter; Mohr, Heinz; and Weitzel, Joachim, 5,672,200, Cl. 106-403.000.
 Mohr, Jürgen: See—
 Bickel, Martin; Brocks, Dietrich; Burghard, Harald; Günzler, Volkmar; Henke, Stephan; Hanauske-Abel, Hartmut; Mohr, Jürgen; and Tschank, Georg, 5,672,614, Cl. 514-454.000.
 Mohri, Masahide; Matsuda, Norio; Tanaka, Shinichiro; and Uchida, Yoshio, to Sumitomo Chemical Company, Limited. Alumina composition, alumina molded article, alumina ceramics, and process for producing ceramics, 5,672,554, Cl. 501-127.000.
 Mokuo, Shori: See—
 Yokomizo, Kenji; Tanaka, Hiroshi; Mokuo, Shori; and Minami, Teruomi, 5,671,544, Cl. 34-78.000.
 Molecular Dynamics, Inc.: See—
 Kain, Robert C., 5,672,880, Cl. 250-458.100.
 Molecumetics, Ltd.: See—
 Kahn, Michael, 5,672,681, Cl. 530-317.000.
 Moll, Stefan; Bausch, Uwe; Linke, Stefan; Reichert, Dirk-Stefan; Gippert, Karl-Ludwig; and Falb, Wolfgang, to Drägerwerk Aktiengesellschaft. Anesthetic evaporator, 5,671,729, Cl. 128-203.140.
 Möller, Henry Madsen: See—
 Martensen, Lars; and Möller, Henry Madsen, 5,671,653, Cl. 92-57.000.
 Molnar, Ronald J.: See—
 Glenn, Thomas P.; Molnar, Ronald J.; and Hollaway, Roy Dale, 5,672,909, Cl. 257-668.000.
 Molten Corporation: See—
 Kawahara, Seiji; and Hamamoto, Yoshiaki, 5,671,513, Cl. 24-573.100.
 Monell Chemical Senses Center: See—
 Clark, Larry; Mason, J. Russell; Shah, Pankaj S.; and Dolbeer, Richard A., 5,672,352, Cl. 424-405.000.
 Monk, David B.; Woodbury, Mark B.; and Hansen, David D., to Morton International, Inc. Inflator initiator with zener diode electrostatic discharge protection, 5,672,841, Cl. 102-202.400.
 Monsanto Company: See—
 Baile, Clifton Augustus; Day, Jeffrey Wilson; Hampton, Thomas Riley, II; Kasser, Thomas Richard; Pike, James Brian; Smith, Jonathan Paul; and Ziemann, Lyle Elmore, 5,672,357, Cl. 424-438.000.
 Diaz, Iris Margarita; Gummeson, Joel Jeffrey; and Heining, Mark Weir, 5,672,579, Cl. 510-405.000.

- Hamper, Bruce C.; and McDermott, Lisa L., 5,672,715, Cl. 548-374.100.
Kharitonov, Alexander Sergeevich; Pano, Gennady Ivanovich; Shevel-eva, Galina Anatolevna; Pirutko, Larisa Vladimirovna; Voskresenskaya, Tatyana Pavlovna; and Sobolev, Vladimir Ivanovich, 5,672,777, Cl. 568-800.000.
- Monson, Tyrus K.: See—
Arthur, John R.; Graupner, Robert K.; Monson, Tyrus K.; Van Vechten, James A.; and Wolff, Ernest G., 5,672,214, Cl. 136-250.000.
- Montagnier, Luc: See—
Kieny, Marie-Paule; Rautmann, Guy; Lecocq, Jean-Pierre; Hobson, Simon Wain; Girard, Marc; and Montagnier, Luc, 5,672,689, Cl. 530-395.000.
- Moody, John W.; and Withey, Charles, to Pontiac Coil, Inc. Bobbin concentrically supporting multiple electrical coils, 5,673,013, Cl. 336-192.000.
- Moody, Paul E., to United States of America, Navy. Projectile launcher, 5,671,722, Cl. 124-22.000.
- Moolenaar, Bruce Edward: See—
Nguyen, Kha; White, Theodore Curt; and Moolenaar, Bruce Edward, 5,673,415, Cl. 395-476.000.
- Moon, Gyeong Ho, to LG Electronics Inc. Washings weight detection apparatus and method thereof, 5,671,493, Cl. 8-159.000.
- Moore Business Forms, Inc.: See—
Baxter, George, 5,672,104, Cl. 462-18.000.
- Moore, James O.: See—
Klauder, Philip R.; Moore, James O.; and O'Brien, Christopher J., 5,672,808, Cl. 73-4.00R.
- Moore, John T.: See—
Thakur, Randhir P. S.; Rolfson, J. Brett; Gonzalez, Fernando; and Moore, John T., 5,672,539, Cl. 437-70.000.
- Moore Products Co.: See—
Klauder, Philip R.; Moore, James O.; and O'Brien, Christopher J., 5,672,808, Cl. 73-4.00R.
- Moore, Richard Christopher: See—
Keenan, Richard; Moore, Richard Christopher; and Keenan, John, 5,671,891, Cl. 239-676.000.
- Mordchai, Alexander; and Buttrill, Sidney E. Jr., to Varian Associates, Inc. Mass spectrometer system and method for transporting and analyzing ions, 5,672,868, Cl. 250-281.000.
- Moreau, Jacques-Pierre: See—
Shalaby, Shalaby W.; Jackson, Steven A.; and Moreau, Jacques-Pierre, 5,672,659, Cl. 525-54.100.
- Moreau, Serge; and Barbe, Christian, to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude, Process for the separation of mixtures of oxygen and of nitrogen employing an adsorbent with improved porosity, 5,672,195, Cl. 95-96.000.
- Moreland, Carl W., to Analog Devices, Inc. Gain-compensating differential reference circuit, 5,673,047, Cl. 341-139.000.
- Morgan, Benji Dawn: See—
Sprang, Troy Alan; Douglas, Annmarie Veronica; and Morgan, Benji Dawn, 5,672,306, Cl. 264-136.000.
- Morgan, Rickey L.: See—
Chatterji, Jiten; Morgan, Rickey L.; and Davis, Garland W., 5,672,203, Cl. 106-808.000.
- Morganelli, Paul L.; and Frost, Douglas E., to Dexter Corporation, The. Long open time polyamide compositions, 5,672,677, Cl. 528-339.300.
- Mori, Chuizo, to Carl Manufacturing Co., Ltd. Paper cutter, 5,671,647, Cl. 83-56.000.
- Mori, Hitomi: See—
Nakai, Satoru; Aihara, Koutoku; Mori, Hitomi; Tominaga, Michiaki; Adachi, Masakazu; Ichikawa, Hiroyuki; Akamatsu, Seiji; and Saito, Fumio, 5,672,603, Cl. 514-254.000.
- Mori, Keiji: See—
Tsuchiya, Tohru; Akimoto, Taizo; Mori, Keiji; Kojima, Yasushi; Dietzel, Günter; Petz, Gerhard; and Köpcke, Andreas, 5,672,514, Cl. 436-86.000.
- Mori, Satoshi: See—
Majumdar, Gourab; Mori, Satoshi; Noda, Sukehisa; Iwagami, Tooru; Takagi, Yoshio; and Kawafuji, Hisashi, 5,672,910, Cl. 257-690.000.
- Mori, Shigeo: See—
Tsuchiya, Shinichi; and Mori, Shigeo, 5,672,068, Cl. 439-157.000.
- Mori, Tomoyuki; Takai, Masaki; and Inoue, Tomohiko, to Mitsubishi Chemical Corporation. Method for producing aldehydes, 5,672,766, Cl. 568-454.000.
- Mori, Yoshiaki: See—
Omori, Nagato; Hamaji, Yukio; Mori, Yoshiaki; and Sakabe, Yukio, 5,672,220, Cl. 156-89.000.
- Mori, Yukio: See—
Sawada, Yukio; Mori, Yukio; Nagasaka, Ryo; and Takiguchi, Tomoyuki, 5,672,822, Cl. 73-202.500.
- Yamashita, Shugo; Okino, Toshiyuki; Inuma, Toshiya; Maenaka, Akihiro; Murata, Haruhiko; and Mori, Yukio, 5,673,081, Cl. 348-42.000.
- Moribe, Takashi: See—
Hanada, Shuichi; Seike, Yajuro; Shojima, Toshikazu; Moribe, Takashi; Takano, Haruhiko; and Nishimura, Ichiro, 5,672,006, Cl. 366-84.000.
- Morigaki, Masakazu: See—
Seto, Nobuo; Yoshioka, Yasuhiro; and Morigaki, Masakazu, 5,672,722, Cl. 549-398.000.
- Morikawa, Shinsuke; Samejima, Shunichi; Yoshitake, Masaru; and Tatematsu, Shin, to Asahi Glass Company Ltd. Process for producing 1,1-dichloro-12,2,2-tetrafluoroethane, 5,672,785, Cl. 570-163.000.
- Morikawa, Sumio; and Zakohji, Nobuyuki, to Ohyo Diesel Co., Ltd. Shearing machine, 5,671,892, Cl. 241-101.730.
- Morimoto, Hiroshi: See—
Goto, Masahito; Morimoto, Hiroshi; Shimada, Yasunori; Nagayasu, Takayoshi; Hirata, Mitsuaki; Hibino, Yoshitaka; and Yamamoto, Tomohiko, 5,672,251, Cl. 204-192.170.
- Morimoto, Masayuki: See—
Okihara, Naoto; Kojima, Katsuo; Morimoto, Masayuki; Ikeda, Matsujiro; and Tanioka, Naohiro, 5,673,011, Cl. 335-78.000.
- Morimoto, Seiichi; and Andideh, Ebrahim, to Intel Corporation. Elimination of pad conditioning in a chemical mechanical polishing process, 5,672,095, Cl. 451-41.000.
- Morimoto, Shoji: See—
Ito, Hideya; Morimoto, Shoji; Itoh, Junko; Yamada, Akira; Hattori, Atsushi; and Sakaiya, Hiroyuki, 5,672,935, Cl. 313-406.000.
- Morishige, Jiro: See—
Jikihara, Kazuo; Suzuki, Hisato; Miyashita, Yumiko; Maruyama, Toshihiro; Usui, Yoshihiro; Makimura, Futaba; and Morishige, Jiro, 5,672,566, Cl. 504-130.000.
- Morita, Tetsuya, to Sony Corporation. Plasma discharge apparatus, 5,672,208, Cl. 118-723.00E.
- Morita, Toshikazu, to Nohmi Bosai Ltd. Smoke detector, adjustment apparatus and test apparatus for such a smoke detector, 5,673,027, Cl. 340-630.000.
- Morita, Yutaka: See—
Kato, Heizaburo; Tsumura, Yuki; Ohwaki, Takayuki; Nakajima, Masaharu; and Morita, Yutaka, 5,672,364, Cl. 425-89.000.
- Moritake, Takeshi: See—
Ishida, Fumiaki; Fujio, Masayuki; Ashihara, Hiromoto; and Moritake, Takeshi, 5,672,052, Cl. 417-312.000.
- Moritz, Alex: See—
Bronicki, Lucien Y.; Rioulet, Gilbert; Amir, Nadav; Grassianni, Moshe; Elovic, Asher; Gilon, Yoel; and Moritz, Alex, 5,671,601, Cl. 60-641.500.
- Morizot, Gerard: See—
Rilly, Gerard; Duran, José I. Rodriguez; Roth, Harald; Morizot, Gerard; and Schulz, Thomas, 5,673,184, Cl. 363-21.000.
- Morofuji, Tsuyoshi: See—
Ohara, Toru; Fujiwara, Akihiro; Notagashira, Hidefumi; Iizuka, Toshiaki; Tamekuni, Yasuhiro; Kino, Yoshiki; Morofuji, Tsuyoshi; Azusawa, Katsumi; and Sato, Hidekage, 5,672,862, Cl. 250-204.000.
- Morr, James J.: See—
Devanathan, Deva; Krebs, Steve; Lin, Steve T.; Morr, James J.; and Panchison, Clarence M., 5,672,284, Cl. 219-121.640.
- Morris, Geoffrey P.; and Budd, Kenton D., to Minnesota Mining and Manufacturing Company. Encapsulated retroreflective elements and method for making same, 5,673,148, Cl. 359-536.000.
- Morris, J. Lee: See—
Barker, Jeremy; Swayer, Jeffrey; Morris, J. Lee; Guindy, Wade; and Flemming, Frederick, 5,672,446, Cl. 429-218.000.
- Morrison, Sherie L.: See—
Friden, Phillip M.; Starzyk, Ruth M.; Morrison, Sherie L.; and Park, Eun-Chung, 5,672,683, Cl. 530-350.000.
- Mortazavi, Mohammad: See—
Shen, Sunny S.; Yoon, Hyun Nam; and Mortazavi, Mohammad, 5,672,296, Cl. 252-299.010.
- Morton International, Inc.: See—
Mattes, Bernard; Schumacher, Hartmut; Nitschke, Werner; and Henne, Ralf, 5,672,916, Cl. 307-10.100.
- Monk, David B.; Woodbury, Mark B.; and Hansen, David D., 5,672,841, Cl. 102-202.400.
- Morton, Roger A., to Eastman Kodak Company. Method for enlarging images for lenticular prints, 5,673,100, Cl. 355-22.000.
- Mosel Vitelic, Inc.: See—
Hsia, Liang-Choo; and Chang, Thomas, 5,672,243, Cl. 156-659.110.
- Mosher, Charles C.: See—
Chapin, David A.; and Mosher, Charles C., 5,673,191, Cl. 364-420.000.
- Moshonas, Georges. Heated air-circulating oven, 5,671,660, Cl. 99-443.00C.
- Moss, Neil: See—
Gauthier, Jean André; and Moss, Neil, 5,672,586, Cl. 514-18.000.
- Moss, Thomas Hudson, III: See—
Sargent, R. Richard; Alender, Jeffrey; Randolph, and Moss, Thomas Hudson, III, 5,672,279, Cl. 210-698.000.
- Motika, Franco: See—
Kelley, Edward E.; Daurer, Norman J.; Motika, Franco; and Ahsan, Aziz M., 5,673,216, Cl. 364-771.000.
- Moto, Akihiro; Nagaishi, Tatsuki; and Itozaki, Hideo, to Sumitomo Electric Industries, Ltd. Method and apparatus for manufacturing superconducting components via laser ablation followed by laser material processing, 5,672,210, Cl. 118-726.000.
- Motorola, Inc.: See—
Christopher, Gary Lee, 5,672,979, Cl. 324-754.000.
- Colvis, Christopher O.; Schwent, Dale G.; and Yochem, Donald M., 5,673,287, Cl. 375-216.000.
- Engles, Bruce E.; and Knightly, Daniel C., 5,673,227, Cl. 365-200.000.
- Ferrer, Enrique; and Hansen, Kenneth A., 5,672,999, Cl. 330-138.000.
- Gabrielle, Paula Christine, 5,673,036, Cl. 340-825.440.
- Hansen, Robert Karl, 5,673,212, Cl. 364-718.000.
- Keba, James Michael; and Powell, Clinton C., II, 5,673,197, Cl. 364-487.000.

- Kim, Jin Dong; Crnkovic, James John; Klomdorf, Armin Werner; and Peckham, David Sutherland, 5,673,001, Cl. 330-284.000.
- Maine, Kristine Patricia, 5,673,256, Cl. 370-271.000.
- Ofkoski, Jill C.; Jensen, Tyler D.; Castaneda, Julio C.; James, Gordon Wayne; Kotte, Wille; Werner, William D.; Marvet, Larry E.; Higgins, Roger G.; Finch, Steven Jay; Hafen, Benjamin J.; Williams, William R.; Patino, Joseph; and Chong, Kok Huat, 5,673,314, Cl. 379-433.000.
- Reyes, Alberto J.; Yeap, Gary K.; and Garvey, James P., 5,673,420, Cl. 395-500.000.
- Smolansky, Leonid; Kowal, Shai; Goren, Avner; and Galanti, David, 5,673,396, Cl. 395-250.000.
- Sundstrom, Ray D.; Schwartz, Daniel B.; Chun, Christopher K. Y.; and Shook, Stephen G., 5,673,130, Cl. 359-158.000.
- Zocher, Andrew Gerald, 5,673,003, Cl. 330-305.000.
- Motoyama, Nobuhiko; Katsuyama, Yukio; and Sugihara, Hiroyuki, to Fujitsu Limited. Magnetic tape library apparatus having leader block engaging mechanism, 5,673,155, Cl. 360-92.000.
- Mount, Eldridge M., III: See—
Wagner, John R., Jr.; and Mount, Eldridge M., III, 5,672,383, Cl. 427-228.000.
- Mount Sinai School of Medicine: See—
Johnson, Edward M.; and Bergemann, Andrew D., 5,672,479, Cl. 435-71.000.
- Mouri, Makoto; Usuki, Arimitsu; and Sato, Norio, to Kabushiki Kaisha Toyota Chuo Kenkyusho. Process for producing reclaimed rubber or unvulcanized reclaimed rubber, 5,672,630, Cl. 521-41.000.
- Mouri, Takashi: See—
Okada, Masaki; and Mouri, Takashi, 5,672,329, Cl. 423-599.000.
- Moussally, George; Ziernicki, Robert; Fialer, Philip A.; and Heinzman, Fred Judson. Three-dimensional underground imaging radar system, 5,673,050, Cl. 342-22.000.
- Mowell, Robert Michael: See—
Tepas, John Milton; and Mowell, Robert Michael, 5,671,803, Cl. 165-41.000.
- MRA Laboratories, Inc.: See—
Maher, Gale H.; and Bheemini, Veerabhadrao, 5,672,378, Cl. 427-123.000.
- Muegge, Mark: See—
Amittai, Zwi; and Muegge, Mark, 5,673,277, Cl. 371-22.300.
- Mueller, Bernd; Sauter, Hubert; Wingert, Horst; Koenig, Hartmann; Roehl, Franz; Ammermann, Eberhard; and Lorenz, Gisela, to BASF Aktiengesellschaft. Heteroaromatic compounds and crop protection agents containing them, 5,672,616, Cl. 514-378.000.
- Mueller, Dennis L.: See—
Gokhale, Kalyan P.; and Mueller, Dennis L., 5,672,944, Cl. 318-254.000.
- Mueller, John F. Method and apparatus for constructing a retaining wall, 5,671,584, Cl. 52-780.000.
- Mueller, Richard A.: See—
Nugent, Sean T.; and Mueller, Richard A., 5,672,769, Cl. 568-496.000.
- Mueller, Steven Holt, to International Business Machines Corporation. Method and system for displaying error messages, 5,673,390, Cl. 395-185.100.
- Mugiya, Hiroshi, to Fujitsu, Ltd. Fabrication process for circuit substrate having interconnection leads, 5,671,531, Cl. 29-840.000.
- Muhle, Michael Elroy; Agapiou, Agapios Kyriacos; and Renola, Gary Thomas, to Exxon Chemical Patents Inc. Process for transitioning between incompatible polymerization catalysts, 5,672,666, Cl. 526-82.000.
- Muhle, Michael Elroy: See—
Agapiou, Agapios Kyriacos; Muhle, Michael Elroy; and Renola, Gary Thomas, 5,672,665, Cl. 526-82.000.
- Mühleck, Peter; and Nather, Heinz, to Temic Telefunken microelectronic GmbH. Modular photo interrupters manufactured on mounting strips, 5,672,884, Cl. 250-551.000.
- Mühler, Andreas: See—
Krause, Werner; Balzer, Thomas; Press, Wolf-Rüdiger; Schuhmann-Giampieri, Gabriele; Speck, Ulrich; and Mühler, Andreas, 5,672,335, Cl. 424-9.420.
- Mukai, Touji: See—
Watanabe, Atsuo; Ikeda, Takahide; Tsukuda, Kiyoshi; Hirao, Mitsuru; Mukai, Touji; and Kamei, Tatsuya, 5,672,897, Cl. 257-370.000.
- Mukai, Yasuo: See—
Sagisaka, Yasuo; Nakayama, Masaaki; Mukai, Yasuo; Yamashita, Yukihiko; and Iida, Hisashi, 5,672,817, Cl. 73-118.100.
- Mukaida, Shingo; Iguchi, Kazuhiko; and Tanaka, Kenji, to Sanyo Chemical Industries, Inc. Water absorbent composition and material, 5,672,419, Cl. 428-283.000.
- Müller, Anton, to Eisen- und Drahtwerk Erlau Aktiengesellschaft. Seating system with horizontal bar having seat portions connected thereto, 5,671,975, Cl. 297-445.100.
- Müller, Klaus-Helmut; König, Klaus; Findeisen, Kurt; Santel, Hans-Joachim; Lürsen, Klaus; Schmidt, Robert R.; and Dutzmann, Stefan, to Bayer Aktiengesellschaft. Herbicidal and fungicidal substituted triazolinones, 5,672,713, Cl. 548-263.800.
- Müller, Nikolaus; and Essert, Thomas, to Bayer Aktiengesellschaft. Process for the preparation of 2-substituted cyclopentanones, 5,672,763, Cl. 568-355.000.
- Müller, Siegfried: See—
Bühler, Jürg; and Müller, Siegfried, 5,672,317, Cl. 422-65.000.
- Multi-Flex Seals, Inc.: See—
Clicksman, Milton, 5,671,840, Cl. 200-302.300.
- Multi-Tech Systems, Inc.: See—
- Sharma, Raghu; Davis, Jeffrey P.; Gunn, Timothy D.; Li, Ping; Maitra, Sidhartha; Thanawala, Ashish; and Young, Steve, 5,673,257, Cl. 370-286.000.
- Sharma, Raghu; Davis, Jeffrey P.; Gunn, Timothy D.; Li, Ping; Maitra, Sidhartha; Thanawala, Ashish; and Young, Steve, 5,673,268, Cl. 370-522.000.
- Multotec Cyclones (PTY) Limited: See—
Terblanche, Nardus, 5,672,267, Cl. 209-164.000.
- Mumby, Edward Sheldon: See—
Meador, Richard A.; Meisner, James Edward; Hall, Ronald Anthony; Thompson, Larry Wayne; and Mumby, Edward Sheldon, 5,672,971, Cl. 324-338.000.
- Munemoto, Eiji: See—
Kato, Toshihiro; Kuriyama, Takao; Takei, Tatsuya; Kawai, Takashi; Murakami, Hiroshi; Munemoto, Eiji; Ohta, Norio; and Shimada, Koji, 5,672,460, Cl. 430-198.000.
- Mur, Gilles: See—
Allas, Michel; Chassaing, Serge; Gay, Michel; and Mur, Gilles, 5,672,646, Cl. 524-357.000.
- Murai, Ryukichi, to YKK Corporation. Cord fastener, 5,671,508, Cl. 24-115.00K.
- Murai, Takashi: See—
Ohama, Shinji; Shimizu, Norio; Murai, Takashi; Saotome, Ichiro; Inoue, Masatsugu; and Fukuda, Kumio, 5,672,934, Cl. 313-402.000.
- Murakami, Hiroshi: See—
Kato, Toshihiro; Kuriyama, Takao; Takei, Tatsuya; Kawai, Takashi; Murakami, Hiroshi; Munemoto, Eiji; Ohta, Norio; and Shimada, Koji, 5,672,460, Cl. 430-198.000.
- Murakami, Shinya; Kamikawa, Youji; Izumi, Sinichiro; Anai, Noriyuki; Satoh, Takami; Shiraiishi, Hirofumi; Harada, Koji; Tomoda, Takayuki; and Tanaka, Hiroshi, to Tokyo Electron Limited; and Tokyo Electron Saga Limited. Washing apparatus, and washing method, 5,671,764, Cl. 134-200.000.
- Murakami, Takaaki: See—
Yuyama, Shoji; Murakami, Takaaki; and Kano, Kunihiro, 5,671,592, Cl. 53-493.000.
- Muraoka, Michiaki: See—
Toyonaga, Masahiko; and Muraoka, Michiaki, 5,673,200, Cl. 364-490.000.
- Murase, Yoshihiro: See—
Kawashima, Naoki; Murase, Yoshihiro; Nishikawa, Eri; and Kurachi, Tamotsu, 5,672,946, Cl. 318-444.000.
- Murata, Haruhiko: See—
Yamashita, Shugo; Okino, Toshiyuki; Inuma, Toshiya; Maenaka, Akihiro; Murata, Haruhiko; and Mori, Yukio, 5,673,081, Cl. 348-42.000.
- Murata, Hiroyuki: See—
Koishikawa, Kouji; Murata, Hiroyuki; Kawamura, Hiroshi; and Yoshida, Hiroyuki, 5,671,779, Cl. 138-109.000.
- Murata Manufacturing Co., Ltd.: See—
Miyata, Tomoyasu; and Sakamoto, Koichi, 5,672,904, Cl. 257-472.000.
- Omori, Nagato; Hamaji, Yukio; Mori, Yoshiaki; and Sakabe, Yukio, 5,672,220, Cl. 156-89.000.
- Tokunaga, Yuichiro; and Inao, Takeshi, 5,671,632, Cl. 72-275.000.
- Murata Mfg. Co., Ltd.: See—
Nakashima, Tatsuya; and Shimizu, Tomoyasu, 5,673,392, Cl. 395-200.010.
- Murata, Yukio, to Canon Kabushiki Kaisha. Encoding processing apparatus, 5,673,119, Cl. 358-448.000.
- Murayama, Keishiro; and Ebisawa, Osamu, to Max Co., Ltd. Screw supply device for coupled screw tightening machine, 5,671,645, Cl. 81-434.000.
- Murayama, Teichi; and Maruyama, Takashi, to Kohjin Co., Ltd. Temperature sensitive water absorbing and discharging polymer composition, 5,672,656, Cl. 524-831.000.
- Murdock, Andrew: See—
Newton, Alex; Taylor, Malcolm R.; Murdock, Andrew; and Clegg, John M., 5,671,818, Cl. 175-393.000.
- Murosaki, Mikio: See—
Kaji, Yukio; Kanemitsu, Norio; and Murosaki, Mikio, 5,673,124, Cl. 358-474.000.
- Murphy, Patrick Michael; Schleinitz, Henry Max; and Van Bramer, David John, to Du Pont de Nemours, E. I., and Company. Synthesis of tetrafluoroethylene, 5,672,784, Cl. 570-159.000.
- Murr, Donna J.: See—
Codina, George; Ramamoorthy, Chandrasekar; and Murr, Donna J., 5,672,831, Cl. 73-861.120.
- Murthi, Raghu; and Terrick, Scott, to Intel Corporation. Memory testing in a multiple processor computer system, 5,673,388, Cl. 395-183.180.
- Muschelweiz, Kenneth J.; and Posey, Robert G., to Hoechst Celanese Corporation. Silicone release coated polyester film and a process for coating the film, 5,672,428, Cl. 428-352.000.
- Mussi, Edward F.: See—
Jones, Christopher L.; and Mussi, Edward F., 5,672,505, Cl. 435-283.100.
- Myerholtz, Carl: See—
Flory, Curt A.; Hansen, Stuart C.; and Myerholtz, Carl, 5,672,870, Cl. 250-292.000.
- Mylavarabhatla, Satya P.: See—
Hepner, Daniel W.; Carlino, Charles J.; and Mylavarabhatla, Satya P., 5,673,384, Cl. 395-182.090.
- N.A. Taylor Co., Inc.: See—
Kimball, William C., 5,671,692, Cl. 114-219.000.

N.V. Bekeert S.A.: See—
Samyn, Johan; and Van Looek, Walter, 5,672,859, Cl. 235-468.000.
N.V. Michael Van de Wiele: See—
Dewispelaere, Andre, 5,671,784, Cl. 139-455.000.
N.V. Michel Van de Wiele: See—
Lemaire, Thierry; and Derudder, Carlos, 5,671,782, Cl. 139-85.000.
Naba, Takayuki: See—
Komorita, Hiroshi; Tanaka, Tadashi; Naba, Takayuki; and Hino, Takashi, 5,672,848, Cl. 174-260.000.
Nadd, Bruno C., to International Rectifier Corporation. Charge pump circuit for high side switch, 5,672,992, Cl. 327-390.000.
Nadeau, Joseph N.; Lewis, John L.; Carr, Roger W.; and Prather, Bryan E., to Westinghouse Electric Corporation. Method and apparatus for monitoring of spring pack displacement of a motor-operated valve, 5,671,635, Cl. 73-168.000.
Nagahama, Shigeo. Water cut-off process for concrete structure, 5,671,581, Cl. 52-741.410.
Nagaishi, Tatsuoki: See—
Moto, Akihiro; Nagaishi, Tatsuoki; and Itozaki, Hideo, 5,672,210, Cl. 118-726.000.
Nagamatsu, Tetsu: See—
Kim, Lee-Sup; Nagamatsu, Tetsu; and Sakurai, Takayasu, 5,673,214, Cl. 364-725.000.
Nagarajan, Muthukumar: See—
Hawkins, Andrew L.; Nagarajan, Muthukumar; and Srikrishna, Ajay, 5,673,234, Cl. 365-239.000.
Nagasaka, Ryo: See—
Sawada, Yukio; Mori, Yukio; Nagasaka, Ryo; and Takiguchi, Tomoyuki, 5,672,822, Cl. 73-202.500.
Nagase & Co., Ltd.: See—
Nakagawa, Toshimoto; Tsukada, Kouzo; Ogawa, Shu; Sato, Yoshitaka; and Shiotsu, Shinichiro, 5,671,760, Cl. 134-56.00R.
Nagase, Ryo: See—
Iwano, Shin'ichi; Nagase, Ryo; Kanayama, Kazunori; Sugita, Etsuji; and Ando, Yasuhiro, 5,673,346, Cl. 385-60.000.
Nagata, Hiroshi: See—
Sagawa, Masato; Nagata, Hiroshi; and Shirai, Hiroo, 5,672,363, Cl. 425-3.000.
Nagata, Masayuki: See—
Kobori, Takuji; Omika, Yukihiko; Nagata, Masayuki; Okawa, Jun; and Yamamoto, Yukimasa, 5,671,569, Cl. 52-167.600.
Nagayasu, Takayoshi: See—
Goto, Masahito; Morimoto, Hiroshi; Shimada, Yasunori; Nagayasu, Takayoshi; Hirata, Mitsuo; Hibino, Yoshitaka; and Yamamoto, Tomohiko, 5,672,251, Cl. 204-192.170.
Nah, Il-koo, to Samsung Electronics Co., Ltd. Multi-broadcast selection apparatus, 5,673,088, Cl. 348-555.000.
Naik, Kirit N.: See—
Malhotra, Shadi L.; Naik, Kirit N.; and MacKinnon, David N., 5,672,424, Cl. 428-325.000.
Nair, Rajesh M.: See—
Cohen, Adam J.; Holman, Roger L.; and Nair, Rajesh M., 5,672,948, Cl. 318-603.000.
Nairn, Beverley Janice; and Fumeaux, Richard Hubert, to Tasman Forestry Limited. Plant growth establishment and agents for use therein, 5,672,503, Cl. 435-240.450.
Naito, Takamasa: See—
Izumi, Akiya; Takemoto, Iwao; Sokei, Hiroichi; Kadowaki, Masahiko; Naito, Takamasa; Kojima, Hiroyoshi; Iguchi, Atsumu; Yokoyama, Masaaki; Nakajima, Junichiro; Takahashi, Masayuki; and Niwa, Kunio, 5,673,083, Cl. 348-340.000.
Nakada, Tetsuya; and Kubota, Michio, to Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo. α -Glycosyl derivative of catecholamine or its salt, and its preparation and uses, 5,672,587, Cl. 514-25.000.
Nakagaki, Kunihiko: See—
Kato, Nobuhide; and Nakagaki, Kunihiko, 5,672,811, Cl. 73-31.050.
Nakagawa, Hiroya: See—
Hozumi, Shigeo; Kitayama, Shinichiro; and Nakagawa, Hiroya, 5,672,463, Cl. 430-281.100.
Nakagawa, Toshimoto; Tsukada, Kouzo; Ogawa, Shu; Sato, Yoshitaka; and Shiotsu, Shinichiro, to HIRAMA RIKKA Kenkyujo Ltd.; and Nagase & Co., Ltd. Apparatus for controlling resist stripping solution, 5,671,760, Cl. 134-56.00R.
Nakahori, Shinsuke: See—
Yamawaki, Akifumi; Nakahori, Shinsuke; Hamamatsu, Takeo; and Baba, Yoshitaka, 5,672,447, Cl. 429-220.000.
Nakai, Satoru; Aihara, Koutoku; Mori, Hitomi; Tominaga, Michiaki; Adachi, Masakazu; Ichikawa, Hiroyuki; Akamatsu, Seiji; and Saito, Fumio, to Otsuka Pharmaceutical Co., Ltd. Apoptosis regulating composition, 5,672,603, Cl. 514-254.000.
Nakajima, Atsushi: See—
Kawakami, Sota; and Nakajima, Atsushi, 5,673,077, Cl. 347-183.000.
Nakajima, Junichiro: See—
Izumi, Akiya; Takemoto, Iwao; Sokei, Hiroichi; Kadowaki, Masahiko; Naito, Takamasa; Kojima, Hiroyoshi; Iguchi, Atsumu; Yokoyama, Masaaki; Nakajima, Junichiro; Takahashi, Masayuki; and Niwa, Kunio, 5,673,083, Cl. 348-340.000.
Nakajima, Masaharu: See—
Kato, Heizaburo; Tsushima, Yuki; Ohwaki, Takayuki; Nakajima, Masaharu; and Morita, Yutaka, 5,672,364, Cl. 425-89.000.

Nakajima, Shigeru, to Sumitomo Electric Industries. Field effect transistor with lightly doped drain regions, 5,672,890, Cl. 257-192.000.
Nakajima, Tetsuya: See—
Iida, Takashi; Sumi, Satoru; Shimizu, Hiroshi; Tahara, Akinori; Amano, Isao; and Nakajima, Tetsuya, 5,672,895, Cl. 257-357.000.
Nakajima, Yukio: See—
Okamoto, Kenji; Nakajima, Yukio; Imamura, Kazuhiko; and Ichihara, Takao, 5,672,414, Cl. 428-209.000.
Nakamitsu, Kazuhiko; Tukamoto, Hisashi; Komatsu, Shigeo; and Nakamura, Toshimichi, to Japan Storage Battery Co., Ltd. Organic electrolyte secondary cell, 5,672,445, Cl. 429-218.000.
Nakamura, Daisuke: See—
Nobuta, Yohsuke; Shibuya, Yasuo; Higuchi, Tohru; and Nakamura, Daisuke, 5,671,674, Cl. 101-415.100.
Nakamura, Hisashi: See—
Kawai, Hiroyuki; Inoue, Yoshitsugu; and Nakamura, Hisashi, 5,673,422, Cl. 395-519.000.
Nakamura, Kazuhiro: See—
Hattori, Akiyuki; Nakamura, Kazuhiro; Washiyama, Tomohiro; Kato, Takao; Saito, Toshio; and Arai, Shoji, 5,672,782, Cl. 568-899.000.
Nakamura, Kenichi, to NEC Corporation. Thin-film transistor and thin-film transistor array, 5,672,888, Cl. 257-72.000.
Nakamura, Susao: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, 5,673,099, Cl. 354-199.000.
Nakamura, Takao; Inada, Hiroshi; and Iiyama, Michitomo, to Sumitomo Electric Industries, Ltd. Process for fabricating a superconducting circuit, 5,672,569, Cl. 505-330.000.
Nakamura, Takashi: See—
Ogawa, Yasuyuki; Kadosawa, Tsuneaki; Nakamura, Takashi; Watanabe, Hitoshi; and Asada, Satoshi, 5,673,067, Cl. 345-157.000.
Nakamura, Tatsuya: See—
Kanbayashi, Makoto; Kasuya, Takashi; Nakamura, Tatsuya; Chiba, Tatsuhiro; and Inaba, Koji, 5,672,452, Cl. 430-47.000.
Nakamura, Toshimichi: See—
Nakamitsu, Kazuhiro; Tukamoto, Hisashi; Komatsu, Shigeo; and Nakamura, Toshimichi, 5,672,445, Cl. 429-218.000.
Nakanishi, Hideki; Arakawa, Junichi; Horigome, Hideo; Kaneko, Yuichi; Ikeda, Tetsuhiko; and Kuribayashi, Akira, to Canon Kabushiki Kaisha. Recording apparatus for controlling recording in accordance with battery capacity, 5,673,070, Cl. 347-19.000.
Nakano, Takaharu; Tsuchiya, Katsuyoshi; Yoshimatsu, Shunji; and Fuchigami, Takeru, to Chisso Corporation. Process for producing diorganopolysiloxane, 5,672,671, Cl. 528-14.000.
Nakano, Toshiya, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor power switch system, 5,672,917, Cl. 307-116.000.
Nakano, Yasuhiko: See—
Yoshida, Shigeru; Okada, Yoshiyuki; Nakano, Yasuhiko; and Yahagi, Hironori, 5,673,042, Cl. 341-51.000.
Nakashima, Tatsuya; and Shimizu, Tomoyasu, to Murata Mfg. Co., Ltd. Method of executing communication program in modem apparatus, 5,673,392, Cl. 395-200.010.
Nakata, Yasuo: See—
Sekimoto, Yoshihiro; Nakata, Yasuo; Ogata, Nobuo; and Miyake, Tomoyuki, 5,673,247, Cl. 369-112.000.
Nakatsu, Yuji: See—
Watanabe, Niro; Nakatsu, Yuji; Yamada, Keiki; and Ohnishi, Masaru, 5,672,559, Cl. 503-201.000.
Nakaya, Masahide: See—
Tokunaga, Atsuo; and Nakaya, Masahide, 5,673,187, Cl. 363-65.000.
Nakayama, Masaaki: See—
Sagisaka, Yasuo; Nakayama, Masaaki; Mukai, Yasuo; Yamashita, Yukihiro; and Iida, Hisashi, 5,672,817, Cl. 73-118.100.
Nakayama, Yoshiaki: See—
Maeda, Hiroshi; Ueda, Susumu; Fujimoto, Hiroshi; and Nakayama, Yoshiaki, 5,672,894, Cl. 257-343.000.
Namavar, Fereydoon: See—
Kalkhoran, Nader M.; and Namavar, Fereydoon, 5,671,914, Cl. 257-77.000.
Namekata, Minoru, to Kabushiki Kaisha Toshiba. Adaptive maximum likelihood sequence estimation apparatus and adaptive maximum likelihood sequence estimation method, 5,673,294, Cl. 375-341.000.
Nappa, Mario Joseph; and Wuttke, Klaus Guenter, to Du Pont de Nemours, E. I., and Company. Two-step process for manufacturing 1,1-difluoroethane, 5,672,788, Cl. 570-168.000.
Narayan, Thirumurti; and Hicks, Steven, to BASF Corporation. Water-blown polyurethane sealing devices and compositions for producing same, 5,672,635, Cl. 521-159.000.
Narayan, Thirumurti: See—
Voloppi, Valeri L.; and Narayan, Thirumurti, 5,672,632, Cl. 521-51.000.
Narayanan, Kolazi S., to ISP Investments Inc. Stabilized AGchemical concentrate and use thereof, 5,672,353, Cl. 424-409.000.
Nardone, Edward A.; Caron, Paul R.; Rothwell, Christian S.; Schofield, Harold D.; and Field, Gary, to Atlantek Inc. Card printing and laminating apparatus, 5,673,076, Cl. 347-171.000.
Narisawa, Tsutomu; Tobe, Michihiro; and Ashizawa, Takatoshi, to Nikon Corporation. Vibration motor, 5,672,930, Cl. 310-323.000.
Narita, Keiichi: See—

Miyaji, Tomomi; Goto, Masahisa; and Narita, Keiichi, 5,672,570, Cl. 508-192.000.
Nasu, Akio: See—
Soyama, Yoshikazu; Minami, Takashi; Takada, Hirotaka; Hirayama, Junko; and Nasu, Akio, 5,672,339, Cl. 424-63.000.
Natanian, Arthur. Electronic game employing visual and prize display, 5,672,109, Cl. 463-52.000.
Natchus, Michael George: See—
De, Biswanath; Wahl, Christopher Thomas; Natchus, Michael George; and Cheng, Menyan, 5,672,598, Cl. 514-212.000.
Nather, Heinz: See—
Mihleck, Peter; and Nather, Heinz, 5,672,884, Cl. 250-551.000.
National Institute for Research in Inorganic Materials: See—
Mitomo, Mamoru; Hirotsuru, Hideki; Suematsu, Hisayuki; and Nishimura, Toshiyuki, 5,672,553, Cl. 501-97.000.
National Molding Corp.: See—
Anscher, Joseph, 5,671,505, Cl. 24-115.00G.
National Science Council: See—
Lin, King-Fu, 5,672,431, Cl. 428-413.000.
National Semiconductor Corporation: See—
Kenny, John D., 5,673,400, Cl. 395-309.000.
National Starch and Chemical Investment Holding Corporation: See—
Billmers, Robert L.; and Mackewicz, Victor L., 5,672,699, Cl. 536-102.000.
Natsume, Hidetaka, to NEC Corporation. Method of checking alignment accuracy in photolithography, 5,672,520, Cl. 437-8.000.
Nau, Heinz; and Regan, Ciaran M., to American Biogenetic Sciences, Inc.; and University College Dublin. Antiproliferative and neurotrophic molecules, 5,672,746, Cl. 562-598.000.
Naujokas, Andrius Algimantas, to Eastman Kodak Company. Recovery of terephthalate diesters from glycol residues, 5,672,729, Cl. 560-78.000.
Naujokas, Andrius Algimantas: See—
Gamble, William James; and Naujokas, Andrius Algimantas, 5,672,780, Cl. 568-871.000.
NAXOS-UNION Schleifmittel- und Schleifmaschinenfabrik AG: See—
Berberich, Paul, 5,672,092, Cl. 451-10.000.
Naylor, Geoffrey, to Rieter Scragg Limited. Yarn texturing machine with cooling arrangement for heated false-twisted yarn, 5,671,519, Cl. 28-249.000.
NCR Corporation: See—
Johnston, Adam J. L., 5,673,333, Cl. 382-137.000.
ND Industries, Inc.: See—
Wallace, John S., 5,672,376, Cl. 427-8.000.
Neal, Charles William: See—
Vinson, Kenneth Douglas; Erspamer, John Paul; Neal, Charles William; Ficke, Jonathan Andrew; and Halter, Jeffress Paul, 5,672,249, Cl. 162-111.000.
Neal, Danny Marvin: See—
Guthrie, Guy Lynn; Neal, Danny Marvin; Silha, Edward John; and Thurber, Steven Mark, 5,673,399, Cl. 395-308.000.
NEC Corporation: See—
Amano, Kosuke; Ishikawa, Hirosaki; Kobayashi, Atsushi; and Satoh, Masaharu, 5,672,377, Cl. 427-80.000.
Fuji, Shuji, 5,673,120, Cl. 358-456.000.
Kawasaki, Satoshi, 5,673,240, Cl. 369-44.280.
Kirisawa, Akihiro, 5,673,007, Cl. 331-18.000.
Kosugi, Tomonari, 5,673,349, Cl. 385-92.000.
Nakamura, Kenichi, 5,672,888, Cl. 257-72.000.
Natsume, Hidetaka, 5,672,520, Cl. 437-8.000.
Nomura, Masahide, 5,673,207, Cl. 364-516.000.
Ohgane, Shoji, 5,673,296, Cl. 375-368.000.
Okano, Kazuhiro, 5,673,288, Cl. 375-231.000.
Okihara, Naoto; Kojima, Katsuo; Morimoto, Masayuki; Ikeda, Matsui; and Tanioka, Naohiro, 5,673,011, Cl. 335-78.000.
Ono, Hiroshi, 5,673,032, Cl. 340-825.440.
Shimizu, Hiroshi, 5,673,262, Cl. 370-395.000.
Shirakawa, Takahisa, 5,673,421, Cl. 395-508.000.
Takesue, Hiroto; and Shimono, Tsugio, 5,673,341, Cl. 385-12.000.
Tsujiimoto, Akira, 5,673,270, Cl. 371-21.100.
Yanagisawa, Masahiro; Sato, Akinobu; and Ajiki, Ken, 5,673,161, Cl. 360-103.000.
NEC Corporation: See—
Ichimura, Masaru, 5,673,158, Cl. 360-97.010.
NEC Research Institute, Inc.: See—
Li, Yao; and Wang, Ting, 5,673,344, Cl. 385-48.000.
Nelson, Bradley R.: See—
Dreschel, William Robert; Nelson, Bradley R.; and Peechatka, Farley, Jr., 5,671,746, Cl. 128-661.010.
Nelson, Carl T.; and Essaff, Robert, to Linear Technology Corporation. High-speed switching regulator drive circuit, 5,672,988, Cl. 327-108.000.
Nelson, Dale, to Sensormedics Corporation. Method of forming a molded pulse oximeter sensor, 5,671,529, Cl. 29-825.000.
Nelson Irrigation Corporation: See—
Davisson, Paul D., 5,671,885, Cl. 239-222.170.
Klein, Robert D.; and Kreitzberg, Jeffrey P., 5,671,774, Cl. 137-486.000.
Sesser, George, 5,671,886, Cl. 239-222.210.
Nelson, Katherine Theresa; Reed, William Alfred; Walker, Kenneth Lee; and White, Ian Arthur, to Lucent Technologies Inc. Communication system comprising a low cost optical filter, 5,673,342, Cl. 385-24.000.
Nelson, Keith A.: See—

Rogers, John A.; Nelson, Keith A.; and Dhar, Lisa, 5,672,830, Cl. 73-597.000.
Nelson, Richard A.: See—
Grieser, Jerry D.; Nelson, Richard A.; McGinnis, Michael J.; Steinberg, Richard; and Decknick, James J., 5,671,985, Cl. 312-221.000.
Nelson, Richard L.: See—
Kiel, John A.; Nelson, Richard L.; and Manicor, Scott D., 5,672,975, Cl. 324-644.000.
Nelson, William E., to Texas Instruments Incorporated. Method and apparatus for patterning an imaging member, 5,672,464, Cl. 430-327.000.
Nemoto & Co., Ltd.: See—
Baba, Shigeo, 5,672,876, Cl. 250-358.100.
Nesburn, Anthony Bart; Wechsler, Steven Lewis; and Ghiasi, Homayon, to Cedars Sinai Medical Center. Process for the expression of herpes simplex virus type 1 glycoprotein 1 and methods of use, 5,672,349, Cl. 424-186.100.
Neumann, Rainer: See—
Bertling, Johannes; Dobler, Karl-Otto; Neumann, Rainer; Hogrefe, Henning; Eichler, Heike; Lampen, Martin; and Boebel, Doris, 5,672,001, Cl. 362-278.000.
Neve, Rachael L., to University of California, The Regents of the Transgenic mice expressing the neurotoxic C-terminus of β -amyloid precursor protein, 5,672,805, Cl. 800-2.000.
New Mexico State University Technology Transfer Corp.: See—
Petersen, Mark K., 5,672,366, Cl. 426-2.000.
New York University: See—
Wallace, Richard S.; and Hansen, Frederick B., 5,672,924, Cl. 310-152.000.
Newton, Alex; Taylor, Malcolm R.; Murdock, Andrew; and Clegg, John M., to Camco Drilling Group Limited. Rotary drill bits, 5,671,818, Cl. 175-393.000.
Nexar Technologies, Inc.: See—
Hamirani, Babar, 5,673,174, Cl. 361-686.000.
NGK Insulators, Ltd.: See—
Kato, Nobuhide; and Nakagaki, Kunihiko, 5,672,811, Cl. 73-31.050.
Kawasaki, Keiji, 5,671,878, Cl. 226-196.000.
Nguyen, Kha; White, Theodore Curt; and Moolenaar, Bruce Edward, to Unisys Corporation. High speed two-port interface unit where read commands suspend partially executed write commands, 5,673,415, Cl. 395-476.000.
Nguyen, Nhan H.: See—
Chin, Hsiao-Ling M.; Wei, Yi-Qiu; Nguyen, Nhan H.; and Kanne, David B., 5,672,567, Cl. 504-239.000.
Nguyen, Trong Duc: See—
Thoma, Nandor Gyorgy; and Nguyen, Trong Duc, 5,672,991, Cl. 327-239.000.
Nichani, Sanjay; and Li, David, to Cognex Corporation. Method and apparatus for inspection of characteristics on non-rigid packages, 5,673,334, Cl. 382-143.000.
Nichia Corporation: See—
Watanabe, Masaru, 5,672,310, Cl. 264-297.400.
Nicholas, Paul H.; Lipera, Larry; Justice, Stephen G.; and Wurts, Joseph M., to Lockheed Martin Corporation. Airborne vehicle with wing extension and roll control, 5,671,899, Cl. 244-49.000.
Nicholson, John Richard: See—
Gary, Richard Gerald; Nicholson, John Richard; Oakes, John; and Wiley, Jean Pekar, 5,672,295, Cl. 252-186.420.
Nicks, Timothy J.; Waugaman, John L.; and Ahl, Alan D., to Owens-Brockway Glass Container Inc. Anti-dither optical container sensor with sensors separation measurement, 5,672,863, Cl. 250-223.00B.
Nicol, Robert: See—
Caveney, Jack E.; and Nicol, Robert, 5,672,033, Cl. 408-72.00B.
Niederer, Andreas: See—
Cervinski, Herbert; and Niederer, Andreas, 5,671,882, Cl. 229-87.080.
Nielsen, Holger Hjort; Sørensen, Torben Brandt; Brødsgaard, Ole; Jensen, Verner Trygved; and Knudsen, Arne, to Poutech A/S. Method for suspending live poultry by the legs and an apparatus, catching means and slaughter shackle for carrying out the method, 5,672,100, Cl. 452-188.000.
Nielsen, Ruby Illium; and Rasmussen, Frank Winther, to Novo Nordisk A/S. Fungicidally active compounds, 5,672,492, Cl. 435-125.000.
Nien, Ming. Apparatus for adjusting the orientation of slats of a vertical blind, 5,671,794, Cl. 160-176.10V.
Nifco Inc.: See—
Kawahara, Seiichi; and Hamamoto, Yoshiaki, 5,671,513, Cl. 24-573.100.
Niibe, Sadao: See—
Aoyagi, Keitaro; Niibe, Sadao; Umegae, Toshitomi; Iwai, Hideo; and Oshima, Yoshitugu, 5,672,506, Cl. 435-289.100.
Nikon Corporation: See—
Narisawa, Tsutomu; Tobe, Michihiro; and Ashizawa, Takatoshi, 5,672,930, Cl. 310-323.000.
Ushio, Yoshihiro, 5,673,114, Cl. 356-432.000.
Niles Parts Co., Ltd.: See—
Uchiyama, Norio; and Hattori, Yoshio, 5,672,855, Cl. 200-61.300.
Nilsen, Kevin J.: See—
Born, David W.; Deshmukh, Uday V.; Fawcett, Timothy G.; Fox, Richard T.; Nilsen, Kevin J.; and Pyzik, Aleksander J., 5,672,435, Cl. 428-539.500.
Nippon Soken, Inc.: See—
Tsuzyki, Yoshihiro, 5,671,715, Cl. 123-467.000.
Nippon Hoso Kyokai: See—

- Katoh, Toshihiro; Kuriyama, Takao; Takai, Tatsuya; Kawai, Takashi; Murakami, Hiroshi; Munemoto, Eiji; Ohta, Norio; and Shimada, Koji, 5,672,460, Cl. 430-198.000.
- Nippon Kayaku Kabushiki Kaisha: See—
Hotta, Hiroki; Sugizaki, Hiroyasu; Toya, Tetsuya; and Yanagi, Mikio, 5,672,723, Cl. 549-402.000.
- Nippon Mektron Limited: See—
Sonoi, Takehiro; Masaki, Futoshi, deceased; and Kubota, Toshio, 5,672,742, Cl. 562-496.000.
- Sonoi, Takehiro; Tatsu, Haruyoshi; German, Lev Solomonovich, deceased; Polishchuk, Valeri Romanovich, deceased, 5,672,758, Cl. 564-440.000.
- Nippon Soken, Inc.: See—
Okamoto, Atsuya; Kojima, Akiyazu; Takai, Niho; and Watanabe, Kiyohiko, 5,672,324, Cl. 422-174.000.
- Nippon Steel Corporation: See—
Kasagi, Yasuo, 5,672,907, Cl. 257-632.000.
- Kawamura, Koichiro, 5,672,526, Cl. 437-41.00R.
- Nippon Telegraph and Telephone Corporation: See—
Amano, Michiyuki; Watanabe, Toshio; Usui, Mitsuo; Sugawara, Shungo; Hayashida, Shoichi; and Imamura, Saburo, 5,672,672, Cl. 528-16.000.
- Imaoka, Atsushi; and Kihara, Masami, 5,673,133, Cl. 359-189.000.
- Iwano, Shin'ichi; Nagase, Ryo; Kanayama, Kazunori; Sugita, Etsuji; and Ando, Yasuhiro, 5,673,346, Cl. 385-60.000.
- Nippon Yakin Kogyo Co., Ltd.: See—
Okato, Nobuyoshi; Yoshida, Hiroshi; and Koide, Nobuya, 5,672,315, Cl. 420-40.000.
- Nippondenso Co., Ltd.: See—
Isogai, Emiko; Koike, Satoshi; Kimura, Teiyuu; Ando, Hiroshi; and Tatebayashi, Hiroyuki, 5,672,448, Cl. 430-1.000.
- Maeda, Hiroshi; Ueda, Susumu; Fujimoto, Hiroshi; and Nakayama, Yoshiaki, 5,672,894, Cl. 257-343.000.
- Sagisaka, Yasuo; Nakayama, Masaaki; Miki, Yasuo; Yamashita, Yukihiko; and Iida, Hisashi, 5,672,817, Cl. 73-118.100.
- Sawada, Yukio; Mori, Yukio; Nagasaka, Ryo; and Takiguchi, Tomoyuki, 5,672,822, Cl. 73-202.500.
- Nisar, Ashraf, to Simple Technology, Incorporated. Parity bit emulator with write parity bit checking, 5,673,419, Cl. 399-500.000.
- Nishi, Hironobu: See—
Homma, Kenji; and Nishi, Hironobu, 5,671,903, Cl. 251-69.000.
- Nishida, Koji: See—
Takagi, Kiyoji; Nishida, Koji; and Kojima, Megumi, 5,672,679, Cl. 528-501.000.
- Nishida, Masaharu: See—
Hatsutori, Masao; and Nishida, Masaharu, 5,672,936, Cl. 313-491.000.
- Nishihara, Akira: See—
Hagiwara, Masahiro; and Nishihara, Akira, 5,672,427, Cl. 428-403.000.
- Nishihata, Sumihiko: See—
Shimada, Katsumi; Ishikawa, Hiromi; Nishihata, Sumihiko; and Noguchi, Masaru, 5,673,137, Cl. 359-206.000.
- Nishikawa, Eri: See—
Kawashima, Naoki; Murase, Yoshihiro; Nishikawa, Eri; and Kurachi, Tamotsu, 5,672,946, Cl. 318-444.000.
- Nishikawa, Robert M.; Ema, Takehiro; Yoshida, Hiroyuki; and Doi, Kunio, to Arch Development Corporation. Computer-aided method for image feature analysis and diagnosis in mammography, 5,673,332, Cl. 382-128.000.
- Nishimoto, Taizo: See—
Takuma, Keisuke; Misawa, Tsutami; Sugimoto, Kenichi; Nishimoto, Taizo; Tsuda, Takeshi; and Umehara, Hideki, 5,672,462, Cl. 430-270.150.
- Nishimura, Ichiro: See—
Hanada, Shuichi; Seike, Yajuro; Shojima, Toshikazu; Moribe, Takashi; Takano, Haruhiro; and Nishimura, Ichiro, 5,672,006, Cl. 366-84.000.
- Nishimura, Kazutoshi; Watanabe, Masatomo; and Hiraga, Mikitoshi, to Sintobator, Ltd. Centrifugal dry barrel finishing machine, 5,672,094, Cl. 451-32.000.
- Nishimura, Keizo: See—
Arai, Hideo; Owashi, Hitoaki; Hosokawa, Kyoichi; Nishimura, Keizo; Watatani, Yoshizumi; and Shibata, Akira, 5,673,154, Cl. 360-8.000.
- Nishimura, Toshiyuki: See—
Mitomo, Mamoru; Hirotsuru, Hideki; Sugimatsu, Hisayuki; and Nishimura, Toshiyuki, 5,672,553, Cl. 501-97.000.
- Nishio, Etsuro: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, 5,673,099, Cl. 354-199.000.
- Nishio, Minoru, to Kabushiki Kaisha Tokai-Rika-Denki-Seisakusho. Slide switch, 5,672,854, Cl. 200-16.00R.
- Nishizawa, Masumi: See—
Takiguchi, Ryohsei; Saito, Hirosi; and Nishizawa, Masumi, 5,672,563, Cl. 503-227.000.
- Nissan Motor Co., Ltd.: See—
Adachi, Kazutaka; Ishii, Shigeru; and Sudo, Hideki, 5,672,137, Cl. 477-45.000.
- Matsumura, Norio; Yagi, Sakai; Tsuji, Masanori; Jinno, Keishi; and Yoneda, Takahiro, 5,672,073, Cl. 439-49.000.
- Watanuki, Yoshio; and Okazaki, Harumi, 5,671,621, Cl. 70-278.000.
- Nissin Chemical Industry Co., Ltd.: See—
Ohta, Hiroyuki; and Okuda, Harukazu, 5,672,661, Cl. 525-288.000.
- Nitschke, Werner: See—
Mattes, Bernard; Schumacher, Hartmut; Nitschke, Werner; and Henne, Ralf, 5,672,916, Cl. 307-10.100.
- Niu, Tokihide: See—
Fukui, Tsutomu; and Niu, Tokihide, 5,672,956, Cl. 323-210.000.
- Niuchi, Kunio: See—
Baba, Yasuyuki; Okamoto, Arifumi; and Niuchi, Kunio, 5,671,676, Cl. 101-425.000.
- Niwa, Kunio: See—
Izumi, Akiya; Takemoto, Iwao; Sokei, Hiroichi; Kadowaki, Masahiko; Naito, Takamasa; Kojima, Hiroyoshi; Iguchi, Atsumu; Yokoyama, Masaaki; Nakajima, Junichiro; Takahashi, Masayuki; and Niwa, Kunio, 5,673,083, Cl. 348-340.000.
- Njoroge, F. George: See—
Doll, Ronald J.; Mallams, Alan K.; Afonso, Adriano; Rane, Dinanath F.; Rossman, Randall R.; and Njoroge, F. George, 5,672,611, Cl. 514-325.000.
- Noble, Janelle A.: See—
Ladner, Martha B.; Noble, Janelle A.; Martin, George A.; Kawasaki, Ernest S.; Coyne, Mazie Yee; Halenbeck, Robert F.; and Koths, Kirston E., 5,672,343, Cl. 424-85.100.
- Nobuta, Yohsuke; Shibuya, Yasuo; Higuchi, Tohru; and Nakamura, Daisuke, to Kabushiki Kaisha Tokyo Kikai Seisakusho. Printing plate support device and printing plate removal mounting apparatus as well as methods of operating the same, 5,671,674, Cl. 101-415.100.
- Noda, Sukehisa: See—
Majumdar, Gourab; Mori, Satoshi; Noda, Sukehisa; Iwagami, Toru; Takagi, Yoshio; and Kawafuji, Hisashi, 5,672,910, Cl. 257-690.000.
- Noda, Yasushi: See—
Aoki, Hisashi; Mitsui, Hidero; and Noda, Yasushi, 5,672,441, Cl. 429-97.000.
- Nogossek, Alfred: See—
Keilert, Jürgen; and Nogossek, Alfred, 5,672,304, Cl. 264-102.000.
- Noguchi, Masaru: See—
Shimada, Katsumi; and Nogossek, Alfred, 5,672,304, Cl. 264-102.000.
- Noguchi, Miyoko: See—
Suzuki, Akiyoshi; and Noguchi, Miyoko, 5,673,102, Cl. 355-53.000.
- Nohmi Bosai Ltd.: See—
Morita, Toshikazu, 5,673,027, Cl. 340-630.000.
- Okayama, Yoshiaki, 5,673,020, Cl. 340-511.000.
- Nojima, Takashi: See—
Hiramatsu, Soichi; Suzuki, Tetsuo; Taniguro, Masahiro; Saito, Hiroyuki; Yanagi, Haruyuki; Nojima, Takashi; Saikawa, Satoshi; Kinoshita, Hiroyuki; and Kawakami, Hideaki, 5,672,019, Cl. 400-624.000.
- Nolan, Colleen: See—
Bryan, Jennifer; Herman, Justin; Hordesky, Laura; Nolan, Colleen; Pincus, Mike; Reinhardt, Nathan; and Tilley, Erin, 5,672,116, Cl. 473-229.000.
- Noll, Jeffrey Mark: See—
Cooper, Richard Lloyd; Zizelman, James; Salemi, Michael Raymond; Noll, Jeffrey Mark; and Rivera, Edwin Antonio, 5,671,890, Cl. 239-533.700.
- Nölle, Lutz: See—
Bolte, George; Nölle, Lutz; and Driller, Franz-Josef, 5,671,678, Cl. 101-491.000.
- Nomiya, Teruaki: See—
Kuriyaki, Hisao; Hirakawa, Kazuyoshi; and Nomiya, Teruaki, 5,672,444, Cl. 429-213.000.
- Nomura, Katsuhiko: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, 5,673,099, Cl. 354-199.000.
- Nomura, Masahide, to NEC Corporation. Method for processing motion image to determine optical flow and system for same, 5,673,207, Cl. 364-516.000.
- Nomura, Susumu: See—
Yanagawa, Naoharu; Nomura, Susumu; and Sano, Fumihiko, 5,673,245, Cl. 369-112.000.
- Nomura, Yujiro: See—
Inoue, Nozomu; Hama, Takashi; Nomura, Yujiro; and Takada, Kyu, 5,673,136, Cl. 359-205.000.
- Nonaka, Koju: See—
Saito, Yutaka; Akiba, Takao; Nonaka, Koju; Kamiya, Masaaki; and Watanabe, Hitomi, 5,672,906, Cl. 257-617.000.
- Norand Corporation: See—
Meier, Robert C., 5,673,031, Cl. 340-825.080.
- Miller, Phillip; Walter, Jerry L.; Boatwright, Darrell L.; and Schultz, Darold R., 5,672,860, Cl. 235-472.000.
- Nordec Inc.: See—
Straub, William D.; Boczkiewicz, Bruce M.; and Johnsen, David S., 5,671,679, Cl. 104-2.000.
- Norfolk Limited: See—
Grant, Alexander, 5,671,991, Cl. 312-406.000.
- Norman, Eddy, Jr.; and Brown, Billy Steve, to Spade Leasing, Inc. High strength industrial storage tank, 5,671,855, Cl. 220-1.500.
- Noro, Masaki: See—
Okamura, Hisashi; Noro, Masaki; Matsumoto, Kazuhiko; and Taguchi, Toshiki, 5,672,466, Cl. 430-336.000.
- North Carolina State University: See—

- Clapp, Timothy G.; Titus, Kimberly J.; and Davis, Adam B., 5,671,689, Cl. 112-278.000.
- Northemann, Andreas, to BASF Aktiengesellschaft. Recovery of styrene from waste polystyrene, 5,672,794, Cl. 585-241.000.
- Northrop Grumman Corporation: See—
Aronne, Armand, 5,671,522, Cl. 29-419.200.
- Carlin, Barry W., 5,673,292, Cl. 375-269.000.
- Nosaki, Takefumi; and Takahashi, Toshiharu, to Kabushiki Kaisha Toshiba. Image forming system with security function, 5,673,373, Cl. 395-114.000.
- Noskova, Dagmar: See—
Digenis, George A.; and Noskova, Dagmar, 5,672,359, Cl. 424-463.000.
- Notagashira, Hidefumi: See—
Ohara, Toru; Fujiwara, Akihiro; Notagashira, Hidefumi; Izuka, Toshihiko; Tamekuni, Yasuhiro; Kino, Yoshiki; Morofuji, Tsuyoshi; Azusawa, Katsumi; and Sato, Hidekage, 5,672,862, Cl. 250-204.000.
- Novartis Corporation: See—
MacPherson, Lawrence J.; and Parker, David Thomas, 5,672,615, Cl. 514-357.000.
- Nordisk A/S: See—
Novo Nordisk, Lars Jacob Stray; and Lau, Jesper, 5,672,588, Cl. 514-46.000.
- Nielsen, Ruby Illum; and Rasmussen, Frank Winther, 5,672,492, Cl. 435-125.000.
- Nowak, Edward Joseph: See—
Au, Wai-Ming William; Nowak, Edward Joseph; and Tong, Minh Ho, 5,672,994, Cl. 327-525.000.
- Nozaki, Mikiya; Karaki, Mitsuhiko; Inui, Mitsuru; Futamura, Takehito; and Saitoh, Akira, to Toyota Jidosha Kabushiki Kaisha, and Gifu Seiki Kogyo Kabushiki Kaisha. Pressure casting method through pressurizing pin advancement speed control, 5,671,797, Cl. 164-120.000.
- NSK Ltd.: See—
Okita, Shigeru; Mitamura, Nobuaki; Tanaka, Susumu; Yamamura, Kenji; and Ohori, Manabu, 5,672,014, Cl. 384-492.000.
- NSK-Warner K.K.: See—
Shirataki, Hirobumi; Sagae, Atsushi; and Awaji, Toshio, 5,671,836, Cl. 192-113.320.
- NT International, Inc.: See—
Cucci, Gerald R.; and Englund, Diane L., 5,672,832, Cl. 73-861.520.
- NTN Corporation: See—
Kurita, Masahiro; Itomi, Syoji; and Okamoto, Yuji, 5,672,110, Cl. 464-37.000.
- Ohira, Koya, 5,672,013, Cl. 384-297.000.
- Tomogami, Shin; Takaki, Masuo; Fukumura, Yoshikazu; Ikeda, Takeshi; and Terada, Kenji, 5,672,113, Cl. 464-175.000.
- NTT Mobile Communications Network Inc.: See—
Umeda, Narumi; Higashi, Akihiro; Hiroike, Akira; and Kaiyama, Akira, 5,673,260, Cl. 370-342.000.
- Nugent, Sean T.; and Mueller, Richard A., to G. D. Searle & Co. Fatty acid analogs and prodrugs, 5,672,769, Cl. 568-496.000.
- Numako, Norio: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, 5,673,099, Cl. 354-199.000.
- Numalg: See—
Miller, Melvin N.; Prammer, Manfred G.; and Huber, Moti, 5,672,968, Cl. 324-300.000.
- Nurmi, Juha Veikko: See—
Heikkila, Heikki Olavi; and Nurmi, Juha Veikko, 5,672,589, Cl. 514-53.000.
- Nussbaum, Howard S.; Posey, William P.; Hsu, Steve I.; and Taylor, Stephen D., to Hughes Electronics. Discrete phase modulator, 5,673,051, Cl. 342-202.000.
- Nutt, Ruth F.: See—
Veber, Daniel F.; Lewis, S. Dale; Shafer, Jules A.; Feng, Dong-Mei; Nutt, Ruth F.; and Brady, Stephen F., 5,672,582, Cl. 514-19.000.
- Nyquist, Per, to Limab Laser & Instrumentmekanik AB. Method and arrangement for measuring distance, 5,673,111, Cl. 356-375.000.
- Oakes, John: See—
Gary, Richard Gerald; Nicholson, John Richard; Oakes, John; and Wiley, Jean Pekaar, 5,672,295, Cl. 252-186.420.
- Oakes, Keith L. Collapsible catwalk, 5,671,823, Cl. 182-36.000.
- Oakland, Erick: See—
Poland, Sydney W.; Read, Christopher J.; Guttig, Karl M.; Gove, Robert J.; Gill, Michael; Simmons, Nicholas Ing; Oakland, Erick; and Gollston, Jeremiah E., 5,673,407, Cl. 395-375.000.
- Oba, Hidehiro: See—
Mikami, Tsuyoshi; Oba, Hidehiro; and Takahashi, Nobuaki, 5,672,138, Cl. 477-111.000.
- Obata, Hiroyuki; Utsumi, Minoru; Iijima, Masayuki; Okabe, Masato; and Kamiyama, Hironori, to Dai Nippon Printing Co., Ltd. Frost image recording medium and method of and apparatus for forming and reading frost image, 5,672,453, Cl. 430-50.000.
- Oberholzer, Gary E.: See—
Ferreira, Adolfo A.; and Oberholzer, Gary E., 5,672,163, Cl. 604-333.000.
- O'Brien, Christopher J.: See—
Klauder, Philip R.; Moore, James O.; and O'Brien, Christopher J., 5,672,808, Cl. 73-4.00R.
- Oce-Nederland B.V.: See—
Koopman, Stephan B. J.; and Abbekerk, Abraham Nico, 5,673,371, Cl. 395-110.000.
- O'Connell, Timothy P.; and Strayer, Mark A., to Fisher-Price, Inc. Basketball goal, 5,672,130, Cl. 473-483.000.
- O'Connor, James G., to Atoma International, Inc. Tumble seat with displaceable side handle release, 5,671,965, Cl. 296-65.100.
- O'Daniel, Leane C.: See—
Maughan, Garth B.; and O'Daniel, Leane C., 5,672,024, Cl. 403-141.000.
- O'Dea, Michael E.: See—
Henning, William C.; and O'Dea, Michael E., 5,672,700, Cl. 540-205.000.
- O'Donnell, Thomas F. Apparatus and method for enhancing the efficiency of liquid-fuel-burning systems, 5,671,701, Cl. 123-25.00A.
- O'Donoghue, John D.: See—
Lim, Mu-ill; Pan, Yuh-Guo; Stasaitis, Linas R.; and O'Donoghue, John D., 5,672,180, Cl. 8-408.000.
- Oechler, Horst-Dieter, to Firma Theodor Hymmen. Apparatus for application of a color coat to a workpiece, 5,672,207, Cl. 118-681.000.
- Ogata, Nobuo: See—
Sekimoto, Yoshihiro; Nakata, Yasuo; Ogata, Nobuo; and Miyake, Tomoyuki, 5,673,247, Cl. 369-112.000.
- Ogawa, Kazuhiro: See—
Azuma, Shigeki; and Ogawa, Kazuhiro, 5,672,215, Cl. 148-325.000.
- Ogawa, Shu: See—
Nakagawa, Toshimoto; Tsukada, Kouzo; Ogawa, Shu; Sato, Yoshitaka; and Shiotsu, Shinichiro, 5,671,760, Cl. 134-56.00R.
- Ogawa, Yasuyuki; Kadosawa, Tsuneaki; Nakamura, Takashi; Watanabe, Hiroshi; and Asada, Satoshi, to Canon Kabushiki Kaisha. Information processing apparatus and method, 5,673,067, Cl. 345-157.000.
- Ogg, Randy Gene; and Stark, Martin Henry, to Procter & Gamble Company, The. Core for core wound paper products having preferred seam construction, 5,671,897, Cl. 242-610.100.
- Ogihara, Takeo: See—
Katono, Hiroki; Shouji, Masuhiro; Ogihara, Takeo; and Sakagami, Teruo, 5,672,655, Cl. 524-780.000.
- Ogle, Robin L.: See—
Leonard, Benjamin P.; Ware, Eric A.; Higgins, Marty F.; Ogle, Robin L.; Erickson, Paul R.; and Vatland, Danny J., 5,672,020, Cl. 400-690.400.
- Ogura, Seiki; Rovedo, Nivo; and Wong, Robert C., to International Business Machines Corporation. Process for making and programming a flash memory array, 5,672,892, Cl. 257-314.000.
- Ohama, Shinji; Shimizu, Norio; Murai, Takashi; Saotome, Ichiro; Inoue, Masatsugu; and Fukuda, Kumio, to Kabushiki Kaisha Toshiba. Color cathode-ray tube having a shadow mask with improved arrays of apertures, 5,672,934, Cl. 313-402.000.
- Ohara, Toru; Fujiwara, Akihiro; Notagashira, Hidefumi; Izuka, Toshihiko; Tamekuni, Yasuhiro; Kino, Yoshiki; Morofuji, Tsuyoshi; Azusawa, Katsumi; and Sato, Hidekage, to Canon Kabushiki Kaisha. Optical apparatus having image shake preventing function, 5,672,862, Cl. 250-204.000.
- Ohta, Hiroyuki; and Okuda, Harukazu, to Nissin Chemical Industry Co., Ltd. Acrylic rubber composition, 5,672,661, Cl. 525-288.000.
- Ohtane, Shoji, to NEC Corporation. Frame synchronization circuit for digital communication system, 5,673,296, Cl. 375-368.000.
- Ohten Research Laboratories, Ltd.: See—
Akiyama, Kiyoshi, 5,672,757, Cl. 564-427.000.
- Ohi, Makoto: See—
Arima, Hideaki; Ohi, Makoto; Ajika, Natsuo; Hachisuka, Atsushi; and Okudaira, Tomonori, 5,672,533, Cl. 437-52.000.
- Ohira, Koya, to NTN Corporation. Heat-resistant sliding bearing, 5,672,013, Cl. 384-297.000.
- Ohkubo, Hideki: See—
Haraguchi, Keisuke; Kohmoto, Shinsuke; Kobayashi, Takeo; Kondoh, Shigeru; Ohkubo, Hideki; Numako, Norio; Sugawara, Saburo; Nakamura, Susao; Matsuo, Hirofumi; Nomura, Katsuhiko; Nishio, Etsuro; and Ishii, Haruo, 5,673,099, Cl. 354-199.000.
- Ohmeda Inc.: See—
Keilbach, Kevin A., 5,673,109, Cl. 356-301.000.
- Ohnishi, Masaru: See—
Watanabe, Niho; Nakatsu, Yuji; Yamada, Keiki; and Ohnishi, Masaru, 5,672,559, Cl. 503-201.000.
- Ohori, Manabu: See—
Okita, Shigeru; Mitamura, Nobuaki; Tanaka, Susumu; Yamamura, Kenji; and Ohori, Manabu, 5,672,014, Cl. 384-492.000.
- Ohsawa, Toshimi, to Advantest Corporation. High speed pattern generator, 5,673,271, Cl. 371-21.100.
- Ohsuga, Minoru: See—
Yamaguchi, Junichi; Ohsuga, Minoru; and Komuro, Ryoichi, 5,671,713, Cl. 123-308.000.
- Ohta, Ken-ichi; and Usami, Akihiro, to Canon Kabushiki Kaisha. Color image processing method and apparatus therefor, 5,673,335, Cl. 382-167.000.
- Ohta, Kenji: See—
Mieda, Michinobu; Hirokane, Junji; Takahashi, Akira; Ohta, Kenji; and Terashima, Shigeo, 5,673,250, Cl. 369-275.400.
- Ohta, Masafumi: See—
Shimada, Tomoyuki; Sasaki, Masaomi; Aruga, Tamotsu; Ohta, Masafumi; Anzai, Mitsutoshi; and Imai, Akihiro, 5,672,756, Cl. 564-426.000.
- Ohta, Minemasa; and Itoh, Naoto, to Pioneer Video Corporation; and Pioneer Electronic Corporation. Recording disk and recorded information reproducing apparatus, 5,673,359, Cl. 386-125.000.
- Ohta, Norio: See—

Kato, Toshihiro; Kuriyama, Takao; Takei, Tatsuya; Kawai, Takashi; Murakami, Hiroshi; Munemoto, Eiji; Ohta, Norio; and Shimada, Koji, 5,672,460, Cl. 430-198.000.

Ohta, Youko; and Terasaki, Hirohide, to Sharp Kabushiki Kaisha. Back light device of liquid crystal device. 5,673,138, Cl. 349-62.000.

Ohtsu, Yutaka: See—
Kanda, Taketoshi; Sakamoto, Atsuo; Yokouchi, Michio; and Ohtsu, Yutaka, 5,672,422, Cl. 428-304.400.

Ohtsuka, Yoshio; and Oishi, Katsumi, to General Electric Company. Thermoplastic composition with a granular surface appearance like marble. 5,672,663, Cl. 525-438.000.

Ohtsuka, Yutaka: See—
Kato, Heizaburo; Tsushima, Yuki; Ohtsuka, Takayuki; Nakajima, Masaharu; and Morita, Yutaka, 5,672,368, Cl. 425-89.000.

Ohyodo Diesel Co., Ltd.: See—
Morikawa, Sumio; and Zakohji, Nobuyuki, 5,671,892, Cl. 241-101.730.

Oishi, Katsumi: See—
Ohtsuka, Yoshio; and Oishi, Katsumi, 5,672,663, Cl. 525-438.000.

Oishi, Kazuomi: See—
Kondo, Masaya; Ejiri, Seishi; Yamamoto, Soichi; Kumagai, Takekazu; Tsukamoto, Takeshi; Oishi, Kazuomi; Saruwatari, Masaru; and Toyama, Masaki, 5,673,118, Cl. 338-437.000.

Oka, Michio; and Suganuma, Hiroshi, to Sony Corporation. Light exposure and illuminating apparatus. 5,673,134, Cl. 359-196.000.

Oka, Takahiro; Kawazoe, Shunji; and Yamane, Yasuhiro, to Chisso Corporation. Highly stiff propylene-ethylene block copolymer composition and a process for producing the same. 5,672,458, Cl. 525-53.000.

Okabe, Masato: See—
Obata, Hiroyuki; Utsumi, Minoru; Ikima, Masayuki; Okabe, Masato; and Kamiyama, Hironori, 5,672,439, Cl. 430-50.000.

Okada, Hisao; Yamamoto, Yuji; Seo, Mitsuyoshi; and Tanaka, Kuniaki, to Sharp Kabushiki Kaisha. Driving circuit for display apparatus. 5,673,061, Cl. 345-89.000.

Okada, Kazuyuki: See—
Higuchi, Yoshio; and Okada, Kazuyuki, 5,673,090, Cl. 348-836.000.

Okada, Masaki; and Mouri, Takashi, to Tohoku Corporation. Manganese oxides production thereof, and use thereof. 5,672,329, Cl. 423-599.000.

Okada, Shinichi: See—
Mizukami, Hiroshi; Uehara, Hiroshi; and Okada, Shinichi, 5,671,834, Cl. 192-89.230.

Okada, Tadanori, to Canon Kabushiki Kaisha. Optical apparatus having a function of preventing image blur or shake and having lens barrels of different diameters. 5,673,149, Cl. 359-557.000.

Okada, Yoshiyuki: See—
Yoshida, Shigeru; Okada, Yoshiyuki; Nakano, Yasuhiko; and Yahagi, Hironori, 5,673,042, Cl. 341-51.000.

Okada, Yosuka; and Krimimoto, Munehito, to Sherwood Medical Company. Catheter introducer. 5,672,158, Cl. 604-164.000.

Okada, Yukihiro: See—
Yokota, Yasuo; Iwata, Yukihiro; Furuyasu, Hirotsugu; Inoue, Hiroto; Ishizuka, Atsufumi; and Okada, Yukihiro, 5,673,152, Cl. 359-813.000.

Okamoto, Arifumi: See—
Baba, Yasuyuki; Okamoto, Arifumi; and Niuchi, Kunio, 5,671,676, Cl. 101-425.000.

Okamoto, Atsuya; Kojima, Akikazu; Takaki, Niro; and Watanabe, Kiyohiko, to Nippon Soken, Inc. Electrically heatable honeycomb body of a catalytic converter equipped in an exhaust system of an internal combustion engine. 5,672,324, Cl. 422-174.000.

Okamoto, Kenji; Nakajima, Yukio; Imamura, Kazuhiko; and Ichihara, Takao, to Fuji Electric Co., Ltd. Multilayered printed board structure. 5,672,414, Cl. 428-209.000.

Okamoto, Masayuki: See—
Horie, Wataru; Okamoto, Masayuki; Yamahara, Motohiro; Shiomi, Makoto; Yamada, Nobuaki; and Kozaki, Shuichi, 5,673,092, Cl. 349-86.000.

Okamoto, Satoru: See—
Tsubouchi, Toshiyasu; Okamoto, Satoru; and Ihara, Tomohiko, 5,672,387, Cl. 427-253.000.

Okamoto, Yuji: See—
Kurita, Masahiro; Itomi, Syoji; and Okamoto, Yuji, 5,672,110, Cl. 464-37.000.

Okamura, Hisashi; Noro, Masaki; Matsumoto, Kazuhiko; and Taguchi, Toshiki, to Fuji Photo Film Co., Ltd. Method for forming an image and silver halide photographic light-sensitive material. 5,672,466, Cl. 430-336.000.

Okamura, Junichi; and Furuyama, Tohru, to Kabushiki Kaisha Toshiba. Dynamic random access memory. 5,673,229, Cl. 365-201.000.

Okano, Kazuhiro, to NEC Corporation. System and method for adaptive maximum likelihood sequence estimation. 5,673,288, Cl. 375-231.000.

Okato, Nobuyoshi; Yoshida, Hiroshi; and Koide, Nobuya, to Nippon Yakin Kogyo Co., Ltd. Superplastic dual-phase stainless steels having a small deformation resistance and excellent elongation properties. 5,672,315, Cl. 420-40.000.

Okawa, Jun: See—
Kobori, Takuji; Omika, Yukihiro; Nagata, Masayuki; Okawa, Jun; and Yamamoto, Yukimasa, 5,671,569, Cl. 52-167.600.

Okayama, Yoshiaki, to Nohmi Bosai Ltd. Early stage fire detecting apparatus. 5,673,020, Cl. 340-511.000.

Okazaki, Harumi: See—
Watanuki, Yoshio; and Okazaki, Harumi, 5,671,621, Cl. 70-278.000.

Okazaki, Kentaro, to Fuji Photo Film Co., Ltd. Silver halide color photographic material and method for forming color image. 5,672,468, Cl. 430-522.000.

Oki, Aaron Kenji: See—
Streit, Dwight Christopher; Lammert, Michael; and Oki, Aaron Kenji, 5,672,522, Cl. 437-31.000.

Oki Electric Industry Co., Ltd.: See—
Kawano, Harumi, 5,672,982, Cl. 324-765.000.

Oki Telecom: See—
Li, Kaiping, 5,673,266, Cl. 370-465.000.

Okihara, Naoto; Kojima, Katsuo; Morimoto, Masayuki; Ikeda, Matsuiro; and Tanioka, Naohiro, to NEC Corporation. Surface mount type leadless electromagnetic relay. 5,673,011, Cl. 335-78.000.

Okino, Toshiyuki: See—
Yamashita, Shugo; Okino, Toshiyuki; Inuma, Toshiya; Maenaka, Akihiro; Murata, Haruhiko; and Mori, Yukio, 5,673,081, Cl. 348-42.000.

Okita, Shigeru; Mitamura, Nobuaki; Tanaka, Susumu; Yamamura, Kenji; and Ohori, Manabu, to NSK Ltd. Rolling bearings. 5,672,014, Cl. 384-492.000.

Okuda, Harukazu: See—
Ohata, Hiroyuki; and Okuda, Harukazu, 5,672,661, Cl. 525-288.000.

Okuda, Sadanao; Ishikawa, Makoto; Kawabe, Takao; and Kawano, Masakazu, to Riso Kagaku Corporation. Stencil conveying means adapted to convey a stencil sheet parallel to the axis of a printing drum. 5,671,669, Cl. 101-116.000.

Okuda, Sadanao; Isozaki, Takashi; Higa, Ryuiji; and Tojima, Takahito, to Riso Kagaku Corporation. Print image treatment device. 5,671,675, Cl. 101-424.200.

Okudaira, Tomonori: See—
Arima, Hideaki; Ohi, Makoto; Ajika, Natsuo; Hachisuka, Atsushi; and Okudaira, Tomonori, 5,672,533, Cl. 437-52.000.

Okumura, Toshiaki: See—
Yoshino, Hisakazu; Satoh, Takuji; and Okumura, Toshiaki, 5,673,135, Cl. 359-196.000.

Oles, Edward J., to Kennametal Inc. Milling cutter. 5,672,031, Cl. 407-35.000.

Olivera, Baldomero M.: See—
Terlau, Heinrich; Shon, Ki-Joon; Grilley, Michelle; and Olivera, Baldomero M., 5,672,682, Cl. 530-324.000.

Olkoski, Jill C.; Jensen, Tyler D.; Castaneda, Julio C.; James, Gordon Wayne; Kotte, Wille; Werner, William D.; Marvet, Larry E.; Higgins, Roger G.; Finch, Steven Jay; Hafen, Benjamin J.; Williams, William R.; Patino, Joseph; and Chong, Kok Huat, to Motorola, Inc. Electronic device with door cover speaker actuator and latch mechanism. 5,673,314, Cl. 379-433.000.

Öller, Manfred: See—
Eckel, Thomas; Wittmann, Dieter; Öller, Manfred; and Alberts, Heinrich, 5,672,645, Cl. 524-127.000.

Olilla, Rauno, to Kemira Safety Oy. Gas mask with electronic blower control. 5,671,730, Cl. 128-204.210.

Olper, Marco: See—
Warlimont, Hans; Olper, Marco; Ueberschaer, Armin; and Drefahl, Klaus, 5,672,181, Cl. 29-623.500.

Olsen, David B.: See—
Eckstein, Fritz; Pieken, Wolfgang; Benseler, Fritz; Olsen, David B.; Williams, David M.; and Heidenreich, Olaf, 5,672,695, Cl. 536-24.500.

Olson, Brian R. Implement hitch. 5,671,938, Cl. 280-515.000.

Olson, David B.: See—
Burns, David M.; Olson, David B.; and Pavelka, Lee A., 5,672,643, Cl. 524-90.000.

Olsovsky, Joseph C.: See—
Wen, Xin; and Olsovsky, Joseph C., 5,673,078, Cl. 347-220.000.

Olsson, Lars-Eric Verner, to Lear Corporation. Vehicle seat cushion. 5,671,978, Cl. 297-452.550.

Omika, Yukihiro: See—
Kobori, Takuji; Omika, Yukihiro; Nagata, Masayuki; Okawa, Jun; and Yamamoto, Yukimasa, 5,671,569, Cl. 52-167.600.

O'Morchoe, Susan B.: See—
Dowell, Barry L.; Alexander, Debra B.; O'Morchoe, Susan B.; King, Carol A.; and Smith, Allan H., 5,672,480, Cl. 435-7.400.

Omori, Nagato; Hamaji, Yukio; Mori, Yoshiaki; and Sakabe, Yukio, to Murata Manufacturing Co., Ltd. Method of producing a laminated electronic device. 5,672,220, Cl. 156-89.000.

Omori, Toshihiko, to Fuji Photo Film Co., Ltd. Image reading apparatus including slit member disposed between film original and reading lens. 5,673,122, Cl. 358-471.000.

Omvik, John F.: See—
Merecki, John A.; and Omvik, John F., 5,673,125, Cl. 358-487.000.

O'Neill, Kevin, to Waterloo Furniture Components, Ltd. Drawer slide latch. 5,671,988, Cl. 312-334.440.

O'Neill, Michael J., to Perkin-Elmer Corporation. The. Heater control circuit. 5,672,289, Cl. 219-497.000.

Ono, Akira: See—
Tanaka, Tadashi; Mizuno, Yoshikazu; Sugita, Mitsuru; Sawano, Katsumi; and Ono, Akira, 5,671,835, Cl. 192-107.000.

Ono, Hiroshi, to NEC Corporation. Selective calling receiver for computing devices. 5,673,032, Cl. 340-825.440.

Ono, Koichi; Yoshida, Yutaka; Miyatake, Hideki; and Horiba, Tamotsu, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Anti-glare electrochromic mirror. 5,673,150, Cl. 359-603.000.

Ontario Limited: See—

Reuber, Douglas Alvin, 5,671,483, Cl. 2-424.000.

Onuki, Mituhiko: See—
Uchida, Hiroshi; Onuki, Mituhiko; and Watanabe, Hideo, 5,672,380, Cl. 427-180.000.

Onusseit, Hermann: See—
Gossen, Ralf; Herlterkamp, Bernhard; Broich, Ludwig; Buxhofer, Horst; and Onusseit, Hermann, 5,672,199, Cl. 106-36.000.

Ooe, Kunio: See—
Asai, Koichi; Matsumoto, Koso; Ooe, Kunio; and Shimmura, Masayuki, 5,671,527, Cl. 29-740.000.

Ootaki, Sakashi; and Sato, Ryo, to Pioneer Electronic Corporation. Optical pickup device. 5,673,246, Cl. 369-112.000.

Ooya, Masaki, to Kabushiki Kaisha Riken. Process for forming a coating of chromium and nitrogen having good wear resistance properties. 5,672,386, Cl. 427-250.000.

Opitz, Rigobert: See—
Pietzsch, Heinz Werner; Opitz, Rigobert; Edelmann, Rolf; and Jaki, Jürgen, 5,673,039, Cl. 340-905.000.

Optical Sensors Incorporated: See—
Furlong, Steven C., 5,672,515, Cl. 436-133.000.

Optix LP: See—
Block, Myron J.; and Sodickson, Lester, 5,672,875, Cl. 250-343.000.

Or, Yat Sun; Lally, Jay R.; and Wagner, Rolf, to Abbott Laboratories. Macrolide immunomodulators. 5,672,605, Cl. 514-291.000.

Ora Electronics, Inc.: See—
Cooper, Gershon N., 5,673,317, Cl. 380-23.000.

Orbitron Computer System, Inc.: See—
Behl, Sunny; and Friedman, Jack, 5,673,029, Cl. 340-635.000.

Ordoñez, Gabriel Martinez: See—
De La Paz Rizo, Fabian; and Ordoñez, Gabriel Martinez, 5,672,087, Cl. 446-46.000.

Orford, John Flindt; and Wilkinson, Bernard Allen, to Totalizer Agency Board. Combined totalizer and fixed odds betting system and method. 5,672,106, Cl. 463-28.000.

Orion-Yhtymä Oy: See—
Heiskanen, Kalevi; deceased; and Kangas, Lauri, 5,672,628, Cl. 514-648.000.

Ortiz, Angel Luis, Jr.; Feldman, Sandra Freedman; and Staver, Philip Randall, to General Electric Company. Injection chamber for high power optical fiber transmission. 5,673,343, Cl. 385-31.000.

Orjales-Venero, Aurelio; and Rodes-Solanes, Rosa, to Fabrica Espanola de Productos Quimicos y Farmaceuticos (FAES). 1-phenylmethyl benzimidazole piperazine derivative. 5,672,604, Cl. 514-254.000.

Orly, Isabelle; Levy, Marie-Christine; and Perrier, Eric, to Coletica. Method for fabricating microparticles in emulsion by modification of the chemical composition of the dispersed phase after emulsification. 5,672,301, Cl. 264-4.100.

Ormat Industries, Ltd.: See—
Bronicki, Lucien Y.; Rioulet, Gilbert; Amir, Nadav; Grassianni, Moshe; Elovic, Asher; Gilon, Yoel; and Moritz, Alex, 5,671,601, Cl. 60-641.500.

Ormsby, Jay: See—
Allen, Nicholas; Boudour, Abdu; Broude, Sergey; Chase, Eric; Johnson, Carl; Miller, Pascal; Ormsby, Jay; and Savkovsky, Arkady, 5,672,885, Cl. 250-559.300.

Orofino, Paul Allen: See—
Fisher, Sheldon; Orofino, Paul Allen; and Orofino, Richard Allen, 5,672,056, Cl. 433-137.000.

Orofino, Richard Allen: See—
Fisher, Sheldon; Orofino, Paul Allen; and Orofino, Richard Allen, 5,672,056, Cl. 433-137.000.

Osawa, Ryuiji, to Tokin Corporation. Method of manufacturing an optical isolator. 5,671,881, Cl. 228-208.000.

Osborne, Gordon Charles, Jr.: See—
Charlton, Richard Gordon; Correia, George Charles; Couture, Mark Andrew; Hill, Gary Ray; Horsford, Kibby Barth; Ingraham, Anthony Paul; Lowell, Michael David; Markovich, Vova Rista; Osborne, Gordon Charles, Jr.; and Pierson, Mark Vincent, 5,672,980, Cl. 324-755.000.

Osborne, Ian; Rudell, Elliot; and Gardner, Roger, to Rudell, Elliot A. Electronic paddle game. 5,672,131, Cl. 473-527.000.

Oshima, Yoshitugu: See—
Aoyagi, Keitaro; Niibe, Sadao; Umegae, Toshiomori; Iwai, Hideo; and Oshima, Yoshitugu, 5,672,506, Cl. 435-289.100.

Oshis, Yanis Frisovich: See—
Barov, Yury Valentinovich; Goncharenko, Sergei Borisovich; Robakidze, Tatyana Nikolaevna; Portnov, Jury Nikolaevich; Kadyshcheva, Ljubov Vladislavovna; Penke, Ilmar Kharievich; Peganov, Eduard Maximovich; Sukhanova, Svetlana Alekseevna; Tananova, Galina Vasilievna; Voronin, Anatoly Evgenievich; Kotlobai, Anatoly Alexeevich; Oshis, Yanis Frisovich; and Pchelintseva, Lidia Evgenievna, 5,672,707, Cl. 546-105.000.

Oskouy, Rasoul M.; Palaniraj, Sunderraj V.; and Gaytan, Andre J., to Sun Microsystems, Inc. Verification of network transporter in networking environments. 5,673,279, Cl. 371-67.100.

Osone, Hideki: See—
Shebanow, Michael C.; and Osone, Hideki, 5,673,408, Cl. 395-375.000.

Osterhout, Ralph F.: See—
Lam, Clive; and Osterhout, Ralph F., 5,672,108, Cl. 463-39.000.

Osterlind, Roland J.; and Wahlberg, Ulf H., to BOC Group plc. The. Medical devices. 5,672,160, Cl. 604-263.000.

Ota, Toshiyuki: See—
Inomata, Katsumi; Akiyama, Masahiro; Ota, Toshiyuki; and Tsuji, Akira, 5,672,459, Cl. 430-191.000.

Otake, Hiromi: See—
Hisada, Yukio; Otake, Hiromi; Ike, Tadashi; and Sugiyama, Motohiro, 5,672,947, Cl. 318-587.000.

Otis Elevator Company: See—
Rivera, James A., 5,671,829, Cl. 188-171.000.

Whitehall, Bradley L.; Sirag, David J., Jr.; and Powell, Bruce A., 5,672,853, Cl. 187-380.000.

Otome, Kimitake; and Tamura, Osamu, to Yamaha Matsudoki Kabushiki Kaisha. Two-cycle engine. 5,671,703, Cl. 123-65.00P.

Otsubo, Yasufumi: See—
Edamura, Kazuya; and Otsubo, Yasufumi, 5,672,298, Cl. 252-580.000.

Otsuka, Katsuyuki: See—
Ishiyama, Nobuo; Koyama, Toshihiro; Hayashida, Mitsuo; Otsuka, Katsuyuki; Fujii, Masahiro; Kimura, Kunio; Hata, Yoshiyuki; and Miyao, Nobuko, 5,672,597, Cl. 514-210.000.

Otsuka, Kazuhisa; and Tanaka, Akira, to Fanuc Ltd. Bifinger hand for an industrial robot and a method of controlling the operation of the bifinger hand. 5,671,962, Cl. 294-119.100.

Otsuka Pharmaceutical Co., Ltd.: See—
Nakai, Satoru; Aihara, Koutoku; Mori, Hitomi; Tomimaga, Michiaki; Adachi, Masakazu; Ichikawa, Hiroyuki; Akamatsu, Seiji; and Saito, Fumio, 5,672,603, Cl. 514-254.000.

Otto, Vince Urban: See—
Rhule, Daniel Allen; Damman, Alex Scott; and Otto, Vince Urban, 5,671,945, Cl. 280-740.000.

Owashi, Hitoaki: See—
Arai, Hideo; Owashi, Hitoaki; Hosokawa, Kyoichi; Nishimura, Keizo; Watatani, Yoshizumi; and Shibata, Akira, 5,673,154, Cl. 360-8.000.

Owens-Brockway Glass Container Inc.: See—
Nicks, Timothy J.; Waugaman, John L.; and Ahl, Alan D., 5,672,863, Cl. 250-223.000.

Owens-Corning Fiberglass Technology, Inc.: See—
Berdan, II, Clarke; Houpt, Ronald A.; Porter, Russell M.; and Aschenbeck, David P., 5,672,429, Cl. 428-401.000.

Owens-Illinois Labels Inc.: See—
Chan, John; and Chaddock, Richard L., 5,671,588, Cl. 53-398.000.

Oy Shippax Ltd.: See—
Kordelin, Tapio, 5,671,804, Cl. 165-46.000.

Paal, Michael: See—
Heath, William F., Jr.; McDonald, John H., III; Paal, Michael; Schotten, Theo; and Stenzel, Wolfgang, 5,672,618, Cl. 514-414.000.

Paccar Inc.: See—
Huntley, Robert L., 5,671,556, Cl. 40-200.000.

Pace, Robert Joseph: See—
Curran, Patrick Joseph; Pace, Robert Joseph; Rychlick, Edward George; and Waskiewicz, David Chester, 5,671,718, Cl. 123-520.000.

Palangio, Tom: See—
Hooper, Alan; Collins, Les; Reckzin, Earl; Richard, Andrew; Kelly, Mark; Palangio, Tom; and Simpson, Grant, 5,672,839, Cl. 86-20.150.

Palaniraj, Sunderraj V.: See—
Oskouy, Rasoul M.; Palaniraj, Sunderraj V.; and Gaytan, Andre J., 5,673,279, Cl. 371-67.100.

Palau, Joseph, to Staubli Faverges. Concentric drive mechanism for controlling reciprocal movement of griffe frame blades. 5,671,781, Cl. 139-59.000.

Palazzotto, Michael C.: See—
Mahoney, Wayne S.; and Palazzotto, Michael C., 5,672,637, Cl. 522-25.000.

Palczewski, Mikael; Schultz, David P.; and Goetting, F. Erich, to Xilinx, Inc. High speed post-programming net packing method. 5,672,966, Cl. 324-158.100.

Palella, Thomas D.: See—
Kelley, William N.; Palella, Thomas D.; and Levine, Myron, 5,672,344, Cl. 424-93.200.

Palladino, Michael A.: See—
Aggarwal, Bharat B.; Palladino, Michael A.; and Shalaby, Mohamed R., 5,672,347, Cl. 424-139.100.

Palmer, Nicholas C.: See—
Wheat, Gary E.; McCracken, Robert E.; and Palmer, Nicholas C., 5,672,261, Cl. 205-206.000.

Palmiter, Sally Anne: See—
Palmiter, Stuart E.; and Palmiter, Sally Anne, 5,671,951, Cl. 281-31.000.

Palmiter, Stuart E.; and Palmiter, Sally Anne. Carrying case having a detachable clip-board. 5,671,951, Cl. 281-31.000.

Palomar Technologies Corporation: See—
Lowe, Peter R.; and Small, Donald G., 5,673,018, Cl. 340-445.000.

Palsson, Bernhard Ø.; Clarke, Michael F.; and Chuck, Alice S. Y., to University of Michigan. The. Methods of increasing rates of infection by directing motion of vectors. 5,672,494, Cl. 435-172.300.

Paludetto, Renato: See—
Trotta, Roberto; Donati, Gianni; Paludetto, Renato; and Chiudarioli, Paolo, 5,672,771, Cl. 568-697.000.

Pan, David H.: See—
Chamberlain, Scott D.; Pan, David H.; and Spiewak, John W., 5,672,456, Cl. 430-115.000.

- Pan, Yang, to Chartered Semiconductor Manufacturing PTE Ltd. Polysilicon gate reoxidation in a gas mixture of oxygen and nitrogen trifluoride gas by rapid thermal processing to improve hot carrier immunity. 5,672,525, Cl. 437-40.000.
- Pan, Yang, Method for reducing silicided poly gate resistance for very small transistors. 5,672,544, Cl. 437-200.000.
- Pan, Yuh-Guo: See—
Lim, Mu-III; Pan, Yuh-Guo; Stasaitis, Linas R.; and O'Donoghue, John D., 5,672,180, Cl. 8-408.000.
- Panchison, Clarence M.: See—
Devanathan, Deva; Krebs, Steve; Lin, Steve T.; Morr, James J.; and Panchison, Clarence M., 5,672,284, Cl. 219-121.640.
- Panduit Corp.: See—
Block, Dale A.; Falkstrom, Karl E.; Lindley, Kris B.; and McGrath, Michael J., 5,672,074, Cl. 439-540.000.
- Caveney, Jack E.; and Nicoli, Robert, 5,672,033, Cl. 408-72.00B.
- Pang, Lily Y.: See—
Congdon, Philip A.; Pang, Lily Y.; and Evans, Gary A., 5,673,284, Cl. 372-50.000.
- Pangalos, George; Falcone, Ronald A., Jr.; Mayo, William L.; and Bosch, Gregory J., to Union Camp Patent Holding, Inc. Control scheme for rapid pulp delignification and bleaching. 5,672,247, Cl. 162-65.000.
- Panitch, Maximo M.: See—
Sun, Wei Mei; Ma, Zhu-ning; Panitch, Maximo M.; and Galleguillos, Ramiro, 5,672,340, Cl. 424-66.000.
- Pannell, Lewis: See—
Boyd, Michael R.; Cardellina, John H., II; Gustafson, Kirk R.; Decosterd, Laurent A.; Parsons, Ian; Pannell, Lewis; McMahon, James B.; and Cragg, Gordon M., 5,672,607, Cl. 514-305.000.
- Panov, Gennady Ivanovich: See—
Kharitonov, Alexander Sergeevich; Panov, Gennady Ivanovich; Shevel, Galina Anatolievna; Pirutko, Larisa Vladimirovna; Voskresenskaya, Tatyana Pavlovna; and Sobolev, Vladimir Ivanovich, 5,672,777, Cl. 568-800.000.
- Parekh, Shyamal I.: See—
Haight, Anthony R.; Goodmonson, Owen J.; Parekh, Shyamal I.; Robbins, Timothy A.; and Seif, Lou S., 5,672,706, Cl. 546-99.000.
- Parg, Adolf: See—
Wigger, August; Fricke, Hans-Michael; Kardorff, Uwe; Parg, Adolf; and Kober, Reiner, 5,672,564, Cl. 504-116.000.
- Park-Air Corporation: See—
Rodenstein, Larry M.; Glines, Bradley G.; and Amell, Theodore, 5,672,234, Cl. 156-494.000.
- Park, Eun-Chung: See—
Friden, Phillip M.; Starzyk, Ruth M.; Morrison, Sherie L.; and Park, Eun-Chung, 5,672,683, Cl. 530-350.000.
- Park, Heung-soo; and Chae, Hee-sun, to Samsung Electronics Co., Ltd. Central management system of wet chemical stations. 5,672,230, Cl. 156-345.000.
- Park, Hong-soon: See—
Lee, Deok-hyun; and Park, Hong-soon, 5,672,838, Cl. 84-645.000.
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- Park, Jong-Wook, to Samsung Electronics Co., Ltd. Nonvolatile semiconductor memory device with multiple word line voltage generators. 5,673,223, Cl. 365-185.170.
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- Pchelintseva, Lidia Evgenievna: See—
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- Pennzoil Products Company: See—
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- Pentech Pharmaceuticals, Inc.: See—
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- O'Neill, Michael J., 5,672,289, Cl. 219-497.000.
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- Petersen, Mark K., to New Mexico State University Technology Transfer Corp. Method of improving efficiency in ruminants. 5,672,366, Cl. 426-2.000.
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- Petrov, Yuri I.: See—
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- Pflug, Herwig, to Klinger AG. Lenticular sealing ring with alternating graphite and metal lamellae. 5,671,929, Cl. 277-233.000.
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- Phillips, Nicholas A., to Weyerhaeuser Company. Quick collapse paperboard container. 5,671,883, Cl. 229-236.000.
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- Phillips, Webster C. Self-belaying descending apparatus. 5,671,822, Cl. 182-5.000.
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- Pichon, Gerald: See—
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- Pierson, Mark Vincent: See—
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- Pincus, Mike: See—
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- Pineau, David G. Binding mount assembly for an alpine ski. 5,671,939, Cl. 280-602,000.
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- Pinnavaia, Thomas J.; and Tanev, Peter T., to Board of Trustees operating Michigan State University. Crystalline silicate compositions and method of preparation. 5,672,556, Cl. 502-63,000.
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- Pioneer Electronic Corporation: See—
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- Suzuki, Kenji; Kobayashi, Takahiro; Kobasa, Naoto; and Fujimori, Jiro, 5,673,251, Cl. 369-275,400.
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- Pioneer Video Corporation: See—
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- Pipe Equipment Specialists Limited: See—
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- Pirutko, Larisa Vladimirovna: See—
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- Pisano, Alfred: See—
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- Pischinger, Franz; Dürholz, Manfred; Lepperhoff, Gerhard; and Hühwohl, Georg, to FEV Motorentechnik GmbH & Co. KG. Method of reducing the NO_x emission of a supercharged piston-type internal combustion engine. 5,671,600, Cl. 60-605,200.
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- Plantan, Ronald S., to Indian Head Industries. Sealed spring brake actuator. 5,671,654, Cl. 92-63,000.
- Plantikow, Ulrich: See—
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- Plásticos de Galicia, S.A.: See—
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- Polischuk, Margarita, executrix: See—
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- Polishchuk, Valerii Romanovich, deceased (by Margarita Polischuk, executrix): See—
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- Pollington, Andrew Roy; and Mandalia, Harish, to Bridgeport Machines Inc. Tool carousel. 5,672,145, Cl. 483-59,000.
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- Portnov, Yuri Nikolaevich: See—
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- Posey, Robert G.: See—
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- Posey, William P.: See—
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- Potter, Russell M.: See—
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- Potts, J. Barry. Tamper-resistant fixture for self-luminous radioactive light. 5,671,997, Cl. 362-84,000.
- Potvin, Deborah L.: See—
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- Potvin, Peter Lloyd: See—
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- Powell, Clinton C., II: See—
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- Brown, Michael Wilfrid; Hickerson, Lester Brooks; Powell, Colin Victor; Tims, William Chapel; Tycast, Robert Leonard; and Verburg, Richard Lee, 5,673,403, Cl. 395-335,000.
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- Prammer, Manfred G.: See—
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- Priebe, Donald F. Bow sight. 5,671,724, Cl. 124-87,000.
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- Procter & Gamble Co., The: See—
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- De, Biswanath; Wahl, Christopher Thomas; Natchus, Michael George; and Cheng, Menyuan, 5,672,598, Cl. 514-212,000.
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- Scherz, Michael Wiard; and Wu, Laurence Ichih, 5,672,620, Cl. 514-422,000.
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- Proskauer, Daniel C.; Ravn, Mogens; Hood, Kevin G.; Amann, Thomas G.; and Westborn, Thomas B., to Teradyne, Inc. Apparatus and method for performing digital signal processing in an electronic circuit tester. 5,673,272, Cl. 371-22,100.
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- Pugh, Jamie K., to United States of America, Navy. Automatic medical sign monitor. 5,671,734, Cl. 128-630,000.
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- Putcha, Sivarama Seshu: See—
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- Quantum Corporation: See—
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- Quick Hit, Inc.: See—
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- Quick, Roy F., Jr., to Qualcomm Incorporated. Random access communications channel for data services. 5,673,259, Cl. 370-342,000.
- Quigley, Gene Kirk. Cooler chest with ice-surrounded food compartment. 5,671,611, Cl. 62-457,700.
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- R. P. Abrasives & Machine, Inc.: See—
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- Rajagopalan, Raghavan; and Fung, Ella Y., to Mallinckrodt Medical, Inc. Δ^{1,6} bicyclo [4.4.0] functional dyes for contrast enhancement in optical imaging. 5,672,333, Cl. 424-9,600.
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- Ramanujachary, Kandaram: See—
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- Ramesh, Subban; Williams, Laurence Lyman; Gupta, Ram Baboo; and Lin, Lon-Tang Wilson, to Cytec Technology Corp. 1,3,5-triazine compounds substituted with acetal and/or cyclized acetal-based groups. 5,672,703, Cl. 544-194,000.
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Regan, Ciaran M.: See—
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Combs, Christopher David; Baker, Andrew Russell; Davidson, Steven Lee; and Rezsanya, Thomas, 5,671,530, Cl. 29-834.000.

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Schweden, Jürgen; Bollschweiler, Claus; Piontek, Michael; Weydemann, Ulrike; and Gellissen, Gerd, 5,672,487, Cl. 435-69.100.

Rhodes, Gary A.: See—
Alt, Charles A.; Merritt, Leander; Rhodes, Gary A.; Robey, Roger L.; Van Meter, Eldon E.; Ward, John S.; and Mitch, Charles H., 5,672,709, Cl. 548-110.000.

Rhone-Poulenc Agrochimie: See—
Jikihara, Kazuo; Suzuki, Hisato; Miyashita, Yumiko; Maruyama, Toshihiro; Usui, Yoshihiro; Makimura, Futaba; and Morishige, Jiro, 5,672,566, Cl. 504-130.000.

Rhone-Poulenc Chimie: See—
Allas, Michel; Chassaigne, Serge; Gay, Michel; and Mur, Gilles, 5,672,646, Cl. 524-357.000.

Rhone-Poulenc Rorer S.A.: See—
Aloup, Jean-Claude; and Mignani, Serge, 5,672,705, Cl. 544-343.000.

Rhule, Daniel Allen; Damman, Alex Scott; and Otto, Vince Urban, to General Motors Corporation. Air bag assembly with diffuser. 5,671,945, Cl. 280-740.000.

Riace Establishment: See—
Cignarella, Giorgio, 5,672,601, Cl. 514-249.000.

Ribozyme Pharmaceuticals, Inc.: See—
Beigelman, Leonid; and Karpeisky, Alex, 5,672,511, Cl. 435-325.000.

Matulic-Adamic, Jasenka; Beigelman, Leonid; Usman, Nassim; Karpeisky, Alex; and Burgin, Alex, 5,672,501, Cl. 435-240.200.

Riccitiello, Salvatore R.: See—
Tran, Huy K.; Henline, William D.; Hsu, Ming-ta S.; Rasky, Daniel J.; and Riccitiello, Salvatore R., 5,672,389, Cl. 427-294.000.

Richard, Andrew: See—
Hooper, Alan; Collins, Les; Reckzin, Earl; Richard, Andrew; Kelly, Mark; Palangio, Tom; and Simpson, Grant, 5,672,839, Cl. 86-20.150.

Richard, Bennett M.: See—
Voll, Benn Arld; and Richard, Bennett M., 5,672,275, Cl. 210-497.010.

Richard-James, Inc.: See—
Refojo, Miguel F.; and Tolentino, Felipe I., 5,672,355, Cl. 424-427.000.

Richards, Angus Duncan, to Xenotech Research Pty. Ltd. Stereoscopic display unit. 5,671,992, Cl. 353-7.000.

Rickert, James H.: See—
Kreckel, Karl W.; Hager, Patrick J.; and Rickert, James H., 5,672,402, Cl. 428-34.200.

Ricoh Company, Ltd.: See—
Hayashi, Nobutake; Sato, Yutaka; and Ryu, Tadanori, 5,673,043, Cl. 341-106.000.

Kanda, Yoshimichi, 5,673,340, Cl. 382-250.000.

Kimura, Shigeaki; and Kitazawa, Hiroshi, 5,672,223, Cl. 156-234.000.

Shimada, Tomoyuki; Sasaki, Masaomi; Aruga, Tamotsu; Ohta, Masa-fumi; Anzai, Mitsutoshi; and Imai, Akihiro, 5,672,756, Cl. 564-426.000.

Tanaka, Chiaki; Sasaki, Masaomi; Aruga, Tamotsu; Shimada, Tomoyuki; and Adachi, Hiroshi, 5,672,728, Cl. 558-376.000.

Tokunaga, Atsuo; and Nakaya, Masahide, 5,673,187, Cl. 363-65.000.

Riebeling, Ulrich: See—
De Clercq, Arnold; Höhr, Lothar; and Riebeling, Ulrich, 5,672,392, Cl. 427-391.000.

Riedel, Steven D.: See—
Kahleek, Curtis O.; Riedel, Steven D.; and Correll, Thomas D., 5,673,190, Cl. 364-131.000.

Rieter Automatik GmbH: See—
Keilert, Jürgen; and Nogosseck, Alfred, 5,672,304, Cl. 264-102.000.

Rieter Scragg Limited: See—
Naylor, Geoffrey, 5,671,519, Cl. 28-249.000.

Rijksuniversiteit te Groningen: See—
Grijpma, Dirk Wybe; Laimböck, Johannes Fredericus; and Pennings, Albert Johan, 5,672,367, Cl. 426-6.000.

Riley, Robert Q.; and Aksamit, Thomas J. Fluid transfer apparatus. 5,672,155, Cl. 604-154.000.

Rilly, Gerard; Duran, José I. Rodriguez; Roth, Harald; Morizot, Gerard; and Schulz, Thomas, to Deutsche Thomson-Brandt GmbH. Switch mode power supply circuit with increased power factor for mains. 5,673,184, Cl. 363-21.000.

Rinaldi, Sergio; and Talini, Francesco, to Europa Metalli - Sezione Difesa S.p.A. Printing mixture containing no toxic materials, and cartridge percussion primer employing such a mixture. 5,672,219, Cl. 149-37.000.

Ringdahl, Lynn O.; Stoen, Jeffrey J.; Welte, James B.; Gruber, Gary G.; and Jenum, Timothy W., to Crow River Industries, Inc. Collapsible, powered platform for lifting wheelchair. 5,672,041, Cl. 414-545.000.

Riollet, Gilbert: See—

Bronicki, Lucien Y.; Riollet, Gilbert; Amir, Nadav; Grassianni, Moshe; Elovic, Asher; Gilon, Yoel; and Moritz, Alex, 5,671,601, Cl. 60-641.500.

Riso Kagaku Corporation: See—
Okuda, Sadanao; Ishikawa, Makoto; Kawabe, Takao; and Kawano, Masakazu, 5,671,669, Cl. 101-116.000.

Okuda, Sadanao; Isozaki, Takashi; Higa, Ryuji; and Tojima, Takahito, 5,671,675, Cl. 101-424.200.

Takahashi, Yasuhiro; and Takita, Nagon, 5,671,670, Cl. 101-116.000.

Rita Medical Systems, Inc.: See—
Gough, Edward J.; and Stein, Alan A., 5,672,173, Cl. 606-41.000.

Gough, Edward J.; and Stein, Alan A., 5,672,174, Cl. 606-41.000.

Ritter, Ralf. Repeating pipet having a plunger advance mechanism. 5,672,320, Cl. 422-100.000.

Rivera, Edwin Antonio: See—
Cooper, Richard Lloyd; Zizelman, James; Salemi, Michael Raymond; Noll, Jeffrey Mark; and Rivera, Edwin Antonio, 5,671,890, Cl. 239-533.700.

Rivera, James A., to Otis Elevator Company. Brake system for elevator car doors. 5,671,829, Cl. 188-171.000.

Riverwood International Corporation: See—
Harris, Randall L., 5,671,845, Cl. 206-434.000.

Irvine, Gerald O.; Miller, Bobby L., Jr.; and Sundquist, Matthew V., 5,671,589, Cl. 33-412.000.

Robakidze, Tatyana Nikolaevna: See—
Burov, Yuriy Valentinovich; Goncharenko, Sergei Borisovich; Robakidze, Tatyana Nikolaevna; Portnov, Yuriy Nikolaevich; Kadyseva, Ljubov Vladislavovna; Penke, Ilmar Kharievich; Pegonov, Eduard Maximovich; Sukhanova, Svetlana Alexeevna; Tananova, Galina Vasilievna; Voronin, Anatoly Evgenievich; Kotlobai, Anatoly Alexeevich; Oshis, Yanis Fritsevich; and Pchelintseva, Lidia Evgenievna, 5,672,707, Cl. 546-105.000.

Robbie, Paul. Golf swing trainer. 5,672,118, Cl. 473-257.000.

Robbins, Edward S., III; and Burcham, Gregory S., to Robbins, III, Edward S. Measuring/dispersing closure flip-top cap and built in shut-off blade. 5,671,875, Cl. 222-452.000.

Robbins, Max Leo: See—
Varadaraj, Ramesh; Robbins, Max Leo; and Brons, Cornelius Hendrick, 5,672,739, Cl. 562-106.000.

Robbins, Timothy A.: See—
Haight, Anthony R.; Goodmonson, Owen J.; Parekh, Shyamal I.; Robbins, Timothy A.; and Seif, Lou S., 5,672,706, Cl. 546-99.000.

Robert Bosch GmbH: See—
Bertling, Johannes; Dobler, Karl-Otto; Neumann, Rainer; Hogrefe, Henning; Eichler, Heike; Lampen, Martin; and Boebel, Doris, 5,672,001, Cl. 362-278.000.

Kabatnik, Wilfried; and Glauning, Rainer, 5,671,815, Cl. 173-217.000.

Mattes, Bernard; Schumacher, Hartmut; Nitschke, Werner; and Henne, Ralf, 5,672,916, Cl. 307-10.100.

Mauz, Wolfgang, 5,672,254, Cl. 204-279.000.

Rembold, Helmut; and Teegen, Walter, 5,671,717, Cl. 123-495.000.

Schaefer, Wolfgang; Kaiser, Klaus; Benda, Martin; and Reiling, Eckard, 5,672,818, Cl. 73-118.200.

Roberts, Roy D.: See—
Kiss, John; and Roberts, Roy D., 5,672,931, Cl. 313-44.000.

Robertson, Martha Hetzel: See—
Farley, James McCleod; Robertson, Martha Hetzel; and Sims, Charles Lewis, 5,672,670, Cl. 526-308.000.

Robey, Roger L.: See—
Alt, Charles A.; Merritt, Leander; Rhodes, Gary A.; Robey, Roger L.; Van Meter, Eldon E.; Ward, John S.; and Mitch, Charles H., 5,672,709, Cl. 548-110.000.

Robic, John I. Distortion free heat treated metal stampings. 5,672,216, Cl. 148-527.000.

Robin, Michael Breed: See—
Volk, Patrick Michael; Robin, Michael Breed; Thorne, Edwin, III; and Kapell, JoGene, 5,673,401, Cl. 395-327.000.

Robinson, Carl W.: See—
Lyerly, Jeffrey B.; Miller, Frederick C.; and Robinson, Carl W., 5,672,015, Cl. 400-58.000.

Robinson, Glenn, to Mead Corporation. The Method and apparatus for loading bottom-loading basket-style carrier. 5,671,587, Cl. 53-398.000.

Robinson, James S.: See—
Frost, Richard L.; Kolb, Edgar C.; and Robinson, James S., 5,672,857, Cl. 200-61.810.

Kolb, Edgar C.; and Robinson, James S., 5,672,856, Cl. 200-61.520.

Robinson, Janine C.: See—
de la Torre, Roger A.; Scott, James Stephen; and Robinson, Janine C., 5,672,168, Cl. 606-1.000.

Robinson, Mark D., to Louis Berkman Company. The Pontoon boat mooring system. 5,671,693, Cl. 114-230.000.

Robt, Jeffrey A., to Bristol-Myers Squibb Co. Compounds containing a fused bicycle ring. 5,672,599, Cl. 514-227.200.

Robson, Keith: See—
Simpson, Leslie Ainsley; Robson, Keith; Knight, David Trevor; and Brown, Ronald, 5,672,201, Cl. 106-447.000.

Roche Diagnostic Systems, Inc.: See—
Terskhik, Alexey; Pëlegin, André; and Mach, Jean-Pierre, 5,672,513, Cl. 436-64.000.

Roche Diagnostics Systems, Inc.: See—
Bühler, Jürg; and Müller, Siegfried, 5,672,317, Cl. 422-65.000.

- Rock, Howard P.; Rock, Kelly P.; and Wood, Grant R., to Cyclone Technologies Inc. Cyclone vortex system and process. 5,672,187, Cl. 55-257.400. Rock, Kelly P.: See—
- Rock, Howard P.; Rock, Kelly P.; and Wood, Grant R., 5,672,187, Cl. 55-257.400.
- Rockford Corporation: See—
- Strickland, James C., 5,673,000, Cl. 130-255.000.
- Rodenstein, Larry M.; Glines, Bradley G.; and Amell, Theodore, to Park-Air Corporation. Zipper fusing machine for attaching zipper material to a plastic web. 5,672,234, Cl. 156-494.000.
- Rodes-Solanes, Rosa: See—
- Orjales-Venero, Aurelio; and Rodes-Solanes, Rosa, 5,672,604, Cl. 514-254.000.
- Roehl, Franz: See—
- Mueller, Bernd; Sauter, Hubert; Wiegert, Horst; Koenig, Hartmann; Roehl, Franz; Ammermann, Eberhard; and Lorenz, Gisela, 5,672,616, Cl. 514-378.000.
- Roehlinger, Arno: See—
- Joerg, Wolfgang; Bordovsky, Jaromir; Cakmaz, Aydogan; Heck, Hubert; Roehlinger, Arno; Gall, Claus; Albrecht, Reinhold; Strauss, Rainer; and Koehler, Karl-Hans, 5,671,637, Cl. 74-422.000.
- Rogaway, Phillip W.: See—
- Bellare, Mihir; and Rogaway, Phillip W., 5,673,319, Cl. 380-25.000.
- Rogaway, Phillip Walder: See—
- Bellare, Mihir; Guerin, Roch Andre; and Rogaway, Phillip Walder, 5,673,318, Cl. 380-23.000.
- Rogers, Daryl Jay, to General Motors Corporation. Electronic control module cooling device. 5,671,802, Cl. 165-41.000.
- Rogers, John A.; Nelson, Keith A.; and Dhar, Lisa, to Massachusetts Institute of Technology. Measuring anisotropic mechanical properties of thin films. 5,672,830, Cl. 73-597.000.
- Rohm and Haas Company: See—
- Schall, Donald Craig; Lavoie, Alvin Charles; Landy, Francis Joseph; and Edwards, Steven Scott, 5,672,379, Cl. 427-137.000.
- Rohm Co., Ltd.: See—
- Sawamura, Yo, 5,673,424, Cl. 395-555.000.
- Tsuji, Masahiro; and Miyata, Osamu, 5,672,550, Cl. 437-219.000.
- Rohrmann, Jürgen: See—
- Winter, Andreas; Antberg, Martin; Bachmann, Bernd; Dolle, Volker; Küber, Frank; Rohrmann, Jürgen; and Spaleck, Walter, 5,672,668, Cl. 526-127.000.
- Rolfson, J. Brett, to Micron Technology, Inc. Method of phase shift mask fabrication comprising a tapered edge and phase conflict resolution. 5,672,450, Cl. 430-5.000.
- Rolfson, J. Brett: See—
- Thakur, Randhir P. S.; Rolfson, J. Brett; Gonzalez, Fernando; and Moore, John T., 5,672,539, Cl. 431-70.000.
- Romack, Timothy: See—
- DeSimone, Joseph M.; and Romack, Timothy, 5,672,667, Cl. 526-89.000.
- Ronconi, Marco, to Pasco S.p.A. Compressed-air nail firing tool with head valve, operating with single and repeat firing. 5,671,880, Cl. 227-130.000.
- Rongved, Paul I. Catalytic cigarette smoke cleaning device and process. 5,671,758, Cl. 131-334.000.
- Ronsen, Bruce; and El-Rashidy, Ragab, to Pentech Pharmaceuticals, Inc. Amorphous paroxetine composition. 5,672,612, Cl. 514-338.000.
- Ronzani, Peter A.: See—
- Zavacky, Matthew; Chern, Wen-Foo; Gale, Ronald; Ronzani, Peter A.; and Pombo, Stephen, 5,673,059, Cl. 345-8.000.
- Rorke, Anthony Brooks: See—
- Melito, M. Anthony; Potvin, Deborah L.; Krehel, Gregg C.; and Rorke, Anthony Brooks, 5,671,499, Cl. 15-339.000.
- Roschke, Thomas: See—
- Kühn, Olaf; and Roschke, Thomas, 5,673,165, Cl. 361-154.000.
- Rose, Robert Alan: See—
- Rao, V. Durga Nageswar; Rose, Robert Alan; Yeager, David Alan; and Kabat, Daniel Michael, 5,671,532, Cl. 29-888.061.
- Rose, William J.: See—
- Klas, Daniel E.; and Rose, William J., 5,673,009, Cl. 333-1.000.
- Rosemount Inc.: See—
- Kielb, John A.; Nelson, Richard L.; and Manicor, Scott D., 5,672,975, Cl. 324-644.000.
- Rosen, Frank. Flush valve. 5,671,906, Cl. 251-148.000.
- Rosenblum, David Samuel: See—
- Chen, Yih-Farn Robin; Rosenblum, David Samuel; and Vo, Kiem-Phong, 5,673,387, Cl. 395-183.140.
- Rosenbluth, Alan Edward: See—
- Chastang, Jean-Claude Andre; Kirtley, Kathryn Barr; and Rosenbluth, Alan Edward, 5,673,144, Cl. 359-185.000.
- Ross, Charles Edward. Flat-folding pitcher's practice cage. 5,672,125, Cl. 473-421.000.
- Ross, John S., to Worldwide Notification Systems, Inc. Apparatus and method for tracking and reporting the location of a motor vehicle. 5,673,305, Cl. 379-58.000.
- Rossi, John H.; Innocenzi, Mark E.; Goodfriend, Steven L.; and Lowe, Douglas E., to Boeing North American, Inc. Object location identification system for providing location data of an object being pointed at by a pointing device. 5,672,820, Cl. 73-178.000.
- Rossman, Randall R.: See—
- Doll, Ronald J.; Mallanis, Alan K.; Afonso, Adriano; Rane, Dinanath F.; Rossman, Randall R.; and Njoroge, F. George, 5,672,611, Cl. 514-325.000.
- Roth, Harald: See—
- Rilly, Gerard; Duran, José I. Rodriguez; Roth, Harald; Morizot, Gerard; and Schulz, Thomas, 5,673,184, Cl. 363-21.000.
- Rothchild, Ronald D. Gas separation by continuous pressure-swing chromatography. 5,672,197, Cl. 95-98.000.
- Rother, Heinz-Joachim: See—
- Heuer, Lutz; and Rother, Heinz-Joachim, 5,672,568, Cl. 504-317.000.
- Rothfuss, Ulrich: See—
- Kayser, Franz; Rothfuss, Ulrich; van Haag, Rolf; Wenzel, Reinhard; and Junk, Dieter, 5,671,665, Cl. 100-38.000.
- Rothwell, Christian S.: See—
- Nardone, Edward A.; Caron, Paul R.; Rothwell, Christian S.; Schofield, Harold D.; and Field, Gary, 5,673,076, Cl. 347-171.000.
- Rottner, Bruce E., to Eastman Kodak Company. Photofinishing device with interchangeable film decks. 5,673,104, Cl. 355-75.000.
- Rousseau, François, to Université Laval, Cite Universitaire. Marker at the estrogen receptor gene for determination of osteoporosis predisposition. 5,672,476, Cl. 435-6.000.
- Roussel UCLAF: See—
- Bonfils, Armelle; and Philibert, Daniel, 5,672,595, Cl. 514-176.000.
- Rovedo, Nivo: See—
- Ogura, Seiki; Rovedo, Nivo; and Wong, Robert C., 5,672,892, Cl. 257-314.000.
- Rubin, Darryl E.: See—
- Fenwick, Thomas; and Rubin, Darryl E., 5,673,394, Cl. 395-200.080.
- Rubsamen, Reid M.; and Lloyd, Lester John, to Aradigm Corporation. Method of administration of insulin. 5,672,581, Cl. 514-3.000.
- Rude, Harold E.: See—
- Chesley, Jason A.; Bell, Donald R.; Rude, Harold E.; Sheffield, William F.; Slama, David F.; and Stephens, Alan N., 5,672,186, Cl. 51-297.000.
- Rudell, Elliot; and Cernansky, Joseph, to Rudell, Elliot A. Water mat activity with puddles and spray action. 5,672,123, Cl. 473-414.000.
- Rudell, Elliot: See—
- Fisher, Raymond Earl; Rudell, Elliot; and Foster, George T., 5,672,129, Cl. 473-471.000.
- Osborne, Ian; Rudell, Elliot; and Gardner, Roger, 5,672,131, Cl. 473-527.000.
- Rudell, Elliot A.: See—
- Osborne, Ian; Rudell, Elliot; and Gardner, Roger, 5,672,131, Cl. 473-527.000.
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- Rudick, Arthur G., to Coca-Cola Company, The. Apparatus for icing a package. 5,671,604, Cl. 62-52.100.
- Rudolph, Rainer: See—
- Kopetzki, Erhard; Rudolph, Rainer; and Grossmann, Adelbert, 5,672,691, Cl. 530-413.000.
- Runalduie, Thomas J., to Advanced Micro Devices, Inc. CMOS current mirror. 5,672,993, Cl. 327-404.000.
- Rusche, Emil Herman; Van Hatten, Jan Cornelis; and Vroonland, Christoffel Anthonius Johannes, to Sara Lee/De N.V. Assembly for providing a passage for liquid between a first member and a second member. 5,671,770, Cl. 137-318.000.
- Rush, Kent R., to Labelon Corporation. Stabilized heat-sensitive imaging material. 5,672,560, Cl. 503-209.000.
- Russ, Werner Hubert: See—
- Schumacher, Christian; Meier, Michael; and Russ, Werner Hubert, 5,672,738, Cl. 562-45.000.
- Rutgers, The State University of New Jersey: See—
- Greenblatt, Martha; Feng, Shouhua; Ramanujachary, Kandalam; and Shuk, Pavel, 5,672,258, Cl. 204-430.000.
- Rutman, Mark A. Expandable pet cage and method. 5,671,697, Cl. 119-473.000.
- Ryan, Ronald D.; Marquart, Ronald G.; and Millwood, Timothy S., to Homeowner's Endorsement Plan Incorporated, The. Computer system for producing an illustration of an investment repaying a mortgage. 5,673,402, Cl. 395-238.000.
- Ryan, Wayne L., to Streck Laboratories, Inc. White blood cell hematology control. 5,672,474, Cl. 436-8.000.
- Rychlick, Edward George: See—
- Curran, Patrick Joseph; Pace, Robert Joseph; Rychlick, Edward George; and Waskiewicz, David Chester, 5,671,718, Cl. 123-520.000.
- Rydbeck, Nils Rutger: See—
- Persson, Per-Håkan; and Rydbeck, Nils Rutger, 5,672,844, Cl. 174-35.000.
- Ryll, Jürgen; and Schwäger, Michael, to Whitaker Corporation, The. Electrical connector having a mating slide with customized camming slot. 5,672,067, Cl. 439-157.000.
- Ryobi North America: See—
- Stolzer, J. Timothy; McCurry, Ronald C.; and Winchester, Charles D., 5,671,789, Cl. 144-154.500.
- Ryobi North America, Inc.: See—
- Everts, Robert G.; and Coleman, Harold J., 5,671,536, Cl. 30-276.000.
- Ryoke, Katsumi, to Fuji Photo Film Co., Ltd. Abrasive member. 5,672,185, Cl. 51-295.000.
- Rytz, Gerhard: See—
- Toan, Vien Van; Leppard, David George; Rytz, Gerhard; Würms, Norbert; and Hayoz, Pascal, 5,672,704, Cl. 544-215.000.

- Ryu, Su-Noh; Lee, Jung-Il; Jeong, Bo-Young; and Hur, Han-Sun, to Republic of Korea Represented by Rural Development Administration. Method for separating and purifying α -linolenic acid from perilla oil. 5,672,726, Cl. 554-20.000.
- Ryu, Tadanori: See—
- Hayashi, Nobutake; Sato, Yutaka; and Ryu, Tadanori, 5,673,043, Cl. 341-106.000.
- Sabha, Nick George, to General Motors Corporation. Compressor reed valve with valve plate channel. 5,672,053, Cl. 417-569.000.
- Sabritas, S.A. DE C.V.: See—
- De La Paz Rizo, Fabian; and Ordóñez, Gabriel Martinez, 5,672,087, Cl. 446-46.000.
- Sackler, Richard S.; Kaiko, Robert F.; and Goldenheim, Paul, to Purdue Pharma, L.P. Method of treating pain by administering 24 hour oral opioid formulations. 5,672,360, Cl. 424-490.000.
- Sadakane, Shinji: See—
- Ichinose, Hiroki; Takeda, Keiso; Kojima, Susumu; and Sadakane, Shinji, 5,671,708, Cl. 123-184.540.
- Saeed, Maythem: See—
- Lang, Philipp; Wendland, Michael; Saeed, Maythem; and Gindele, Alexander, 5,671,741, Cl. 128-653.200.
- Sagae, Atsushi: See—
- Shirataki, Hirobumi; Sagae, Atsushi; and Awaji, Toshio, 5,671,836, Cl. 192-113.320.
- Sagawa, Masato; Nagata, Hiroshi; and Shirai, Hiroo, to Intermetallics Co., Ltd. Production apparatus for making green compact. 5,672,363, Cl. 425-3.000.
- Sage, John; Ailes, Jack; Gonzalez, Mike; Liverpool, Henry, Jr.; Siegel, Neil; and Supapakooa, Pirom, to TRW Inc. Method and apparatus for automatically orienting a computer display. 5,672,840, Cl. 89-41.010.
- Sagisaka, Yasuo; Nakayama, Masaaki; Mukai, Yasuo; Yamashita, Yukihiko; and Iida, Hisashi, to Nippondenso Co., Ltd. Self-diagnostic apparatus of air-fuel ratio control system of internal combustion engine. 5,672,817, Cl. 73-118.100.
- Sahaida, Scott R.: See—
- Stoner, Brian R.; Holmes, Joseph S., Jr.; Dreifus, David L.; Sahaida, Scott R.; Fauber, Roy E.; Hartsell, Michelle L.; and Malta, Dean, 5,672,240, Cl. 156-631.100.
- Saigo, Tsutomu: See—
- Arai, Yovich; and Saigo, Tsutomu, 5,672,973, Cl. 324-427.000.
- Saika, Toshihiro: See—
- Hatanaka, Katsunori; Saika, Toshihiro; Ishii, Takayuki; and Yamada, Katsuhiko, 5,672,902, Cl. 257-431.000.
- Saika, Toshihiro: See—
- Hiramatsu, Soichi; Suzuki, Tetsuo; Taniguro, Masahiro; Saito, Hiroyuki; Yanagi, Haruyuki; Nojima, Takashi; Saikawa, Satoshi; Kinoshita, Hiroyuki; and Kawakami, Hideaki, 5,672,019, Cl. 400-624.000.
- Saint-Gobain/Norton Industrial Ceramics Corp.: See—
- Lu, Grant; and Cann, Gordon L., 5,672,430, Cl. 428-408.000.
- Saito, Fumio: See—
- Nakai, Satoru; Aihara, Koutoku; Mori, Hitomi; Tominaga, Michiaki; Adachi, Masakazu; Ichikawa, Hiroyuki; Akamatsu, Seiji; and Saito, Fumio, 5,672,603, Cl. 514-254.000.
- Saito, Hiroyuki: See—
- Hiramatsu, Soichi; Suzuki, Tetsuo; Taniguro, Masahiro; Saito, Hiroyuki; Yanagi, Haruyuki; Nojima, Takashi; Saikawa, Satoshi; Kinoshita, Hiroyuki; and Kawakami, Hideaki, 5,672,019, Cl. 400-624.000.
- Saito, Hitoshi: See—
- Sakuragi, Hiroyuki; Seshimo, Masahiro; Makimoto, Futoshi; Takebe, Shinichi; Sokawa, Takuji; and Saito, Hitoshi, 5,671,778, Cl. 138-97.000.
- Takiguchi, Ryohei; Saito, Hitoshi; and Nishizawa, Masumi, 5,672,563, Cl. 503-227.000.
- Saito, Masahide; Semura, Shigeru; Ishikawa, Shinji; Yui, Dai; and Kanamori, Hiroo, to Sumitomo Electric Industries, Ltd. Package with optical waveguide module mounted therein. 5,673,345, Cl. 385-49.000.
- Saito, Masamichi, to Alps Electric Co., Ltd. Magnetoresistive head with soft adjacent layer comprising amorphous magnetic material. 5,673,162, Cl. 360-113.000.
- Saito, Toshihiro: See—
- Hattori, Akitaka; Nakamura, Kazuhiro; Washiyama, Tomohiro; Kato, Takao; Saito, Toshihiro; and Arai, Shoji, 5,672,782, Cl. 568-899.000.
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- Saitoh, Akira: See—
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- Salach, Kenneth. Tongue and groove shower and bath support system. 5,671,489, Cl. 4-614.000.
- Saleh, Mohsen: See—
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- Salemi, Michael Raymond: See—
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- Salminen, Hannu J., legal representative: See—
- Heiskanen, Kalevi, deceased; and Kangas, Lauri, 5,672,628, Cl. 514-648.000.
- Salomon S.A.: See—
- Girard, François, 5,671,941, Cl. 280-615.000.
- Salt, John D.: See—
- Squires, David G.; Salt, John D.; and Wilkes, Andrew C. G., 5,671,727, Cl. 126-512.000.
- Samco Scientific, Inc.: See—
- Daykin, Victor, 5,672,321, Cl. 422-102.000.
- Samejima, Shunichi: See—
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- Choi, Eun-suk; and Kim, Sang-gyun, 5,673,087, Cl. 348-511.000.
- Choi, Han-kook, 5,673,244, Cl. 369-772.000.
- Han, Suk-Jin, 5,672,291, Cl. 219-753.000.
- Jang, Cheol-Ung; Lee, Hyong-Gon; and Cho, Sung-Hee, 5,672,989, Cl. 327-143.000.
- Jeon, Byeungwoo; and Jeong, Jechang, 5,673,363, Cl. 395-2.790.
- Jeong, Woo-Seop; and Lee, Ho-Cheol, 5,673,225, Cl. 365-189.110.
- Kim, Hee-Deog, 5,672,953, Cl. 320-32.000.
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- Nah, Il-koo, 5,673,088, Cl. 348-555.000.
- Park, Heung-soo; and Chae, Hee-sun, 5,672,230, Cl. 156-345.000.
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- Sander, Michael C.: See—
- Gurganus, Cecil R.; Sanford, Roy C.; Atkinson, Jerry W.; Baker, Scott E.; Sander, Michael C.; and Vincini, John J., 5,671,967, Cl. 296-146.900.

- Sanderson, Jeffrey John, to Reekie Manufacturing Limited. Open web. 5,671,839, Cl. 198-848.000.
- Sandford, William E.; and Astle, Henry, to TRI Tool Inc. Tube end squaring tool. 5,671,646, Cl. 82-113.000.
- Sands, Peggy D.: See—
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- Sanford, David M.: See—
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- Sankyo Company, Limited: See—
Hotta, Hiroki; Sugizaki, Hiroyasu; Taya, Tetsuya; and Yanagi, Mikio, 5,672,723, Cl. 549-402.000.
- Sankyo Seisakusho Co. & Eisai Co., Ltd.: See—
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- Sannohe, Shinya: See—
Takahara, Hiroshi; and Sannohe, Shinya, 5,673,127, Cl. 359-40.000.
- Sano, Fumihiko: See—
Yanagawa, Naoharu; Nomura, Susumu; and Sano, Fumihiko, 5,673,245, Cl. 369-112.000.
- Sanofi: See—
Pillion, Richard E., 5,672,702, Cl. 544-183.000.
- Santa Barbara Research Center: See—
Trautt, Thomas A.; and Wolverson, Thomas E., 5,672,545, Cl. 437-209.000.
- Santarossa, Ned, to 888804 Ontario Limited. Method of manufacturing foam core moldings. 5,672,391, Cl. 427-356.000.
- Santel, Hans-Joachim: See—
Müller, Klaus-Helmut; König, Klaus; Findeisen, Kurt; Santel, Hans-Joachim; Lürssen, Klaus; Schmidt, Robert R.; and Dutzmann, Stefan, 5,672,713, Cl. 548-263.800.
- Sanyo Chemical Industries, Inc.: See—
Mukaida, Shingo; Iguchi, Kazuhiko; and Tanaka, Kenji, 5,672,419, Cl. 428-283.000.
- Sanyo Electric Co., Ltd.: See—
Yamashita, Shugo; Okino, Toshiyuki; Inuma, Toshiya; Maenaka, Akihiro; Murata, Haruhiko; and Mori, Yukio, 5,673,081, Cl. 348-42.000.
- Yamawaki, Akifumi; Nakahori, Shinsuke; Hamamatsu, Takeo; and Baba, Yoshitaka, 5,672,447, Cl. 428-223.000.
- Saotome, Ichiro: See—
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- Sara Lee/De N.V.: See—
Rusche, Emil Herman; Van Hattem, Jan Cornelis; and Vroonland, Christoffel Anthonius Johannes, 5,671,770, Cl. 137-318.000.
- Sarcos Group: See—
Jacobsen, Stephen C., 5,673,131, Cl. 359-173.000.
- Sarcos, Inc.: See—
Jacobsen, Stephen C.; and Davis, Charles C., 5,672,923, Cl. 310-82.000.
- Sargent, R. Richard; Alender, Jeffrey Randolph; and Moss, Thomas Hudson, III, to Peach State Labs, Inc. Method for using urea hydrochloride. 5,672,279, Cl. 210-698.000.
- Sarkis, Elias: See—
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- Sarris, Christopher P. Coffee filter dispenser. 5,671,865, Cl. 221-36.000.
- Sartori, Robert C. Easy connect and release seat belt buckle. 5,671,516, Cl. 24-652.000.
- Saruwatari, Masaru: See—
Kondo, Masaya; Ejiri, Seishi; Yamamoto, Soichi; Kumagai, Takekazu; Tsukamoto, Takeshi; Oishi, Kazuomi; Saruwatari, Masaru; and Toyama, Masaki, 5,673,118, Cl. 358-437.000.
- Sasa, Yoshikazu: See—
Masaie, Norio; Tachibana, Tomoyuki; Shimizu, Hiroyuki; Ito, Kazuhiko; Matsuguchi, Akira; Sasa, Yoshikazu; and Furuya, Atsushi, 5,672,287, Cl. 219-145.220.
- Sasaki, Kazuo, to Sony Corporation. Data cartridge. 5,671,893, Cl. 242-342.000.
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- Tanaka, Chiaki; Sasaki, Masaomi; Aruga, Tamotsu; Shimada, Tomoyuki; and Adachi, Hiroshi, 5,672,728, Cl. 558-376.000.
- Sasaki, Masato, to Unisia Jecs Corporation. Pistons for internal combustion engines and method of manufacturing same. 5,671,710, Cl. 123-193.600.
- Sasaki, Mitsuhiro; and Akiyama, Koji, to Kato Corporation. Toner containing particulate magnetic materials. 5,672,454, Cl. 430-106.600.
- Sasaki, Nobuyuki; and Tanaka, Hirohisa, to Sumitomo Electric Industries, Ltd. Sensor malfunction detecting system in vehicle control system. 5,671,981, Cl. 303-122.060.
- Sasano, Akira: See—
Yamamoto, Hideaki; Matsumaru, Haruo; Tanaka, Yasuo; Tsutsui, Ken; Tsukada, Toshihisa; Shirahashi, Kazuo; Sasano, Akira; and Matsukawa, Yuka, 5,672,523, Cl. 437-40.000.
- Sathe, Sanjeev Balwant: See—
Brodsky, William Louis; Kehley, Glenn Lee; and Sathe, Sanjeev Balwant, 5,673,177, Cl. 361-704.000.
- Sato, Akinobu: See—
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- Sato, Hidekage: See—
Ohara, Toru; Fujiwara, Akihiro; Notagashira, Hidefumi; Iizuka, Toshimi; Tamekuni, Yasuhiro; Kino, Yoshiki; Morofuji, Tsuyoshi; Azusawa, Katsumi; and Sato, Hidekage, 5,672,862, Cl. 250-204.000.
- Sato, Kenichi; Chiba, Kazunobu; Arisaka, Yuichi; and Yamada, Yukari, to Sony Corporation. Magnetic recording medium and a method of fabricating the same. 5,672,425, Cl. 428-332.000.
- Sato, Koichi; and Tsuji, Kazuhiro, to Kabushiki Kaisha Toshiba. Digital-to-analog conversion circuit and analog-to-digital conversion device using the circuit. 5,673,045, Cl. 341-144.000.
- Sato, Masakazu; Manaka, Akira; Takahashi, Keiko; Kawashima, Yutaka; and Hatayama, Katsuo, to Taiisho Pharmaceutical Co., Ltd. Thiazoline derivatives. 5,672,712, Cl. 548-195.000.
- Sato, Morio, to Honda Giken Kogyo Kabushiki Kaisha. Electrical equipment control system for a vehicle utilizing one central processing unit. 5,673,192, Cl. 364-424.045.
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- Sato, Ryo: See—
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- Sato, Tadahisa: See—
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- Sato, Yoshitaka: See—
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- Sato, Yutaka: See—
Hayashi, Nobutake; Sato, Yutaka; and Ryu, Tadanori, 5,673,043, Cl. 341-106.000.
- Satoh, Makoto, to Canon Kabushiki Kaisha. Image communication apparatus with interactive operator display. 5,673,079, Cl. 348-15.000.
- Satoh, Masaharu: See—
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- Satoh, Takami: See—
Murakami, Shinya; Kamikawa, Yuuji; Izumi, Shinichiro; Anai, Noriyuki; Satoh, Takami; Shiraiishi, Hirofumi; Harada, Koji; Tomoeida, Takayuki; and Tanaka, Hiroshi, 5,671,764, Cl. 134-200.000.
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- Sauder Woodworking Co.: See—
Grieser, Jerry D.; Nelson, Richard A.; McGinnis, Michael J.; Steinberg, Richard; and Decknick, James J., 5,671,985, Cl. 312-221.000.
- Saury, Jean-Marie: See—
Dusseux, Thierry; Saury, Jean-Marie; Brunet, Philippe; and Masmoudi, Mohamed, 5,673,010, Cl. 333-109.000.
- Sauter, Beat: See—
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- Sauter, Hubert: See—
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- Savarese, Giuseppe: See—
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- Savikovsky, Arkady: See—
Allen, Nicholas; Broudour, Abdu; Broude, Sergey; Chase, Eric; Johnson, Carl; Miller, Pascal; Ormsby, Jay; and Savikovsky, Arkady, 5,672,885, Cl. 250-559.300.
- Savva, Konstantine George. Image printer. 5,671,672, Cl. 101-127.100.
- Sawada, Yukio; Mori, Yukio; Nagasaka, Ryo; and Takiguchi, Tomoyuki, to Nippondenso Co., Ltd. Thermal flow meter with less turbulence in fluid flow. 5,672,822, Cl. 73-202.500.
- Sawajiri, Osamu: See—
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- Hattori, Jiro; Torigoe, Shinji; Shibahara, Norihito; and Sawajiri, Osamu, 5,671,512, Cl. 24-452.000.
- Sawamura, Yo, to Rohm Co., Ltd. Circuit which supplies a clock pulse to a microcomputer. 5,673,424, Cl. 395-555.000.
- Sawano, Katsumi: See—
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- Sawyer, Lawrence Howell; Connor, Linda Ann; and Marmon, Samuel Edward, to Kimberly-Clark Worldwide, Inc. Low density microfiber non-woven fabric. 5,672,415, Cl. 428-219.000.
- Sbabo, Thomas L., to Sikorsky Aircraft Corporation. Zero clearance locking mechanism for a disconnect coupling device. 5,672,112, Cl. 464-157.000.
- Scarborough, Don R., to Patent Consultants & Services, Inc. Combination tool for quick tube joint disassembly. 5,671,520, Cl. 29-237.000.

- Scarpa, Carl G.; Koslov, Joshua L.; and Lane, Frank A., to Hitachi America, Ltd. Method and apparatus for demodulating QAM and VSB signals. 5,673,293, Cl. 375-321.000.
- Schaefer, Johannes Georg: See—
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- Schaefer, Wolfgang; Kaiser, Klaus; Benda, Martin; and Reiling, Eckard, to Robert Bosch GmbH. Throttle valve adjusting unit. 5,672,818, Cl. 73-118.200.
- Schäfer, Rolf, to Alcon Laboratories, Inc. Use of pluronic surfactant to enhance the cleaning effect of pancreatin on contact lenses. 5,672,575, Cl. 510-114.000.
- Schall, Donald Craig; Lavoie, Alvin Charles; Landy, Francis Joseph; and Edwards, Steven Scott, to Rohm and Haas Company. Method of producing wear resistant traffic markings. 5,672,379, Cl. 427-137.000.
- Scheel, Horst: See—
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- Scheffelin, Joseph E., to Hewlett-Packard Company. Method and apparatus for refilling a print cartridge having a spherical stopper. 5,673,072, Cl. 347-85.000.
- Scheffelin, Joseph E.: See—
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- Schepers, Frederik Jan: See—
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- Scherer Aktiengesellschaft: See—
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- Scherer Corporation: See—
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- Schermann, Kurt: See—
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- Scherrer, John R.: See—
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- Scherz, Michael Ward; and Wu, Laurence Ichih, to Procter & Gamble Company. The Dihydrobenzofuran and related compounds useful as anti-inflammatory agents. 5,672,620, Cl. 514-422.000.
- Schettler, Frank, to Siemens Aktiengesellschaft. Device for increasing the power yield of the fundamental component of a self-commutated power inverter. 5,673,189, Cl. 363-137.000.
- Schild, John A., to Petrolite Corporation. Anti-static additives for hydrocarbons. 5,672,183, Cl. 44-386.000.
- Schleicher, Lowell: See—
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- Schleinitz, Henry Max: See—
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- Schlöder, Ingo: See—
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- Schlumberger Technology, Inc.: See—
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- Schmalstieg, Lutz: See—
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- Schmalzried, Günther, to Behr Industrietechnik GmbH & Co. Charge air cooler. 5,671,806, Cl. 165-81.000.
- Schmid, Anthony P.: See—
Curtin, Christopher J.; Schmid, Anthony P.; and Lovoi, Paul A., 5,672,083, Cl. 445-25.000.
- Schmid, Frank Matthias; and Claassen, Ernst, to Jagenberg Papiertechnik GmbH. System for stacking sheets on pallets. 5,672,045, Cl. 414-794.500.
- Schmid, Karl-Heinz: See—
Koehler, Michael; Schmid, Karl-Heinz; Demmering, Guenther; Komp, Horst-Dieter; and Kubersky, Hans-Peter, 5,672,781, Cl. 568-885.000.
- Schmidt, Edward A., Jr., to IMO Industries, Inc. Lighting apparatus and related method. 5,672,004, Cl. 362-421.000.
- Schmidt, Robert J.; Jeanneret, John Joseph; Ragbaram, Srikanthiah; and McCulloch, Beth, to UOP. Catalytic reforming process with increased aromatics yield. 5,672,265, Cl. 208-142.000.
- Schmidt, Robert R.: See—
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- Schmitt, Jean-Bernard: See—
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- Schmukler, Robert; and Lytle, C. David, to United States of America, Health and Human Services. Viral-proofing a protective barrier. 5,671,754, Cl. 128-844.000.
- Schneider, Erika: See—
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- Schneider, Richard Crane, to Storage Technology Corporation. Method and apparatus for detecting valid data peaks. 5,673,269, Cl. 371-6.000.
- Schnitzler, Raymond: See—
Strolle, Christopher H.; Limberg, Allen LeRoy; Wedam, Werner F.; Schnitzler, Raymond; Weckenbrock, Hermann J.; Ko, Jung Wan; and Yun, Jong Kyung, 5,673,355, Cl. 386-9.000.
- Schoen, William: See—
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- Schoettle, Fred. Emergency air system for kayakers. 5,671,694, Cl. 114-347.000.
- Schofield, Harold D.: See—
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- Scholz, Marko: See—
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- Schotten, Theo: See—
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- Schotz, Larry; Steinike, William R.; and Wolski, Mark R., to L. S. Research, Inc. Analog spread spectrum wireless speaker system. 5,673,323, Cl. 381-2.000.
- Schrage, Heinrich: See—
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- Schramm, Peter, to MAN Roland Druckmaschinen AG. Method for detecting color contamination. 5,673,112, Cl. 356-402.000.
- Schremmer, Gottfried; Brandes, Klaus; Lox, Hanno; Unfug, Ruediger; Affolderbach, Uwe; and Kieserling, Joachim, to Mercedes-Benz AG. Motor vehicle steering spindle with plug-in connection. 5,672,111, Cl. 464-75.000.
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- Schroeder, Frederick J., to DePuy Inc. Replacement ligament graft passer and method. 5,671,695, Cl. 128-897.000.
- Schubert, Karel R.: See—
Rathburn, Harold B.; Czapla, Thomas H.; and Schubert, Karel R., 5,672,680, Cl. 530-300.000.
- Schubert, Klaus: See—
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- Schuhmann-Giampieri, Gabriele: See—
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- Secco, Andrea: See—
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- Hama, Norio, 5,673,054, Cl. 343-744.000.
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- Saito, Yutaka; Akiba, Takao; Nonaka, Koju; Kamiya, Masaaki; and Watanabe, Hitomi, 5,672,906, Cl. 257-617.000.
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Kurafuchi, Kazuhiko; Seki, Hiroshi; and Takada, Mitsuyuki, 5,672,965, Cl. 324-158.100.
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- Sessler, Jonathan L.; Iverson, Brent L.; Král, Vladimir; Shreder, Kevin; Furuta, Hiroyuki; and Thomas, Richard E., to University of Texas Board of Regents, The. Method of cleaving DNA. 5,672,490, Cl. 435-91.100.
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- Shaffer, Stephen: See—
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- Shah, Rajiv R.: See—
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- Shankland, Ian Robert: See—
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- Fukumoto, Katsumi; and Taki, Masamitsu, 5,673,222, Cl. 365-185.040.
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- Ohta, Yousko; and Terasaki, Hirohide, 5,673,128, Cl. 349-62.000.
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- Shaw, James D., to Johnson & Johnson Clinical Diagnostics, Inc. Chain incubator/conveyor and method of use. 5,672,512, Cl. 436-46.000.
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- Shebanow, Michael C.: See—
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- Sheveleva, Galina Anatolievna: See—
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- Shibata, Akira: See—
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- Shikama, Shinsuke, to Mitsubishi Denki Kabushiki Kaisha. Projection-type apparatus. 5,671,993, Cl. 353-77.000.
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- Shim, Jin Sub: See—
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- Shima, Hisato, to Sony Corporation. Video recording, transmitting and reproducing apparatus with concurrent recording and transmitting or multiple dubbing of copy protected video signals. 5,673,357, Cl. 386-94.000.
- Shima, Masahiro, to Shima Seiki Manufacturing Ltd. Apparel system and a lily yarn machine usable to it. 5,671,614, Cl. 66-13.000.
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- Shimada, Katsumi; Ishikawa, Hiromi; Nishihata, Sumihiro; and Noguchi, Masaru, to Fuji Photo Film Co., Ltd. Condenser optical system for light scanning system. 5,673,137, Cl. 359-206.000.
- Shimada, Koji: See—
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- Shimada, Yasunori: See—
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- Shimadzu Corporation: See—
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- Shibamoto, Shigeaki, 5,672,810, Cl. 73-23.250.
- Tomita, Sadamu; Kajihara, Shigeaki; Yoshida, Yoshikazu; and Yamaki, Naokazu, 5,671,740, Cl. 128-653.100.
- Shimizu, Hiroshi, to NEC Corporation. Communication network comprising transit switches without asynchronous transfer mode switching capability. 5,673,262, Cl. 370-395.000.
- Shimizu, Hiroshi: See—
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- Shimizu, Hiroyuki: See—
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- Shimizu, Norio: See—
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- Shimizu, Tomoyasu: See—
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- Shimmura, Masayuki: See—
Asai, Koichi; Matsumoto, Koso; Ooe, Kunio; and Shimmura, Masayuki, 5,671,527, Cl. 29-740.000.
- Shimoie, Shizuo: See—
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- Shimono, Tsugio: See—
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- Shin-Etsu Handotai Co., Ltd.: See—
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- Abondance, Roger, 5,671,940, Cl. 280-602.000.
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- Slusher, Barbara S.: See—
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- Small, Philip William: See—
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 Tabibi, S. Esmail; Mendes, Robert W.; and Pathak, Nitin P., to Ascent Pharmaceuticals, Inc. Controlled release aqueous emulsion, 5,672,358, Cl. 424-450.000.
 Tachibana, Tomoyuki: See—
 Masaie, Norio; Tachibana, Tomoyuki; Shimizu, Hiroyuki; Ito, Kazuhiko; Matsuguchi, Akira; Sasa, Yoshikazu; and Furuya, Atsushi, 5,672,287, Cl. 219-145.220.
 Tadros, Maher K.; Einea, Amin; and Saleh, Mohsen, to Board of Regents, University of Nebraska-Lincoln. Prestressed concrete joist, 5,671,573, Cl. 52-223.800.
 Taguchi, Toshiaki: See—
 Okamura, Hisashi; Noro, Masaki; Matsumoto, Kazuhiko; and Taguchi, Toshiaki, 5,672,466, Cl. 430-336.000.
 Tahara, Akinori: See—
 Iida, Takashi; Sumi, Satoru; Shimizu, Hiroyuki; Tahara, Akinori; Amano, Isao; and Nakajima, Tetsuya, 5,672,895, Cl. 257-357.000.
 Tai, Ping-Kuang; and Zou, Han, to Clio Technologies, Inc. Flat and transparent front-lighting system using micropillars, 5,671,994, Cl. 362-31.000.
 Taisho Pharmaceutical Co., Ltd.: See—
 Sato, Masakazu; Manaka, Akira; Takahashi, Keiko; Kawashima, Yutaka; and Hatayama, Katsuo, 5,672,712, Cl. 548-195.000.
 Taitung Sports Goods Co.: See—
 Tu, Wan-Chun, 5,672,114, Cl. 473-164.000.
 Taiwan Semiconductor Manufacturing Company, Ltd.: See—
 Chang, Chaur Rong; Chu, Po-Tao; Peng, Tzu-Min; and Chang, Kuang-Hui, 5,672,543, Cl. 437-192.000.
 Huang, Yuan-Chang; and Chang, Huang-Hui, 5,672,914, Cl. 257-763.000.
 Lee, Jin-Yuan; and Liang, Mong-Song, 5,672,896, Cl. 257-360.000.
 Liaw, Jhon-Jhy; Lee, Jin-Yuan; and Kuo, Sou-Wein, 5,672,538, Cl. 437-69.000.
 Tajika, Hiroshi: See—
 Miyauchi, Yasuo; Tajika, Hiroshi; and Uchida, Haruo, 5,673,074, Cl. 347-104.000.
 Takada, Hirotaka: See—

- Soyama, Yoshikazu; Minami, Takashi; Takada, Hirotaka; Hirayama, Junko; and Nasu, Akio, 5,672,339, Cl. 424-63.000.
 Takada, Kyu: See—
 Inoue, Nozomu; Hama, Takashi; Nomura, Yujiro; and Takada, Kyu, 5,673,136, Cl. 359-205.000.
 Takada, Mitsuyuki: See—
 Kurafuchi, Kazuhiko; Seki, Hiroshi; and Takada, Mitsuyuki, 5,672,965, Cl. 324-158.100.
 Takada, Shuzi: See—
 Fujii, Hiroshi; Fukushima, Ryosuke; Tsutsui, Tatsuhide; Ishida, Masahiko; and Takada, Shuzi, 5,672,874, Cl. 250-343.000.
 Takagi, Haruyuki: See—
 Koyanagi, Toshiro; Hashimoto, Yayoi; and Takagi, Haruyuki, 5,671,971, Cl. 297-250.100.
 Takagi, Kiyoji; Nishida, Koji; and Kojima, Megumi, to Mitsubishi Chemical Corporation. Process for producing amorphous thermoplastic resin composition, 5,672,679, Cl. 528-501.000.
 Takagi, Shigeyuki, to Sintokogio, Ltd. Gap-setting apparatus for a glass panel, 5,673,221, Cl. 156-109.000.
 Takagi, Yoshio: See—
 Majumdar, Gourab; Mori, Satoshi; Noda, Sukehisa; Iwagami, Tooru; Takagi, Yoshio; and Kawafuji, Hisashi, 5,672,910, Cl. 257-690.000.
 Takahara, Hiroshi; and Sannohe, Shinya, to Matsushita Electric Industrial Co., Ltd. Display panel and display device using a display panel, 5,673,127, Cl. 359-40.000.
 Takahashi, Akira: See—
 Mieda, Michinobu; Hirokane, Junji; Takahashi, Akira; Ohta, Kenji; and Terashima, Shigeo, 5,673,250, Cl. 369-275.400.
 Takahashi, Hiromichi; and Hamaguchi, Koji, to Kao Corporation. High temperature deinking method using an alkylene oxide adduct, 5,672,244, Cl. 162-5.000.
 Takahashi, Keiko: See—
 Sato, Masakazu; Manaka, Akira; Takahashi, Keiko; Kawashima, Yutaka; and Hatayama, Katsuo, 5,672,712, Cl. 548-195.000.
 Takahashi, Ken: See—
 Suzuki, Hideo; Takahashi, Ken; Takahashi, Yukio; Yamamoto, Yoshimi; Aoki, Kenichi; and Tobita, Tomoyuki, 5,672,826, Cl. 73-754.000.
 Takahashi, Koichi: See—
 Yanagida, Kazuhiko; Yoshino, Susumu; Imai, Takashi; Takahashi, Koichi; and Kim, Suk, 5,672,455, Cl. 430-108.000.
 Takahashi, Koji: See—
 Fukuoka, Hiroyuki; Takahashi, Koji; and Hirose, Hisataka, 5,673,086, Cl. 348-445.000.
 Takahashi, Masayuki: See—
 Izumi, Akiya; Takemoto, Iwao; Sokei, Hiroichi; Kadowaki, Masahiko; Naito, Takamasa; Kojima, Hiroyoshi; Iguchi, Atsumu; Yokoyama, Masaki; Nakajima, Junichiro; Takahashi, Masayuki; and Niwa, Kunio, 5,673,083, Cl. 348-340.000.
 Takahashi, Nobuaki: See—
 Mikami, Tsuyoshi; Oba, Hidehiro; and Takahashi, Nobuaki, 5,672,138, Cl. 477-111.000.
 Takahashi, Tamami: See—
 Takahashi, Tsutomu; Tohyama, Keiichi; and Takahashi, Tamami, 5,672,091, Cl. 451-6.000.
 Takahashi, Toshiharu: See—
 Nosaki, Takefumi; and Takahashi, Toshiharu, 5,673,373, Cl. 395-114.000.
 Takahashi, Tsutomu; Tohyama, Keiichi; and Takahashi, Tamami, to Ebara Corporation. Polishing apparatus having endpoint detection device, 5,672,091, Cl. 451-6.000.
 Takahashi, Yasuhiro; and Takita, Nagon, to Riso Kagaku Corporation. Stencil printer having a construction for preventing ink leakage, 5,671,670, Cl. 101-116.000.
 Takahashi, Yukio: See—
 Suzuki, Hideo; Takahashi, Ken; Takahashi, Yukio; Yamamoto, Yoshimi; Aoki, Kenichi; and Tobita, Tomoyuki, 5,672,826, Cl. 73-754.000.
 Takai, Hiroshi, to Kabushiki Kaisha Toshiba. Magnetic-resonance imaging apparatus, 5,672,970, Cl. 324-309.000.
 Takai, Masaki: See—
 Mori, Tomoyuki; Takai, Masaki; and Inoue, Tomohiko, 5,672,766, Cl. 568-454.000.
 Takaki, Masuo: See—
 Tomogami, Shin; Takaki, Masuo; Fukumura, Yoshikazu; Ikeda, Takeshi; and Terada, Kenji, 5,672,113, Cl. 464-175.000.
 Takaki, Niro: See—
 Okamoto, Atsuya; Kojima, Akikazu; Takaki, Niro; and Watanabe, Kiyohiko, 5,672,324, Cl. 422-174.000.
 Takamagari, Munenori; and Harada, Yoshito, to Fukutome Meat Packers, Ltd. Method for collecting conveyor suspension hangers, suspension hanger collecting apparatus and suspension hanger return apparatus, 5,672,099, Cl. 452-187.000.
 Takano, Haruhiro: See—
 Hanada, Shuichi; Seike, Yajuro; Shojima, Toshikazu; Moribe, Takashi; Takano, Haruhiro; and Nishimura, Ichiro, 5,672,006, Cl. 366-84.000.
 Takano, Yoshishige: See—
 Shiga, Ryuji; Takano, Yoshishige; and Takeda, Yoshinobu, 5,672,313, Cl. 264-460.000.
 Takasago International Corporation: See—
 Matsuda, Hiroyuki; and Yamamoto, Takeshi, 5,672,783, Cl. 568-903.000.
 Takasu, Hiroaki: See—

- Hayashi, Yutaka; Kamiya, Masaaki; Kojima, Yoshikazu; and Takasu, Hiroaki, 5,672,518, Cl. 437-2.000.
 Takata Corporation: See—
 Koyanagi, Toshiro; Hashimoto, Yayoi; and Takagi, Haruyuki, 5,671,971, Cl. 297-250.100.
 Takatsuka, Hiroyuki: See—
 Serizawa, Hiroyuki; and Takatsuka, Hiroyuki, 5,671,995, Cl. 362-61.000.
 Takaya, Kazuyoshi: See—
 Tazou, Ken; Ueno, Tsugio; Takaya, Kazuyoshi; Kitamura, Takashi; and Ushida, Mitsuo, 5,671,837, Cl. 198-369.200.
 Takayama, Ryoichi: See—
 Hayashi, Shigenori; Komaki, Kazuki; Kamada, Takeshi; Kitagawa, Masatoshi; Deguchi, Takashi; Takayama, Ryoichi; and Hirao, Takashi, 5,672,252, Cl. 204-192.220.
 Takebe, Shinichi: See—
 Sakuragi, Hiroyuki; Seshimo, Masahiro; Makimoto, Futoshi; Takebe, Shinichi; Sokawa, Takuji; and Saito, Hitoshi, 5,671,778, Cl. 138-97.000.
 Takeda, Hiroshi, to Hitachi, Ltd. Data transfer control method, and peripheral circuit, data processor and data processing system for the method, 5,673,398, Cl. 395-285.000.
 Takeda, Keiso: See—
 Ichinose, Hiroki; Takeda, Keiso; Kojima, Susumu; and Sadakane, Shinji, 5,671,708, Cl. 123-184.540.
 Takeda, Takashi: See—
 Koyama, Fumio; Yonekubo, Masatoshi; Takeda, Takashi; Arimura, Toshio; Sakata, Hidefumi; and Yokoyama, Osamu, 5,673,241, Cl. 369-44.230.
 Takeda, Yoshinobu: See—
 Shiga, Ryuji; Takano, Yoshishige; and Takeda, Yoshinobu, 5,672,313, Cl. 264-460.000.
 Takei, Tatsuya: See—
 Katoh, Toshihiro; Kuriyama, Takao; Takei, Tatsuya; Kawai, Takashi; Murakami, Hiroshi; Munemoto, Eiji; Ohta, Norio; and Shimada, Koji, 5,672,460, Cl. 430-198.000.
 Takemoto, Iwao: See—
 Izumi, Akiya; Takemoto, Iwao; Sokei, Hiroichi; Kadowaki, Masahiko; Naito, Takamasa; Kojima, Hiroyoshi; Iguchi, Atsumu; Yokoyama, Masaki; Nakajima, Junichiro; Takahashi, Masayuki; and Niwa, Kunio, 5,673,083, Cl. 348-340.000.
 Takemura, Hiroo: See—
 Yamada, Hajime; and Takemura, Hiroo, 5,671,622, Cl. 70-233.000.
 Takesue, Hiroto; and Shimono, Tsugio, to NEC Corporation. Intra-liquid optical measuring sensor and contamination preventing method, 5,673,341, Cl. 385-12.000.
 Takeuchi, Nobunari; and Ando Electric Co., Ltd. Light return loss measurement system and method, 5,673,108, Cl. 356-73.100.
 Taki, Masamitsu: See—
 Fukumoto, Katsumi; and Taki, Masamitsu, 5,673,222, Cl. 365-185.040.
 Takiguchi, Ryohei; Saito, Hitoshi; and Nishizawa, Masumi, to Dai Nippon Printing Co., Ltd. Thermal transfer image-receiving sheet, 5,672,563, Cl. 503-227.000.
 Takiguchi, Tomoyuki: See—
 Sawada, Yukio; Mori, Yukio; Nagasaka, Ryo; and Takiguchi, Tomoyuki, 5,672,822, Cl. 73-202.500.
 Takita, Nagon: See—
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 Takuma, Keisuke; Misawa, Tsutami; Sugimoto, Kenichi; Nishimoto, Taizo; Tsuda, Takeshi; and Umehara, Hideki, to Mitsui Toatsu Chemicals, Inc. Optical recording medium, 5,672,462, Cl. 430-270.150.
 Tal, Sher Yea: See—
 Wang, Shou Jing; and Tal, Sher Yea, 5,672,077, Cl. 439-619.000.
 Talini, Francesco: See—
 Rinaldi, Sergio; and Talini, Francesco, 5,672,219, Cl. 149-37.000.
 Talleres Irunes, S.A.: See—
 Jimenez, Desiderio Garcia, 5,671,549, Cl. 34-125.000.
 Tam, Man C.; Chen, Liqin; Zwart, Edward G.; Bihon, Daniel; and Perron, Marie-Eve, to Xerox Corporation. Migration imaging members, 5,672,451, Cl. 430-41.000.
 Tamekuni, Yasuhiro: See—
 Ohara, Toru; Fujiwara, Akihiro; Notagashira, Hidefumi; Iizuka, Toshiaki; Tamekuni, Yasuhiro; Kino, Yoshiki; Morofuji, Tsuyoshi; Azusawa, Katsumi; and Sato, Hidekage, 5,672,862, Cl. 250-204.000.
 Tamhankar, Satish S.: See—
 Acharya, Divyanshu R.; and Tamhankar, Satish S., 5,672,196, Cl. 95-97.000.
 Tamura, Masao: See—
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 Tamura, Osamu: See—
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 Tanaka, Akira: See—
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 Tanaka, Atsushi: See—
 Kamo, Yoshihisa; Kakuta, Hitoshi; Tanaka, Atsushi; and Seo, Yosuke, 5,673,412, Cl. 395-441.000.
 Tanaka, Chiaki; Sasaki, Masaomi; Aruga, Tamotsu; Shimada, Tomoyuki; and Adachi, Hiroshi, to Ricoh Company, Ltd. Method for preparing the pyrenylamine derivatives, 5,672,728, Cl. 558-376.000.
 Tanaka, Hirohisa: See—
 Sasaki, Nobuyuki; and Tanaka, Hirohisa, 5,671,981, Cl. 303-122.060.

- Tanaka, Hiroshi: See—
Murakami, Shinya; Kamikawa, Yuuji; Izumi, Shinichiro; Anai, Noriyuki; Satoh, Takami; Shiraiishi, Hirofumi; Harada, Koji; Tomoda, Takayuki; and Tanaka, Hiroshi, 5,671,764, Cl. 134-200.000.
Yokomizo, Kenji; Tanaka, Hiroshi; Mokuo, Shori; and Minami, Teruomi, 5,671,544, Cl. 34-78.000.
- Tanaka, Isao; and Hatsuda, Tsuguyasu, to Matsushita Electric Industrial Co., Ltd. Potential difference transmission device and semiconductor memory device using the same. 5,672,987, Cl. 327-91.000.
- Tanaka, Kenji: See—
Mukaida, Shingo; Iguchi, Kazuhiko; and Tanaka, Kenji, 5,672,419, Cl. 428-283.000.
- Tanaka, Kuniaki: See—
Okada, Hisao; Yamamoto, Yuji; Seo, Mitsuyoshi; and Tanaka, Kuniaki, 5,673,061, Cl. 345-89.000.
- Tanaka, Satoshi: See—
Inoue, Soichi; Tanaka, Satoshi; and Fujisawa, Tadahito, 5,673,103, Cl. 355-71.000.
- Tanaka, Shinichiro: See—
Mohri, Masahide; Matsuda, Norio; Tanaka, Shinichiro; and Uchida, Yoshio, 5,672,554, Cl. 501-127.000.
- Tanaka, Susumu: See—
Okita, Shigeru; Mitamura, Nobuaki; Tanaka, Susumu; Yamamura, Kenji; and Ohoi, Manabu, 5,672,014, Cl. 384-92.000.
- Tanaka, Tadashi; Mizuno, Yoshikazu; Sugita, Mitsuru; Sawano, Katsumi; and Ono, Akira, to Daido Metal Company Ltd. Wet friction member. 5,671,835, Cl. 192-107.00R.
- Tanaka, Tadashi: See—
Komori, Hiroshi; Tanaka, Tadashi; Naba, Takayuki; and Hino, Takashi, 5,672,848, Cl. 174-260.000.
- Tanaka, Yasuo: See—
Yamamoto, Hideaki; Matsumaru, Haruo; Tanaka, Yasuo; Tsutsui, Ken; Tsukada, Toshihisa; Shirahashi, Kazuo; Sasano, Akira; and Matsukawa, Yuka, 5,672,523, Cl. 437-40.000.
- Tanaka, Yukinori: See—
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- Tananova, Galina Vasilievna: See—
Burov, Yuri Valentinovich; Goncharenko, Sergei Borisovich; Robakidze, Tatyana Nikolaevna; Portnov, Yuri Nikolaevich; Kadyshcheva, Lyubov Vladislavovna; Penke, Ilmar Kharievich; Paganov, Eduard Maximovich; Sukhanova, Svetlana Alexeevna; Tananova, Galina Vasilievna; Voronin, Anatoly Evgenievich; Kotlobai, Anatoly Alexeevich; Oshis, Yanis Fritsevich; and Pechlinitseva, Lidia Evgenievna, 5,672,707, Cl. 546-105.000.
- Tanev, Peter T.: See—
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- Tang, Jianseng: See—
Verkaide, John; and Tang, Jianseng, 5,672,117, Cl. 548-518.000.
- Tange, Kouichi, to Tokyo Seimitsu Co., Ltd. Icon relocation system and method thereof. 5,673,405, Cl. 395-348.000.
- Taniguchi, Jun, to Alps Electric Co., Ltd. Thermal printer. 5,672,017, Cl. 400-120.160.
- Taniguro, Masahiro: See—
Hiramatsu, Soichi; Suzuki, Tetsuo; Taniguro, Masahiro; Saito, Hiroyuki; Yanagi, Haruyuki; Nojima, Takashi; Saikawa, Satoshi; Kinoshita, Hiroyuki; and Kawakami, Hideaki, 5,672,019, Cl. 400-624.000.
- Tanioka, Naohiro: See—
Okihara, Naoto; Kojima, Katsuo; Morimoto, Masayuki; Ikeda, Masujiro; and Tanioka, Naohiro, 5,673,011, Cl. 335-78.000.
- Tasman Forestry Limited: See—
Nairn, Beverley Janice; and Furneaux, Richard Hubert, 5,672,503, Cl. 435-240.450.
- Tassara, Jean-Pierre; and Baudouin, Michel, to Enichem Elastomeres France SA. Process for preparing chloroprene. 5,672,792, Cl. 570-229.000.
- Tatebayashi, Hiroyuki: See—
Isogai, Emiko; Koike, Satoshi; Kimura, Teiyuu; Ando, Hiroshi; and Tatebayashi, Hiroyuki, 5,672,448, Cl. 430-1.000.
- Tatematsu, Shin: See—
Morikawa, Shinsuke; Samejima, Shunichi; Yoshitake, Masaru; and Tatematsu, Shin, 5,672,785, Cl. 570-163.000.
- Tatsu, Haruyoshi: See—
Sonoi, Takehiro; Tatsu, Haruyoshi; German, Lev Solomonovich, deceased; Polishchuk, Valerii Romanovich, deceased, 5,672,758, Cl. 564-440.000.
- Taylor, Dene Harvey; and Cahill, Douglas Allan, to Rexam Graphics Incorporated. Element and associated process for use with inkjet hot melt inks for thermal image transfer. 5,672,413, Cl. 428-195.000.
- Taylor, Malcolm R.: See—
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- Taylor, Peter John: See—
Gutsell, Graham Scott; and Taylor, Peter John, 5,672,929, Cl. 310-319.000.
- Taylor, Robert H.: See—
Wilson, Arthur M.; Taylor, Robert H.; and Shen, Chi-Cheong, 5,672,933, Cl. 313-336.000.
- Taylor, Stephen D.: See—
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- Tazou, Ken; Ueno, Tsugio; Takaya, Kazuyoshi; Kitamura, Takashi; and Ushida, Mitsuo, to Honda Giken Kogyo Kabushiki Kaisha. Panel distribution system and panel distributing method carried out by the same. 5,671,837, Cl. 198-369.200.
- TBI Concepts, L.L.C.: See—
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- Teasdale, Mark H. Locker shelf apparatus. 5,671,990, Cl. 312-351.000.
- Tecator AB: See—
Eisum, Niels, 5,672,319, Cl. 422-82.020.
- Technical Fabricators, Inc.: See—
Ball, Keith R., 5,672,273, Cl. 210-448.000.
- Technology Partnership Public Limited Company, The: See—
Gutsell, Graham Scott; and Taylor, Peter John, 5,672,929, Cl. 310-319.000.
- Tecnol Medical Products, Inc.: See—
Bowen, Michael L., 5,671,732, Cl. 128-207.170.
- Tedesco, Romeo, to Global Upholstery Company. Seat back adjustment mechanism for a chair. 5,671,972, Cl. 297-362.130.
- Teegen, Walter: See—
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- Tegal Corporation: See—
DeOmelias, Stephen Paul, 5,672,239, Cl. 156-625.100.
- Teich Aktiengesellschaft: See—
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- Teijin Seiki Co., Ltd.: See—
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- Teissier, Rémy; Tichit, Didier; Figueras, François; and Kervennal, Jacques, to Elf Atochem S.A. Selective aldolization of acetone to diacetone alcohol by a solid basic catalyst. 5,672,764, Cl. 568-388.000.
- Tekriwal, Prabhat Kumar, to General Electric Company. Cooling for X-ray systems. 5,673,301, Cl. 378-130.000.
- Tektronix, Inc.: See—
Almy, Thomas A., 5,673,273, Cl. 371-22.100.
- Telecco, Nicola: See—
Calligaro, Cristiano; Daniele, Vincenzo; Gastaldi, Roberto; Manstretta, Alessandro; Telecco, Nicola; and Torelli, Guido, 5,673,221, Cl. 365-168.000.
- Telefonaktiebolaget LM Ericsson: See—
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- Telstra Corporation Limited: See—
Clarke, Kenneth Paul; Coulson, David; Gibbs, Ernest Edward; Keon, Barry John; and Kruijschoop, Alfred Willem, 5,673,351, Cl. 385-100.000.
- Temie Telefunken microelectronic GmbH: See—
Mühleck, Peter; and Nather, Heinz, 5,672,884, Cl. 250-551.000.
- Temotrans B.V.: See—
Greferath, Hans-Gerd, 5,671,488, Cl. 4-607.000.
- Templeton, Thomas H., Jr.: See—
Horejs, Charles F., Jr.; and Templeton, Thomas H., Jr., 5,673,179, Cl. 361-737.000.
- Tennenbaum, Michael: See—
Lerman, Ori; Tennenbaum, Michael; Gal, Erez; and Kaspi, Joseph, 5,672,755, Cl. 564-425.000.
- Tenner, Manfred G.; van der Werf, Jan E.; van Uijen, Cornelis M. J.; and Dirksen, Peter, to U.S. Philips Corporation. Method of repetitively imaging a mask pattern on a substrate, and apparatus for performing the method. 5,673,101, Cl. 355-53.000.
- Tepas, John Milton; and Mowell, Robert Michael, to General Motors Corporation. Modular condenser and fan shroud assembly. 5,671,803, Cl. 165-41.000.
- Tepman, Avi: See—
Davenport, Robert E.; and Tepman, Avi, 5,673,167, Cl. 361-234.000.
- Terada, Kenji: See—
Tomogami, Shin; Takaki, Masuo; Fukumura, Yoshikazu; Ikeda, Takeshi; and Terada, Kenji, 5,672,113, Cl. 464-175.000.
- Teradyne, Inc.: See—
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- Provencher, Daniel B.; Stokoe, Philip T.; and McNamara, David M., 5,672,064, Cl. 439-79.000.
- Terasaki, Hirohide: See—
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- Terashima, Shigeo: See—
Mieda, Michinobu; Hirokane, Junji; Takahashi, Akira; Ohta, Kenji; and Terashima, Shigeo, 5,673,250, Cl. 369-275.400.
- Terblanche, Nardus, to Multotec Cyclones (PTY) Limited. Flotation column with constant feed arrangement. 5,672,267, Cl. 209-164.000.
- Terhune, James Howard, to General Electric Company. Stabilized in-vessel direct current source. 5,672,928, Cl. 310-305.000.
- Terlau, Heinrich; Shon, Ki-Joon; Grille, Michelle; and Olivera, Baldomero M., to University of Utah Research Foundation. Conotoxin peptide PVIIA. 5,672,682, Cl. 530-324.000.
- Tersikh, Alexey; Pèlerin, André; and Mach, Jean-Pierre, to Roche Diagnostic Systems, Inc. Carcino-embryonic antigen derivatives lacking the carboxyl terminal end. 5,672,513, Cl. 436-64.000.
- Terzoni, Giuseppe: See—
Perego, Carlo; Pazzuconi, Giannino; Girotti, Gianni; and Terzoni, Giuseppe, 5,672,799, Cl. 585-467.000.
- Tessier, Michael E.: See—

- Stonier, James W.; and Tessier, Michael E., 5,673,418, Cl. 395-500.000.
- Tetra Laval Holdings & Finance, S.A.: See—
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- Tetric, Scott: See—
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- Texaco Inc.: See—
Marrelli, John David; and Siddiqui, Farhan, 5,673,026, Cl. 340-608.000.
- McKinzie, Howard Lee, 5,671,809, Cl. 166-285.000.
- Texas Instruments Incorporated: See—
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- Congdon, Philip A.; Pang, Lily Y.; and Evans, Gary A., 5,673,284, Cl. 372-50.000.
- Gallo, Girolamo; Lattaro, Cristina; and Savarese, Giuseppe, 5,673,337, Cl. 382-187.000.
- Hashimoto, Masashi, 5,673,219, Cl. 365-149.000.
- Keller, Stephen A.; and Shah, Rajiv R., 5,672,898, Cl. 257-383.000.
- Manos, James T., 5,672,212, Cl. 134-1.300.
- Nelson, William E., 5,672,464, Cl. 430-327.000.
- Poland, Sydney W.; Read, Christopher J.; Guttag, Karl M.; Gove, Robert J.; Gill, Michael; Simmons, Nicholas Ing; Oakland, Erick; and Gollston, Jeremiah E., 5,673,407, Cl. 395-375.000.
- Sweeney, Frank J., 5,672,962, Cl. 323-315.000.
- Thompson, E. Earle, 5,673,106, Cl. 355-208.000.
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- Tilley, Erin: See—
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- Tinley, Thomas N.: See—
Macander, Aleksander B.; Tinley, Thomas N.; and Chiu, Steven S., 5,672,228, Cl. 156-324.000.
- Toioxide Group Services Limited: See—
Simpson, Leslie Ainsley; Robson, Keith; Knight, David Trevor; and Brown, Ronald, 5,672,201, Cl. 106-447.000.
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- Tix, Ronald E.; and Priem, Alvin F., to Clim-A-Tech Industries, Inc. Winged jamb liner. 5,671,566, Cl. 49-419.000.
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- Tobe, Michihiro: See—
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- Tobin, Albert G., to Grumman Aerospace Corporation. Oxidation protection method for titanium. 5,672,436, Cl. 428-629.000.
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Chatigny, Joseph Victor; Park, Kyung Tae; and Toda, Minoru, 5,673,041, Cl. 341-22.000.
- Toda, Yasushi; and Suzuki, Hideo, to Alps Electric Co., Ltd. Coordinate input device. 5,673,066, Cl. 345-157.000.
- Todd, Alvin E., Jr. Light assembly for a ceiling fan. 5,672,002, Cl. 362-294.000.
- Todd, Kenneth L., to MASCO Corporation. Roofing shingle. 5,671,577, Cl. 52-519.000.
- Tohyama, Keiichi: See—
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- Tojima, Takahito: See—
Okuda, Sadanao; Isozaki, Takashi; Higa, Ryuji; and Tojima, Takahito, 5,671,675, Cl. 101-424.200.
- Tokai Rubber Industries, Ltd.: See—
Hamada, Masaaki; and Aoi, Takahiro, 5,671,909, Cl. 267-141.000.
- Kato, Rentaro, 5,671,908, Cl. 267-140.120.
- Tokin Corporation: See—
Osawa, Ryuji, 5,671,881, Cl. 228-208.000.
- Tokunaga, Atsuo; and Nakaya, Masahide, to Ricoh Company, Ltd. Power supply system. 5,673,187, Cl. 363-65.000.

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Fujimoto, Akihiro; and Sakamoto, Yasuhiro, 5,672,205, Cl. 118-52.000.

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Murakami, Shinya; Kamikawa, Yuuji; Izumi, Sinichiro; Anai, Noriyuki; Satoh, Takami; Shiraiishi, Hirofumi; Hamada, Koji; Tomoe, Takayuki; and Tanaka, Hiroshi, 5,671,764, Cl. 134-200.000.

Tokyo Electron Tohoku Kabushiki Kaisha: See—
Homma, Kenji; and Nishi, Hironobu, 5,671,903, Cl. 251-69.000.

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Tokyo Seimitsu Co., Ltd.: See—
Tange, Kouichi, 5,673,405, Cl. 395-348.000.

Tokyo Yogyo, Kabushiki Kaisha: See—
Yajima, Tamotsu, 5,672,437, Cl. 429-33.000.

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Tolentino, Felipe I.: See—
Refojo, Miguel F.; and Tolentino, Felipe I., 5,672,355, Cl. 424-427.000.

Tome, Fernando M. S.: See—
Campbell, Kevin P.; Lim, Leland; Duclos, Franck; Sunada, Yoshihide; Beckmann, Jacques S.; Broux, Odile; Tome, Fernando M. S.; Fardeau, Michel; and Jackson, Charles E., 5,672,894, Cl. 536-22.100.

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Nakai, Satoru; Aihara, Koutoku; Mori, Hiromi; Tominaga, Michiaki; Adachi, Masakazu; Ichikawa, Hiroyuki; Akamatsu, Seiji; and Saito, Fumio, 5,672,603, Cl. 514-254.000.

Tomita, Sadamu; Kajihara, Shigeki; Yoshida, Yoshikazu; and Yamaki, Naokazu, to Shimadzu Corporation. Method and apparatus for deducing bioelectric current sources. 5,671,740, Cl. 128-653.100.

Tomoe Shokai Co., Ltd.: See—
Hirasaka, Hajime; Yagyu, Junichi; Marufuji, Tetsuaki; and Gotoda, Kazunori, 5,672,325, Cl. 423-210.000.

Tomoe, Takayuki: See—
Murakami, Shinya; Kamikawa, Yuuji; Izumi, Sinichiro; Anai, Noriyuki; Satoh, Takami; Shiraiishi, Hirofumi; Hamada, Koji; Tomoe, Takayuki; and Tanaka, Hiroshi, 5,671,764, Cl. 134-200.000.

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Tong, Minh Ho: See—
Au, Wei-Ming; William, Nowak, Edward Joseph; and Tong, Minh Ho, 5,672,994, Cl. 327-525.000.

Topf, Martin: See—
Andrea, Douglas; and Topf, Martin, 5,673,325, Cl. 381-92.000.

Toppan Printing Co., Ltd.: See—
Watanabe, Niro; Nakatsu, Yuji; Yamada, Keiki; and Ohnishi, Masaru, 5,672,559, Cl. 503-201.000.

Toray Industries, Inc.: See—
Miyakawa, Katsutoshi; Tsunashima, Kenji; and Aoki, Seizo, 5,672,409, Cl. 428-141.000.

Torelli, Guido: See—
Calligaro, Cristiano; Daniele, Vincenzo; Gastaldi, Roberto; Manstretta, Alessandro; Telecco, Nicola; and Torelli, Guido, 5,673,221, Cl. 365-168.000.

Torigoe, Shinji: See—
Hattori, Jiro; Torigoe, Shinji; Shibahara, Norihito; and Sawajiri, Osamu, 5,671,511, Cl. 24-444.000.

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Toshiba America Information Systems, Inc.: See—
Herald, Stephen D., 5,672,102, Cl. 454-184.000.

Tosoh Corporation: See—
Hattori, Akitaka; Nakamura, Kazuhiro; Washiyama, Tomohiro; Kato, Takao; Saito, Toshihiro; and Arai, Shoji, 5,672,782, Cl. 568-899.000.

Okada, Masaki; and Mouri, Takashi, 5,672,329, Cl. 423-599.000.

Totalizer Agency Board: See—
Orford, John Flindt; and Wilkinson, Bernard Allen, 5,672,106, Cl. 463-28.000.

Toya, Tetsuya: See—
Hotta, Hiroki; Sugizaki, Hiroyasu; Toya, Tetsuya; and Yanagi, Mikio, 5,672,723, Cl. 549-402.000.

Toyama, Masaki: See—
Kondo, Masaya; Ejiri, Seishi; Yamamuro, Soichi; Kmagai, Takekazu; Tsukamoto, Takeshi; Oishi, Kazuomi; Saruwatari, Masaru; and Toyama, Masaki, 5,673,118, Cl. 358-437.000.

Toyoda Gosei Co., Ltd.: See—
Yabuya, Shigeru, 5,671,877, Cl. 224-282.000.

Toyoda, Hisashi: See—

Ezumi, Yosuke; Kenmochi, Toshio; Toyoda, Hisashi; and Tsukamoto, Takeshi, 5,673,117, Cl. 358-400.000.

Toyonaga, Masahiko; and Muraoka, Michiaki, to Matsushita Electric Industrial Co., Ltd. Logic synthesis method and logic synthesis apparatus. 5,673,200, Cl. 364-490.000.

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Ichinose, Hiroki; Takeda, Keiso; Kojima, Susumu; and Sadakane, Shinji, 5,671,708, Cl. 123-184.540.

Mikami, Tsuyoshi; Oba, Hidehiro; and Takahashi, Nobuaki, 5,672,138, Cl. 477-111.000.

Nozaki, Mikiya; Karaki, Mitsuhiro; Inui, Mitsuru; Futamura, Takehito; and Saitoh, Akira, 5,671,797, Cl. 164-120.000.

Serizawa, Yoshihisa; and Miyake, Yoshiharu, 5,671,631, Cl. 72-256.000.

Toyota Jidosha Kaisha: See—
Aoki, Keiichi, 5,671,721, Cl. 123-688.000.

Tractech Inc.: See—
Valente, Paul J., 5,671,640, Cl. 74-650.000.

Tran, Duc Hoang, to Black & Decker Inc. Light sensitive control for toaster. 5,672,288, Cl. 219-502.000.

Tran, Huy K.; Henline, William D.; Hsu, Ming-ta S.; Rasky, Daniel J.; and Riccietello, Salvatore R., to United States of America, National Aeronautics and Space Administration. Low-density resin impregnated ceramic article and method for making the same. 5,672,389, Cl. 427-294.000.

Tranciera Ligure S.R.L.: See—
Merlano, Alessandro, 5,671,526, Cl. 29-609.000.

Tranquilla, Michael N. Calculating damping for belts. 5,672,829, Cl. 73-579.000.

Transgene S.A. and Institute Pasteur: See—
Kieny, Marie-Paule; Rautmann, Guy; Lecocq, Jean-Pierre; Hobson, Simon Wain; Girard, Marc; and Montagnier, Luc, 5,672,689, Cl. 530-395.000.

Trautt, Thomas A.; and Wolverton, Thomas E., to Santa Barbara Research Center. Thermally matched flip-chip detector assembly and method. 5,672,545, Cl. 437-209.000.

TRI Tool Inc.: See—
Sandford, William E.; and Astle, Henry, 5,671,646, Cl. 82-113.000.

Trion Corporation: See—
Aoki, Akio, 5,671,477, Cl. 2-19.000.

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Trotta, Roberto; Donati, Gianni; Paludetto, Renato; and Chiudari, Paolo, to Enichem S.p.A.; and Snamprogetti S.p.A. Integrated process for the production of ter-amylyl alkyl ethers. 5,672,771, Cl. 568-697.000.

Truchet, Paul; and Bontoux, Daniel, to SEB S.A. Hair dressing accessory for a hair dryer appliance. 5,671,547, Cl. 34-96.000.

TRW Fahrwerksysteme GmbH & Co. KG: See—
Lieber, Hanno; and Weichert, Erhard, 5,672,023, Cl. 403-138.000.

TRW Inc.: See—
Sage, John; Ailes, Jack; Gonzalez, Mike; Liverpool, Henry Jr.; Siegel, Neil; and Supakootha, Pirom, 5,672,840, Cl. 89-41.010.

Streit, Dwight Christopher; Lammert, Michael; and Oki, Aaron Kenji, 5,672,522, Cl. 437-31.000.

Toland, Brent T.; Hughes, William M.; and Johnson, Dan R., 5,673,057, Cl. 343-761.000.

TRW Vehicle Safety Systems Inc.: See—
Bauer, Barney J.; and Hotary, Charles M., 5,671,949, Cl. 280-806.000.

Whalen, Daniel D.; Geyer, David L.; and Simpson, Gina H., 5,671,946, Cl. 280-741.000.

Tsai, Chu-Zia, to Acer Incorporated. Portable computer having a modular power conversion unit. 5,673,173, Cl. 361-686.000.

Tsai, Liane Toy: See—
Andruska, Donald Lee; and Tsai, Liane Toy, 5,673,310, Cl. 379-207.000.

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Tsay, Albert Suan-Wei, to International Business Machines Corporation. Non-restoring fixed-point divider apparatus. 5,673,215, Cl. 364-767.000.

Tschank, Georg: See—
Bickel, Martin; Brooks, Dietrich; Burghard, Harald; Günzler, Volkmar; Henke, Stephan; Hanauske-Abel, Hartmut; Mohr, Jürgen; and Tschank, Georg, 5,672,614, Cl. 514-454.000.

Tschopp, Juerg F.: See—
Pierschbacher, Michael D.; Cheng, Soan; Craig, William S.; and Tschopp, Juerg F., 5,672,585, Cl. 514-11.000.

Tseng, Gwou-Jung: See—
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Tseng, Susan Y.; and Wolf, Philip F., to ISP Investments Inc. Crosslinked PVP-12 foam product. 5,672,634, Cl. 521-53.000.

Tsou, Eric. Refuse collecting device. 5,671,959, Cl. 294-1.400.

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Tsuboyama, Akira: See—
Katakura, Kazunori; and Tsuboyama, Akira, 5,673,062, Cl. 345-95.000.

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Nakano, Takaharu; Tsuchiya, Katsuyoshi; Yoshimatsu, Shunji; and Fuchigami, Takero, 5,672,671, Cl. 528-14.000.

Tsuchiya, Shinichi; and Mori, Shigeo, to Yazaki Corporation. Lever-joint type connecting structure. 5,672,068, Cl. 439-157.000.

Tsuchiya, Tohru; Akimoto, Taizo; Mori, Keiji; Kojima, Yasushi; Dietzel, Günter; Petz, Gerhard; and Köpke, Andreas, to Fuji Photo Film Co., Ltd. Chemiluminescent detecting method and apparatus. 5,672,514, Cl. 436-86.000.

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Iwasaki, Tomonori; Suzuki, Masaya; Furukawa, Takashi; Tsushima, Kazunori; Ishiwatari, Takao; and Tsuchiya, Toru, 5,672,779, Cl. 568-838.000.

Tsuda, Takeshi: See—
Takuma, Keisuke; Misawa, Tsutami; Sugimoto, Kenichi; Nishimoto, Taizo; Tsuda, Takeshi; and Umehara, Hideki, 5,672,462, Cl. 430-270.150.

Tsuji, Akira: See—
Inomata, Katsumi; Akiyama, Masahiro; Ota, Toshiyuki; and Tsuji, Akira, 5,672,459, Cl. 430-191.000.

Tsuji, Kazuhiro: See—
Sato, Koichi; and Tsuji, Kazuhiro, 5,673,045, Cl. 341-144.000.

Tsuji, Masahiro; and Miyata, Osamu, to Rohm Co., Ltd. Method of encapsulating semiconductor devices using a lead frame with resin tablets arranged on lead frame. 5,672,550, Cl. 437-219.000.

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Matsumura, Norio; Yagi, Sakai; Tsuji, Masanori; Jiano, Keishi; and Yoneda, Takahiro, 5,672,073, Cl. 439-489.000.

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Konuma, Toshimitsu; Sugawara, Akira; and Tsuji, Takahiro, 5,672,900, Cl. 257-410.000.

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Nakagawa, Toshimoto; Tsukada, Kouzo; Ogawa, Shu; Sato, Yoshitaka; and Shiotzu, Shinichiro, 5,671,760, Cl. 134-56.00R.

Tsukada, Toshihisa: See—
Yamamoto, Hideaki; Matsumaru, Haruo; Tanaka, Yasuo; Tsutsui, Ken; Tsukada, Toshihisa; Shirahashi, Kazuo; Sasano, Akira; and Matsukawa, Yuka, 5,672,523, Cl. 437-40.000.

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Ezumi, Yosuke; Kenmochi, Toshio; Toyoda, Hisashi; and Tsukamoto, Takeshi, 5,673,117, Cl. 358-400.000.

Kondo, Masaya; Ejiri, Seishi; Yamamuro, Soichi; Kmagai, Takekazu; Tsukamoto, Takeshi; Oishi, Kazuomi; Saruwatari, Masaru; and Toyama, Masaki, 5,673,118, Cl. 358-437.000.

Tsukuda, Kiyoshi: See—
Watanabe, Atsuo; Ikeda, Takahide; Tsukuda, Kiyoshi; Hirao, Mitsuru; Mukai, Touji; and Kamei, Tatsuya, 5,672,897, Cl. 257-370.000.

Tsunashima, Kenji: See—
Miyakawa, Katsutoshi; Tsunashima, Kenji; and Aoki, Seizo, 5,672,409, Cl. 428-141.000.

Tsushima, Kazunori: See—
Iwasaki, Tomonori; Suzuki, Masaya; Furukawa, Takashi; Tsushima, Kazunori; Ishiwatari, Takao; and Tsuchiya, Toru, 5,672,779, Cl. 568-838.000.

Tsushima, Yuki: See—
Kato, Heizaburo; Tsushima, Yuki; Ohwaki, Takayuki; Nakajima, Masaharu; and Morita, Yutaka, 5,672,364, Cl. 425-89.000.

Tsutsui, Ken: See—
Yamamoto, Hideaki; Matsumaru, Haruo; Tanaka, Yasuo; Tsutsui, Ken; Tsukada, Toshihisa; Shirahashi, Kazuo; Sasano, Akira; and Matsukawa, Yuka, 5,672,523, Cl. 437-40.000.

Tsutsui, Tatsuhide: See—
Fuji, Hiroshi; Fukushima, Ryosuke; Tsutsui, Tatsuhide; Ishida, Masahiko; and Takada, Shuzi, 5,672,874, Cl. 250-343.000.

Tsuzuki, Yoshihiro, to Nippon Soken, Inc. Fuel injection device. 5,671,715, Cl. 123-467.000.

Tu, Wan-Chun, to Taitung Sports Goods Co. Guiding device for putting practice. 5,672,114, Cl. 473-164.000.

Tubame Musen Inc.: See—
Imamura, Masao; and Hayasi, Satoshi, 5,673,015, Cl. 338-176.000.

Tucker, David: See—
Chee, Lawrence; and Tucker, David, 5,673,416, Cl. 395-478.000.

Tucker, Ray D. Utility cart. 5,671,933, Cl. 280-47.190.

Tukamoto, Hisashi: See—
Nakamitsu, Kazuhiro; Tukamoto, Hisashi; Komatsu, Shigeo; and Nakamura, Toshimichi, 5,672,445, Cl. 429-218.000.

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- Urbanski, Julie A.: See—
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- Urion, Kenard E.: See—
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- US3, Inc.: See—
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- Usami, Akihiro: See—
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- Vander Plas, Hubert A.: See—
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- Wells, Robert W.: See—
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- Werner, William D.: See—
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- Westmont Technik GmbH & Co. KG: See—
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- Yanagi, Mikio: See—
Hotta, Hiroki; Sugizaki, Hiroyasu; Toya, Tetsuya; and Yanagi, Mikio, 5,672,723, Cl. 549-402.000.
- Yanagi, Shigenori; and Furuta, Satoshi, to Fujitsu Limited. Encoding unit and storage unit using the same, 5,673,243, Cl. 369-59.000.
- Yanagida, Kazuhiko; Yoshino, Susumu; Imai, Takashi; Takahashi, Koichi; and Kim, Suk, to Fuji Xerox Co., Ltd. Carrier for electrostatic latent-image developer, electrostatic latent-image developer and image forming process, 5,672,455, Cl. 430-108.000.
- Yanagisawa, Masahiro; Sato, Akinobu; and Ajiki, Ken, to NEC Corporation. Low wear rate magnetic head slider with high recording density, 5,673,161, Cl. 360-103.000.
- Yanagisawa, Shigeru: See—
Matsumoto, Yasushi; Sugai, Takashi; and Yanagisawa, Shigeru, 5,671,705, Cl. 123-90.110.
- Yao, Jonathan Yi, to Siemens Medical Systems Inc. Ionization chamber having off-passage way measuring electrodes, 5,672,878, Cl. 250-385.100.
- Yashiro, Yoshinori: See—
Setoguchi, Masaru; and Yashiro, Yoshinori, 5,672,837, Cl. 84-609.000.
- Yau, Chi Wang: See—
Jarwala, Najmi Taher; and Yau, Chi Wang, 5,673,276, Cl. 371-22.300.
- Yazaki Corporation: See—
Arai, Youichi; and Saigo, Tsutomu, 5,672,973, Cl. 324-427.000.
- Burnett, Jason Todd, 5,672,442, Cl. 429-121.000.
- Ceru, Scott Joseph, 5,672,071, Cl. 437-353.000.
- Endo, Takayoshi; and Hatagishi, Yuji, 5,671,528, Cl. 29-753.000.
- Inaba, Shigenobu; and Katoh, Hisaharu, 5,672,076, Cl. 439-610.000.
- Maejima, Toshiro, 5,672,075, Cl. 439-595.000.
- Matsumura, Norio; Yagi, Sakai; Tsuji, Masanori; Jinno, Keishi; and Yoneda, Takahiro, 5,672,073, Cl. 439-489.000.
- Tsuchiya, Shinichi; and Mori, Shigeo, 5,672,068, Cl. 439-157.000.
- Yagi, Sakai; and Kashiyama, Motohisa, 5,672,025, Cl. 403-288.000.
- Yazaki Industrial Chemical Co., Ltd.: See—
Hisada, Yukio; Otake, Hiromi; Ike, Tadashi; and Sugiyama, Motohiro, 5,672,947, Cl. 318-587.000.
- Ycas, John A.; Malek, Stefan J.; and Soderfelt, Wayne G., to Fujitsu Limited. Integral base plate/spin motor assembly with taped cover, 5,673,157, Cl. 360-97.010.
- Yeager, David Alan: See—
Rao, V. Durga Nageswar; Rose, Robert Alan; Yeager, David Alan; and Kabat, Daniel Michael, 5,671,532, Cl. 29-888.061.
- Yeap, Gary K.: See—
Reyes, Alberto J.; Yeap, Gary K.; and Garvey, James P., 5,673,420, Cl. 395-500.000.
- Yeardley, Robert Anthony: See—
Dillamore, Ian Leslie; Grundy, Eric; and Yeardley, Robert Anthony, 5,671,533, Cl. 29-889.700.
- Yeda Research and Development Co. Ltd.: See—
Cohen, Irwin Robert; Elias, Dana; and Markovits, Doron, 5,671,848, Cl. 206-569.000.
- Yee, Hee-Jin, to LG Semicon Co., Ltd. Multi-electrode biosensor and system and method for manufacturing same, 5,672,256, Cl. 204-403.000.
- Yellowstone Environmental Science, Inc.: See—
Hunter, Robert M.; Stewart, Frank M.; and Darsow, Tamara, 5,672,194, Cl. 75-712.000.
- Yen, Fu-Hsin, to Comax Sporting Good Co., Ltd. Cushion device for a body part having two curved plates of different radii, 5,671,478, Cl. 2-22.000.
- Yeo, Myung Keon: See—
Lim, Jae Cheol; Yeo, Myung Keon; Lim, Yong Taik; Lee, Nam Su; Seo, Jim Woo; and Shim, Dae Sul, 5,673,084, Cl. 348-341.000.
- Yeung, King-Wah W.: See—
Canfield, Brian; Holstun, Clayton; and Yeung, King-Wah W., 5,673,069, Cl. 347-15.000.
- Yeung, Man Fu E., to Sunco Products, Inc. Rope lock, 5,671,509, Cl. 24-130.000.
- Yeung, Peter. Electric transformer, 5,672,066, Cl. 439-107.000.
- Yirmiyahu, Binyamin: See—
Meller, Yehuda, 5,671,560, Cl. 42-70.110.
- Yirmiyahu, Mordechai: See—
Meller, Yehuda, 5,671,560, Cl. 42-70.110.
- YKK Corporation: See—
Maeda, Yoshimichi; Aoki, Toshio; Mikkaichi, Masafumi; and Iai, Ken-ichiro, 5,671,510, Cl. 24-408.000.
- Matoba, Hiroshi; and Watanabe, Hirokazu, 5,671,514, Cl. 24-601.200.
- Murai, Ryukichi, 5,671,508, Cl. 24-115.00K.
- Yochem, Donald M.: See—
Colvis, Christopher O.; Schwent, Dale G.; and Yochem, Donald M., 5,673,287, Cl. 375-216.000.
- Yokohama Rubber Co., Ltd. The: See—
Hanada, Shuichi; Seike, Yajuro; Shojima, Toshikazu; Moribe, Takashi; Takano, Haruhiko; and Nishimura, Ichiro, 5,672,006, Cl. 366-84.000.
- Yokomizo, Kenji; Tanaka, Hiroshi; Mokuo, Shori; and Minami, Teruomi, to Tokyo Electron Limited; and Tokyo Electron Kyushu Limited. Substrate drying apparatus and substrate drying method, 5,671,544, Cl. 34-78.000.
- Yokota, Yasuo; Iwata, Yukihiro; Fusayasu, Hirotsugu; Inoue, Hiroto; Ishizuka, Atsufumi; and Okada, Yukihiro, to Matsushita Electric Industrial Co., Ltd. Optical pickup comprising a heat-insulating material, 5,673,152, Cl. 359-813.000.

- Yokouchi, Michio: See—
Kanda, Taketoshi; Sakamoto, Atsuo; Yokouchi, Michio; and Ohtsu, Yutaka, 5,672,422, Cl. 428-304.400.
- Yokoyama, Masaaki: See—
Izumi, Akiya; Takemoto, Iwao; Sokei, Hiroichi; Kadowaki, Masahiko; Naito, Takamasa; Kojima, Hiroyoshi; Iguchi, Atsumu; Yokoyama, Masaaki; Nakajima, Junichiro; Takahashi, Masayuki; and Niwa, Kunio, 5,673,083, Cl. 348-340.000.
- Yokoyama, Osamu: See—
Koyama, Fumio; Yonekubo, Masatoshi; Takeda, Takashi; Arimura, Toshio; Sakata, Hidefumi; and Yokoyama, Osamu, 5,673,241, Cl. 369-44.230.
- Yoneda, Takahiro: See—
Matsumura, Norio; Yagi, Sakai; Tsuji, Masanori; Jinno, Keishi; and Yoneda, Takahiro, 5,672,073, Cl. 439-489.000.
- Yonekubo, Masatoshi: See—
Koyama, Fumio; Yonekubo, Masatoshi; Takeda, Takashi; Arimura, Toshio; Sakata, Hidefumi; and Yokoyama, Osamu, 5,673,241, Cl. 369-44.230.
- Yoon, Hyun Nam: See—
Shen, Sunny S.; Yoon, Hyun Nam; and Mortazavi, Mohammad, 5,672,296, Cl. 252-299.010.
- Yoon, Ji-Ho: See—
Lee, Huen; and Yoon, Ji-Ho, 5,672,775, Cl. 568-749.000.
- Yoshida, Akimaro: See—
Choho, Satoshi; Yoshida, Akimaro; Hirai, Katsuaki; and Yabe, Shuichi, 5,671,917, Cl. 271-111.000.
- Yoshida, Hiroshi: See—
Okato, Nobuyoshi; Yoshida, Hiroshi; and Koide, Nobuya, 5,672,315, Cl. 420-40.000.
- Yoshida, Hiroyuki: See—
Koishikawa, Kouji; Murata, Hiroyuki; Kawamura, Hiroshi; and Yoshida, Hiroyuki, 5,671,779, Cl. 138-109.000.
- Nishikawa, Robert M.; Ema, Takehiro; Yoshida, Hiroyuki; and Doi, Kunio, 5,673,332, Cl. 382-128.000.
- Yoshida, Shigeru; Okada, Yoshiyuki; Nakano, Yasuhiko; and Yahagi, Hironori, to Fujitsu Limited. Method of and an apparatus for compressing/decompressing data, 5,673,042, Cl. 341-51.000.
- Yoshida, Toshiya, to Kabushiki Kaisha Kawai Gakki Seisakusho. Tone waveform production method for an electronic musical instrument and a tone waveform production apparatus, 5,672,836, Cl. 84-607.000.
- Yoshida, Toshiya, to Kabushiki Kaisha Toshiba. Test method for semiconductor device, 5,673,274, Cl. 371-22.100.
- Yoshida, Yoshikazu: See—
Tomita, Sadamu; Kajihara, Shigeki; Yoshida, Yoshikazu; and Yamaki, Naokazu, 5,671,740, Cl. 128-653.100.
- Yoshida, Yutaka: See—
Ono, Koichi; Yoshida, Yutaka; Miyatake, Hideki; and Horiba, Tamotsu, 5,673,150, Cl. 359-603.000.
- Yoshimatsu, Shunji: See—
Nakano, Takaharu; Tsuchiya, Katsuyoshi; Yoshimatsu, Shunji; and Fuchigami, Takeru, 5,672,671, Cl. 528-14.000.
- Yoshimura, Toshiaki, to Able Co., Ltd. Apparatus for aerobic treatment of waste water, 5,672,270, Cl. 210-150.000.
- Yoshino, Hisakazu; Satoh, Takuji; and Okumura, Toshiaki, to Kabushiki Kaisha Topcon. Scanning projection optical device, 5,673,135, Cl. 359-196.000.
- Yoshino Kogyosho Co., Ltd.: See—
Fujita, Mamoru, 5,672,308, Cl. 264-248.000.
- Yoshino, Motoaki, to Canon Kabushiki Kaisha. Image communication apparatus, 5,673,033, Cl. 340-825.520.
- Yoshino, Susumu: See—
Yanagida, Kazuhiko; Yoshino, Susumu; Imai, Takashi; Takahashi, Koichi; and Kim, Suk, 5,672,455, Cl. 430-108.000.
- Yoshioka, Yasuhiro: See—
Seto, Nobuo; Yoshioka, Yasuhiro; and Morigaki, Masakazu, 5,672,722, Cl. 549-398.000.
- Yoshitake, Masaru: See—
Morikawa, Shinsuke; Samejima, Shunichi; Yoshitake, Masaru; and Tatematsu, Shin, 5,672,785, Cl. 570-163.000.
- Yoshanaie, Mark: See—
Wu, Yeong-Wei A.; Hartman, David F.; and Yoshanaie, Mark, 5,672,872, Cl. 250-330.000.
- Young, Daniel A.: See—
Crews, Nathan C., IV; Young, Daniel A.; and Young, Lance A., 5,672,390, Cl. 427-307.000.
- Young, Lance A.: See—
Crews, Nathan C., IV; Young, Daniel A.; and Young, Lance A., 5,672,390, Cl. 427-307.000.
- Young, Richard H., Sr.: See—
Hansen, Michael R.; and Young, Richard H., Sr., 5,672,418, Cl. 428-283.000.
- Young, Robert E.: See—
Waite, W. Bryan; Young, Robert E.; and DeVrou, Phillip R., 5,672,749, Cl. 562-863.000.
- Young, Steve: See—
Sharma, Raghu; Davis, Jeffrey P.; Gunn, Timothy D.; Li, Ping; Maitra, Sidhartha; Thanawala, Ashish; and Young, Steve, 5,673,257, Cl. 370-286.000.
- Sharma, Raghu; Davis, Jeffrey P.; Gunn, Timothy D.; Li, Ping; Maitra, Sidhartha; Thanawala, Ashish; and Young, Steve, 5,673,268, Cl. 370-522.000.
- Yu, Jack. Ceiling fan housing, 5,672,048, Cl. 416-5.000.
- Yuasa, Tachio: See—
Kobayashi, Osamu; Matsuda, Atsushi; and Yuasa, Tachio, 5,673,002, Cl. 330-288.000.
- Yuen, Henry C.; and Leung, Elsie Y., to Gemstar Development Corporation. Apparatus and method for channel scanning by theme, 5,673,089, Cl. 348-734.000.
- Yuen, Wong Hon: See—
Wheeler, David K.; Yuen, Wong Hon; and McGaw, John, 5,672,274, Cl. 210-474.000.
- Yui, Dai: See—
Saito, Masahide; Semura, Shigeru; Ishikawa, Shinji; Yui, Dai; and Kanamori, Hiroo, 5,673,345, Cl. 385-49.000.
- Yumitori, Fuminori; and Fujii, Yasuhiro, to Fujitsu Limited. Dynamic random access memory having sense amplifier control circuit supplied with external sense amplifier activating signal, 5,673,226, Cl. 365-190.000.
- Yun, Jong Kyung: See—
Strolle, Christopher H.; Limberg, Allen LeRoy; Wedam, Werner F.; Schnitzler, Raymond; Weckenbrock, Hermann J.; Ko, Jung Wan; and Yun, Jong Kyung, 5,673,355, Cl. 386-9.000.
- Yuyama Mfg. Co., Ltd.: See—
Yuyama, Shoji; Murakami, Takaaki; and Kano, Kunihiko, 5,671,592, Cl. 53-493.000.
- Yuyama, Shoji; Murakami, Takaaki; and Kano, Kunihiko, to Yuyama Mfg. Co., Ltd. Medicine packing apparatus, 5,671,592, Cl. 53-493.000.
- Zakohji, Nobuyuki: See—
Morikawa, Sumio; and Zakohji, Nobuyuki, 5,671,892, Cl. 241-101.730.
- Zanjani, Esmail: See—
Srouf, Edward; Zanjani, Esmail; Brandt, John E.; and Hoffman, Ronald, 5,672,346, Cl. 424-93.700.
- Zannis, James; Whittle, David R.; Pilborough, David Ian; and Harding, Andrew James, to Renishaw, PLC. Signal processing circuit for trigger probe, 5,671,542, Cl. 33-561.000.
- Zarr, Richard Stuart: See—
Carey, Charles Francis; Fallon, Kenneth Michael; Markovich, Vova Rista; Powell, Douglas Oliver; Vlasak, Gary Paul; and Zarr, Richard Stuart, 5,672,260, Cl. 205-118.000.
- Zavacky, Matthew; Chern, Wen-Foo; Gale, Ronald; Ronzani, Peter A.; and Pombo, Stephen, to Kopin Corporation. Head-mounted display apparatus with color sequential illumination, 5,673,059, Cl. 345-8.000.
- Zeneca Limited: See—
Chin, Hsiao-Ling M.; Wei, Yi-Qiu; Nguyen, Nhan H.; and Kanne, David B., 5,672,567, Cl. 504-239.000.
- Zenitaka Corporation, The: See—
Aoyagi, Keitaro; Niibe, Sadao; Umegae, Toshitomi; Iwai, Hideo; and Oshima, Yoshitugu, 5,672,506, Cl. 435-289.100.
- Zenoni, Pietro; Pedrini, Giovanni; and Castelli, Rosario, to L.G.L. Electronics S.p.A. Weft feeder with turn separator including multiple diameter swift, 5,671,783, Cl. 139-452.000.
- Zenoni, Pietro, to L.G.L. Electronics S.p.A. Weft thread lubrication device for weaving looms, 5,671,826, Cl. 184-16.000.
- Zettler, Karl-Heinz: See—
Mack, Karl-Heinz; Zettler, Karl-Heinz; and Weeger, Hans-Peter, 5,671,596, Cl. 57-281.000.
- ZF Friedrichshafen AG: See—
Schwab, Manfred, 5,672,132, Cl. 474-8.000.
- Zhang, Haichao: See—
Fayerman, Jeffrey T.; Greenen, David P.; Hershberger, Charles L.; Larson, Jeffrey L.; Sterner, Jane L.; and Zhang, Haichao, 5,672,496, Cl. 435-212.000.
- Zhang, Scott Yu-Feng; Gosling, Christopher David; Sechrist, Paul Alvin; and Funk, Gregory A., to UOP. Fluidized bed solid catalyst motor fuel alkylation process, 5,672,798, Cl. 585-467.000.
- Zheng, Hua: See—
Wright, Jeffrey P.; and Zheng, Hua, 5,673,233, Cl. 365-233.000.
- Zhou, Hong: See—
Glimcher, Laurie H.; Zhou, Hong; and Douhan, John, III, 5,672,473, Cl. 435-6.000.
- Zhou, Xiaohong; Maier, Joseph K.; and Epstein, Frederick H., to General Electric Company. Reduction of Nyquist ghost artifacts in oblique echo planar imaging, 5,672,969, Cl. 324-309.000.
- Ziegler, Jochen; and Steiner, Rolf, to Hewlett-Packard Company. Apparatus for adjustment, attenuating device, coupling device and filtering device, 5,673,348, Cl. 385-90.000.
- Zielinski, Paul Anthony: See—
Goswami, Ramannji; Perry, Robert J.; and Zielinski, Paul Anthony, 5,672,562, Cl. 503-227.000.
- Ziemacki, Mike: See—
Basehore, Paul; and Ziemacki, Mike, 5,673,365, Cl. 395-3.000.
- Ziemann, Lyle Elmore: See—
Baile, Clifton Augustus; Day, Jeffrey Wilson; Hampton, Thomas Riley, II; Kasser, Thomas Richard; Pike, James Brian; Smith, Jonathan Paul; and Ziemann, Lyle Elmore, 5,672,357, Cl. 424-438.000.
- Ziernicki, Robert: See—
Moussally, George; Ziernicki, Robert; Fialer, Philip A.; and Heinzman, Fred Judson, 5,673,050, Cl. 342-22.000.
- Zimlich, David A., to Micron Display Technology, Inc. High speed data sampling system, 5,672,986, Cl. 327-91.000.

- Zimmer, Inc.: *See—*
Devanathan, Deva; Krebs, Steve; Lin, Steve T.; Morr, James J.; and Panchison, Clarence M., 5,672,284, Cl. 219-121.640.
- Zinbarg, Benson; Mimoun, Nancy; and Pisano, Alfred, to Sun Hill Industries, Inc. Ghost-like decorative object. 5,672,394, Cl. 428-16.000.
- Zinck, Janice M.: *See—*
Demopoulos, George P.; Zinck, Janice M.; and Kondos, Peter D., 5,672,280, Cl. 210-709.000.
- Zinenkov, Andrey V.: *See—*
Dyckman, Arkady S.; Boyarsky, Vadim P.; Malinovskii, Alexander S.; Petrov, Yuri I.; Krasnov, Leontii M.; Zinenkov, Andrey V.; Gorovits, Boris I.; Chernukhim, Sergey N.; Sorokin, Anatoly D.; and Fulmer, John W., 5,672,774, Cl. 568-749.000.
- Zinser Textilmaschinen GmbH: *See—*
Mack, Karl-Heinz; Zettler, Karl-Heinz; and Weeger, Hans-Peter, 5,671,596, Cl. 57-281.000.
- Ziolkowski, Hans Joachim: *See—*
Metzger, Burkhard; and Ziolkowski, Hans Joachim, 5,672,303, Cl. 264-75.000.
- Zizelman, James: *See—*
Cooper, Richard Lloyd; Zizelman, James; Salemi, Michael Raymond; Noll, Jeffrey Mark; and Rivera, Edwin Antonio, 5,671,890, Cl. 239-533.700.
- Zocher, Andrew Gerald, to Motorola, Inc. Amplifier circuit having a variable bandwidth. 5,673,003, Cl. 330-305.000.
- Zou, Han: *See—*
Tai, Ping-Kaung; and Zou, Han, 5,671,994, Cl. 362-31.000.
- Zuckerman, Steven H., to Eli Lilly and Company. Methods of increasing macrophage function. 5,672,610, Cl. 514-324.000.
- Zupkas, Paul F., to Vros Corporation. Surgical instrument with ultrasound pulse generator. 5,672,172, Cl. 606-20.000.
- Zwartz, Edward G.: *See—*
Tam, Man C.; Chen, Ligin; Zwartz, Edward G.; Bihon, Daniel; and Perron, Marie-Eve, 5,672,451, Cl. 430-41.000.
- 1994 Weyer Family Limited Partnership: *See—*
Weyer, Dean R., 5,671,652, Cl. 92-33.000.
- 3D Systems, Inc.: *See—*
Almquist, Thomas A.; and Smalley, Dennis R., 5,672,312, Cl. 264-401.000.
- 888804 Ontario Limited: *See—*
Santarossa, Ned, 5,672,391, Cl. 427-356.000.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 30th DAY OF SEPTEMBER, 1997

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- DeBecker, Luc G.: *See—*
Tillotson, Neil E.; and DeBecker, Luc G., RE. 35,616, Cl. 2-168.000.
- Krivec, Bert, to Snap-on Technologies, Inc. Torque limiting device for air impact tool. RE. 35,617, Cl. 173-178.000.
- Snap-on Technologies, Inc.: *See—*
Krivec, Bert, RE. 35,617, Cl. 173-178.000.
- Tillotson Corporation: *See—*
Tillotson, Neil E.; and DeBecker, Luc G., RE. 35,616, Cl. 2-168.000.
- Tillotson, Neil E.; and DeBecker, Luc G., to Tillotson Corporation. Elastomeric covering material and hand glove made therewith. RE. 35,616, Cl. 2-168.000.

LIST OF REEXAMINATION PATENTEEES

TO WHOM

CERTIFICATES WERE ISSUED

- Campbell, Michael L.: *See—*
Meyer, Richard S.; Root, Jeffrey M.; Campbell, Michael L.; and Winter, Daryl B., B1 840,815, Cl. 426-611.000.
- Curtis-Burns, Inc.: *See—*
Meyer, Richard S.; Root, Jeffrey M.; Campbell, Michael L.; and Winter, Daryl B., B1 840,815, Cl. 426-611.000.
- Gallia, James D.: *See—*
Shah, Ashwin H.; Gallia, James D.; Wang, I-Fay; and Mahant-Shetti, Shivaling S., B1 601,019, Cl. 365-200.000.
- Mahant-Shetti, Shivaling S.: *See—*
Shah, Ashwin H.; Gallia, James D.; Wang, I-Fay; and Mahant-Shetti, Shivaling S., B1 601,019, Cl. 365-200.000.
- Meyer, Richard S.; Root, Jeffrey M.; Campbell, Michael L.; and Winter, Daryl B., to Curtis-Burns, Inc. Low caloric alkyl glycoside polyester fat substitutes. B1 840,815, Cl. 426-611.000.
- Root, Jeffrey M.: *See—*
Meyer, Richard S.; Root, Jeffrey M.; Campbell, Michael L.; and Winter, Daryl B., B1 840,815, Cl. 426-611.000.
- Shah, Ashwin H.; Gallia, James D.; Wang, I-Fay; and Mahant-Shetti, Shivaling S., to Texas Instruments Incorporated. Memory with redundancy. B1 601,019, Cl. 365-200.000.
- Texas Instruments Incorporated: *See—*
Shah, Ashwin H.; Gallia, James D.; Wang, I-Fay; and Mahant-Shetti, Shivaling S., B1 601,019, Cl. 365-200.000.
- Wang, I-Fay: *See—*
Shah, Ashwin H.; Gallia, James D.; Wang, I-Fay; and Mahant-Shetti, Shivaling S., B1 601,019, Cl. 365-200.000.
- Winter, Daryl B.: *See—*
Meyer, Richard S.; Root, Jeffrey M.; Campbell, Michael L.; and Winter, Daryl B., B1 840,815, Cl. 426-611.000.

LIST OF DESIGN PATENTEEES

- Abbott, Robert G. Compact disk clock. 384,286, Cl. D10-6.000.
- Abbruzzese, Domenico: *See—*
Naruzzi, Pasquale; and Abbruzzese, Domenico, 384,217, Cl. D6-381.000.
- Adams, Duane D.: *See—*
Muller, Ronald L.; and Adams, Duane D., 384,328, Cl. D13-139.000.
- Agata, Nobuyuki; and Miyazaki, Kyota, to Canon Kabushiki Kaisha. Toner bottle for copying machine. 384,368, Cl. D18-43.000.
- Akahane, Fujio; and Watanabe, Kohji, to Seiko Epson Corporation. Lever for print head for an ink jet printer. 384,372, Cl. D18-56.000.
- Alco Industries, Inc.: *See—*
Goetz, Charles R., 384,226, Cl. D6-479.000.
- Aldrich, Thomas B., III: *See—*
D'Amico, Stephen W.; Morgan, Michael R.; Aldrich, Thomas B., III; and Warner, Jim F., 384,285, Cl. D9-542.000.
- Alfa Laval Agri, Inc.: *See—*
Chowdhury, Mofazzal, 384,445, Cl. D30-199.000.
- Alfa Technology Ltd.: *See—*
Kokkinis, Serge, 384,348, Cl. D14-162.000.
- AM Plastique Enr.: *See—*
Morissette, André, 384,457, Cl. D32-51.000.
- American Architectural Products, Inc.: *See—*
Lint, Jeffery D.; Williams, David L.; and Sparer, Stephen J., 384,423, Cl. D25-103.000.
- Amway Corporation: *See—*
Hessom, Michael K.; and Sue, Tresa D., 384,410, Cl. D24-103.000.
- Ancona, Bruce; Ancona, Jane; and deGuzman, Mary Jenine, to B. Via International Housewares, Inc. Handle for kitchen utensil. 384,242, Cl. D7-393.000.
- Ancona, Jane: *See—*
Ancona, Bruce; Ancona, Jane; and deGuzman, Mary Jenine, 384,242, Cl. D7-393.000.
- Anderson, Carl J. Boat hull. 384,321, Cl. D12-310.000.
- Andrews, Frank R. Identification tag for small animals. 384,444, Cl. D30-155.000.
- Angel Handles (International) Limited: *See—*
Hepworth, Linda Anne, 384,279, Cl. D9-434.000.
- Aquarium Systems, Inc.: *See—*
Mowka, Edmund J., Jr.; and Frakes, Thomas A., 384,299, Cl. D10-84.000.
- Arashima, Teruo: *See—*
Tashiro, Naoki; Ujita, Toshihiko; Arashima, Teruo; Hamasaki, Yuji; Yamamoto, Hisashi; and Takahashi, Wataru, 384,371, Cl. D18-56.000.
- Argo, Kevin Michael: *See—*
Mantarakis, Petros Z.; and Argo, Kevin Michael, 384,266, Cl. D8-301.000.
- Armell, Robert S. Sports goal. 384,382, Cl. D21-200.000.
- Armotech Ind. Co., Ltd.: *See—*
Lin, Jui-Chin, 384,379, Cl. D21-191.000.
- Arrocha, Adam: *See—*
Nuevo, Ramon; and Arrocha, Adam, 384,350, Cl. D14-168.000.
- Artecon: *See—*
Kammersgard, Dana W.; Colson, Angus R., Jr.; and Echito, Cory, 384,329, Cl. D13-146.000.
- Artime SA: *See—*
Giardiello, Barbara, 384,296, Cl. D10-39.000.
- Aurafin Corporation: *See—*
Gusky, Michael, 384,301, Cl. D11-81.000.
- Avar, Eric P., to Nike, Inc. Element of a shoe sole. 384,193, Cl. D2-947.000.
- Aydelott, Richard M. Picture hanging tool. 384,252, Cl. D8-14.000.
- B. Via International Housewares, Inc.: *See—*
Ancona, Bruce; Ancona, Jane; and deGuzman, Mary Jenine, 384,242, Cl. D7-393.000.
- Badger, Stephen M., to N & S Sports Equipment, LLC. Protective face mask. 384,441, Cl. D29-110.000.
- Bailey, Troy Allen: *See—*
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CLASSIFICATION OF PATENTS

ISSUED SEPTEMBER 30, 1997

Note—First number, class; second number, subclass; third number, patent number

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614	5,671,489	CLASS 37	5,671,554	407	5,671,609	119	5,671,645	45	5,672,203	5,671,748
417	5,671,491	270	5,671,555	418	5,671,610	434	5,671,646	CLASS 100	670	5,671,749
426	5,671,490	348	5,671,556	457.7	5,671,611	CLASS 82	5,671,647	212	5,671,687	5,671,750
722	5,671,492	CLASS 40	5,671,555	611	5,671,612	113	5,671,648	344	5,671,688	5,671,751
159	5,671,493	124.03	5,671,556	CLASS 63	56	5,671,613	CLASS 83	278	5,671,689	5,671,752
408	5,671,494	200	5,671,557	27	5,671,614	411.1	5,671,648	CLASS 112	CLASS 131	5,671,753
	5,672,180	358	5,671,558	CLASS 65	29.19	5,672,189	CLASS 84	103	5,671,690	5,671,754
146 R	5,671,495	661	5,671,559	134.1	5,672,190	313	5,672,835	162	5,671,691	5,671,755
69.5	5,671,496	1.08	5,671,560	134.1	5,672,191	607	5,672,836	219	5,671,692	5,671,756
144.1	5,671,497	70.11	5,671,561	391	5,672,192	609	5,672,837	230	5,671,693	5,671,757
244.3	5,671,498	103	5,671,561	484	5,672,193	645	5,672,838	347	5,671,694	5,671,758
339	5,671,499	CLASS 44	5,672,182	CLASS 66	13	5,671,614	CLASS 86	20.15	5,672,839	5,671,759
	5,671,499	349	5,672,183	177	5,671,615	CLASS 87	5,671,649	204	5,672,840	5,671,760
72	5,671,500	386	5,671,562	CLASS 68	23 R	5,671,616	9	5,671,649	52	5,672,205
96 R	5,671,501	79	5,671,562	CLASS 69	53	5,671,617	CLASS 89	5,671,650	320	5,672,206
105	5,671,502	CLASS 46	5,672,184	48	5,671,618	1.14	5,671,650	681	5,672,207	5,671,761
110.5	5,671,503	77	5,672,184	CLASS 70	41.01	5,672,840	5,672,840	723 E	5,672,208	5,671,762
111 R	5,671,504	CLASS 49	5,671,563	209	5,671,619	523	5,671,651	726	5,672,210	5,671,763
491	5,671,505	49	5,671,564	233	5,671,620	CLASS 91	5,671,651	CLASS 119	5,672,211	5,671,764
	5,671,506	171	5,671,565	233	5,671,621	CLASS 92	5,671,652	57.8	5,671,696	5,671,765
19	5,671,507	377	5,671,566	278	5,671,622	33	5,671,653	473	5,671,697	5,671,766
114.7	5,671,508	419	5,671,566	375	5,671,623	63	5,671,654	497	5,671,698	5,671,767
115 G	5,671,509	CLASS 51	5,672,185	408	5,671,624	128	5,671,655	857	5,671,699	5,671,768
115 K	5,671,510	295	5,672,186	CLASS 52	10.7	5,671,625	CLASS 95	169	5,671,700	5,671,769
130	5,671,511	297	5,672,186	42	5,671,626	96	5,672,195	CLASS 122	5,671,700	5,671,770
408	5,671,512	29	5,671,567	43	5,671,627	97	5,672,196	CLASS 123	5,671,701	5,671,771
444	5,671,513	66	5,671,568	53	5,671,628	98	5,672,197	25 A	5,671,701	5,671,772
452	5,671,514	167.6	5,671,569	58	5,671,629	CLASS 99	5,671,657	44 D	5,671,702	5,671,773
573.1	5,671,515	169.2	5,671,570	177	5,671,630	286	5,671,658	65 P	5,671,703	5,671,774
601.2	5,671,516	211	5,671,571	256	5,671,631	384	5,671,659	79 R	5,671,704	5,671,775
615	5,671,517	223.8	5,671,572	275	5,671,632	419	5,671,660	90.11	5,671,705	5,671,776
652	5,671,518	309.11	5,671,573	CLASS 72	1 G	5,672,806	443 C	90.17	5,671,706	5,671,777
712.1	5,671,519	403.1	5,671,574	1 R	5,672,807	450.7	5,671,661	90.37	5,671,707	5,671,778
112	5,671,520	512	5,671,575	4 R	5,672,808	453	5,671,662	184.54	5,671,708	5,671,779
249	5,671,521	519	5,671,576	12.01	5,672,809	489	5,671,663	193.5	5,671,709	5,671,780
237	5,671,522	562	5,671,577	23.25	5,672,810	536	5,671,664	193.6	5,671,710	5,671,781
407.05	5,671,523	653.1	5,671,578	31.05	5,672,811	CLASS 100	5,671,665	308	5,671,711	5,671,782
419.2	5,671,524	656.4	5,671,579	35.07	5,672,812	38	5,671,666	414	5,671,712	5,671,783
559	5,671,525	741.41	5,671,580	38	5,672,813	91	5,671,667	467	5,671,713	5,671,784
596	5,671,526	745.05	5,671,581	65.07	5,672,814	CLASS 101	5,671,668	495	5,671,714	5,671,785
600	5,671,527	745.16	5,671,582	73	5,672,815	35	5,671,669	520	5,671,715	5,671,786
609	5,671,528	780	5,671,583	105	5,672,816	104	5,671,670	538	5,671,716	5,671,787
623.5	5,671,529	CLASS 53	5,671,584	118.1	5,672,817	116	5,671,671	688	5,671,717	5,671,788
740	5,671,530	233	5,671,585	118.2	5,672,818	120	5,671,672	CLASS 124	5,671,718	5,671,789
753	5,671,531	397	5,671,586	130 A	5,672,819	127.1	5,671,673	22	5,671,719	5,671,790
825	5,671,532	398	5,671,587	152.41	5,672,820	363	5,671,674	35.2	5,671,720	5,671,791
834	5,671,533	412	5,671,588	168	5,672,821	415.1	5,671,675	87	5,671,721	5,671,792
840	5,671,534	442	5,671,589	178 R	5,672,822	424.2	5,671,676	CLASS 125	5,671,722	5,671,793
888.061	5,671,535	452	5,671,590	202.5	5,672,823	425	5,671,677	21	5,671,723	5,671,794
889.7	5,671,536	493	5,671,591	431	5,672,824	491	5,671,678	CLASS 126	5,671,724	5,671,795
	5,671,537	504	5,671,592	468	5,672,825	CLASS 102	5,672,841	299 D	5,671,725	5,671,796
41	5,671,538	567	5,671,593	579	5,672,826	202.4	5,672,842	512	5,671,726	5,671,797
43.6	5,671,539	CLASS 55	5,672,187	597	5,672,827	282	5,672,843	CLASS 128	5,671,727	5,671,798
276	5,671,540	257.4	5,672,188	734	5,672,828	289	5,672,844	201.11	5,671,728	5,671,799
371	5,671,541	485	5,672,189	861.07	5,672,829	CLASS 104	5,671,679	204.21	5,671,729	5,671,800
194	5,671,542	208	5,671,595	861.12	5,672,830	2	5,671,680	207.17	5,671,730	5,671,801
	5,671,543			861.52	5,672,831	130.07	5,671,680	630	5,671,731	5,671,802

234	5,672,223	CLASS 188	634	5,672,290	385.1	5,672,878	407	5,671,924	348.1	5,671,989	
257	5,672,224	71.6	5,671,827	753	5,672,291	396 ML	5,672,879	424	5,671,925	351	5,671,990
275.5	5,672,225	77 W	5,671,828	754	5,672,292	438.1	5,672,880		5,671,926	406	5,671,991
288	5,672,226	171	5,671,829			461.2	5,672,881				
295	5,672,227			CLASS 220	492.21	5,672,882	9	5,671,927	CLASS 313		
324	5,672,228			1.5	5,671,834	507.1	5,672,883	207 R	5,671,928	44	5,672,931
331.4	5,672,229	101	5,671,830		5,671,855	551	5,672,884	233	5,671,929	318.01	5,672,932
344	5,672,231	103	5,671,831	4.27	5,671,856	559.3	5,672,885	235 B	5,671,930	336	5,672,933
345	5,672,230	108	5,671,833	7	5,671,857	559.46	5,672,886			402	5,672,934
429	5,672,232			9.2	5,671,858	573	5,672,887			406	5,672,935
466	5,672,233	CLASS 191	263	5,671,859	CLASS 251	11.22	5,671,931			491	5,672,936
494	5,672,234	12.2 R	5,671,833	276	5,671,860	47.11	5,671,932			503	5,672,937
497	5,672,235			404	5,671,861	47.19	5,671,933			504	5,672,938
510	5,672,236	CLASS 192	622	5,671,862	63.5	5,671,902					
566	5,672,237	89.23	5,671,834	69	5,671,863	69	5,671,903				
579	5,672,238	107 R	5,671,835	96	5,671,864	243.1	5,671,935				
625.1	5,672,239	113.32	5,671,836	129.01	5,671,905	284	5,671,936				
631.1	5,672,240			148	5,671,906	407	5,671,937				
643.1	5,672,241	CLASS 193	36	5,671,865	315.14	5,671,911	515	5,671,938			
659.11	5,672,242	369.2	5,671,837	45	5,671,866		5,671,939				
662.1	5,672,243	496	5,671,838	72	5,671,867		5,671,940				
	5,672,244	848	5,671,839			67	5,671,941				
				CLASS 222	186.42	5,672,295	728.3	5,671,942			
24	5,671,790	CLASS 200	1	5,671,868	299.01	5,672,296	737	5,671,944			
46	5,671,791	16 R	5,672,854	511	5,672,297	740	5,671,945				
168.1 R	5,671,793	61.3	5,672,855	580	5,672,298	741	5,671,946				
176.1 V	5,671,794	61.32	5,672,856			756	5,671,947				
384	5,671,795	61.81	5,672,857	309	5,671,872	801.1	5,671,948				
		302.3	5,671,841	341	5,671,873	806	5,671,949				
		406	5,671,841	452	5,671,874						
					5,671,875						
5	5,672,244	CLASS 202	169	5,672,250	CLASS 223	31	5,671,913				
17	5,672,245	192.17	5,672,251	1	5,671,876						
31	5,672,246	192.22	5,672,252			72	5,672,888				
65	5,672,247	240	5,672,253	CLASS 224	77	5,671,877	5,671,914				
109	5,672,248	240	5,672,254	CLASS 226	192	5,671,878	5,672,889				
111	5,672,249	279	5,672,255	196	5,671,878	314	5,672,890				
		150.1	5,671,797	CLASS 227	343	5,672,894	5,672,892				
		151	5,671,799	7	5,671,879	62	5,672,895				
434	5,671,800	403	5,672,256	130	5,671,880	175	5,672,896				
481	5,671,801	430	5,672,257	CLASS 228	360	5,672,897	5,672,898				
			5,672,258	CLASS 229	383	5,672,899	5,672,900				
				87.08	5,671,881	394	5,672,899				
				236	5,671,882	410	5,672,900				
					5,671,883	413	5,672,901				
				CLASS 206	467	5,672,902	5,672,903				
				315.1	5,671,844	472	5,672,904				
				315.3	5,671,842	529	5,672,905				
				315.6	5,671,843	572	5,672,906				
				434	5,671,845	617	5,672,907				
				541	5,671,846	632	5,672,907				
				554	5,671,847	668	5,672,908				
				569	5,671,848						
				CLASS 208	154	5,671,884	690	5,672,910			
				111	5,672,264	691	5,672,911				
				142	5,672,265	737	5,672,912				
				262.1	5,672,266	763	5,672,913				
					5,672,267	790	5,672,915				
				CLASS 209	533.7	5,671,890					
				164	5,672,267	142	5,672,299				
				CLASS 210	101.73	5,671,892					
				110	5,672,268	4	5,672,300				
				130	5,672,269	4.1	5,672,301				
				150	5,672,270	60	5,672,302				
				169	5,672,271	75	5,672,303				
				231	5,672,272	102	5,672,304				
				448	5,672,273	136	5,672,306				
				474	5,672,274	205	5,672,307				
				635	5,672,275	248	5,672,308				
				689	5,672,276	257	5,672,309				
				696	5,672,277	297.4	5,672,310				
				698	5,672,278	347	5,672,311				
				709	5,672,279	401	5,672,312				
				744	5,672,280	460	5,672,313				
				CLASS 211	451	5,671,900					
				13	5,671,849	64.27	5,671,907				
				23	5,671,850	140.12	5,671,908				
				51	5,671,851	141	5,671,909				
				189	5,671,852						
				CLASS 215	201.3	5,672,861					
				216	5,671,853	204	5,672,862				
				CLASS 216	223 B	5,672,863					
				41	5,672,281	227.28	5,672,864				
						233	5,672,865				
				CLASS 219	252.1 A	5,672,866					
				56	5,672,283	262	5,672,867				
				121.64	5,672,284	281	5,672,868				
				121.78	5,672,285	282	5,672,869				
				137 PS	5,672,286	292	5,672,870				
				145.22	5,672,287	324	5,672,871				
				497	5,672,288	330	5,672,872				
				502	5,672,289	339.12	5,672,873				
					5,672,290	343	5,672,874				
					5,672,291	358.1	5,672,875				
					5,672,292	358.04	5,672,876				
					5,672,293	363.04	5,672,877				
					5,672,294						
					5,672,295						
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CLASSIFICATION OF PATENTS

102	5,672,321	209	5,672,414	283.1	5,672,505	188	5,672,100	127	5,672,576	170	5,672,669
168	5,672,322	219	5,672,415	289.1	5,672,506			175	5,672,577	308	5,672,670
172	5,672,323	227	5,672,416	295.2	5,672,507	CLASS 454	5,672,101	245	5,672,578		
174	5,672,324	257	5,672,417	320.1	5,672,497	136	5,672,102	407	5,672,579	CLASS 528	
		283	5,672,418		5,672,508	184	5,672,102		5,672,580	14	5,672,671
			5,672,419	325	5,672,509	256	5,672,103			16	5,672,672
210	5,672,325	288	5,672,420		5,672,510	CLASS 455	5,673,430	3	5,672,581	70	5,672,673
224	5,672,326	295	5,672,421		5,672,511			11	5,672,582	129	5,672,674
448	5,672,327	304.4	5,672,422			4.2		18	5,672,583	307	5,672,675
461.1	5,672,328	323	5,672,423			CLASS 462		11	5,672,584	335	5,672,676
599	5,672,329	325	5,672,424	8	5,672,474			18	5,672,585	339.3	5,672,677
610	5,672,330	332	5,672,425	46	5,672,512	18	5,672,104	19	5,672,586		
702	5,672,331		5,672,426	64	5,672,513	72	5,672,105			373	5,672,678
		352	5,672,427	86	5,672,514	CLASS 463		25	5,672,587	501	5,672,679
		401	5,672,428	133	5,672,515			45	5,672,594	CLASS 530	
9.34	5,672,334	403	5,672,429	146	5,672,516	28	5,672,106	46	5,672,589	300	5,672,680
9.42	5,672,335	408	5,672,430	518	5,672,517	36	5,672,107	53	5,672,590	317	5,672,681
9.6	5,672,336	413	5,672,431			39	5,672,108	58	5,672,591	324	5,672,682
		425.8	5,672,432		CLASS 437	52	5,672,109	75	5,672,592	350	5,672,683
45	5,672,336	469	5,672,433	2	5,672,518			151	5,672,593		
59	5,672,337	537.5	5,672,434	3	5,672,519	CLASS 464		176	5,672,594	359	5,672,685
63	5,672,338	539.5	5,672,435	8	5,672,520	37	5,672,110	183	5,672,596	387.9	5,672,686
66	5,672,339	629	5,672,436	24	5,672,521	157	5,672,111	210	5,672,597	391.5	5,672,687
85.1	5,672,343		5,672,437	31	5,672,522	175	5,672,112	212	5,672,598	391.7	5,672,688
	5,672,344		5,672,438	40	5,672,523	175	5,672,113	224.5	5,672,599	395	5,672,689
	5,672,345	33	5,672,439		5,672,524	CLASS 473		227.2	5,672,600	413	5,672,691
93.7	5,672,346	40	5,672,440		5,672,525		5,672,114	249	5,672,601		
139.1	5,672,347	93	5,672,441	41 R	5,672,526	164	5,672,115	253	5,672,602	CLASS 536	
186.1	5,672,349	97	5,672,442	41 RLD	5,672,527	229	5,672,116	254	5,672,603	17.9	5,672,693
201	5,672,350	121	5,672,443	43	5,672,528	232	5,672,117		5,672,604	22.1	5,672,694
40.1	5,672,351	185	5,672,444	44	5,672,529	257	5,672,118	291	5,672,605	24.7	5,672,695
40.5	5,672,352	213	5,672,445		5,672,530	347	5,672,119	307	5,672,606	25.42	5,672,696
409	5,672,353	218	5,672,446	48	5,672,532	386	5,672,121	318	5,672,609	26.7	5,672,697
410	5,672,354		5,672,447	52	5,672,533	398	5,672,122	324	5,672,610	55.3	5,672,698
427	5,672,355	223	5,672,447		5,672,534	414	5,672,123	325	5,672,611	102	5,672,699
438	5,672,357				5,672,535	421	5,672,124	338	5,672,612	CLASS 540	
450	5,672,358				5,672,536	417	5,672,125	348	5,672,613		
463	5,672,359	1	5,672,448	67	5,672,537	458	5,672,127	357	5,672,615	205	5,672,700
468	5,672,360	5	5,672,449	69	5,672,538	467	5,672,128	378	5,672,616	350	5,672,701
490	5,672,360		5,672,450	70	5,672,539	471	5,672,129	407	5,672,617	CLASS 544	
556	5,672,361	41	5,672,451	160	5,672,541	483	5,672,130	414	5,672,618	183	5,672,702
660	5,672,362	47	5,672,452	183	5,672,542	527	5,672,131	417	5,672,619	194	5,672,703
		50	5,672,453	192	5,672,543			422	5,672,620	215	5,672,704
3	5,672,363	106.6	5,672,454	200	5,672,544	CLASS 474	5,672,132	424	5,672,621	343	5,672,705
89	5,672,364	108	5,672,455	209	5,672,545		5,672,133	454	5,672,622		
127	5,672,365	115	5,672,456		5,672,546	8		424	5,672,623	CLASS 546	
		124	5,672,457		5,672,547			454	5,672,624		
		191	5,672,458		5,672,548	CLASS 475	5,672,134	510	5,672,625	99	5,672,706
2	5,672,366	198	5,672,459	211	5,672,549	111	5,672,135	524	5,672,626	105	5,672,707
6	5,672,367	204	5,672,460	219	5,672,550	149	5,672,135	540	5,672,627	115	5,672,708
83	5,672,368	270.15	5,672,461	228 SEN	5,672,551	255	5,672,136	648	5,672,628	CLASS 548	
128	5,672,369	281.1	5,672,462	353	5,672,552	CLASS 477	5,672,137	704	5,672,629	110	5,672,709
247	5,672,370	281.1	5,672,463		5,672,553	45	5,672,138		5,672,630	188	5,672,710
330	5,672,371	327	5,672,464		5,672,554	110	5,672,139		5,672,631	194	5,672,711
430	5,672,371	332	5,672,465	66	5,672,556	121	5,672,139		5,672,632	195	5,672,712
548	5,672,372	336	5,672,466	79	5,672,557			41	5,672,633	263.8	5,672,713
588	5,672,373	363	5,672,467	100	5,672,558	CLASS 482	5,672,140	49	5,672,634	319.5	5,672,714
611	BI 4,840,815	522	5,672,468	107	5,672,559	54	5,672,141	51	5,672,635	374.1	5,672,715
635	5,672,374	614	5,672,469	157	5,672,560	96	5,672,142	53	5,672,636	453	5,672,716
				160	5,672,561	97	5,672,143	159	5,672,637	518	5,672,717
				213	5,672,562	140	5,672,144	167	5,672,638	CLASS 549	
2.31	5,672,375	60	5,672,058	273	5,672,070					28	5,672,718
8	5,672,376	137	5,672,059	317	5,672,071	CLASS 483	5,672,145	35	5,672,637	240	5,672,719
80	5,672,377			489	5,672,072					329	5,672,721
123	5,672,378			540.1	5,672,073	CLASS 484	5,672,146	20	5,672,638	398	5,672,722
137	5,672,379	84	5,672,057	578	5,672,074	59	5,672,147			402	5,672,723
180	5,672,380	267	5,672,058	595	5,672,075	CLASS 501	5,672,148	112	5,672,639	492	5,672,724
198	5,672,381	274	5,672,059	619	5,672,076			113	5,672,640	CLASS 552	
213	5,672,382	322	5,672,060	701	5,672,077	97	5,672,553	172	5,672,641	293	5,672,725
228	5,672,383			852	5,672,084	147	5,672,555	214	5,672,642	CLASS 554	
248.1	5,672,385	4	5,672,470			CLASS 502	5,672,556	52	5,672,643	20	5,672,726
250	5,672,386	5	5,672,471	27	5,672,080			60	5,672,644	CLASS 558	
253	5,672,387	6	5,672,472			CLASS 441	5,672,557	68	5,672,645		
254.3	5,672,388		5,672,473			303	5,672,558	90	5,672,646	236	5,672,727
294.1	5,672,389		5,672,474			349	5,672,559	97	5,672,647	376	5,672,728
307	5,672,390		5,672,475	79	5,672,081			101	5,672,648	CLASS 560	
356	5,672,391		5,672,476	135	5,672,082	CLASS 503	5,672,559	127	5,672,649	78	5,672,729
391	5,672,392		5,672,477			201	5,672,560	137	5,672,650	152	5,672,730
444	5,672,393		5,672,478			209	5,672,561	142	5,672,651	207	5,672,731
453	5,672,394	7.1	5,672,479	25	5,672,083	227	5,672,562	153	5,672,652	220	5,672,732
493	5,672,395	7.2	5,672,480	28	5,672,085			159	5,672,653	245	5,672,733
		7.4	5,672,481			CLASS 445	5,672,563	510	5,672,654	252	5,672,734
		15	5,672,482			CLASS 446	5,672,564	591	5,672,655	345	5,672,735
		29	5,672,483					591	5,672,656	347	5,672,736
		40.51	5,672,484	37	5,672,086	CLASS 504	5,672,565	53	5,672,657	CLASS 562	
16	5,672,396	69.1	5,672,485	116	5,672,087			54.1	5,672,658		
34.2	5,672,402		5,672,486	227	5,672,088	CLASS 505	5,672,566	288	5,672,659	45	5,672,738
35.7	5,672,398	69.3	5,672,487	243	5,672,089	CLASS 508	5,672,570	408	5,672,660	106	5,672,739
36.1	5,672,399	72	5,672,488	268	5,672,090			438	5,672,661	110	5,672,740
40.1	5,672,400	91.1	5,672,489			192	5,672,571	469	5,672,662	113	5,672,741
64.1	5,672,401	125	5,672,490			321	5,672,572		5,672,663	496	5,672,742
95	5,672,403	148	5,672,491	6	5,672,092	364	5,672,573		5,672,664	519	5,672,743
103	5,672,404	172.3	5,672,492	32	5,672,093	584	5,672,574		5,672,665		
136	5,672,406	212	5,672,493	304	5,672,096	CLASS 510	5,672,575	82	5,672,666	559	5,672,744
137	5,672,407	240.2	5,672,494	526	5,672,097			89	5,672,667	598	5,672,745
138	5,672,408					CLASS 452	5,672,098	114	5,672,668	847	5,672,746
141	5,672,409	240.25	5,672,495	182	5,672,099						
161	5,672,411	240.4	5,672,496	187	5,672,100	CLASS 451	5,672,099				
182	5,672,412	240.45	5,672,497	27	5,672,101						
195	5,672,413	280	5,672,498	36	5,672,102						

[illegible]

CLASSIFICATION OF DESIGNS

D2—	643	384,186		319	384,237		11	384,289		106	384,338	D22—	108	384,389		56	384,440
	711	384,187			384,238		18	384,290			384,339		133	384,390	D29—	110	384,441
	719	384,188		346	384,239		30	384,291		107	384,340		148	384,391		119	384,442
	828	384,189		350	384,240			384,292		114	384,341	D23—	223	384,398			384,443
	865	384,190		391	384,241			384,293		126	384,342		235	384,399			384,444
	875	384,191		393	384,242			384,294		128	384,343		241	384,392		155	384,444
	896	384,192		395	384,243			384,295		135	384,344			384,393		199	384,445
	947	384,193		397	384,244		31	384,288		137	384,345			384,394	D32—	1	384,446
	953	384,194		399	384,245		39	384,296		143	384,346			384,395		21	384,447
	970	384,195		509	384,246		71	384,297		151	384,347			384,396		23	384,448
	972	384,196		542	384,247		83	384,298		162	384,348			384,397		25	384,449
D3—	207	384,197		569	384,248		84	384,299		164	384,349			384,400		30	384,450
	217	384,198		593	384,249		99	384,300		168	384,350			384,401			384,451
	218	384,199		667	384,250	D11—	81	384,301		191	384,351			384,402		31	384,452
	218	384,200	D8—	10	384,251		86	384,302			384,352		284	384,404			384,453
	238	384,201		14	384,252		128	384,303		214	384,353		292	384,403		37	384,455
	274	384,202			384,253		132	384,304			384,354		339	384,405		50	384,456
	299	384,203			384,254		153	384,305			384,355		343	384,406		51	384,457
	318	384,204		16	384,255	D12—	92	384,306		217	384,356		353	384,407			384,458
	321	384,205		34	384,256		111	384,307		225	384,357		363	384,408			384,459
	328	384,206		49	384,257		146	384,308	D15—	50	384,358		411	384,409		61	384,459
D4—	404	384,207			384,258		147	384,309		140	384,359	D24—	103	384,410	D34—	1	384,460
	117	384,208		50	384,259			384,310			384,360		112	384,411			384,461
	137	384,209		57	384,260			384,311		302	384,361		135	384,412		8	384,462
D5—	57	384,210		68	384,261			384,312		315	384,362		145	384,413		13	384,463
D6—	351	384,211			384,262			384,313		328	384,363		155	384,414		17	384,464
	364	384,212		83	384,263			384,314		330	384,364		162	384,415		20	384,465
	364	384,213		105	384,264		148	384,315		334	384,365		203	384,416		23	384,466
	368	384,214		300	384,265		162	384,316	D18—	2	384,366		212	384,417		27	384,467
	381	384,215		301	384,266		181	384,317		4	384,367		222	384,418		28	384,468
	384,216	346	384,267				191	384,318		43	384,368	D25—	16	384,419			384,469
	384,217	367	384,268				209	384,320		47	384,369		38	384,420		29	384,470
	384,218		384,269				209	384,320		55	384,370		49	384,421			384,471
	384,219						310	384,321		56	384,371			384,422		31	384,472
	384,220		382	384,270			321	384,322			384,372		103	384,423			384,473
	396	384,221		394	384,272		400	384,323	D19—	34	384,373		124	384,424			384,474
	403	384,222	D9—	305	384,273		406	384,324		78	384,374			384,425			384,475
	445	384,223		317	384,274		406	384,325	D20—	43	384,374			384,426			384,482
	463	384,224		341	384,275		414	384,326	D21—	24	384,376			384,427		32	384,483
	474	384,225		345	384,283		423	384,185		136	384,377	D26—	3	384,428			384,475
	479	384,226		415	384,276	D13—	103	384,327		191	384,378		11	384,429		34	384,476
		384,227		432	384,277		139	384,328			384,379		24	384,430			384,477
	495	384,228		433	384,278		146	384,329		194	384,380		74	384,431		35	384,478
	509	384,229		434	384,279		154	384,330		196	384,381		84	384,432		36	384,479
	511	384,230		436	384,280		162	384,331		200	384,382		85	384,433			384,480
	514	384,231		443	384,281		177	384,332		214	384,383		142	384,434			384,481
	552	384,232			384,282		183	384,333		226	384,384	D27—	148	384,435		38	384,481
	601	384,233		448	384,284		184	384,334		234	384,385	D28—	7	384,436		39	384,484
	629	384,234		542	384,285			384,335			384,386			384,437			
	630	384,235	D10—	6	384,286			384,336		240	384,387		81	384,438			
D7—	300.1	384,236			384,287	D14—	100	384,337		246	384,388		35	384,439			

CLASSIFICATION OF PLANTS

P.—	68.1	0.044	1	0.045	1	76	0.046	1	78	0.047	1	87.6	0.048	1	.
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PATENTS

01 :	5,671,552	5,671,734	5,672,271	5,672,880	5,673,290	5,672,051
	5,671,875	5,671,741	5,672,272	5,672,881	5,673,295	5,672,054
	5,671,876	5,671,749	5,672,277	5,672,883	5,673,309	5,672,112
	5,672,102	5,671,753	5,672,278	5,672,887	5,673,317	5,672,161
	5,672,141	5,671,765	5,672,290	5,672,911	5,673,321	5,672,180
	5,672,342	5,671,767	5,672,297	5,672,918	5,673,338	5,672,288
	5,672,662	5,671,771	5,672,311	5,672,927	5,673,353	5,672,360
	5,673,094	5,671,775	5,672,312	5,672,928	5,673,367	5,672,375
	5,673,139	5,671,776	5,672,343	5,672,931	5,673,377	5,672,393
04 :	5,671,536	5,671,821	5,672,347	5,672,952	5,673,384	5,672,396
	5,671,539	5,671,822	5,672,349	5,672,959	5,673,390	5,672,509
	5,671,589	5,671,827	5,672,361	5,672,966	5,673,400	5,672,586
	5,671,833	5,671,830	5,672,362	5,672,985	5,673,415	5,672,747
	5,671,946	5,671,847	5,672,372	5,672,988	5,673,419	5,672,815
	5,671,955	5,671,861	5,672,389	5,672,993	5,673,426	5,672,853
	5,672,155	5,671,863	5,672,408	5,672,997	5,671,498	5,672,937
	5,672,412	5,671,898	5,672,472	5,673,006	5,671,681	5,673,203
	5,672,439	5,671,899	5,672,478	5,673,029	5,671,843	5,673,237
	5,672,909	5,671,905	5,672,491	5,673,050	5,671,902	5,673,316
	5,673,000	5,671,923	5,672,499	5,673,051	5,671,936	5,673,360
	5,673,021	5,671,926	5,672,521	5,673,055	5,671,977	5,673,402
	5,673,130	5,671,932	5,672,522	5,673,056	5,672,050	5,672,307
	5,673,182	5,671,987	5,672,524	5,673,057	5,672,058	5,672,438
	5,673,212	5,672,012	5,672,535	5,673,069	5,672,124	5,672,732
	5,673,256	5,672,034	5,672,537	5,673,072	5,672,501	5,672,788
	5,673,382	5,672,039	5,672,542	5,673,073	5,672,511	5,671,501
	5,673,409	5,672,056	5,672,545	5,673,089	5,672,695	5,671,503
	5,673,420	5,672,057	5,672,567	5,673,096	5,672,830	5,671,540
05 :	5,671,561	5,672,065	5,672,577	5,673,110	5,672,905	5,671,568
06 :	5,671,479	5,672,069	5,672,581	5,673,143	5,672,981	5,671,611
	5,671,492	5,672,083	5,672,585	5,673,156	5,673,018	5,671,624
	5,671,509	5,672,108	5,672,622	5,673,163	5,673,049	5,671,664
	5,671,517	5,672,109	5,672,697	5,673,167	5,673,109	5,671,695
	5,671,521	5,672,118	5,672,710	5,673,174	5,673,157	5,671,699
	5,671,524	5,672,122	5,672,725	5,673,179	5,673,205	5,671,766
	5,671,529	5,672,123	5,672,805	5,673,188	5,673,209	5,671,842
	5,671,534	5,672,127	5,672,807	5,673,198	5,673,269	5,671,849
	5,671,553	5,672,129	5,672,816	5,673,199	5,673,307	5,671,872
	5,671,559	5,672,131	5,672,820	5,673,201	5,673,379	5,671,901
	5,671,564	5,672,152	5,672,831	5,673,204	5,673,386	5,671,904
	5,671,584	5,672,153	5,672,840	5,673,224	5,671,491	5,671,906
	5,671,609	5,672,167	5,672,847	5,673,235	5,671,499	5,672,036
	5,671,641	5,672,172	5,672,861	5,673,253	5,671,597	5,672,101
	5,671,646	5,672,173	5,672,866	5,673,254	5,671,603	5,672,107
	5,671,658	5,672,174	5,672,868	5,673,259	5,671,620	5,672,115
	5,671,698	5,672,178	5,672,870	5,673,275	5,671,829	5,672,150
	5,671,704	5,672,179	5,672,872	5,673,277	5,671,852	5,672,157
	5,671,709	5,672,239	5,672,877	5,673,279	5,671,957	5,672,259
	5,671,728	5,672,242	5,672,878	5,673,281	5,672,003	5,672,263

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5,672,281	5,672,074	5,671,634	33 :	5,673,278	5,672,338	5,672,558
5,672,300	5,672,118	5,671,640		Re.35,616	5,672,383	5,672,576
5,672,368	5,672,226	5,671,644		5,671,747	5,672,395	5,672,598
5,672,477	5,672,384	5,671,686		5,671,956	5,672,436	5,672,598
5,672,493	5,672,446	5,671,711		5,672,010	5,672,456	5,672,602
5,672,919	5,672,726	5,671,716		5,672,064	5,672,457	5,672,620
5,672,955	5,672,497	5,671,718		5,672,096	5,672,458	5,672,625
5,672,999	5,672,528	5,671,724		5,672,677	5,672,467	5,672,660
5,673,024	5,672,609	5,671,761		5,672,875	5,672,479	5,672,730
5,673,034	5,672,610	5,671,799		5,672,920	5,672,512	5,672,752
5,673,036	5,672,618	5,671,802		5,672,945	5,672,546	5,672,863
5,673,197	5,672,654	5,671,808		5,673,103	5,672,560	5,673,292
5,673,206	5,672,700	5,671,819		5,673,125	5,672,562	5,673,303
5,673,314	5,672,709	5,671,894		5,673,196	5,672,600	5,671,810
5,673,326	5,672,774	5,671,913		5,673,218	5,672,634	5,671,855
5,673,365	5,672,849	5,671,919		5,673,282	5,672,698	5,672,203
5,673,414	5,673,044	5,671,924		5,673,366	5,672,729	5,672,557
5,671,587	5,673,445	5,671,943	34 :	5,671,736	5,672,750	5,672,680
5,671,591	5,673,478	5,671,948		5,671,756	5,672,760	5,672,793
5,671,604	5,671,774	5,671,949		5,671,758	5,672,776	5,671,543
5,671,635	5,672,694	5,671,960		5,671,769	5,672,780	5,671,594
5,671,648	5,672,717	5,671,964		5,671,840	5,672,809	5,671,633
5,671,788	5,672,860	5,671,965		5,671,841	5,672,838	5,671,774
5,671,845	5,673,031	5,671,970		5,671,856	5,672,864	5,671,868
5,671,867	5,671,444	5,671,976		5,671,870	5,672,869	5,671,951
5,672,088	5,672,184	5,671,996		5,671,887	5,672,871	5,672,095
5,672,162	5,672,113	5,672,035		5,671,958	5,672,889	5,672,214
5,672,164	5,672,114	5,672,038		5,672,082	5,672,892	5,672,961
5,672,233	5,672,163	5,672,042		5,672,163	5,672,901	5,673,065
5,672,279	5,671,112	5,672,071		5,672,192	5,672,938	5,673,068
5,672,306	5,672,188	5,672,086		5,672,196	5,672,941	5,673,273
5,672,415	5,672,261	5,672,264		5,672,247	5,673,022	5,673,352
5,672,555	5,672,359	5,672,286		5,672,258	5,673,028	5,673,388
5,673,097	5,671,444	5,672,289		5,673,037	5,673,393	5,673,393
5,673,266	5,671,954	5,672,344		5,673,052	5,673,427	5,671,485
5,673,305	5,671,961	5,672,376		5,673,075	5,673,485	5,671,485
5,672,117	5,672,004	5,672,397		5,673,336	5,673,496	5,671,486
5,671,759	5,672,317	5,672,432		5,673,352	5,673,509	5,671,649
5,672,450	5,672,442	5,672,435		5,673,353	5,673,100	5,671,694
5,672,536	5,672,536	5,672,484		5,673,388	5,673,104	5,671,746
5,672,539	5,671,701	5,672,494		5,673,426	5,673,121	5,671,795
5,672,986	5,671,354	5,672,556		5,672,465	5,673,132	5,671,853
5,673,208	5,671,185	5,672,632		5,672,505	5,673,144	5,671,911
5,673,233	5,671,125	5,672,635		5,672,573	5,673,169	5,671,979
5,673,385	5,671,332	5,672,652		5,672,583	5,673,177	5,672,031
5,671,733	5,671,458	5,672,653		5,673,193	5,672,060	5,672,060
5,671,542	5,671,369	5,672,724		5,672,611	5,673,216	5,672,084
5,671,586	5,672,128	5,672,829		5,672,615	5,673,220	5,672,182
5,671,593	5,672,162	5,672,944		5,672,640	5,673,224	5,672,224
5,671,643	5,672,293	5,673,013		5,672,669	5,673,297	5,672,379
5,671,657	5,672,354	5,673,146		5,672,699	5,673,301	5,672,401
5,671,713	5,672,458	5,673,389		5,672,703	5,673,318	5,672,405
5,671,828	5,672,488	5,671,546	27 :	5,672,739	5,673,319	5,672,433
5,671,838	5,672,492	5,671,557		5,672,740	5,673,320	5,672,500
5,671,851	5,672,493	5,671,566		5,672,913	5,673,325	5,672,548
5,671,865	5,672,497	5,671,567		5,672,998	5,673,343	5,672,582
5,671,883	5,672,524	5,671,656		5,673,030	5,673,369	5,672,599
5,671,895	5,672,543	5,671,690		5,673,044	5,673,376	5,672,641
5,671,927	5,673,019	5,671,866		5,673,063	5,673,381	5,672,702
5,672,009	5,673,229	5,671,937		5,673,080	5,673,391	5,672,731
5,672,033	5,671,407	5,672,020		5,673,123	5,673,430	5,672,732
5,672,093	5,671,737	5,672,041		5,673,142	5,671,654	5,672,778
5,672,125	5,671,855	5,672,237		5,673,210	5,671,689	5,672,808
5,672,136	5,671,814	5,672,238		5,673,265	5,672,015	5,672,843
5,672,265	5,671,839	5,672,369		5,673,276	5,672,028	5,672,924
5,672,340	5,672,381	5,673,280		5,672,240	5,672,964	5,672,964
5,672,480	5,672,421	5,672,399		5,672,421	5,672,968	5,672,968
5,672,605	5,672,777	5,672,402		5,673,308	5,672,667	5,673,016
5,672,612	5,672,777	5,672,404		5,673,322	5,672,685	5,673,041
5,672,621	5,672,790	5,672,485		5,673,342	5,672,844	5,673,093
5,672,675	5,672,798	5,672,515		5,673,344	5,672,845	5,673,153
5,672,681	5,672,834	5,672,637		5,673,358	5,672,846	5,673,285
5,672,706	5,672,882	5,672,643		5,673,387	5,673,009	5,673,331
5,672,769	5,672,955	5,672,651	35 :	5,672,121	5,673,047	5,673,355
5,672,772	5,672,978	5,672,832		5,672,366	5,673,168	5,671,541
5,672,795	5,672,975	5,672,975		5,672,994	5,673,304	5,671,722
5,672,797	5,672,913	5,673,148	36 :	5,671,505	5,673,315	5,672,027
5,672,798	5,672,930	5,671,522		5,671,515	5,672,090	5,672,144
5,672,804	5,672,971	5,673,257		5,671,578	5,671,585	5,672,144
5,672,827	5,672,973	5,673,268		5,671,629	5,671,626	5,673,076
5,672,856	5,672,975	5,671,723		5,671,628	5,671,628	5,671,520
5,672,857	5,672,988	5,672,851		5,671,692	5,671,697	5,671,789
5,672,972	5,672,951	5,673,234		5,671,725	5,671,700	5,671,999
5,672,979	5,672,979	5,671,900		5,671,735	5,671,751	5,672,128
5,673,001	5,672,988	5,671,921		5,671,739	5,671,777	5,672,222
5,673,003	5,672,983	5,672,116		5,671,742	5,671,787	5,672,428
5,673,166	5,672,988	5,672,168		5,671,803	5,671,846	5,672,659
5,673,255	5,672,985	5,672,183		5,671,824	5,671,854	5,672,749
5,673,287	5,672,915	5,672,332		5,671,884	5,671,897	5,673,404
5,673,302	5,672,948	5,672,333		5,671,890	5,671,907	5,671,500
5,673,310	5,672,949	5,672,345		5,671,920	5,671,945	5,671,608
5,673,311	5,673,069	5,672,357		5,671,983	5,671,985	5,671,639
5,673,312	5,673,047	5,672,626		5,672,047	5,671,994	5,671,844
5,673,327	5,673,075	5,672,627		5,672,053	5,672,024	5,672,002
5,673,332	5,673,095	5,672,715		5,672,085	5,672,104	5,672,269
5,671,480	5,673,236	5,672,194	30 :	5,672,130	5,672,191	5,672,420
5,671,489	5,673,272	5,671,558	31 :	5,672,171	5,672,249	5,672,676
5,671,707	5,673,354	5,671,573		5,672,197	5,672,266	5,671,556
5,671,814	5,673,418	5,672,133		5,672,206	5,672,323	5,671,570
5,671,850	5,673,423	5,672,231		5,672,234	5,672,394	5,671,588
5,671,889	5,671,482	5,672,044	32 :	5,672,260	5,672,429	5,671,605
5,671,934	5,671,532	5,672,446		5,672,294	5,672,440	5,671,606
5,671,967	5,671,577	5,672,879		5,672,302	5,672,442	5,671,666

5,671,726	5,672,374	5,672,991	49 :	5,671,816	5,671,652	5,671,679
5,671,732	5,672,464	5,673,026		5,672,140	5,671,885	5,671,696
5,671,762	5,672,490	5,673,058		5,672,187	5,671,886	5,672,097
5,671,772	5,672,516	5,673,082		5,672,682	5,671,912	5,672,186
5,671,793	5,672,531	5,673,106		5,672,841	5,672,143	5,672,232
5,671,809	5,672,594	5,673,170		5,672,923	5,672,159	5,672,235
5,671,812	5,672,665	5,673,171		5,673,131	5,672,390	5,672,248
5,671,817	5,672,666	5,673,172		5,673,151	5,672,418	5,672,400
5,671,818	5,672,670	5,673,329		5,673,329	5,672,481	5,672,434
5,671,862	5,672,727	5,673,186	50 :	5,671,481	5,672,530	5,672,443
5,671,915	5,672,802	5,673,191		5,672,289	5,673,040	5,672,541
5,671,925	5,672,803	5,673,215		5,672,901	5,673,299	5,672,812
5,671,933	5,672,819	5,673,227		5,672,980	5,673,306	5,672,925
5,671,950	5,672,823	5,673,284		5,673,005	5,673,370	5,672,963
5,671,952	5,672,867	5,673,336	51 :	5,671,523	5,673,394	5,672,969
5,672,029	5,672,882	5,673,361		5,671,613	5,673,401	5,673,025
5,672,062	5,672,898	5,673,397		5,672,030	4,840,815	5,673,298
5,672,120	5,672,903	5,673,399		5,672,498	5,671,693	5,673,300
5,672,184	5,672,933	5,673,403		5,672,510	5,672,761	5,673,323
5,672,212	5,672,958	5,673,407		5,672,974	5,672,784	
5,672,213	5,672,962	5,673,408	53 :	5,671,497	Re.35,617	
5,672,283	5,672,967	5,673,413		5,671,537	5,671,516	
5,672,334	5,672,971	4,601,019		5,671,555	5,671,667	

DESIGN PATENTS

04 :	384,456	384,394	384,334	384,354	384,418	384,423
	384,479	384,395	384,335	25 :	384,204	384,448
05 :	384,469	384,396	384,350		384,221	384,452
06 :	384,198	384,397	384,352		384,233	384,458
	384,202	384,400	384,390		384,382	384,193
	384,222	384,401	384,414		384,409	384,194
	384,234	384,402	384,468		384,449	384,434
	384,235	384,410	384,483	26 :	384,321	384,462
	384,250	384,422	384,209		384,361	384,186
	384,253	384,435	384,326		384,385	384,226
	384,255	384,439	384,332		384,420	384,246
	384,257	384,442	384,429		384,441	384,278
	384,258	384,444	384,203		384,470	384,346
	384,259	384,453	384,223		384,471	384,366
	384,260	384,461	384,237		384,474	384,376
	384,265	384,465	384,247	27 :	384,416	384,381
	384,266	384,466	384,274		384,417	384,443
	384,273	384,473	384,325		384,443	384,408
	384,277	384,480	384,341	28 :	384,254	384,411
	384,283	384,482	384,345		384,316	384,433
	384,297	384,244	384,378		384,481	384,437
	384,298	384,353	384,388	29 :	384,224	384,438
	384,300	384,386	384,455		384,225	384,215
	384,302	384,399	384,357		384,231	384,252
	384,307	384,271	384,290		384,280	384,322
	384,319	384,295	384,426		384,305	384,387
	384,324	384,310	384,476		384,419	384,188
	384,329	384,328	384,374		384,463	384,195
	384,359	384,187	384,436	30 :	384,391	384,285
	384,362	384,205	384,445	31 :	384,185	384,286
	384,364	384,208	384,467		384,190	384,299
	384,365	384,267	384,303	33 :	384,191	384,313
	384,392	384,301	384,275		384,197	384,315
	384,393	384,318	384,288		384,284	384,466

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